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=PEN+EWG+max+PV+-+airbased+wall+heating+system&lat=48.182&lon=15.417&startyear=2005&endyear=2023&loss=14.0&raddatabase=auto&usehorizon=1&outdir=%2Fhome%2Ffounder%2Finter

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	24.0 °C / 26.0 °C / 10.0 °C
	Curve / flow min / max	0.4 / 25.0 °C / 55.0 °C
	Thermal mass of the house	25.0 kWh/K
	Household only	4.0 kWh/day
DHW	Litres at 40 °C / tank	120 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 5 Feb 5 Mar 4 Apr 3 May 3 Jun 3
	Import cap Jul–Dec kW	Jul 3 Aug 3 Sep 3 Oct 4 Nov 4 Dec 5
Cars	Lunch DC / night AC	0.0 kWh @ 30.0 kW night 6.0 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

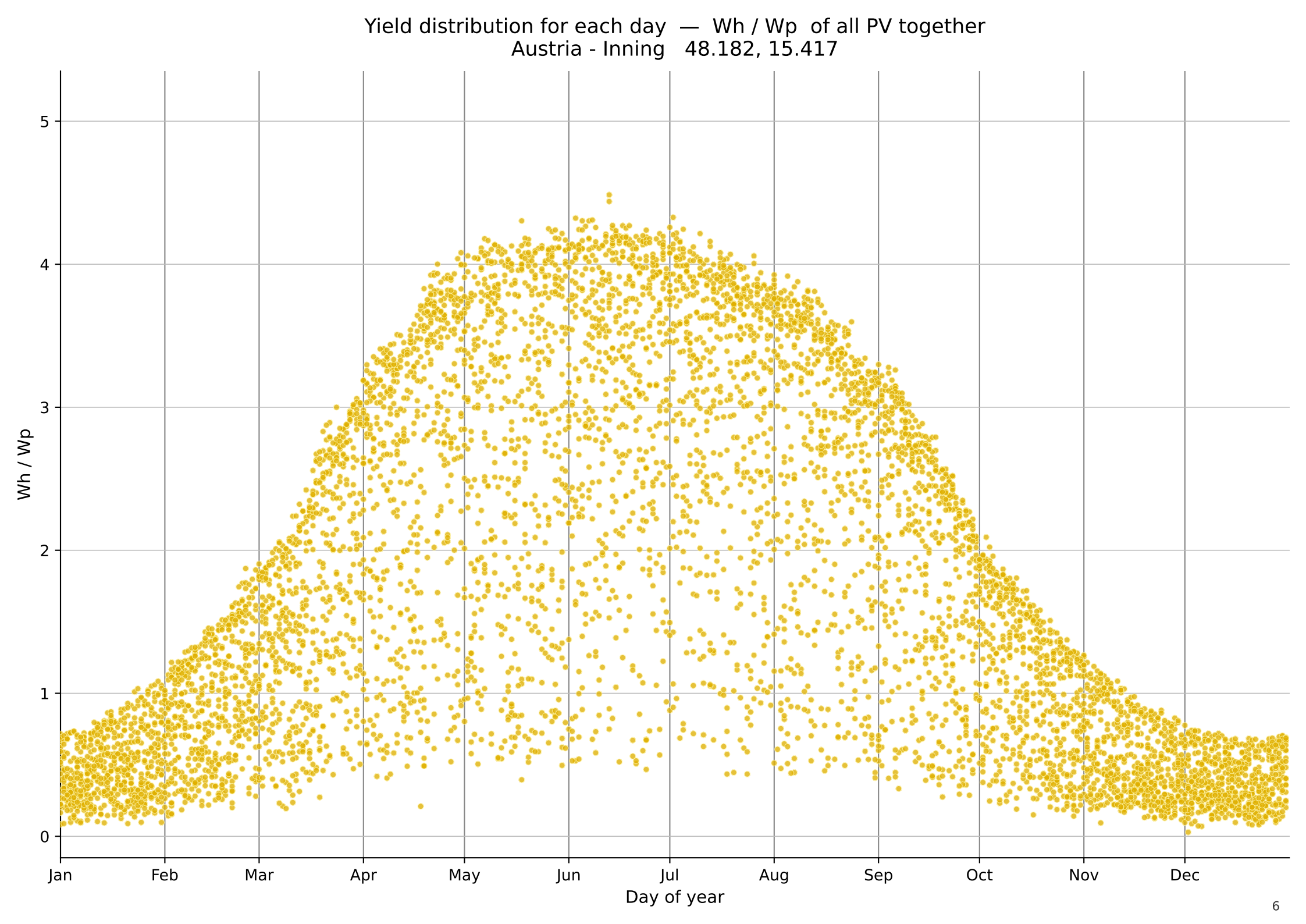
Of the record	Hours	Watts
98 %	12	10,518 W
96 %	75	10,303 W
94 %	236	10,089 W
92 %	599	9,874 W
90 %	1,245	9,659 W

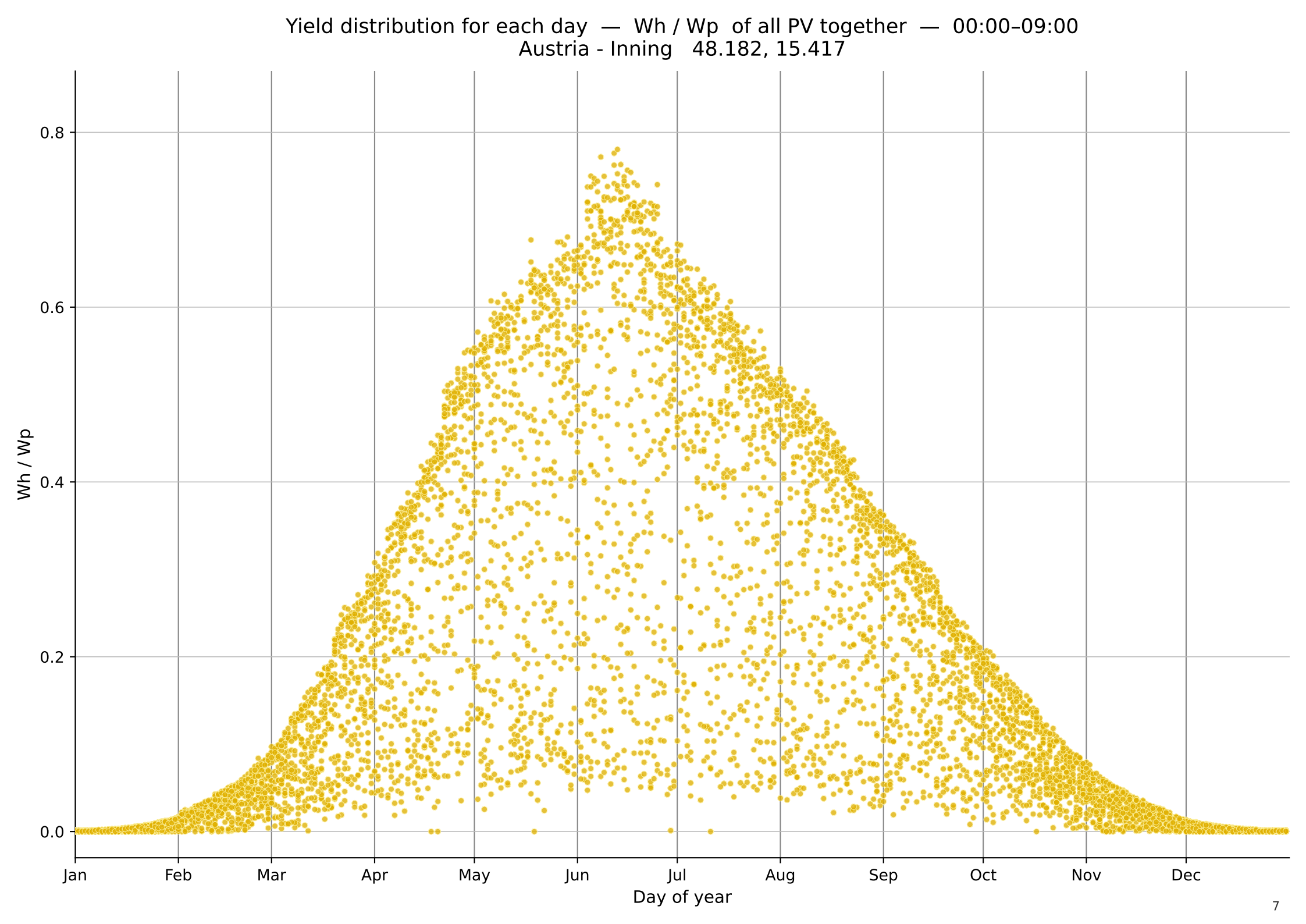
Record hour = 10,733 W combined.

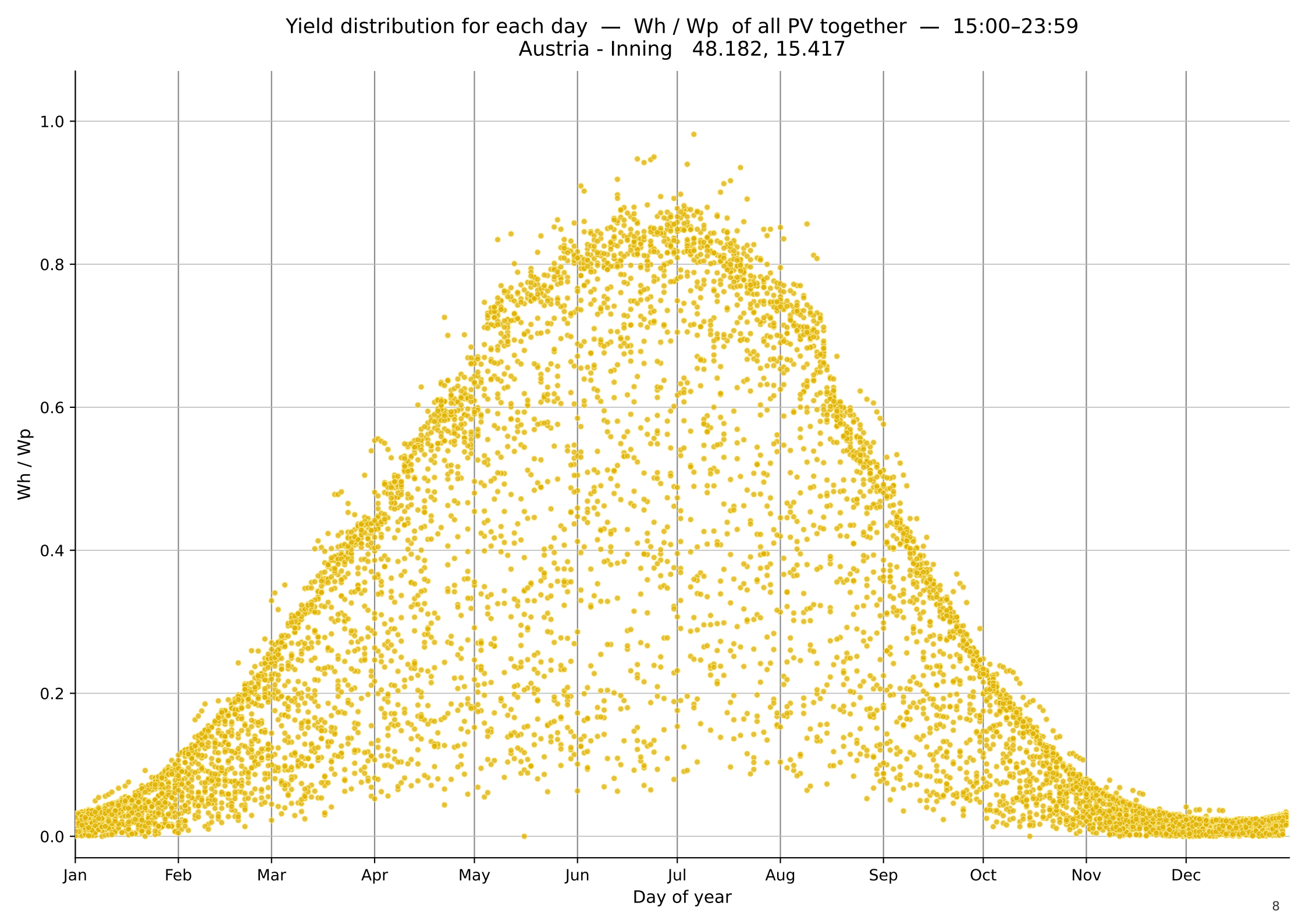
Records of each photovoltaic field
Austria - Inning 48.182, 15.417

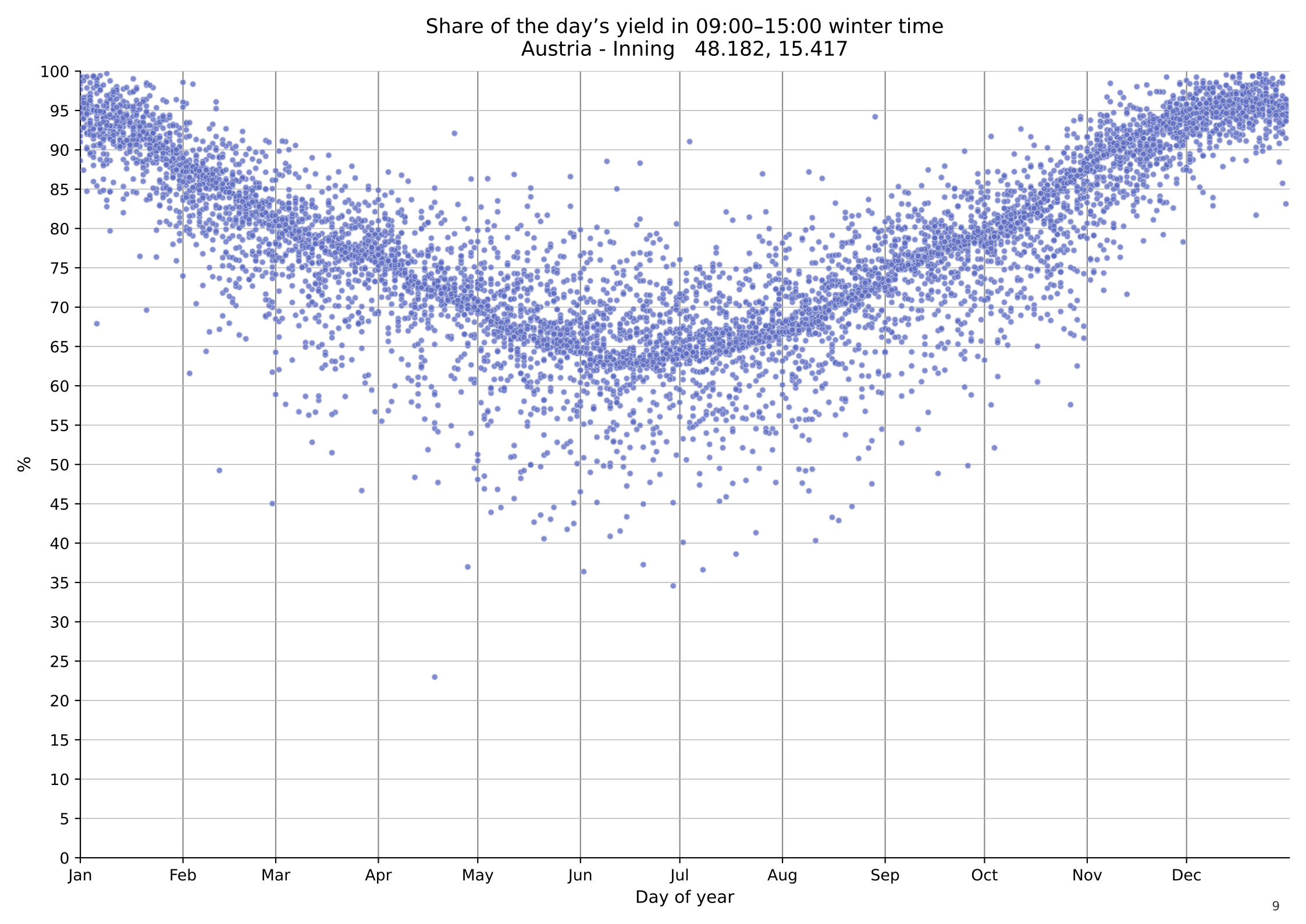
PV	Date	Watts	%	h ≥98%	h ≥96%	h ≥94%	h ≥92%	h ≥90%
Garage roof	2009-06-13 11:10	8,369	77.9	8	33	112	320	671
Garage side wall south	2009-03-22 11:10	2,638	75.9	8	17	26	45	75
Garage side wall north	2023-06-13 05:10	611	17.6	1	8	25	50	108
Garage door side	2005-05-08 14:10	473	67.6	1	3	5	16	49
Garage back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

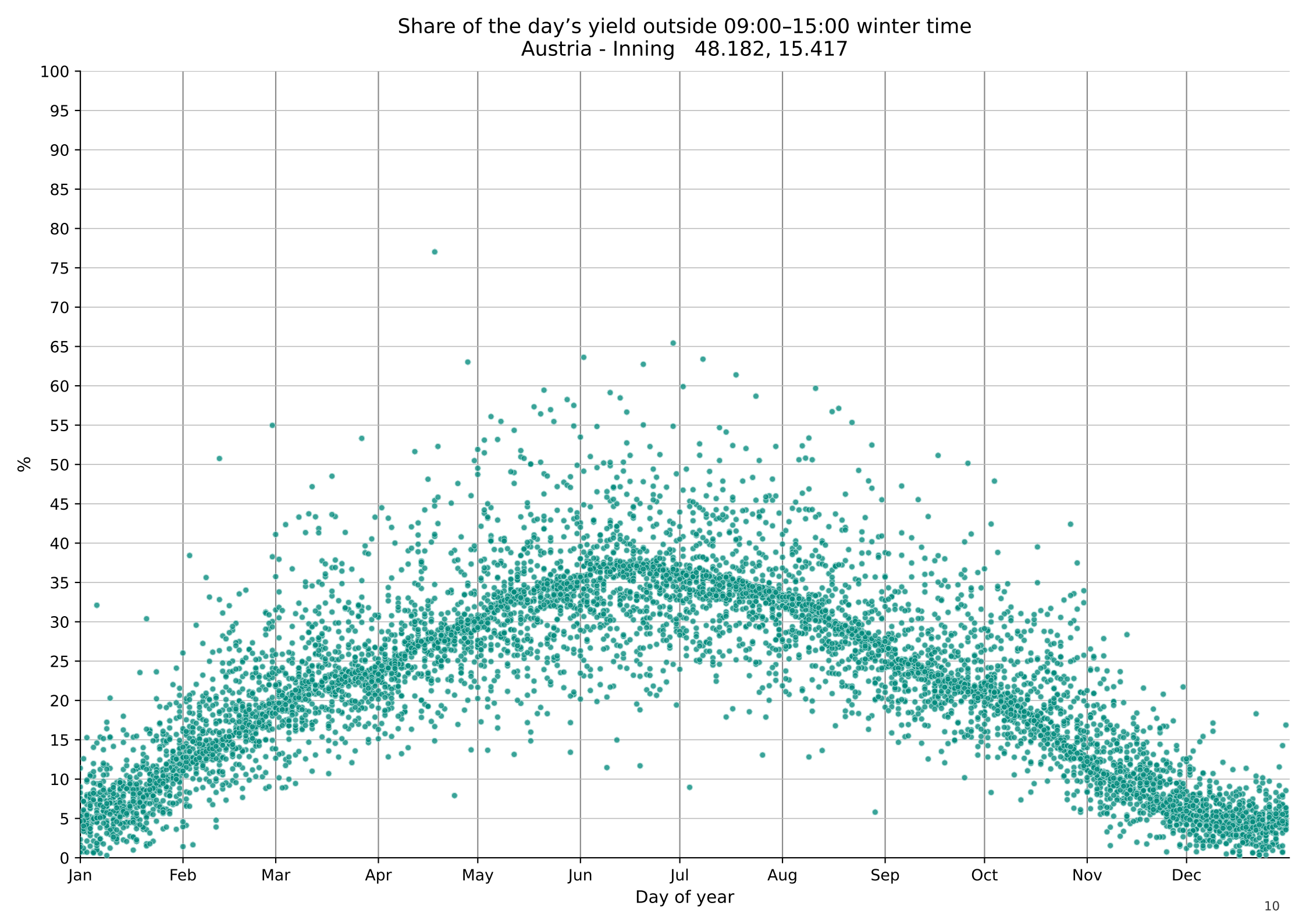
Watts is the highest hour of that field. % is of its own Wp. Hours are the count of hours at or above that share of its own record. Use this to size the MPPT or the inverter for that field.

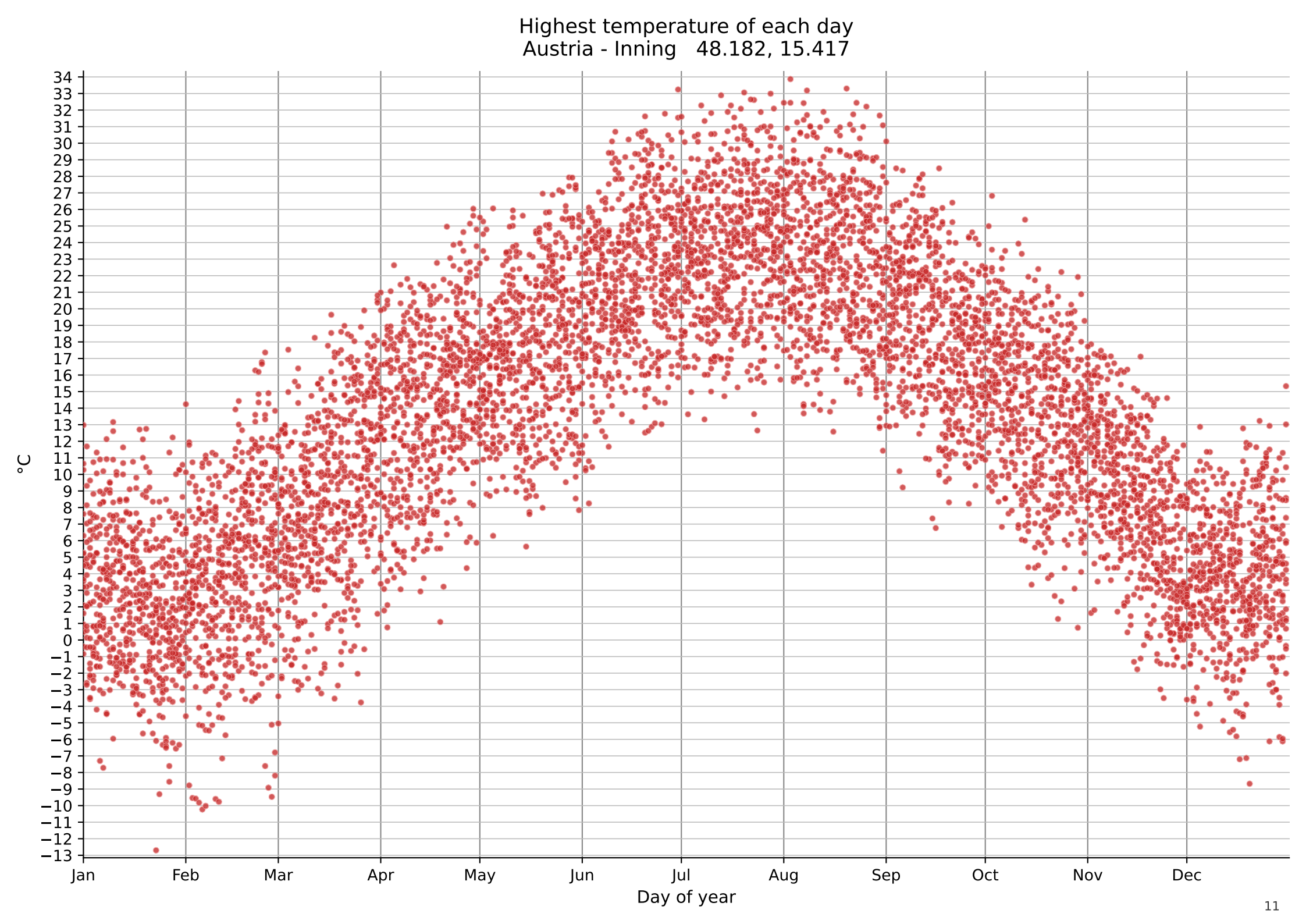

Yield distribution for each day — Wh / Wp of all PV together
Austria - Inning 48.182, 15.417
Wh / Wp
0
1
2
3
4
5
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year

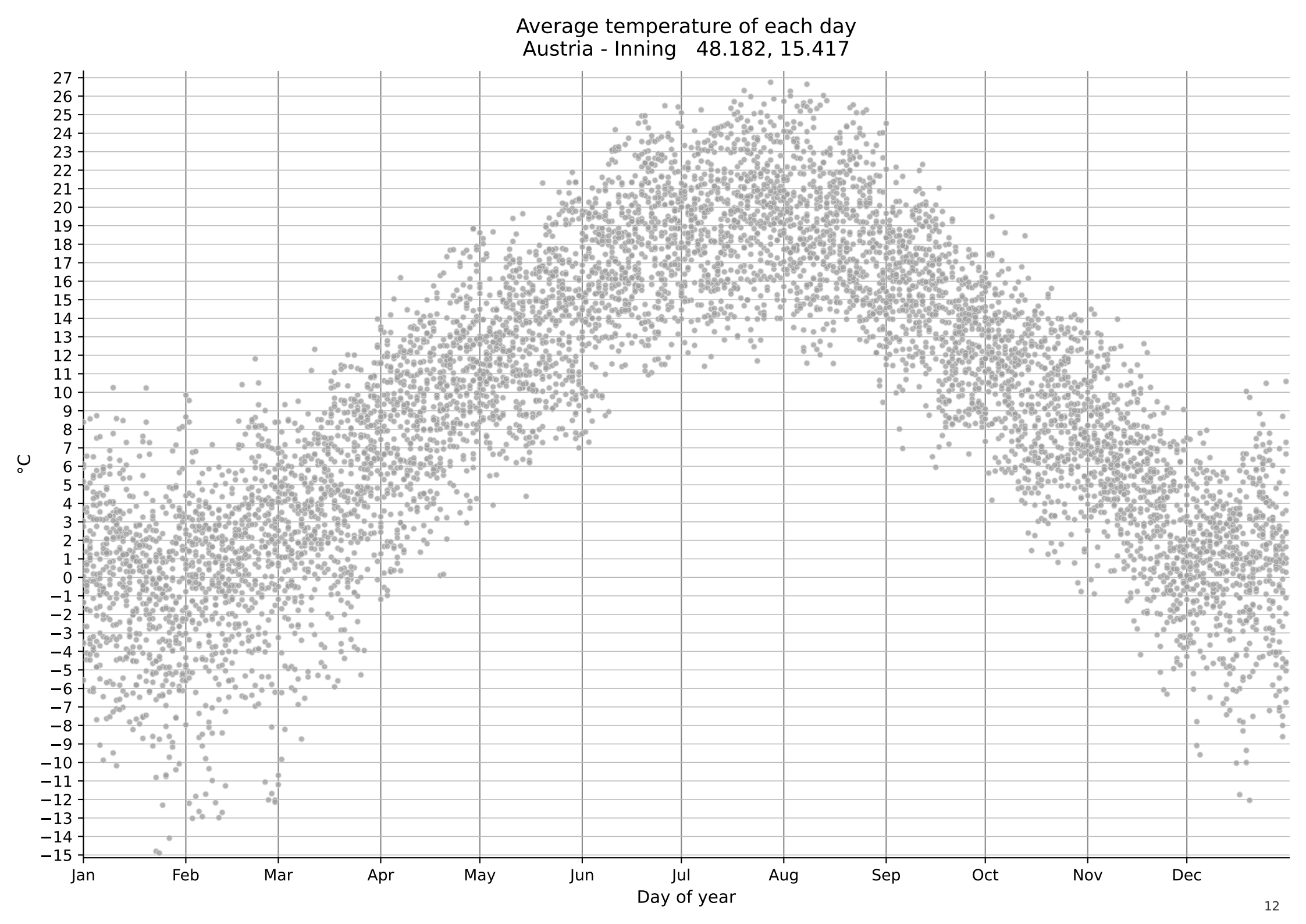

Yield distribution for each day — Wh / Wp of all PV together — 00:00–09:00
Austria - Inning 48.182, 15.417
Wh / Wp
0.0
0.2
0.4
0.6
0.8
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year

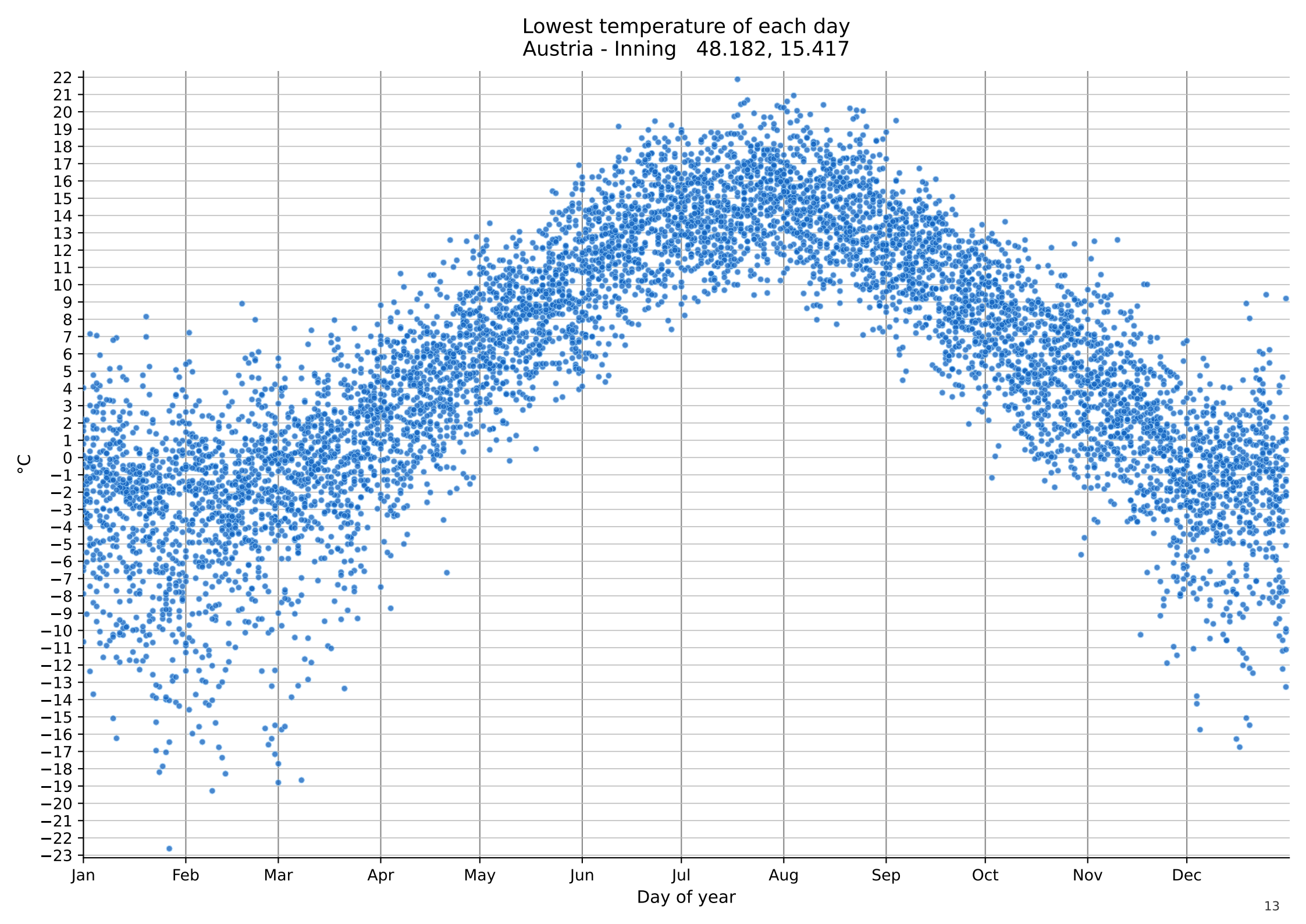

Yield distribution for each day — Wh / Wp of all PV together — 15:00–23:59
Austria - Inning 48.182, 15.417
1.0
0.8
0.6
0.4
0.2
0.0
Wh / Wp
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year

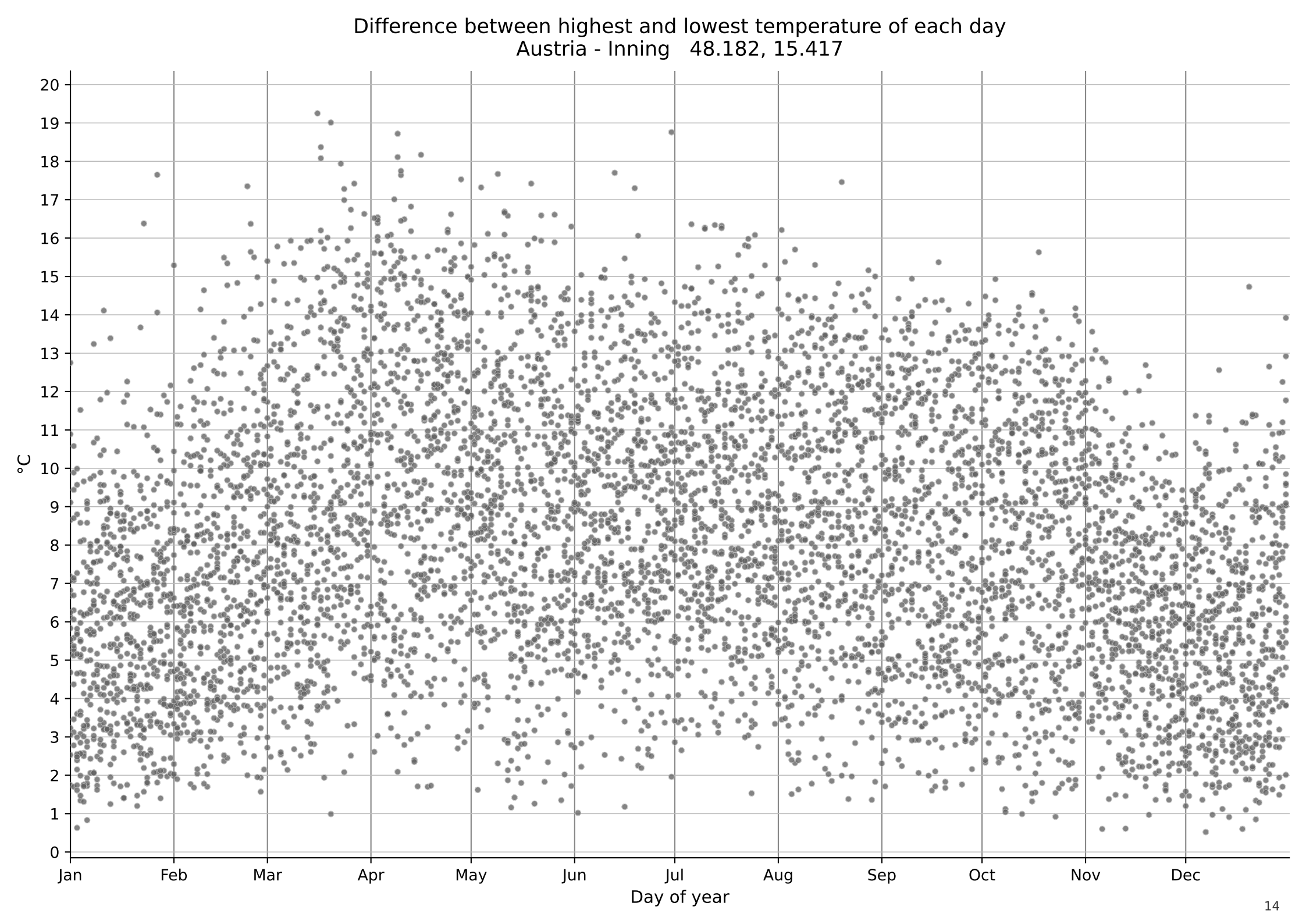

Share of the day’s yield in 09:00–15:00 winter time
Austria - Inning 48.182, 15.417
100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year


Share of the day’s yield outside 09:00–15:00 winter time
Austria - Inning 48.182, 15.417
%
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
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

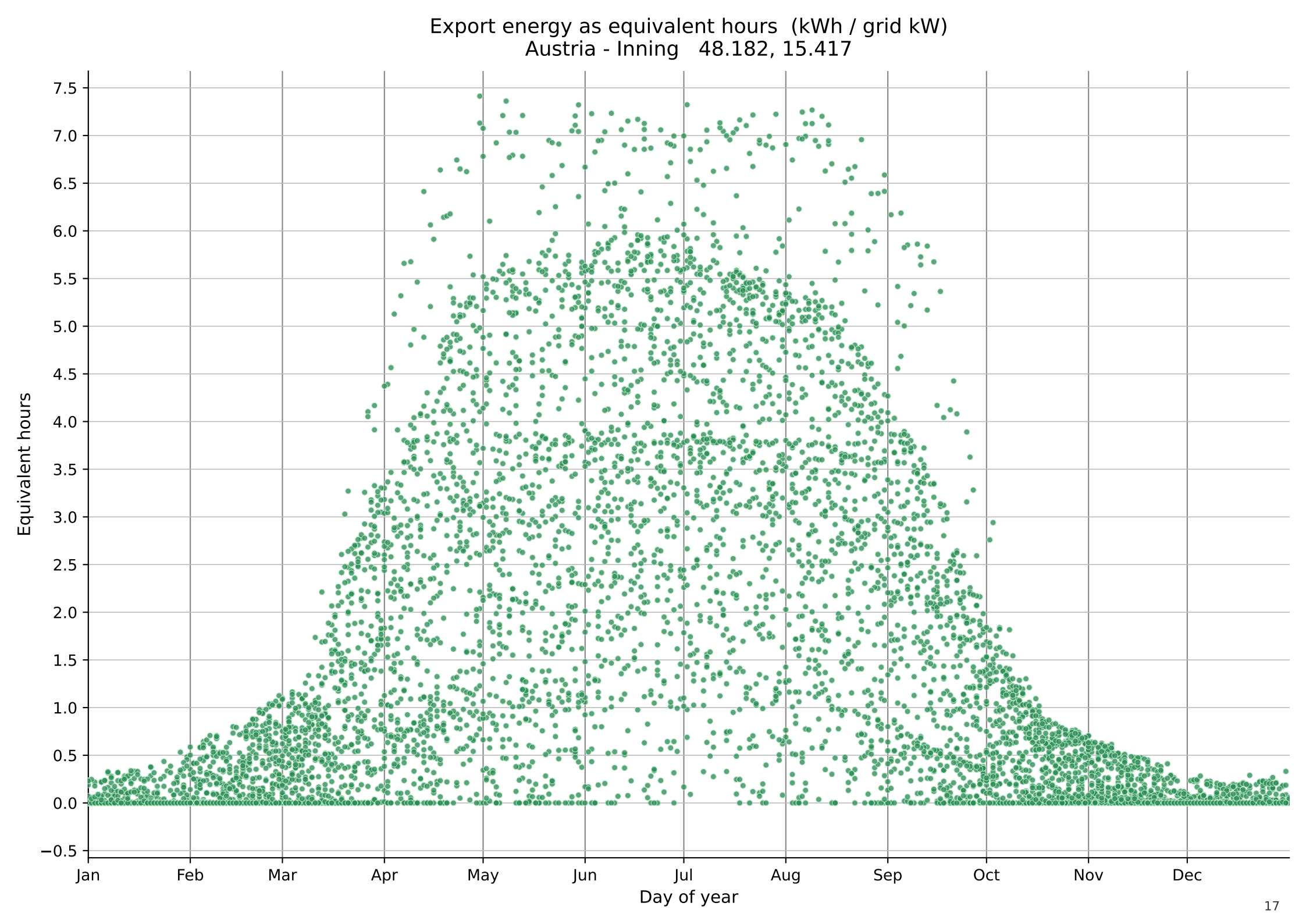
Month / year		Garage roof 1°/0° 10,740 Wp	Garage side wall south 90°/0° 3,475 Wp	Garage side wall north 90°/180° 3,475 Wp	Garage door side 90°/90° 700 Wp	Garage back side 90°/-90° 2,540 Wp	All together
January	Maximum	32.84	7.26	7.26	8.02	9.10	19.76
	average	23.62	5.26	5.26	5.93	6.73	14.88
	minimum	17.95	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

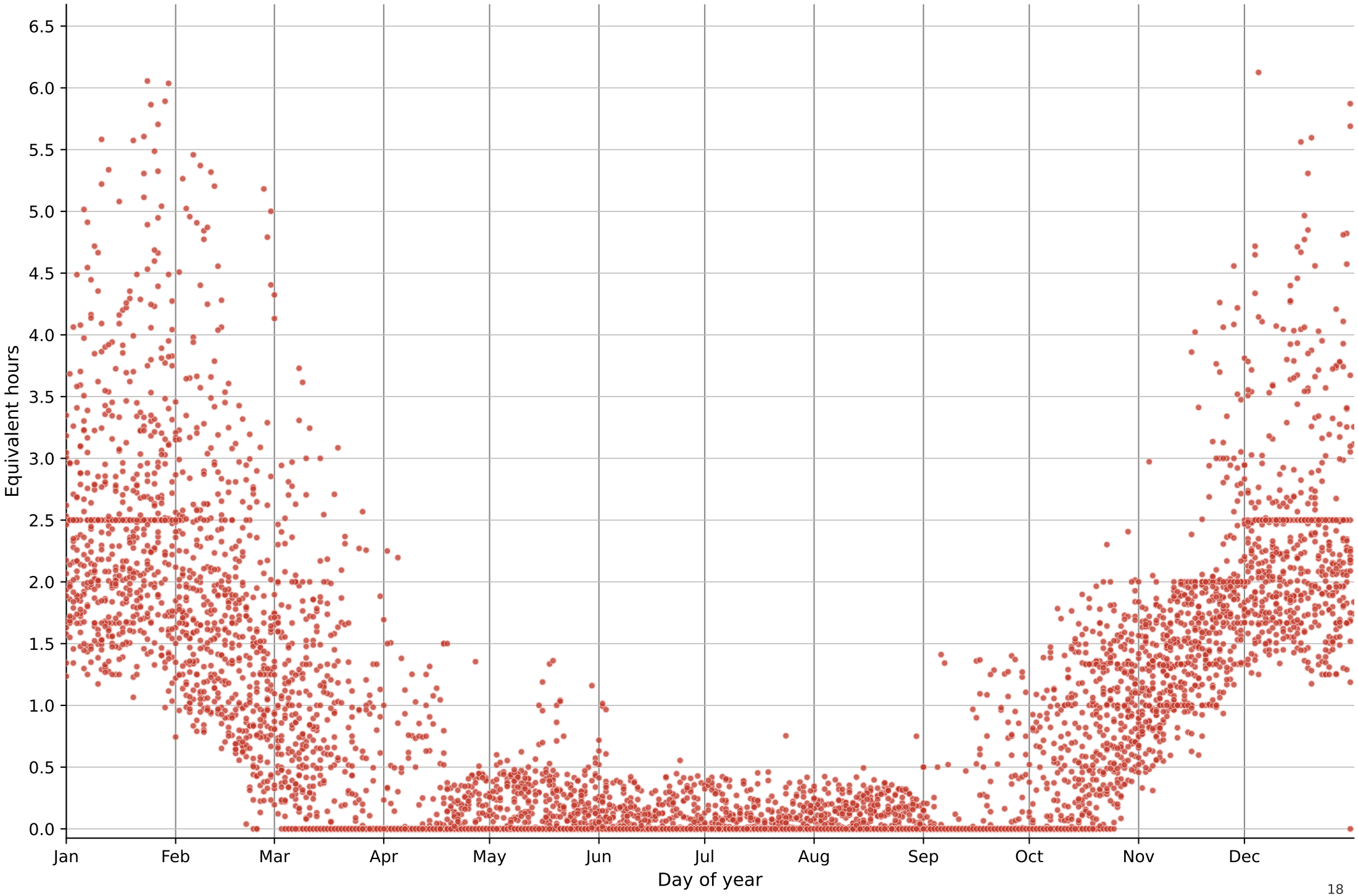
Highest combined yield hour: 2021-04-23 10:10 UTC 10,732.7 W (0.513 W/Wp) of 20,930 Wp installed. Use this hour to size battery charge power.

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

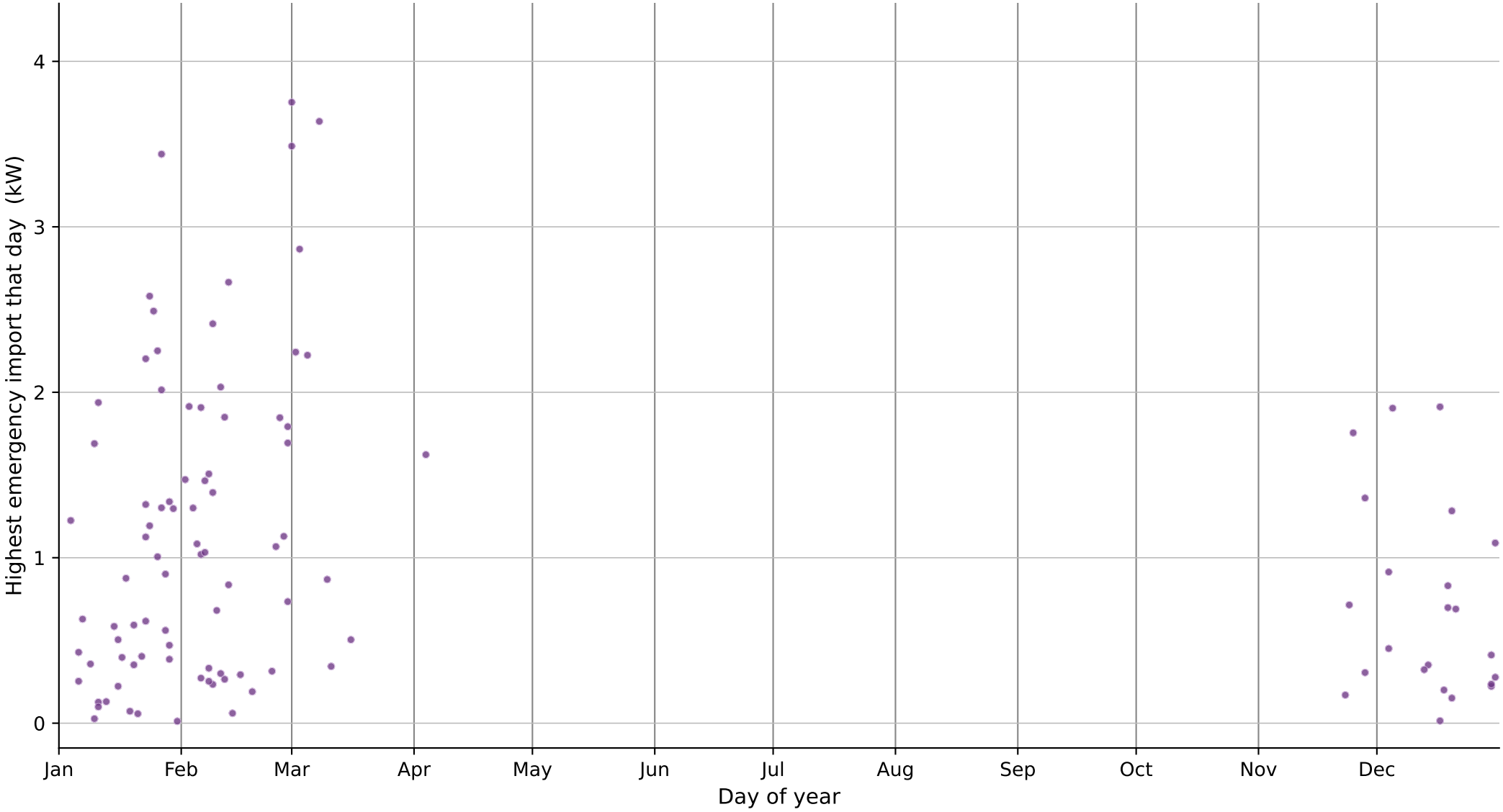
Month / year		Garage roof 1°/0° 10,740 Wp	Garage side wall south 90°/0° 3,475 Wp	Garage side wall north 90°/180° 3,475 Wp	Garage door side 90°/90° 700 Wp	Garage back side 90°/-90° 2,540 Wp	All together
January	Maximum	352.68	25.23	25.23	5.62	23.10	413.65
	average	253.64	18.29	18.29	4.15	17.08	311.46
	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
−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)
Austria - Inning 48.182, 15.417
Equivalent hours
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 import hours: 236 days with an emergency: 105
Austria - Inning 48.182, 15.417



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	39	149	512	1,191	1,380	1,663	1,654	1,317	872	262	89	41	7,653
month average	16	76	342	827	1,079	1,309	1,355	1,128	601	195	51	12	6,991
month minimum	0	7	152	479	653	974	802	872	371	133	20	0	6,213
day Maximum	6.4	13.5	50.0	89.0	88.3	86.8	87.9	87.2	74.2	35.3	8.5	4.0	89.0
day average	0.5	2.7	11.0	27.6	34.8	43.6	43.7	36.4	20.0	6.3	1.7	0.4	19.1
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
Import from grid													
month Maximum	1,325	1,113	463	124	100	56	36	41	129	384	781	1,325	4,716
month average	932	602	230	41	45	23	19	25	27	218	560	870	3,594
month minimum	686	372	101	12	22	3	11	11	0	119	461	612	2,909
day Maximum	72.7	65.5	51.9	27.0	16.3	12.2	9.0	9.0	16.9	28.9	54.7	73.5	73.5
day average	30.1	21.3	7.4	1.4	1.5	0.8	0.6	0.8	0.9	7.0	18.7	28.1	9.8
day minimum	11.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.7	0.0	0.0
Total energy used for house													
month Maximum	1,568	1,470	1,088	736	632	501	482	512	576	729	952	1,477	9,750
month average	1,124	971	872	654	573	457	432	446	518	656	789	1,014	8,507
month minimum	874	738	732	546	502	398	400	397	444	576	705	815	7,905
day Maximum	86.3	78.5	71.0	36.8	25.5	23.1	19.8	21.4	24.0	35.6	53.1	74.5	86.3
day average	36.2	34.4	28.1	21.8	18.5	15.2	13.9	14.4	17.3	21.2	26.3	32.7	23.3
day minimum	20.9	19.6	17.9	11.5	11.0	11.0	10.9	10.9	10.9	13.9	17.3	20.6	10.9

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
Austria - Inning 48.182, 15.417

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	All
Export													
month Maximum	2	9	54	157	197	229	238	200	138	25	5	2	1,076
month average	1	5	32	102	148	188	198	167	83	14	3	1	940
month minimum	0	1	11	41	82	144	116	124	41	7	1	0	830
day Maximum	0.4	0.9	7.6	15.1	14.8	14.9	15.3	14.9	13.0	6.9	0.5	0.2	15.3
day average	0.0	0.2	1.0	3.4	4.8	6.3	6.4	5.4	2.8	0.5	0.1	0.0	2.6
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
Import													
month Maximum	336	281	119	24	19	10	9	9	22	89	194	329	1,147
month average	225	144	55	8	10	5	5	6	5	51	131	207	851
month minimum	161	86	23	3	5	1	3	3	0	27	107	142	676
day Maximum	20.7	17.7	15.1	5.5	2.6	2.1	1.6	1.6	3.0	6.7	15.1	18.3	20.7
day average	7.3	5.1	1.8	0.3	0.3	0.2	0.1	0.2	0.2	1.6	4.4	6.7	2.3
day minimum	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0
Peak grid fee													
month Maximum	54	49	49	30	19	19	19	19	19	25	37	44	342
month average	37	35	29	18	15	12	10	10	15	25	26	34	266
month minimum	32	32	25	11	10	6	7	7	0	25	25	32	238
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	381	330	168	43	38	29	23	28	41	114	231	373	1,488
month average	262	180	84	26	25	17	14	17	19	76	158	241	1,118
month minimum	193	118	48	16	16	7	10	11	0	53	132	174	935
day Maximum	20.7	17.7	15.1	5.5	2.6	2.1	1.6	1.6	3.0	6.7	15.1	18.3	20.7
day average	7.3	5.1	1.8	0.3	0.3	0.2	0.1	0.2	0.2	1.6	4.4	6.7	2.3
day minimum	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0
Balance													
month Maximum	-191	-109	1	139	173	212	225	184	131	-31	-127	-172	34
month average	-261	-175	-52	76	123	171	183	151	64	-62	-155	-240	-177
month minimum	-381	-328	-141	7	53	121	94	113	14	-107	-228	-373	-658
day Maximum	-2.4	0.6	7.6	15.1	14.8	14.9	15.3	14.9	13.0	6.9	-0.4	0.0	15.3
day average	-7.2	-5.0	-0.7	3.1	4.4	6.1	6.2	5.2	2.6	-1.2	-4.3	-6.7	0.2
day minimum	-20.7	-17.7	-15.0	-5.5	-2.4	-2.1	-1.6	-1.3	-3.0	-6.7	-15.1	-18.3	-20.7

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	39	149	512	1,191	1,380	1,663	1,654	1,317	872	262	89	41	7,653
month average	16	76	342	827	1,079	1,309	1,355	1,128	601	195	51	12	6,991
month minimum	0	7	152	479	653	974	802	872	371	133	20	0	6,213
day Maximum	6.4	13.5	50.0	89.0	88.3	86.8	87.9	87.2	74.2	35.3	8.5	4.0	89.0
day average	0.5	2.7	11.0	27.6	34.8	43.6	43.7	36.4	20.0	6.3	1.7	0.4	19.1
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
Export during high price hours													
month Maximum	0	0	160	680	839	998	1,037	880	612	69	0	0	4,630
month average	0	0	72	414	636	825	868	729	352	18	0	0	3,915
month minimum	0	-0	5	166	345	609	499	549	148	0	0	0	3,412
day Maximum	0.0	0.0	31.6	63.7	61.7	64.3	64.9	63.2	56.2	29.5	0.0	0.0	64.9
day average	0.0	0.0	2.3	13.8	20.5	27.5	28.0	23.5	11.7	0.6	0.0	0.0	10.7
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 medium price hours													
month Maximum	7	47	127	219	260	283	307	244	146	65	13	3	1,440
month average	2	23	88	164	200	235	254	205	112	39	5	0	1,327
month minimum	0	3	49	112	143	185	181	168	71	24	0	0	1,206
day Maximum	1.3	3.7	7.5	10.5	12.5	12.6	12.7	12.1	9.0	4.1	1.2	0.5	12.7
day average	0.1	0.8	2.8	5.5	6.5	7.8	8.2	6.6	3.7	1.3	0.2	0.0	3.6
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 low price hours													
month Maximum	39	121	255	340	328	392	331	278	194	181	76	38	2,038
month average	14	53	181	249	242	250	233	194	138	138	46	11	1,749
month minimum	0	2	85	173	148	151	122	132	101	96	19	0	1,546
day Maximum	5.5	9.8	32.3	44.9	46.6	44.5	33.9	38.5	35.3	18.5	7.2	3.7	46.6
day average	0.5	1.9	5.8	8.3	7.8	8.3	7.5	6.3	4.6	4.4	1.5	0.4	4.8
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

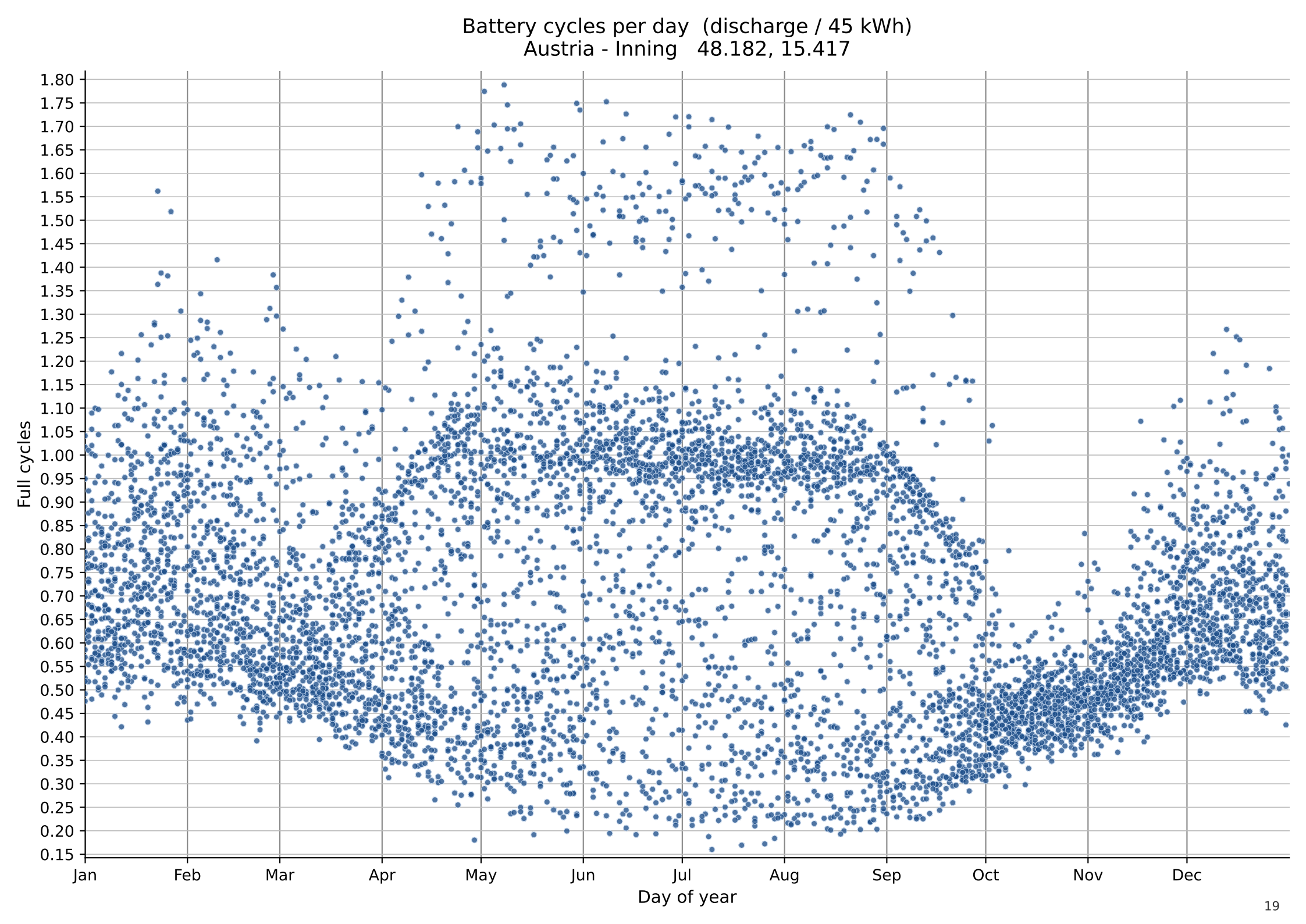
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	All
Heating													
month Maximum	1,209	1,128	736	399	285	168	141	170	244	381	614	1,126	5,662
month average	771	650	521	318	228	126	92	106	187	309	452	665	4,425
month minimum	522	421	382	213	159	68	60	58	115	231	368	465	3,830
day Maximum	72.3	65.8	59.1	25.5	14.2	11.8	8.7	10.2	12.8	24.3	41.8	62.2	72.3
day average	24.9	23.0	16.8	10.6	7.4	4.2	3.0	3.4	6.2	10.0	15.1	21.4	12.1
day minimum	9.6	8.3	6.8	0.5	0.0	0.0	0.0	0.0	0.0	2.9	6.1	9.4	0.0
Cooling													
month Maximum	0	0	0	0	0	0	1	1	0	0	0	0	2
month average	0	0	0	0	0	0	0	0	0	0	0	0	0
month minimum	0	0	0	0	0	0	0	0	0	0	0	0	0
day Maximum	0.0	0.0	0.0	0.0	0.0	0.3	1.2	0.9	0.0	0.0	0.0	0.0	1.2
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	50	51	43	37	37	33	31	32	32	38	38	41	441
month average	43	39	41	36	35	32	30	30	31	37	38	39	431
month minimum	42	38	41	33	33	30	29	29	29	35	37	39	425
day Maximum	4.3	2.7	1.9	1.3	1.3	1.3	1.2	1.2	1.2	1.3	1.3	2.3	4.3
day average	1.4	1.4	1.3	1.2	1.1	1.1	1.0	1.0	1.0	1.2	1.3	1.3	1.2
day minimum	1.3	1.2	1.1	1.0	1.0	1.0	0.9	0.9	0.9	1.0	1.1	1.2	0.9
Direct electric													
month Maximum	709	674	301	43	0	0	0	0	0	24	193	630	1,892
month average	295	228	104	11	0	0	0	0	0	3	56	196	894
month minimum	86	24	8	0	0	0	0	0	0	0	5	34	400
day Maximum	55.8	49.3	42.8	9.8	0.4	0.0	0.0	0.0	0.0	8.7	25.7	45.8	55.8
day average	9.5	8.1	3.4	0.4	0.0	0.0	0.0	0.0	0.0	0.1	1.9	6.3	2.4
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

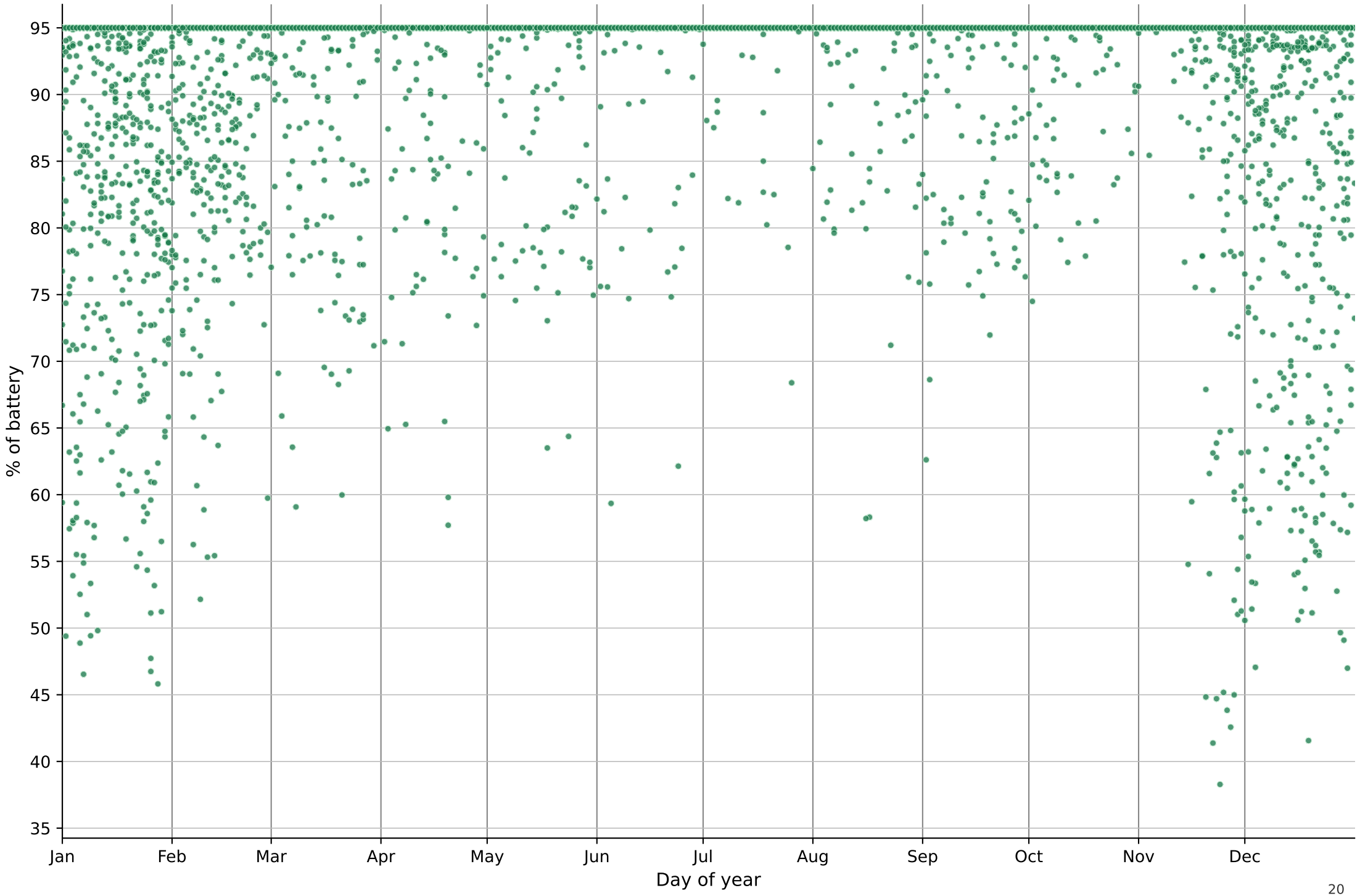
Heating, cooling and DHW are electricity. Direct electric is the part the heat pump could not cover.

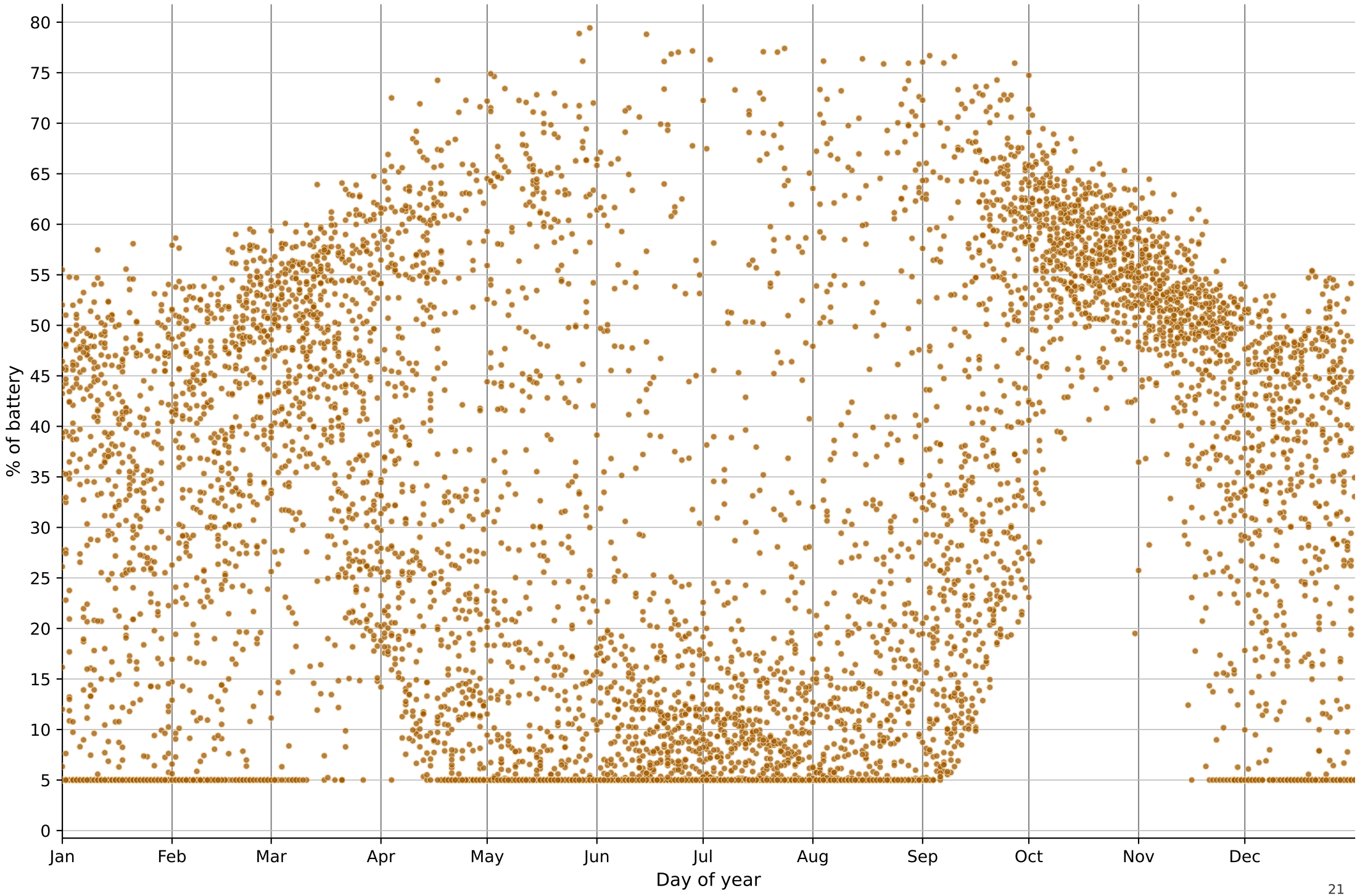
Battery
Austria - Inning 48.182, 15.417

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	All
Wasted													
month Maximum	0	0	0	139	113	156	122	85	66	0	0	0	516
month average	0	0	0	82	82	85	80	53	43	0	0	0	424
month minimum	0	0	0	35	55	32	37	16	18	0	0	0	342
day Maximum	0.0	0.0	0.0	38.7	29.6	47.2	21.2	35.1	27.3	0.0	0.0	0.0	47.2
day average	0.0	0.0	0.0	2.7	2.6	2.8	2.6	1.7	1.4	0.0	0.0	0.0	1.2
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	32	27	24	26	29	29	31	28	23	16	21	28	275
month average	24	21	20	22	24	26	27	25	19	14	17	22	261
month minimum	19	15	17	17	19	22	20	22	15	13	16	18	243
day Maximum	1.6	1.4	1.3	1.7	1.8	1.8	1.7	1.7	1.6	1.1	1.1	1.3	1.8
day average	0.8	0.7	0.6	0.7	0.8	0.9	0.9	0.8	0.6	0.5	0.6	0.7	0.7
day minimum	0.4	0.4	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.4	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	0.1	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	3
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	0.3	0.1	0.2	0.3
day average	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	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
35
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
80
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year