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+-+air+exchange+with+heat+recovery&lat=48.182&lon=15.417&startyear=2005&endyear=2023&loss=14.0&raddatabase=auto&usehorizon=1&outdir=%2Fhome%2Ffounder%2Fintern

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 / 3,300 W
	Heat on / cool on / ground	21.0 °C / 26.0 °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 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 3 Feb 3 Mar 3 Apr 3 May 3 Jun 3
	Import cap Jul–Dec kW	Jul 3 Aug 3 Sep 3 Oct 3 Nov 3 Dec 3
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

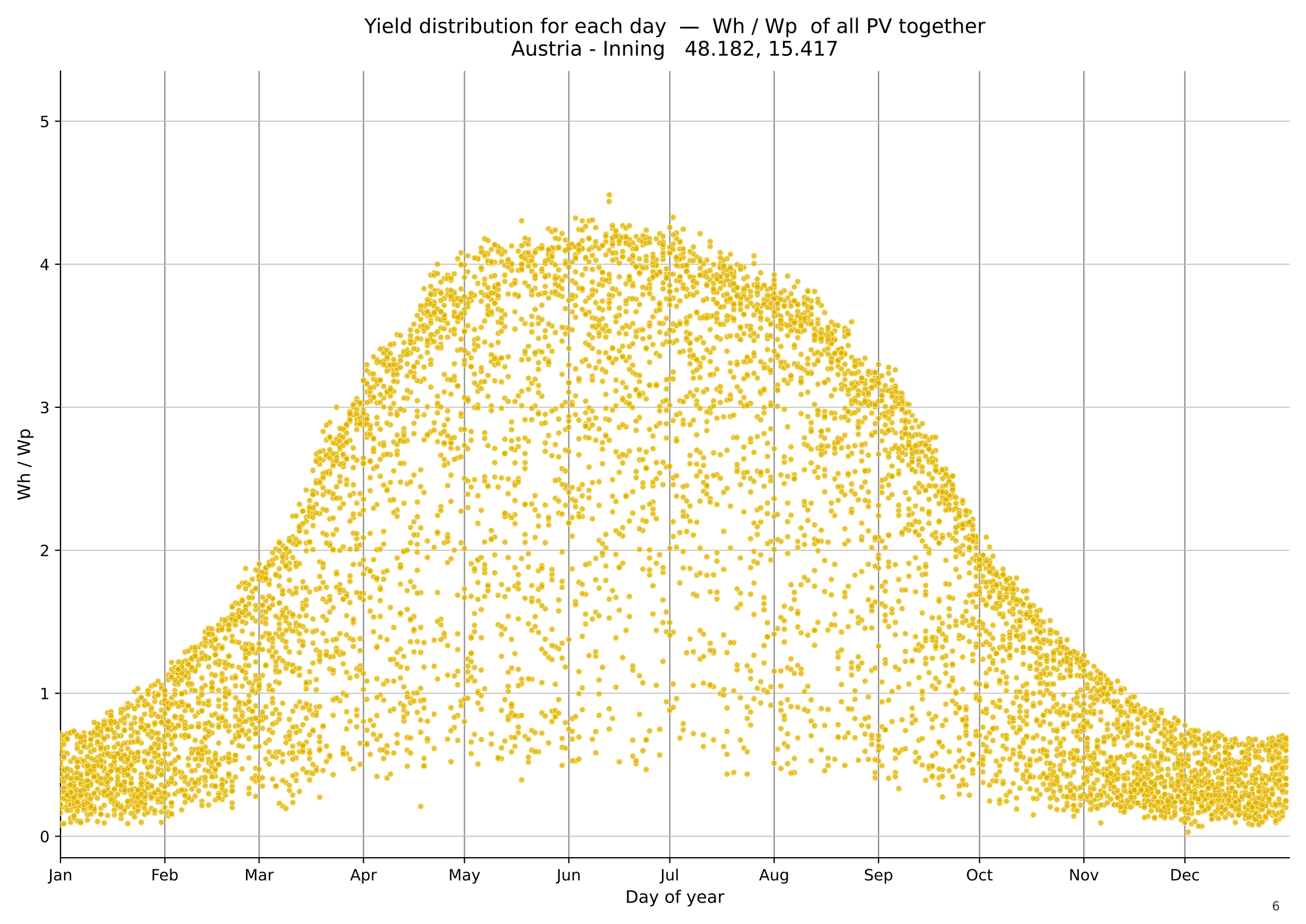
Of the record	Hours	Watts
98 %	12	10,518 W
96 %	75	10,303 W
94 %	236	10,089 W
92 %	599	9,874 W
90 %	1,245	9,659 W

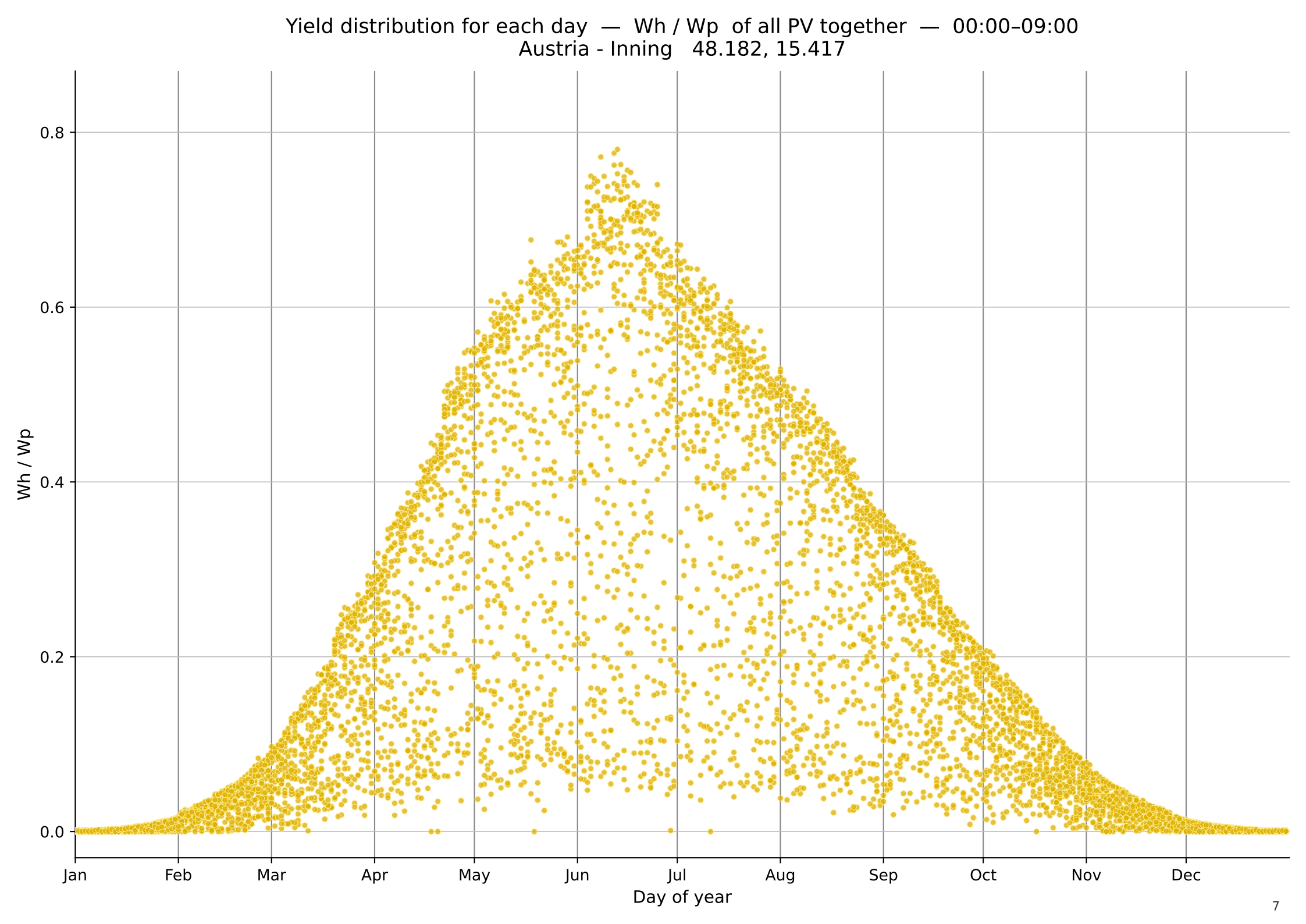
Record hour = 10,733 W combined.

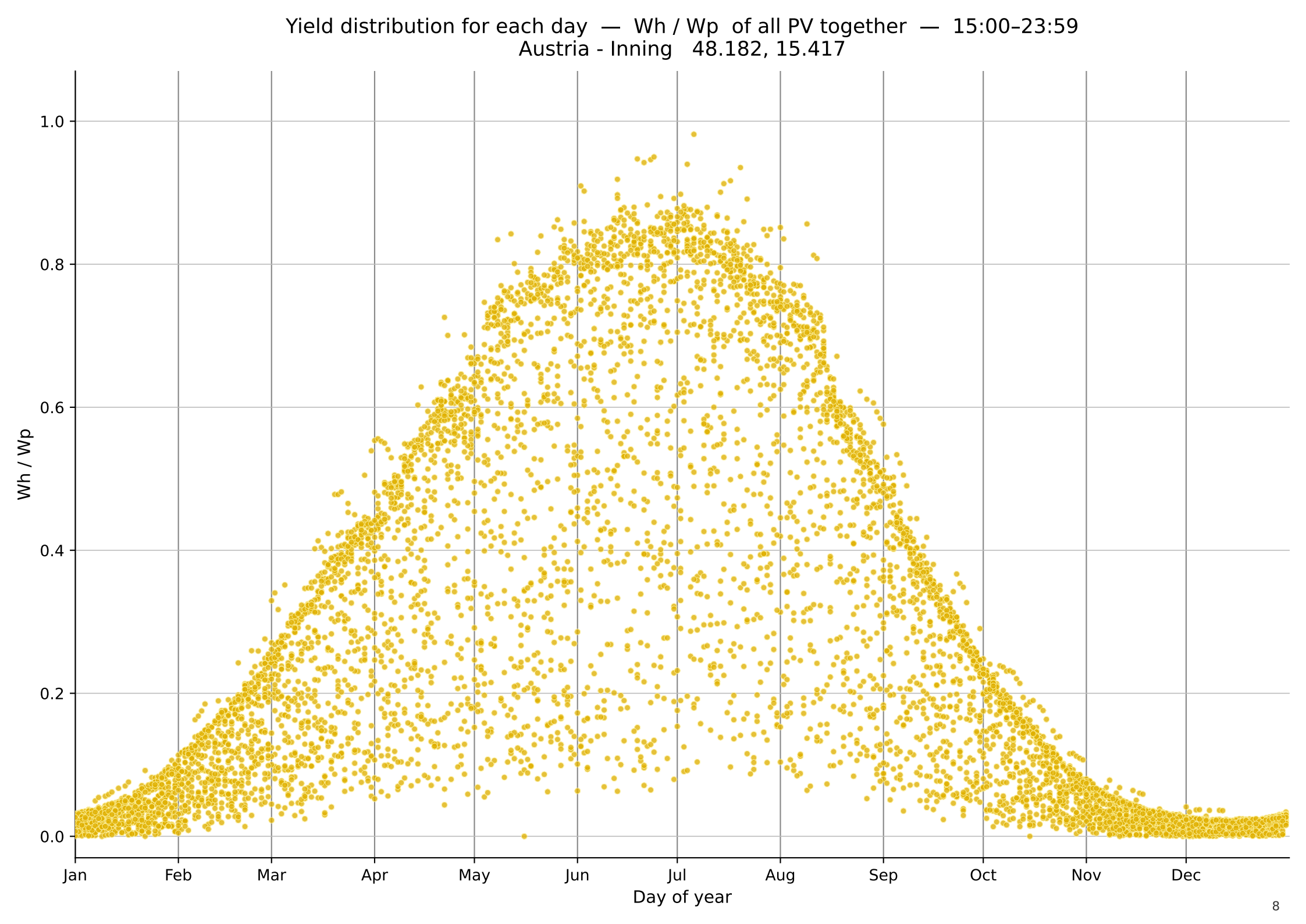
Records of each photovoltaic field
Austria - Inning 48.182, 15.417

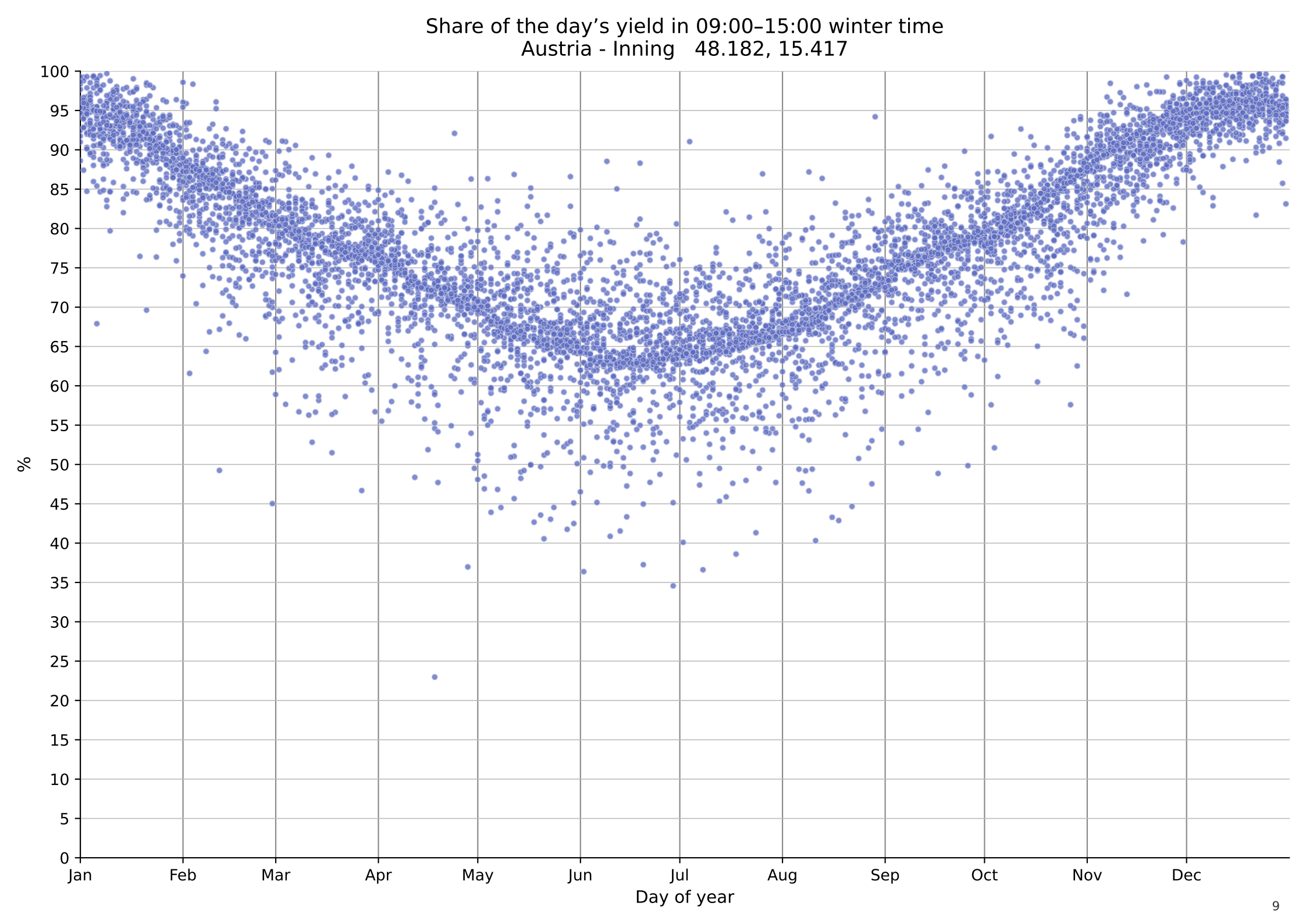
PV	Date	Watts	%	h ≥98%	h ≥96%	h ≥94%	h ≥92%	h ≥90%
Garage roof	2009-06-13 11:10	8,369	77.9	8	33	112	320	671
Garage side wall south	2009-03-22 11:10	2,638	75.9	8	17	26	45	75
Garage side wall north	2023-06-13 05:10	611	17.6	1	8	25	50	108
Garage door side	2005-05-08 14:10	473	67.6	1	3	5	16	49
Garage back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

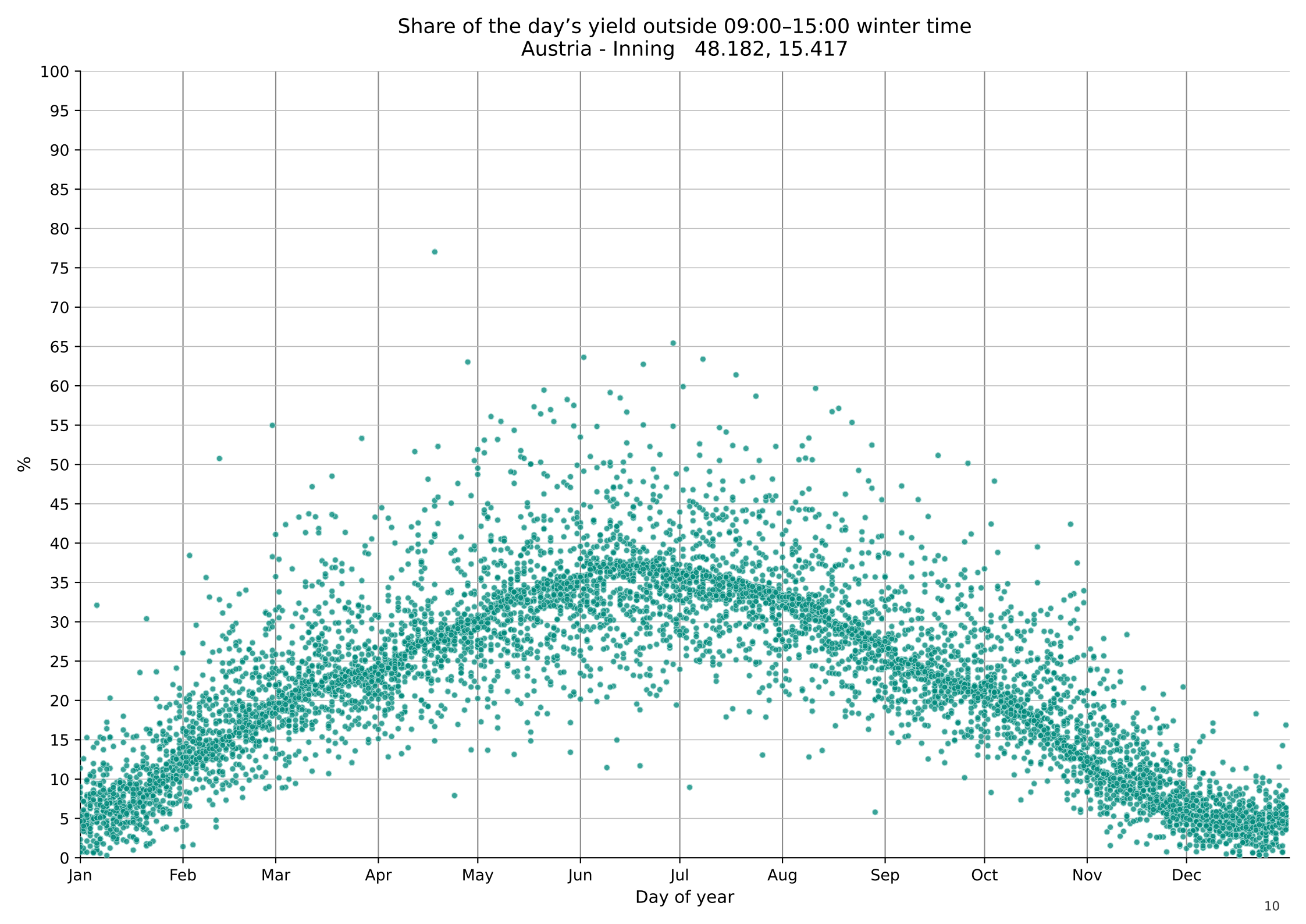
Watts is the highest hour of that field. % is of its own Wp. Hours are the count of hours at or above that share of its own record. Use this to size the MPPT or the inverter for that field.

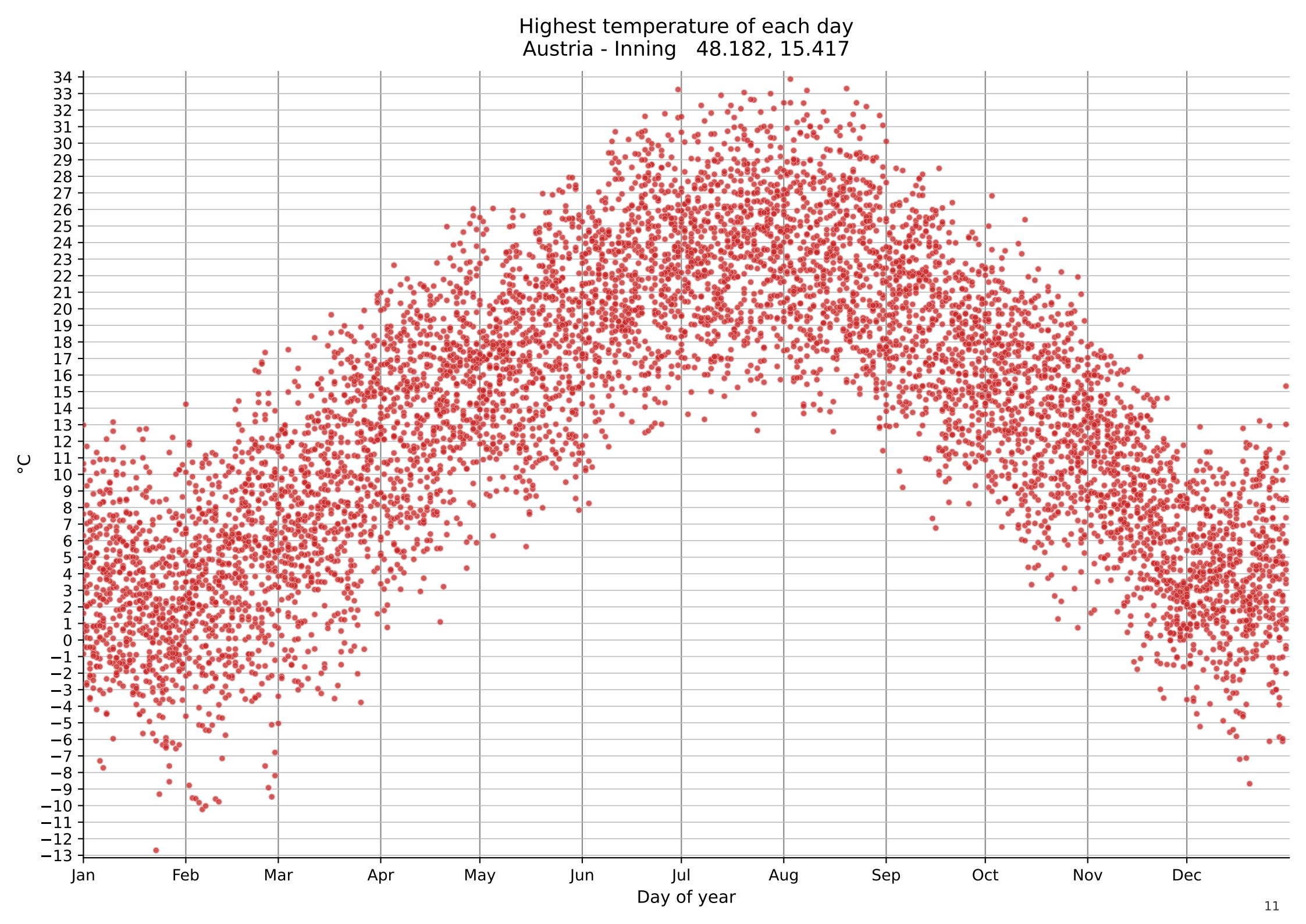

Yield distribution for each day — Wh / Wp of all PV together
Austria - Inning 48.182, 15.417
Wh / Wp
0
1
2
3
4
5
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year

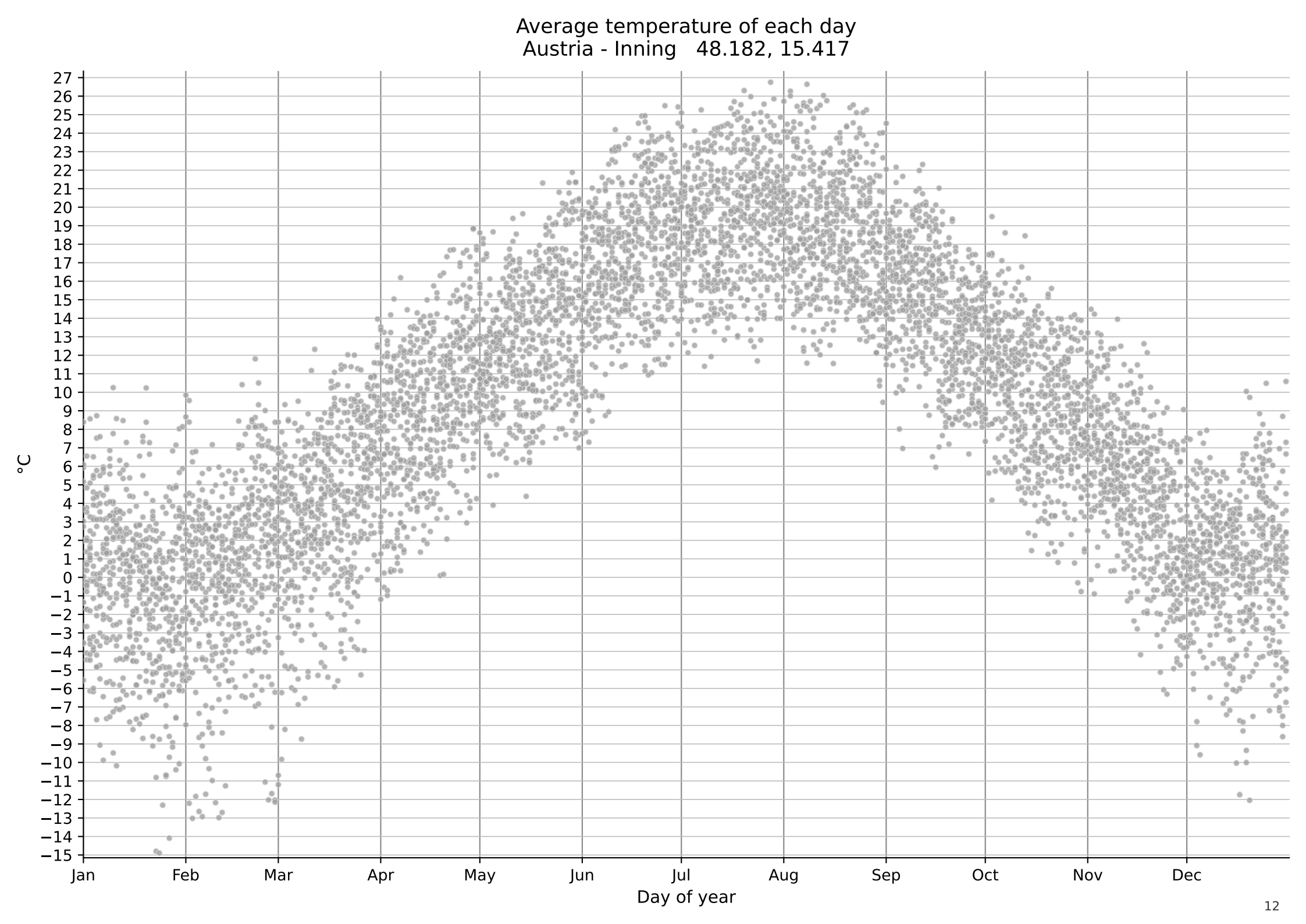

Yield distribution for each day — Wh / Wp of all PV together — 00:00–09:00
Austria - Inning 48.182, 15.417
Wh / Wp
0.0
0.2
0.4
0.6
0.8
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year

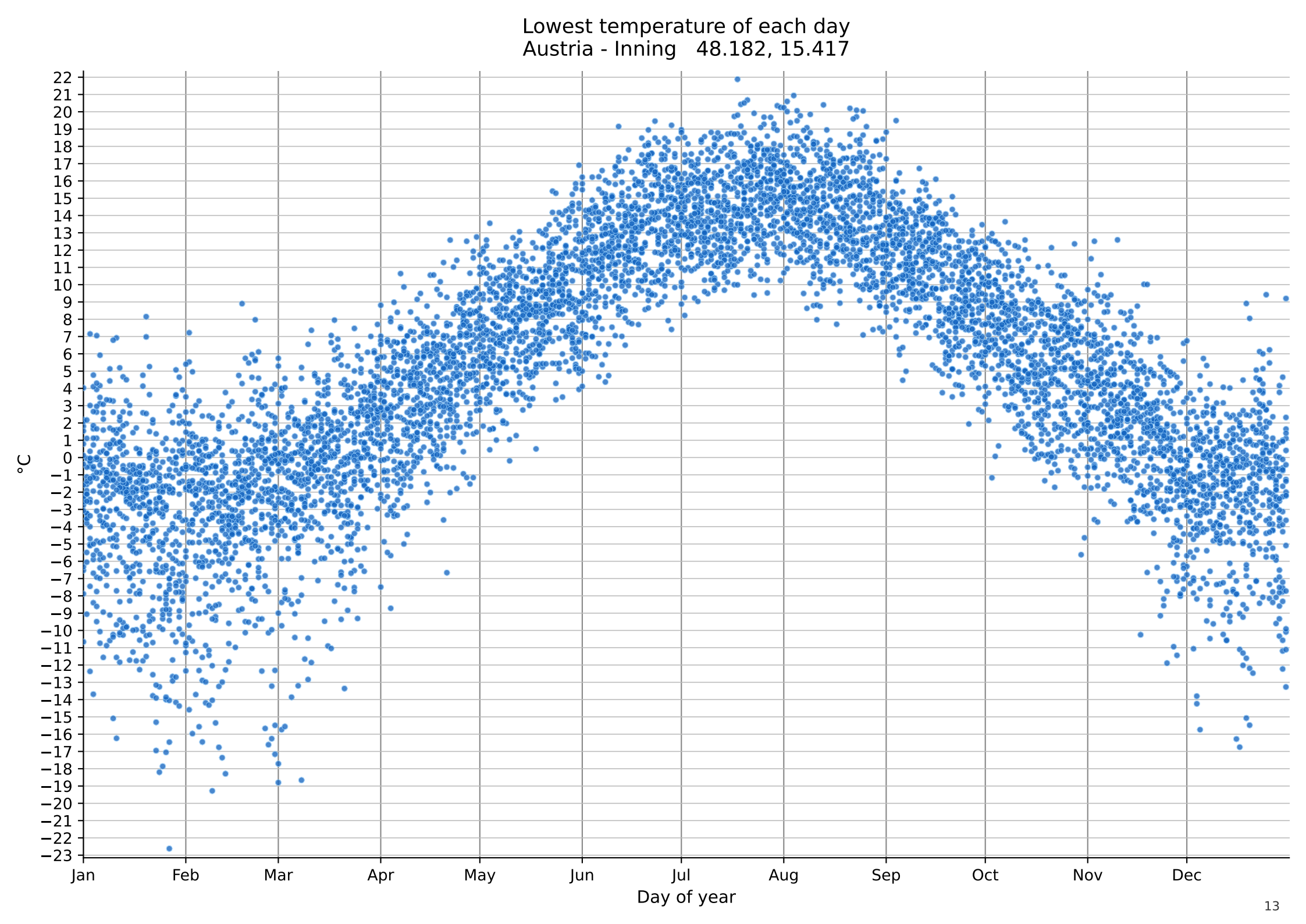

Yield distribution for each day — Wh / Wp of all PV together — 15:00–23:59
Austria - Inning 48.182, 15.417
1.0
0.8
0.6
0.4
0.2
0.0
Wh / Wp
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year

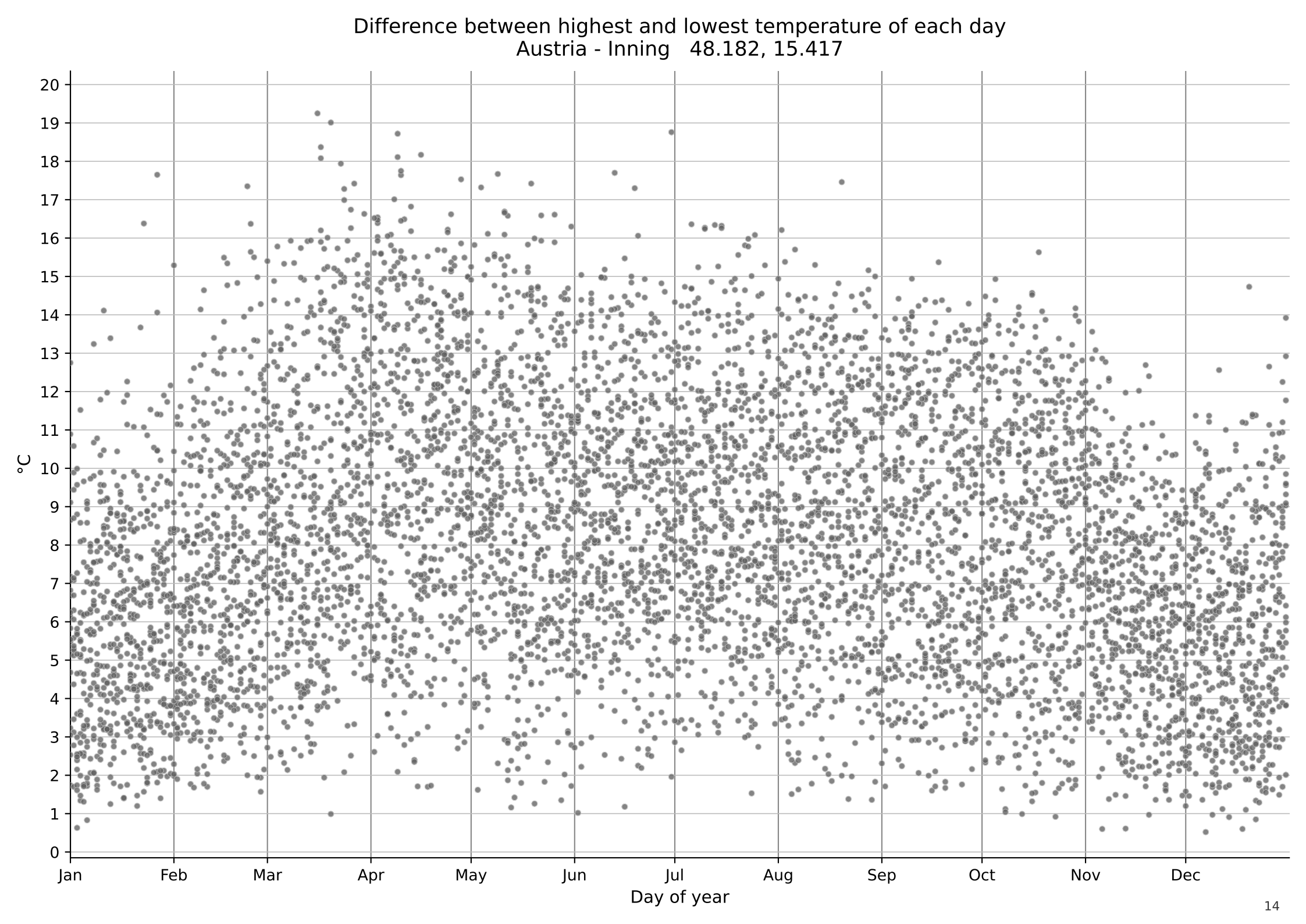

Share of the day’s yield in 09:00–15:00 winter time
Austria - Inning 48.182, 15.417
100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year


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

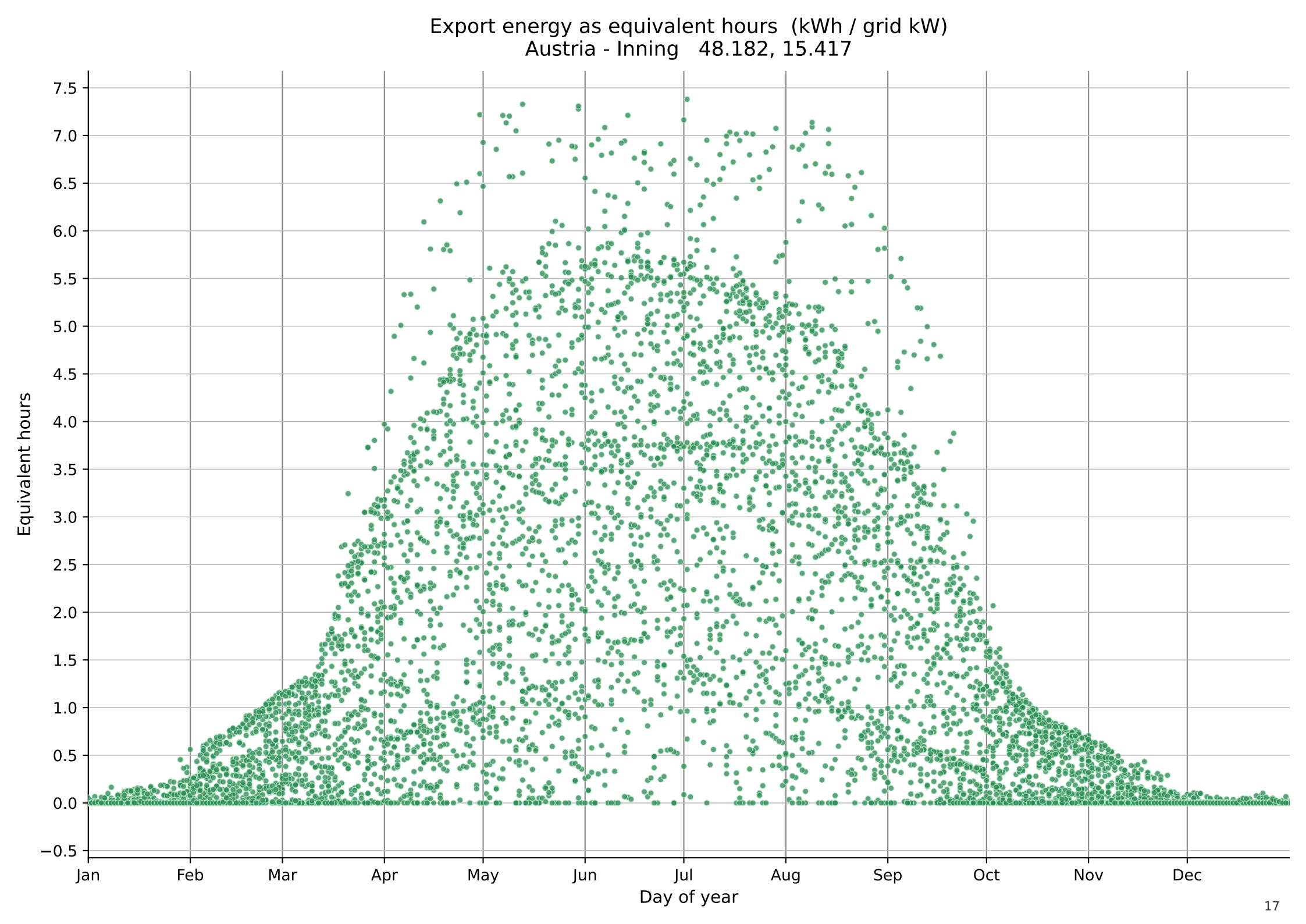
Month / year		Garage roof 1°/0° 10,740 Wp	Garage side wall south 90°/0° 3,475 Wp	Garage side wall north 90°/180° 3,475 Wp	Garage door side 90°/90° 700 Wp	Garage back side 90°/-90° 2,540 Wp	All together
January	Maximum	32.84	7.26	7.26	8.02	9.10	19.76
	average	23.62	5.26	5.26	5.93	6.73	14.88
	minimum	17.95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

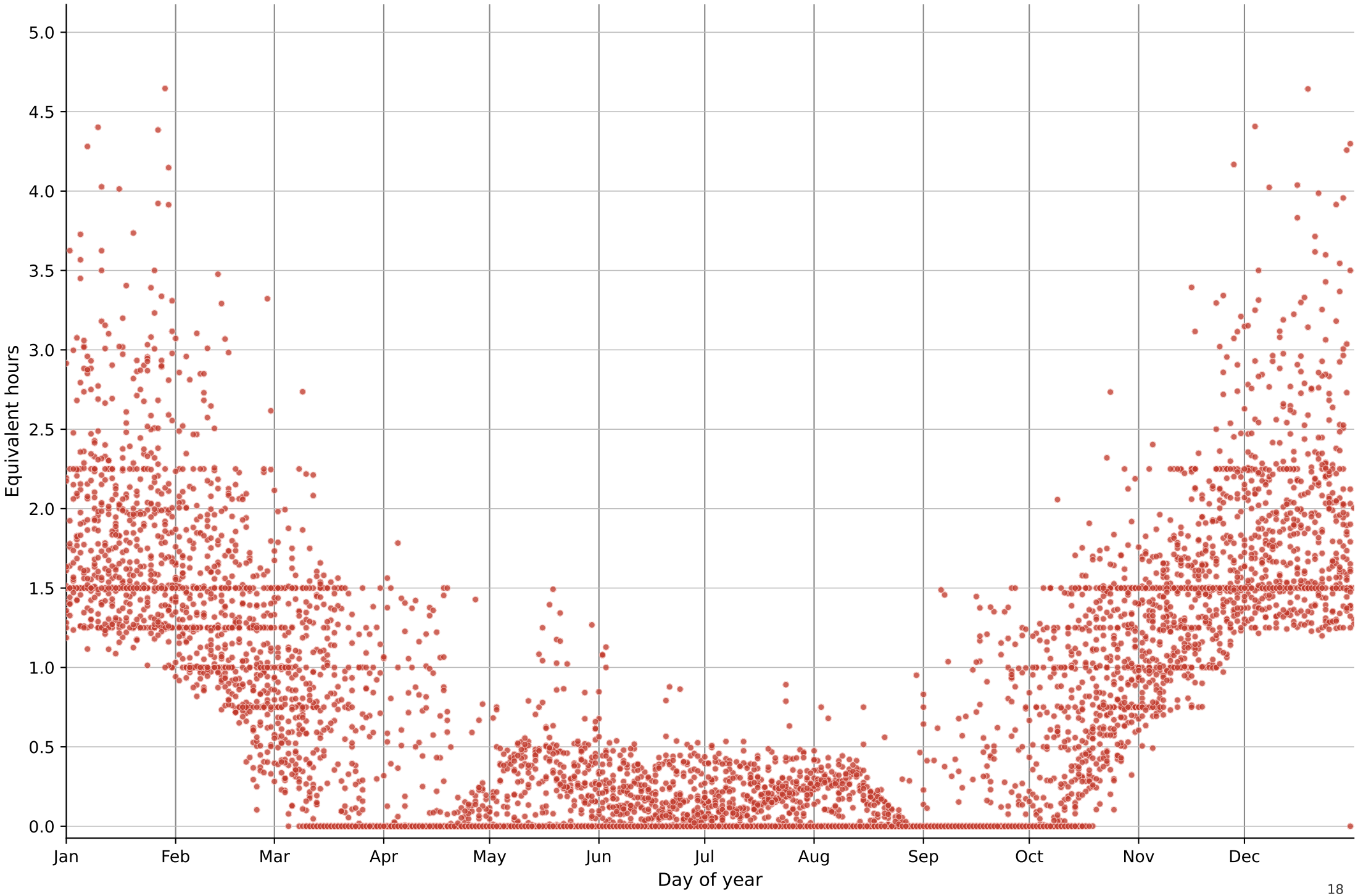
Highest combined yield hour: 2021-04-23 10:10 UTC 10,732.7 W (0.513 W/Wp) of 20,930 Wp installed. Use this hour to size battery charge power.

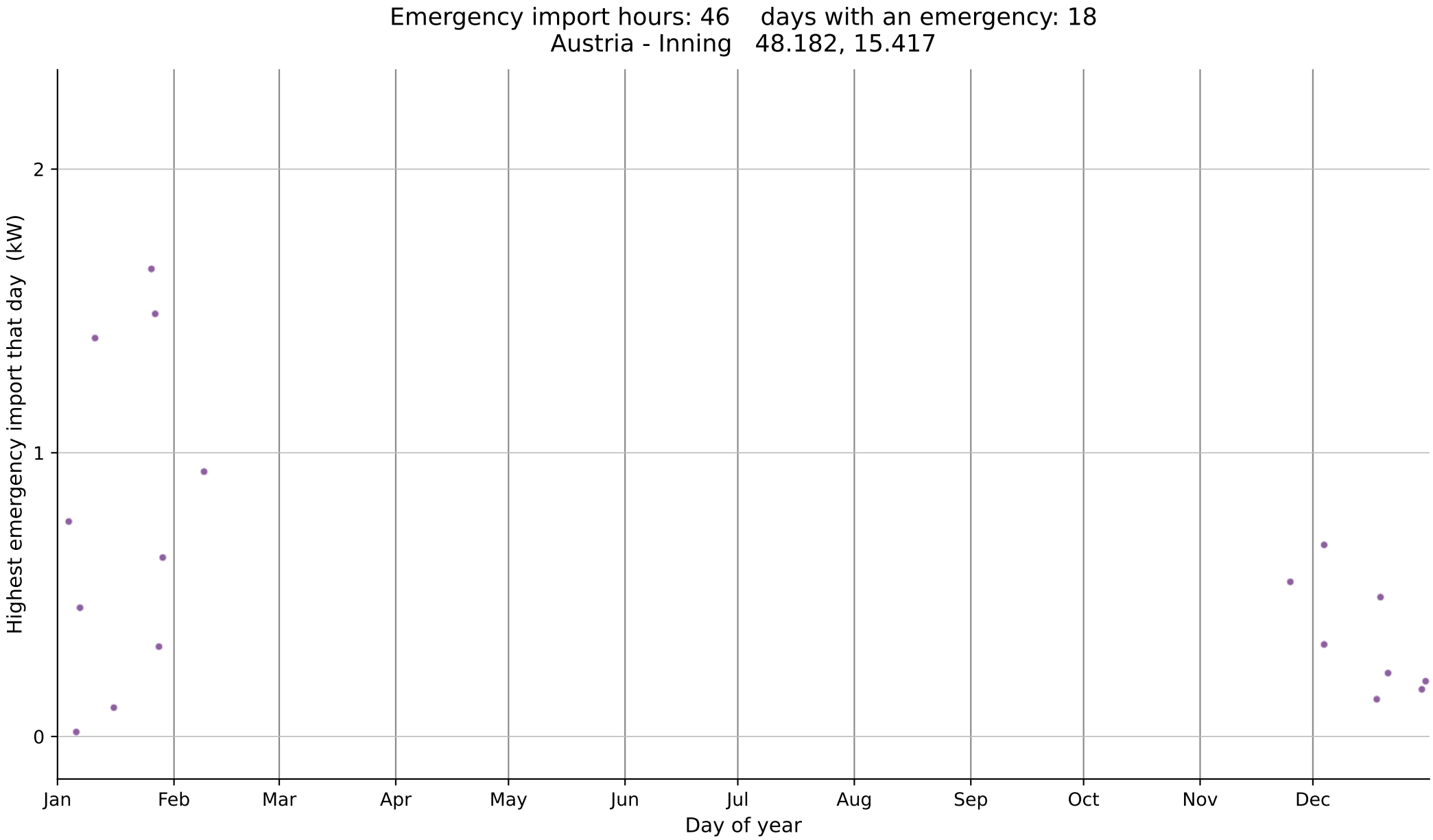
Monthly and yearly total yield (kWh)
Austria - Inning 48.182, 15.417

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
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	14	158	573	1,131	1,347	1,611	1,606	1,238	783	255	71	7	7,245
month average	7	99	379	786	1,029	1,254	1,290	1,042	544	189	35	2	6,656
month minimum	1	32	235	463	620	917	746	802	346	116	12	0	5,920
day Maximum	5.4	13.9	45.6	86.6	87.9	86.5	88.6	85.6	68.5	24.8	8.5	1.3	88.6
day average	0.2	3.5	12.2	26.2	33.2	41.8	41.6	33.6	18.1	6.1	1.2	0.1	18.2
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 from grid													
month Maximum	806	688	309	103	123	81	54	41	138	408	643	850	3,447
month average	698	452	204	40	56	43	42	26	39	254	526	707	3,085
month minimum	602	347	102	2	14	16	30	8	0	157	445	573	2,779
day Maximum	55.8	41.7	32.8	21.4	17.9	13.5	10.7	11.4	18.0	32.8	50.0	55.7	55.8
day average	22.5	16.0	6.6	1.3	1.8	1.4	1.4	0.8	1.3	8.2	17.5	22.8	8.4
day minimum	12.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.9	0.0	0.0
Total energy used for house													
month Maximum	1,093	1,056	899	739	678	570	560	571	628	754	829	1,029	8,830
month average	912	815	816	685	631	536	523	529	579	695	768	875	8,362
month minimum	821	738	754	606	574	498	503	501	521	631	728	807	8,083
day Maximum	54.8	49.9	46.4	29.3	25.8	25.7	23.5	23.5	24.7	28.9	35.7	47.2	54.8
day average	29.4	28.9	26.3	22.8	20.3	17.9	16.9	17.1	19.3	22.4	25.6	28.2	22.9
day minimum	16.3	21.3	19.9	15.7	15.6	15.6	15.5	15.5	15.5	15.8	19.4	22.1	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	1	9	49	135	185	222	231	174	107	16	4	0	945
month average	0	6	30	87	133	176	184	143	62	11	2	0	835
month minimum	0	2	15	33	73	132	98	99	28	6	1	0	734
day Maximum	0.4	0.9	6.2	13.8	14.6	14.4	14.7	14.9	10.5	3.6	0.5	0.1	14.9
day average	0.0	0.2	1.0	2.9	4.3	5.9	5.9	4.6	2.1	0.4	0.1	0.0	2.3
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
Import													
month Maximum	196	166	72	18	24	16	13	10	23	95	157	206	821
month average	168	107	47	7	12	10	10	6	6	59	124	170	726
month minimum	142	81	24	1	3	4	6	2	0	36	104	135	651
day Maximum	13.7	10.2	8.3	4.1	2.9	2.3	1.9	2.1	3.2	8.3	13.5	13.9	13.9
day average	5.4	3.8	1.5	0.2	0.4	0.3	0.3	0.2	0.2	1.9	4.1	5.5	2.0
day minimum	2.6	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0
Peak grid fee													
month Maximum	30	25	19	19	19	19	19	19	19	19	23	24	229
month average	21	19	19	17	16	12	11	13	16	19	19	20	203
month minimum	19	19	19	4	11	8	8	7	0	19	19	19	177
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	223	185	91	37	43	35	28	27	42	114	180	228	1,032
month average	188	126	66	24	28	22	21	19	23	78	143	190	929
month minimum	161	100	43	5	17	13	17	9	0	55	123	154	831
day Maximum	13.7	10.2	8.3	4.1	2.9	2.3	1.9	2.1	3.2	8.3	13.5	13.9	13.9
day average	5.4	3.8	1.5	0.2	0.4	0.3	0.3	0.2	0.2	1.9	4.1	5.5	2.0
day minimum	2.6	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0
Balance													
month Maximum	-160	-90	6	129	157	197	208	157	98	-41	-119	-154	48
month average	-188	-120	-36	63	104	154	163	123	40	-67	-141	-190	-94
month minimum	-223	-182	-75	-3	39	103	73	88	-3	-108	-178	-228	-296
day Maximum	-2.4	0.3	6.2	13.8	14.4	14.4	14.7	14.9	10.5	3.6	-0.9	0.0	14.9
day average	-5.4	-3.6	-0.6	2.7	3.9	5.5	5.6	4.4	1.9	-1.5	-4.1	-5.5	0.3
day minimum	-13.7	-10.2	-8.3	-4.1	-2.8	-2.3	-1.9	-1.9	-3.2	-8.3	-13.5	-13.9	-13.9

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	14	158	573	1,131	1,347	1,611	1,606	1,238	783	255	71	7	7,245
month average	7	99	379	786	1,029	1,254	1,290	1,042	544	189	35	2	6,656
month minimum	1	32	235	463	620	917	746	802	346	116	12	0	5,920
day Maximum	5.4	13.9	45.6	86.6	87.9	86.5	88.6	85.6	68.5	24.8	8.5	1.3	88.6
day average	0.2	3.5	12.2	26.2	33.2	41.8	41.6	33.6	18.1	6.1	1.2	0.1	18.2
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
Export during high price hours													
month Maximum	0	0	114	551	770	954	1,003	745	452	23	0	0	3,932
month average	0	0	49	333	555	765	797	602	242	3	0	0	3,347
month minimum	0	0	5	116	296	549	414	416	83	0	0	0	2,894
day Maximum	0.0	0.0	23.3	57.7	60.6	61.6	62.1	62.6	43.4	12.6	0.0	0.0	62.6
day average	0.0	0.0	1.6	11.1	17.9	25.5	25.7	19.4	8.1	0.1	0.0	0.0	9.2
day minimum	0.0	0.0	-0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.0
Export during medium price hours													
month Maximum	10	46	134	216	257	279	304	244	148	66	9	2	1,468
month average	3	31	97	167	202	234	253	206	113	40	5	0	1,350
month minimum	0	12	60	119	143	182	186	176	72	18	1	-0	1,224
day Maximum	1.4	3.8	7.6	10.3	12.6	12.4	12.7	12.0	8.8	4.0	1.1	0.5	12.7
day average	0.1	1.1	3.1	5.6	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	11	120	336	394	373	378	309	313	233	189	66	7	2,187
month average	5	68	233	287	272	255	240	233	189	146	30	1	1,959
month minimum	0	10	154	212	180	169	147	167	159	98	11	0	1,760
day Maximum	4.3	10.4	30.7	43.8	47.6	41.9	39.5	38.5	39.7	16.2	7.7	1.3	47.6
day average	0.1	2.4	7.5	9.6	8.8	8.5	7.7	7.5	6.3	4.7	1.0	0.0	5.4
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

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

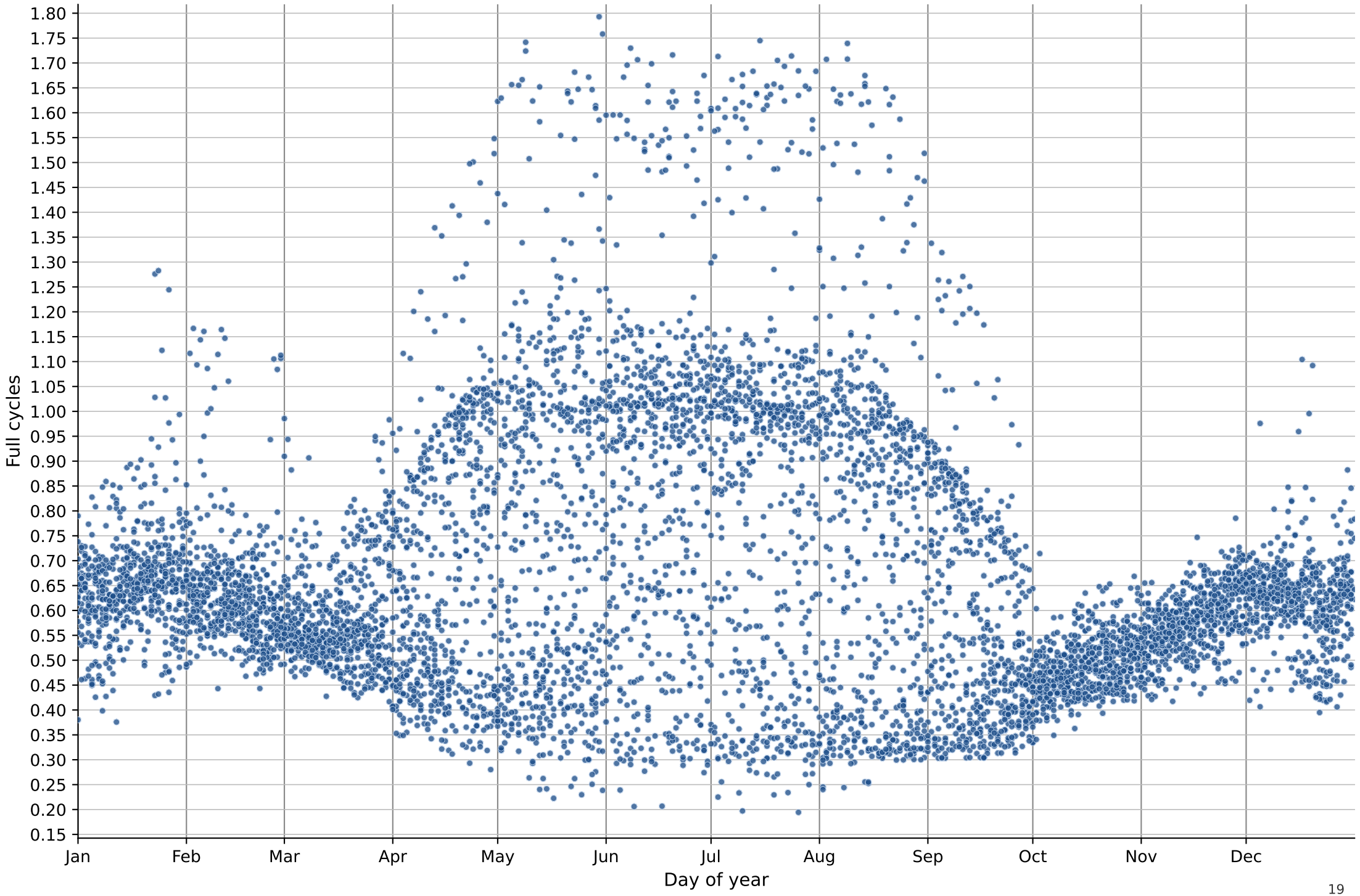
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	All
Heating													
month Maximum	589	585	395	257	183	95	74	84	154	256	346	529	2,998
month average	408	357	313	205	138	64	39	45	107	200	285	375	2,535
month minimum	317	282	253	131	84	28	21	18	53	138	247	307	2,263
day Maximum	38.6	33.6	30.2	13.1	9.9	9.8	7.7	7.9	8.8	12.7	19.6	31.1	38.6
day average	13.2	12.6	10.1	6.8	4.5	2.1	1.3	1.4	3.6	6.4	9.5	12.1	6.9
day minimum	0.0	5.2	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.5	6.0	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	3.6	2.7	0.0	0.0	0.0	0.0	3.6
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	70	65	70	62	61	55	52	53	54	64	63	66	722
month average	70	63	69	59	59	53	49	50	52	62	63	66	714
month minimum	70	62	68	55	55	50	48	48	48	59	62	65	701
day Maximum	2.5	2.3	2.3	2.1	2.1	2.1	1.9	2.0	2.0	2.1	2.1	2.1	2.5
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	142	190	49	1	0	0	0	0	0	0	7	85	205
month average	24	22	6	0	0	0	0	0	0	0	1	11	64
month minimum	0	0	0	0	0	0	0	0	0	0	0	0	0
day Maximum	22.6	17.6	14.5	0.8	0.0	0.0	0.0	0.0	0.0	0.0	4.6	15.1	22.6
day average	0.8	0.8	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.2
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

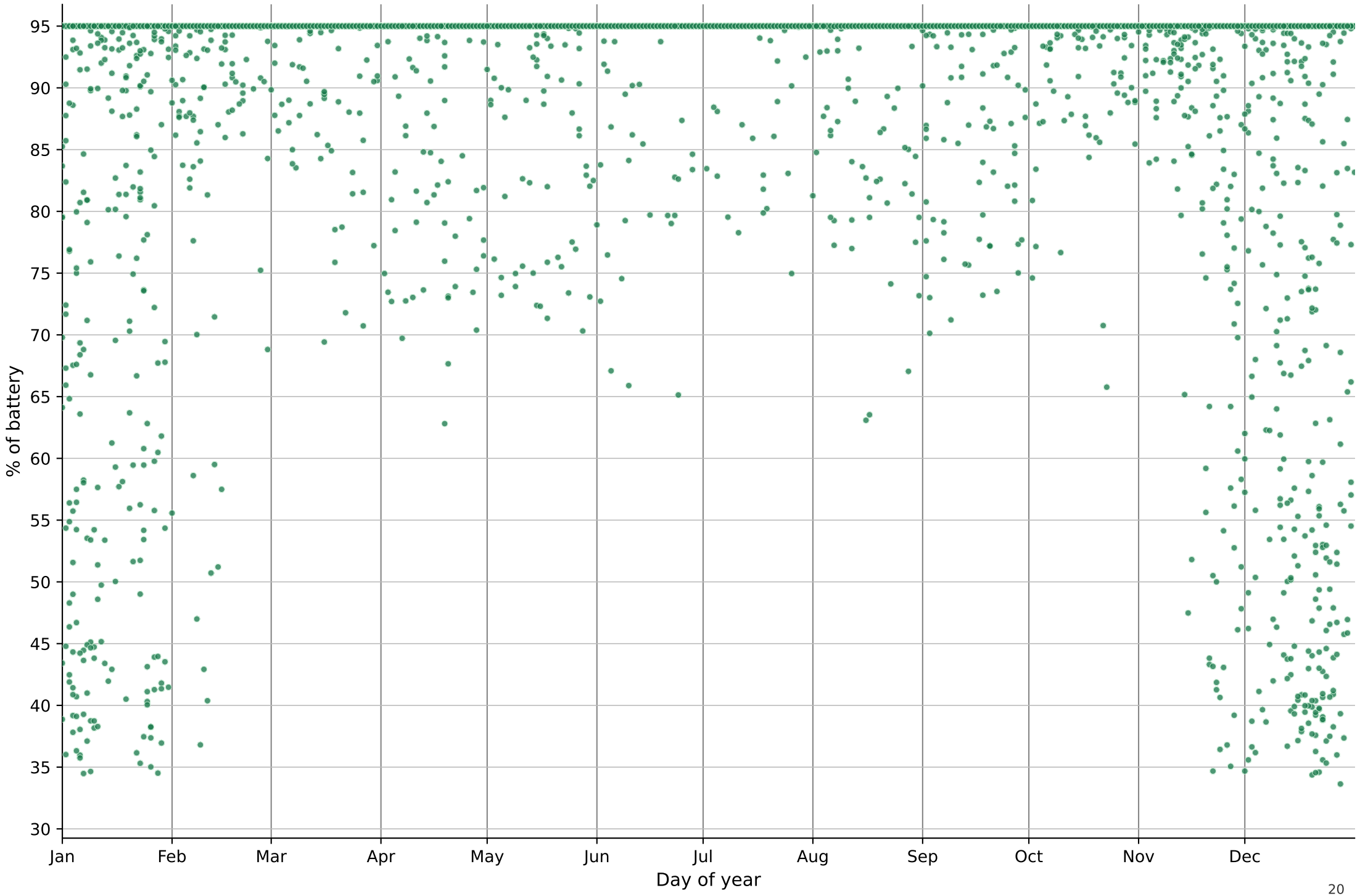
Heating, cooling and DHW are electricity. Direct electric is the part the heat pump could not cover.

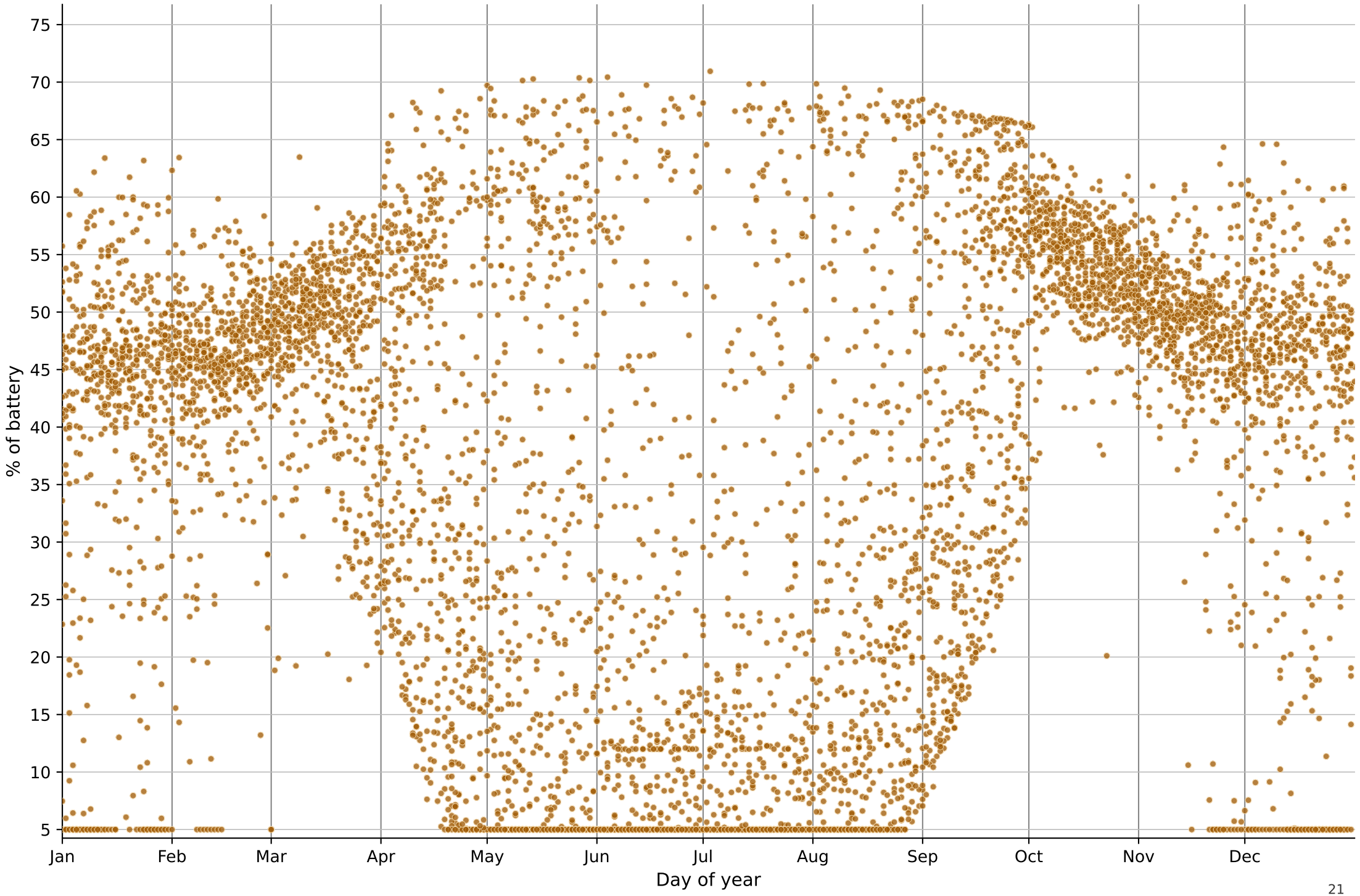
Battery
Austria - Inning 48.182, 15.417

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	All
Wasted													
month Maximum	0	0	0	160	116	159	110	90	81	0	0	0	563
month average	0	0	0	93	88	83	78	59	58	0	0	0	458
month minimum	0	0	0	38	58	32	35	23	30	0	0	0	356
day Maximum	0.0	0.0	0.0	40.1	34.0	51.3	24.4	34.3	28.7	0.0	0.0	0.0	51.3
day average	0.0	0.0	0.0	3.1	2.8	2.8	2.5	1.9	1.9	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	25	24	20	25	28	30	31	26	21	16	19	23	256
month average	20	18	18	21	24	26	27	23	17	15	17	19	246
month minimum	18	16	16	17	19	22	19	20	14	14	16	18	235
day Maximum	1.3	1.2	1.0	1.6	1.8	1.7	1.7	1.7	1.3	0.7	0.8	1.1	1.8
day average	0.7	0.6	0.6	0.7	0.8	0.9	0.9	0.8	0.6	0.5	0.6	0.6	0.7
day minimum	0.4	0.4	0.4	0.3	0.2	0.2	0.2	0.2	0.3	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	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	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.1	0.1	0.3
day average	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.0	0.0	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
30
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
75
70
65
60
55
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