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
share central strucure west part	8	90	20,460	—	front	—	yes
Total counted			41,390				

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 2016-05-15 13:10 local (12:10 UTC) 26,396 W 0.638 W/Wp of 41,390 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=EM+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

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	18.0 °C / 27.0 °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	80 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 4.0 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	2016-05-15 12:10	2009-06-13 11:10	2020-05-24 11:10	2013-05-13 11:10	2020-05-24 12:10	2005-04-22 11:10	2012-05-18 11:10	2009-06-13 12:10	2009-06-03 11:10	2020-05-27 11:10
Garage roof	8,180	8,369	8,302	8,243	8,095	8,152	8,219	8,121	8,251	8,209
Garage side wall south	1,701	1,567	1,691	1,824	1,570	2,180	1,758	1,445	1,595	1,656
Garage side wall north	138	166	161	163	139	115	166	149	174	144
Garage door side	245	87	91	93	236	80	93	223	91	88
Garage back side	101	121	117	119	101	84	121	109	127	105
share central strucure west part	16,031	15,819	15,710	15,596	15,850	15,375	15,554	15,854	15,608	15,536
Watt at record	26,396	26,130	26,072	26,039	25,990	25,986	25,911	25,901	25,845	25,738
Percent of installed peak	63.8	63.1	63.0	62.9	62.8	62.8	62.6	62.6	62.4	62.2

Values are watts at that hour. Date and time are UTC. Record 26,396 W (63.8 % of 41,390 Wp).

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

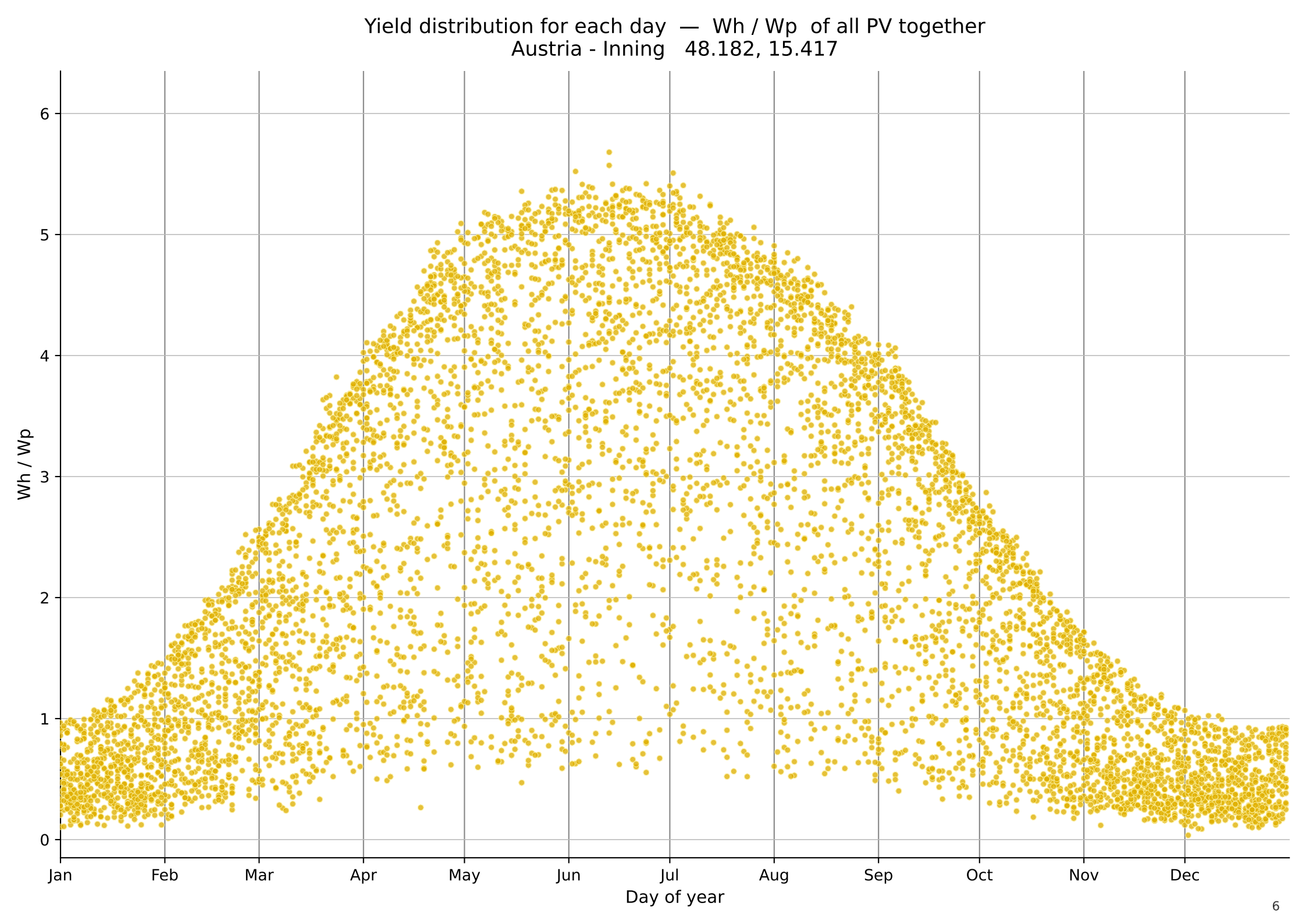
Of the record	Hours	Watts
98 %	8	25,868 W
96 %	36	25,341 W
94 %	109	24,813 W
92 %	343	24,285 W
90 %	790	23,757 W

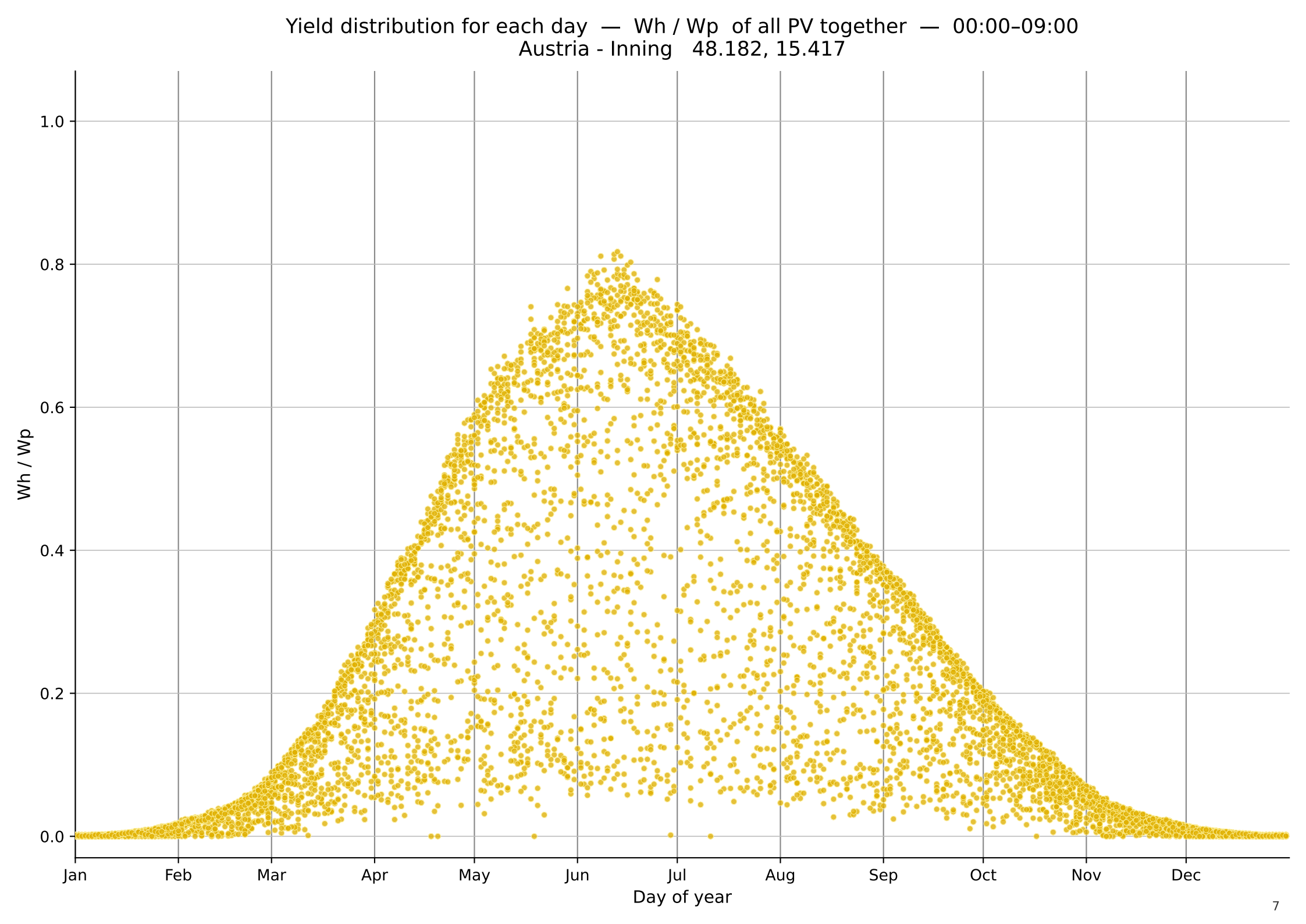
Record hour = 26,396 W combined.

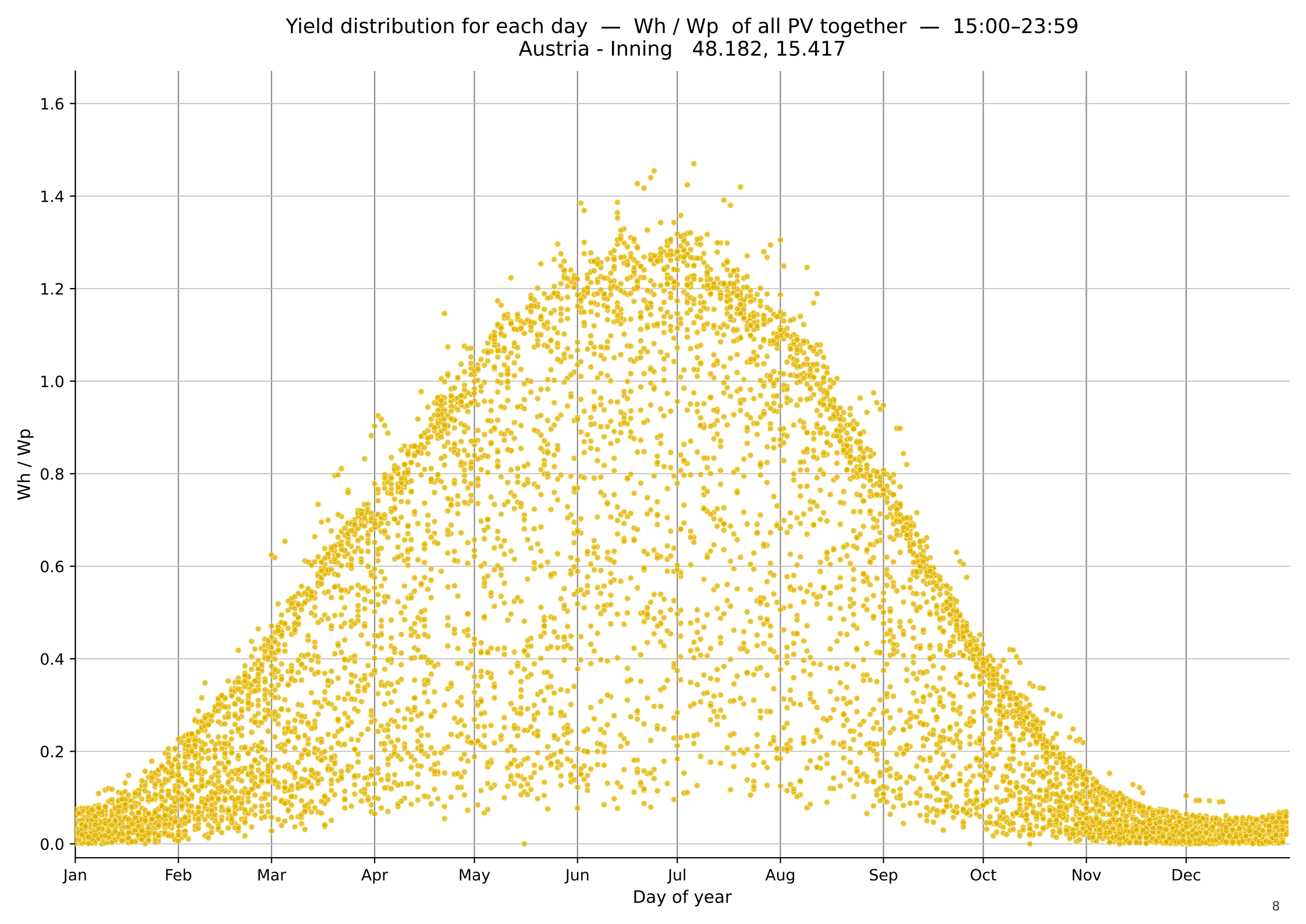
Records of each photovoltaic field
Austria - Inning 48.182, 15.417

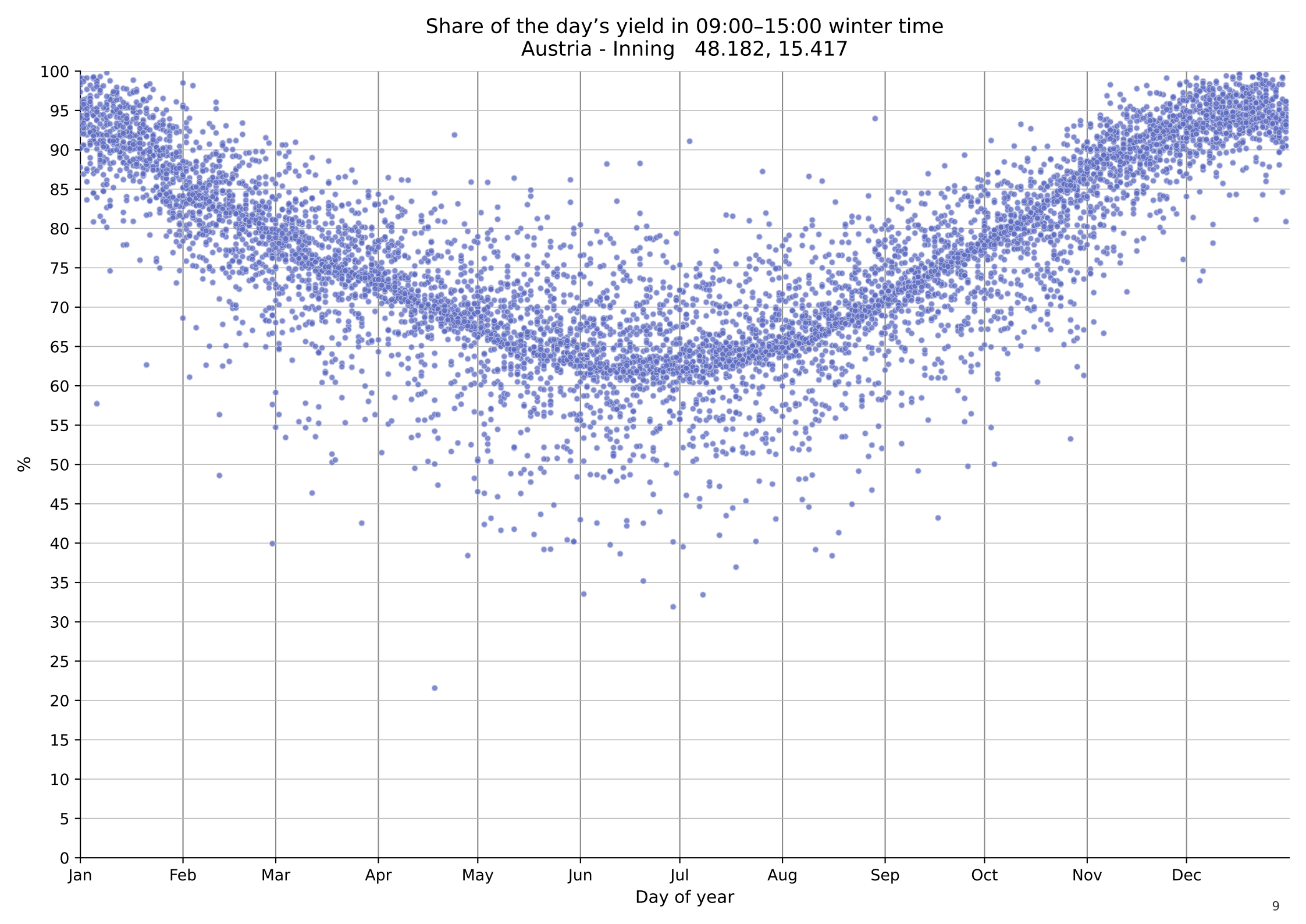
PV	Date	Watts	%	h ≥98%	h ≥96%	h ≥94%	h ≥92%	h ≥90%
Garage roof	2009-06-13 11:10	8,369	77.9	8	33	112	320	671
Garage side wall south	2009-03-22 11:10	2,638	75.9	8	17	26	45	75
Garage side wall north	2023-06-13 05:10	611	17.6	1	8	25	50	108
Garage door side	2005-05-08 14:10	473	67.6	1	3	5	16	49
Garage back side	2009-06-13 07:10	1,695	66.7	3	8	16	44	84
share central strucure west part	2016-05-15 12:10	16,031	78.4	4	21	59	189	471

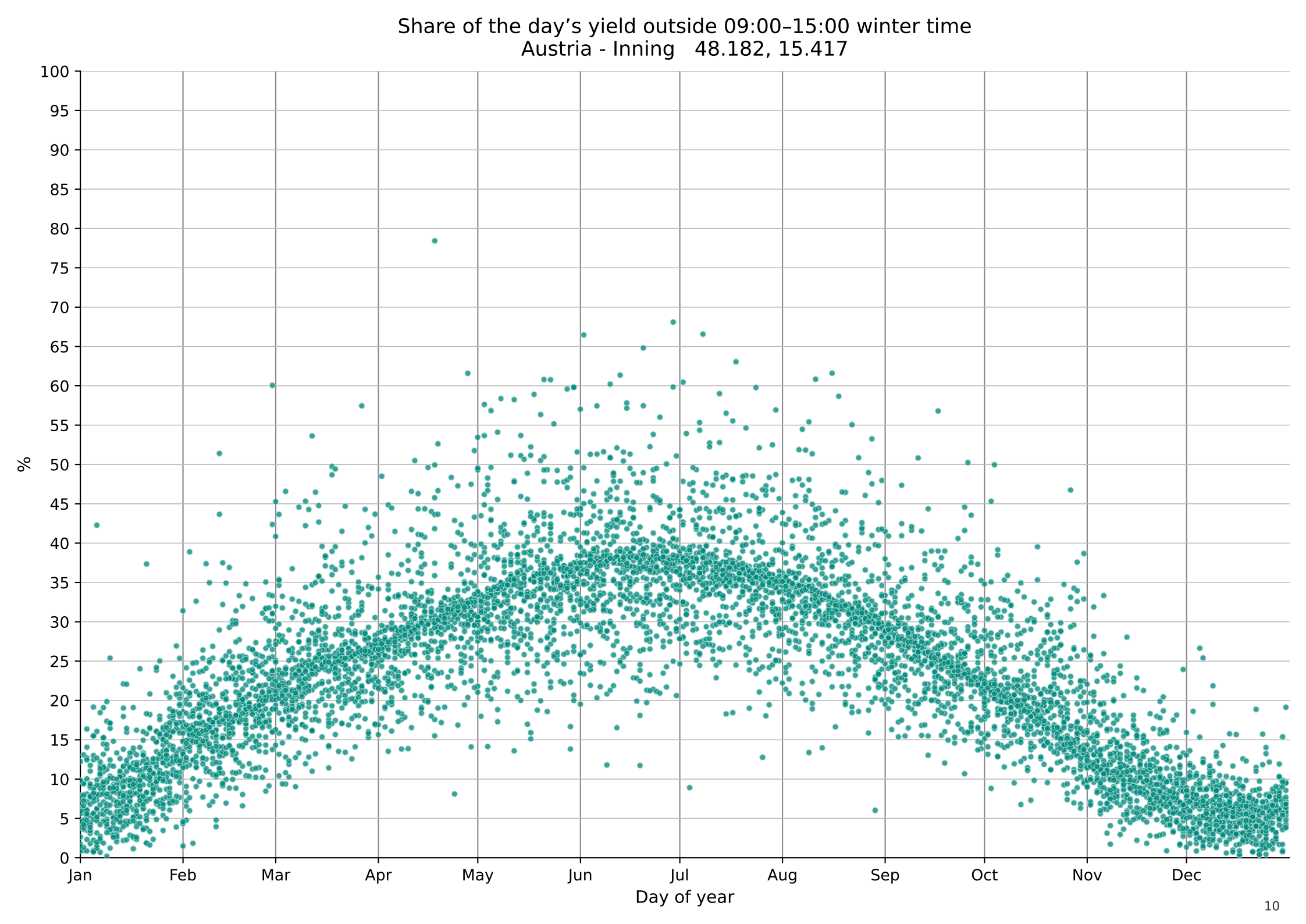
Watts is the highest hour of that field. % is of its own Wp. Hours are the count of hours at or above that share of its own record. Use this to size the MPPT or the inverter for that field.

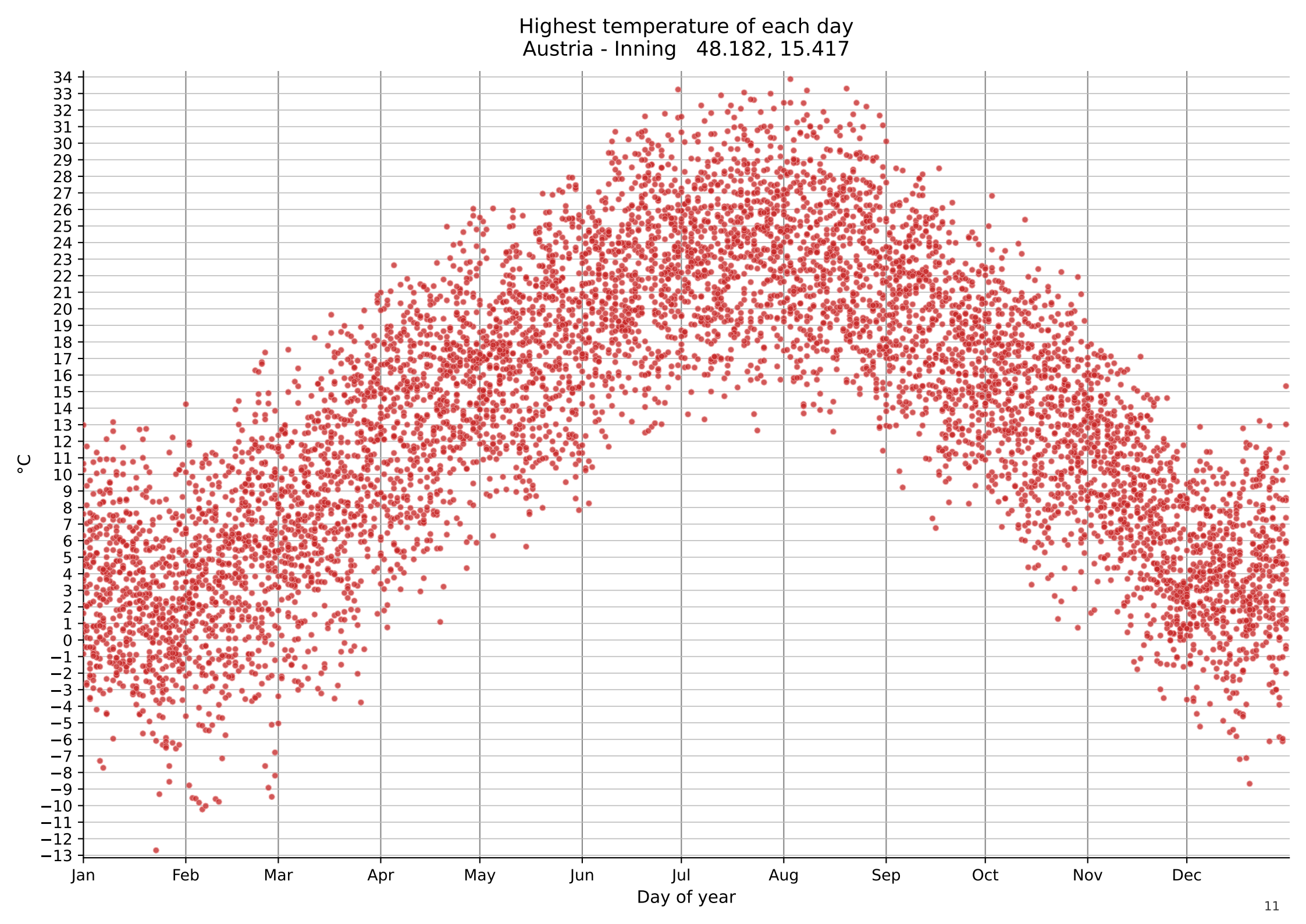

Yield distribution for each day — Wh / Wp of all PV together
Austria - Inning 48.182, 15.417
Wh / Wp
0
1
2
3
4
5
6
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year

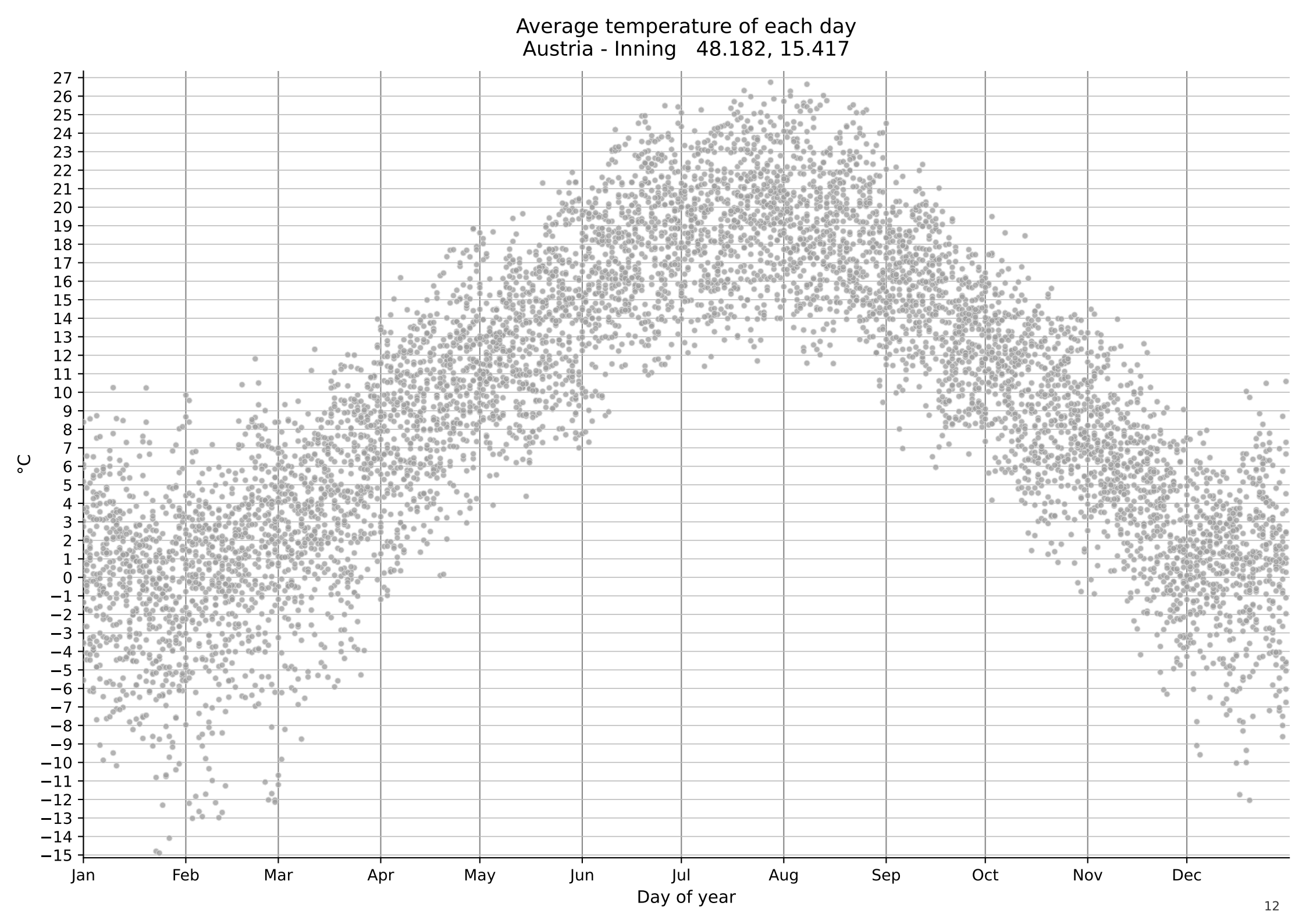

Yield distribution for each day — Wh / Wp of all PV together — 00:00–09:00
Austria - Inning 48.182, 15.417
1.0
0.8
0.6
0.4
0.2
0.0
Wh / Wp
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year

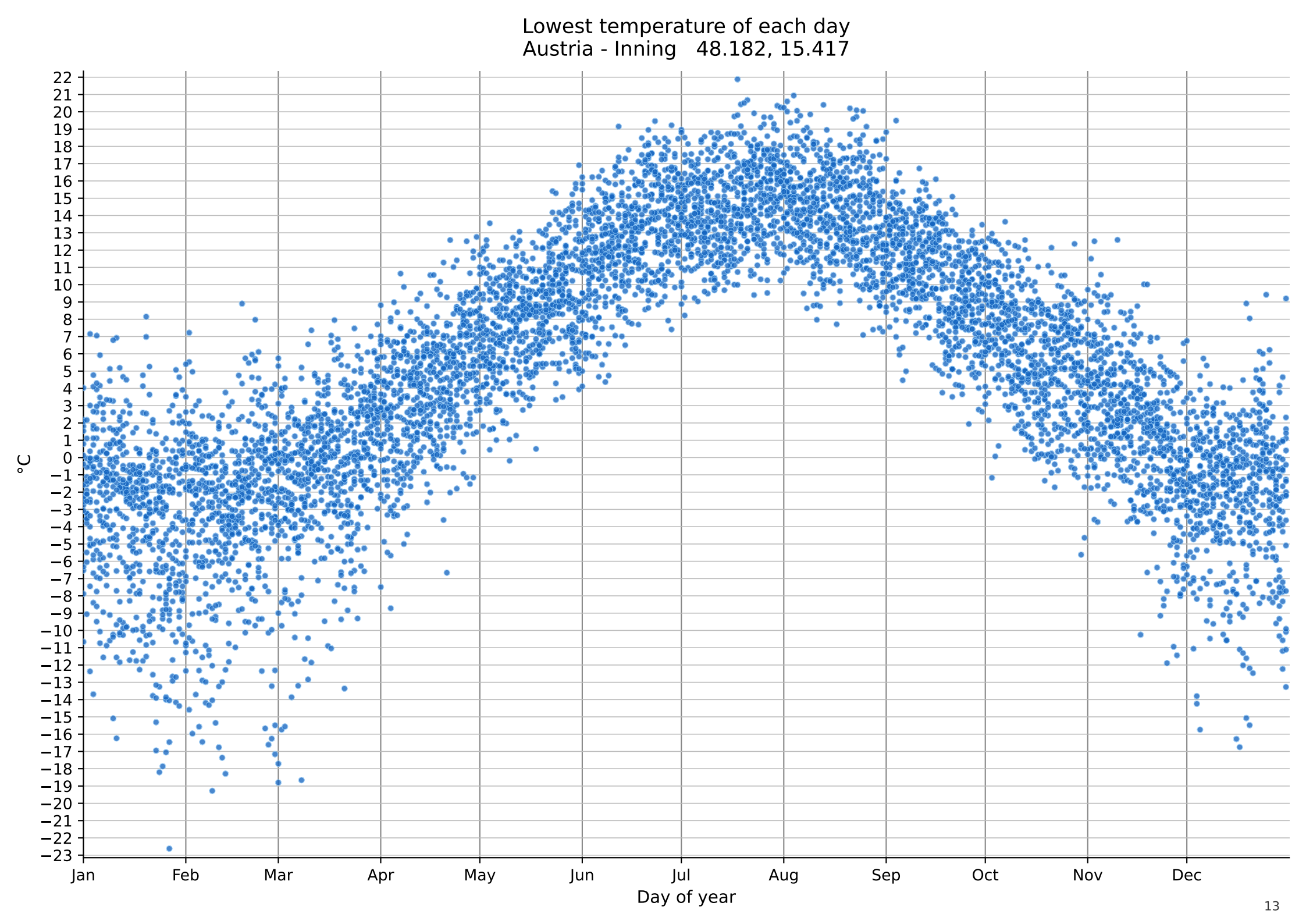

Yield distribution for each day — Wh / Wp of all PV together — 15:00–23:59
Austria - Inning 48.182, 15.417
Wh / Wp
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year

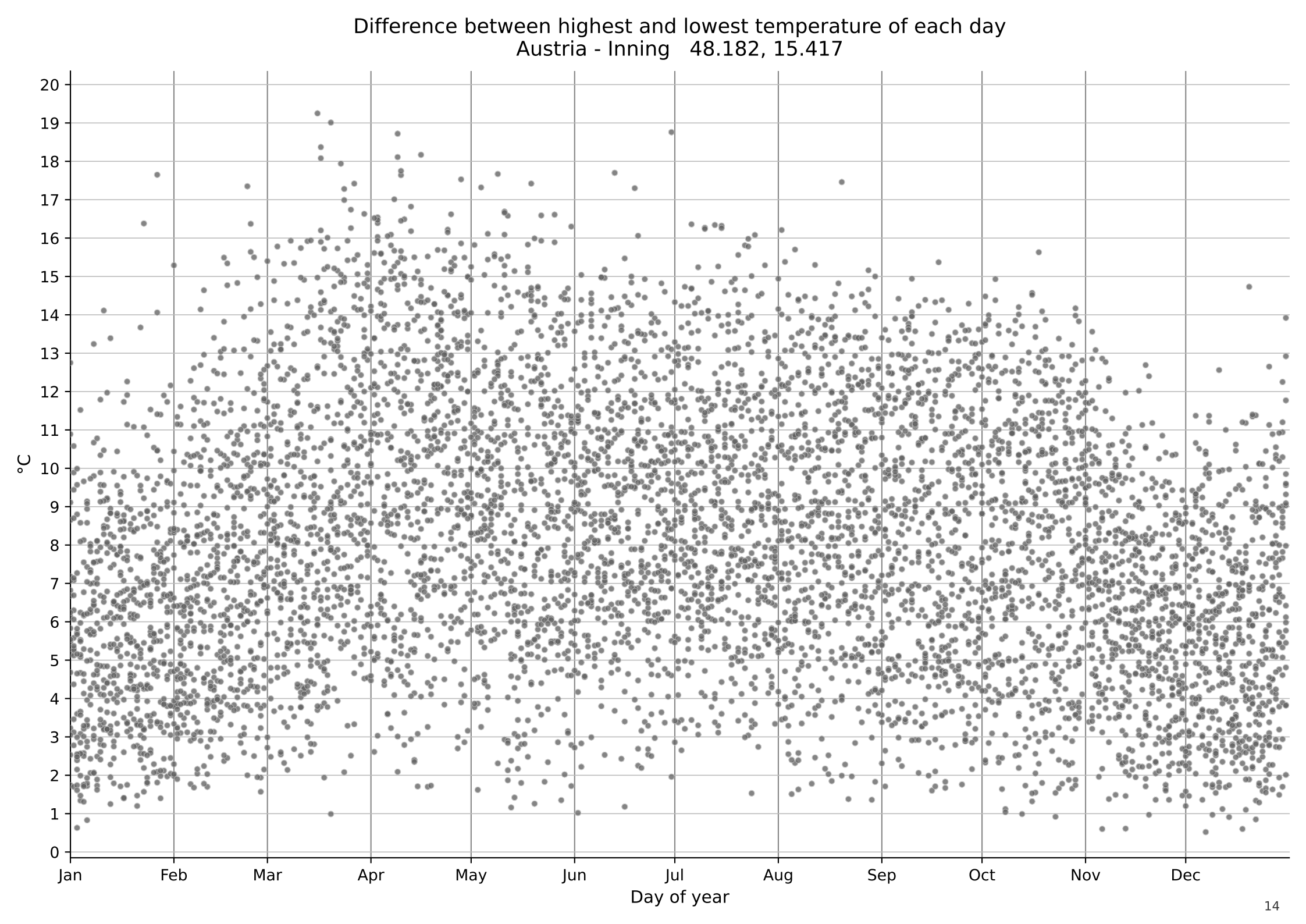

Share of the day’s yield in 09:00–15:00 winter time
Austria - Inning 48.182, 15.417
%
100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year


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

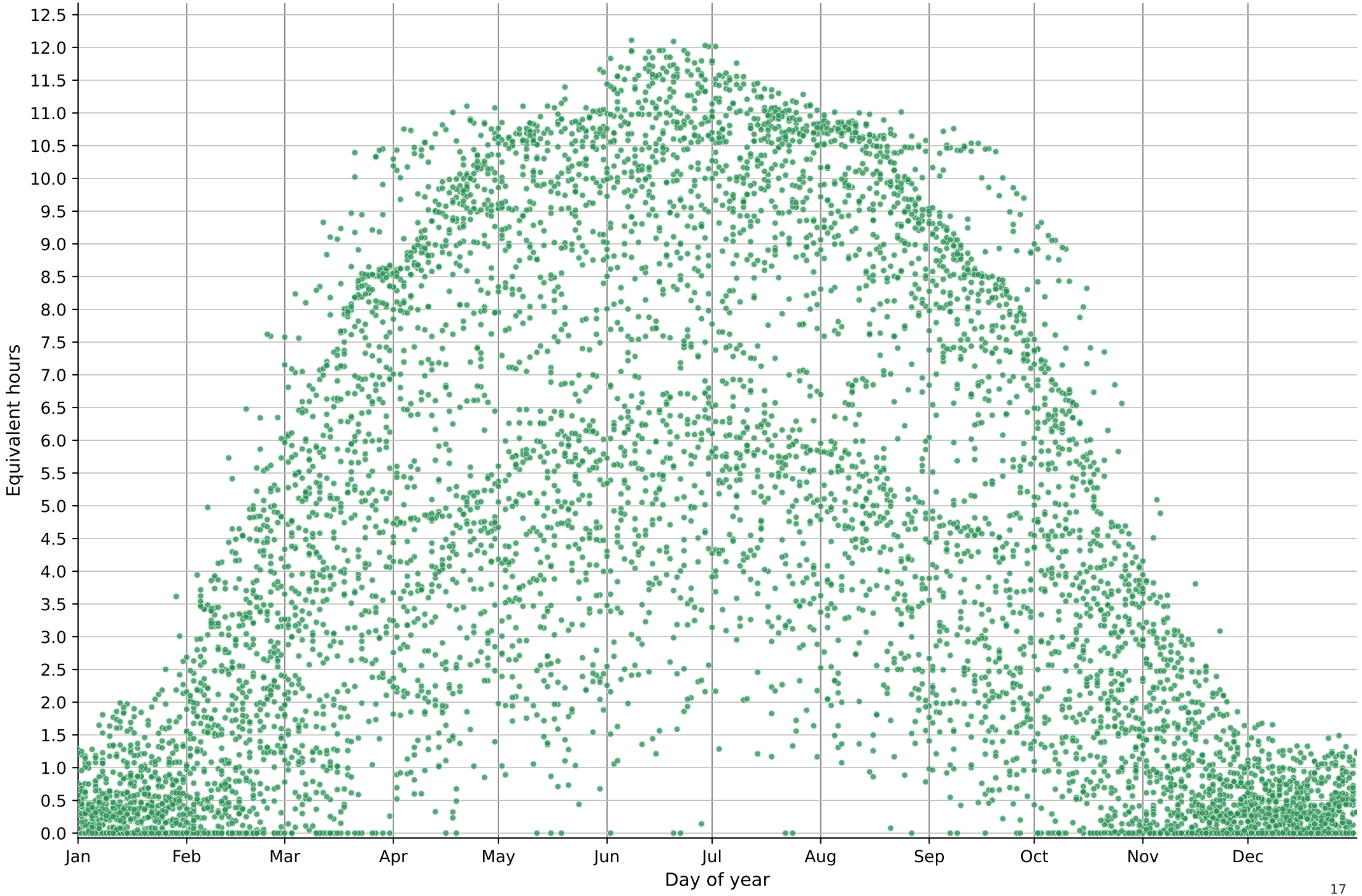
Month / year		Garage roof 1°/0° 10,740 Wp	Garage side wall south 90°/0° 3,475 Wp	Garage side wall north 90°/180° 3,475 Wp	Garage door side 90°/90° 700 Wp	Garage back side 90°/-90° 2,540 Wp	share central strucure west p 8°/90° 20,460 Wp	All together
January	Maximum	32.84	7.26	7.26	8.02	9.10	30.45	25.04
	average	23.62	5.26	5.26	5.93	6.73	22.94	18.86
	minimum	17.95	4.09	4.09	4.60	5.29	18.14	14.93
February	Maximum	51.56	9.78	9.78	11.74	11.07	50.11	40.23
	average	41.81	8.23	8.23	10.69	9.69	40.99	33.27
	minimum	30.53	7.01	7.01	9.55	8.85	30.06	25.09
March	Maximum	103.67	40.02	16.17	20.69	20.57	101.42	82.89
	average	78.18	32.13	14.12	18.52	18.64	77.31	63.84
	minimum	60.95	23.96	12.21	16.23	16.11	59.76	50.13
April	Maximum	138.59	85.87	20.80	35.62	37.00	136.19	114.82
	average	110.61	68.54	18.98	32.57	33.18	109.36	92.70
	minimum	87.14	54.04	16.79	27.32	27.21	86.54	73.51
May	Maximum	144.59	75.98	26.21	49.99	44.67	143.40	120.28
	average	124.01	66.13	24.16	43.00	39.77	122.86	103.66
	minimum	91.48	48.94	22.30	34.42	32.92	90.92	77.32
June	Maximum	163.28	73.17	28.27	50.65	56.41	161.05	134.62
	average	135.71	62.75	26.40	45.09	48.98	134.75	113.08
	minimum	109.40	51.97	24.08	39.28	41.53	109.08	92.07
July	Maximum	158.88	77.19	27.83	49.85	48.86	157.25	131.38
	average	138.27	67.74	25.64	45.09	43.52	137.14	114.94
	minimum	102.76	50.02	23.06	36.77	33.52	102.08	85.97
August	Maximum	132.11	79.19	22.99	40.50	40.39	130.16	110.01
	average	117.75	70.61	19.99	36.73	36.67	116.75	98.74
	minimum	102.53	60.77	17.60	32.59	33.27	102.14	86.72
September	Maximum	104.79	59.73	16.42	24.07	22.91	103.90	86.53
	average	86.69	49.11	14.08	21.48	20.85	85.71	71.81
	minimum	69.95	40.19	11.80	18.89	18.24	69.01	58.26
October	Maximum	68.41	11.30	11.26	12.90	12.98	70.20	55.01
	average	54.55	9.83	9.80	11.44	11.69	54.25	43.53
	minimum	37.60	8.60	8.60	9.79	9.93	37.26	30.39
November	Maximum	33.54	6.47	6.47	7.53	7.71	32.85	26.48
	average	26.62	5.75	5.75	6.77	6.86	26.15	21.33
	minimum	20.26	5.33	5.33	6.04	6.01	20.05	16.55
December	Maximum	25.37	5.19	5.19	5.84	6.52	24.35	19.70
	average	19.18	4.19	4.19	4.82	5.42	18.63	15.30
	minimum	15.84	2.90	2.90	3.46	3.86	15.59	12.60
All years	Maximum	1,005.5	478.1	182.9	291.4	295.1	990.1	828.2
	average	957.0	450.3	176.6	282.1	282.0	946.8	791.1
	minimum	908.1	423.9	171.8	274.0	269.5	899.1	752.7

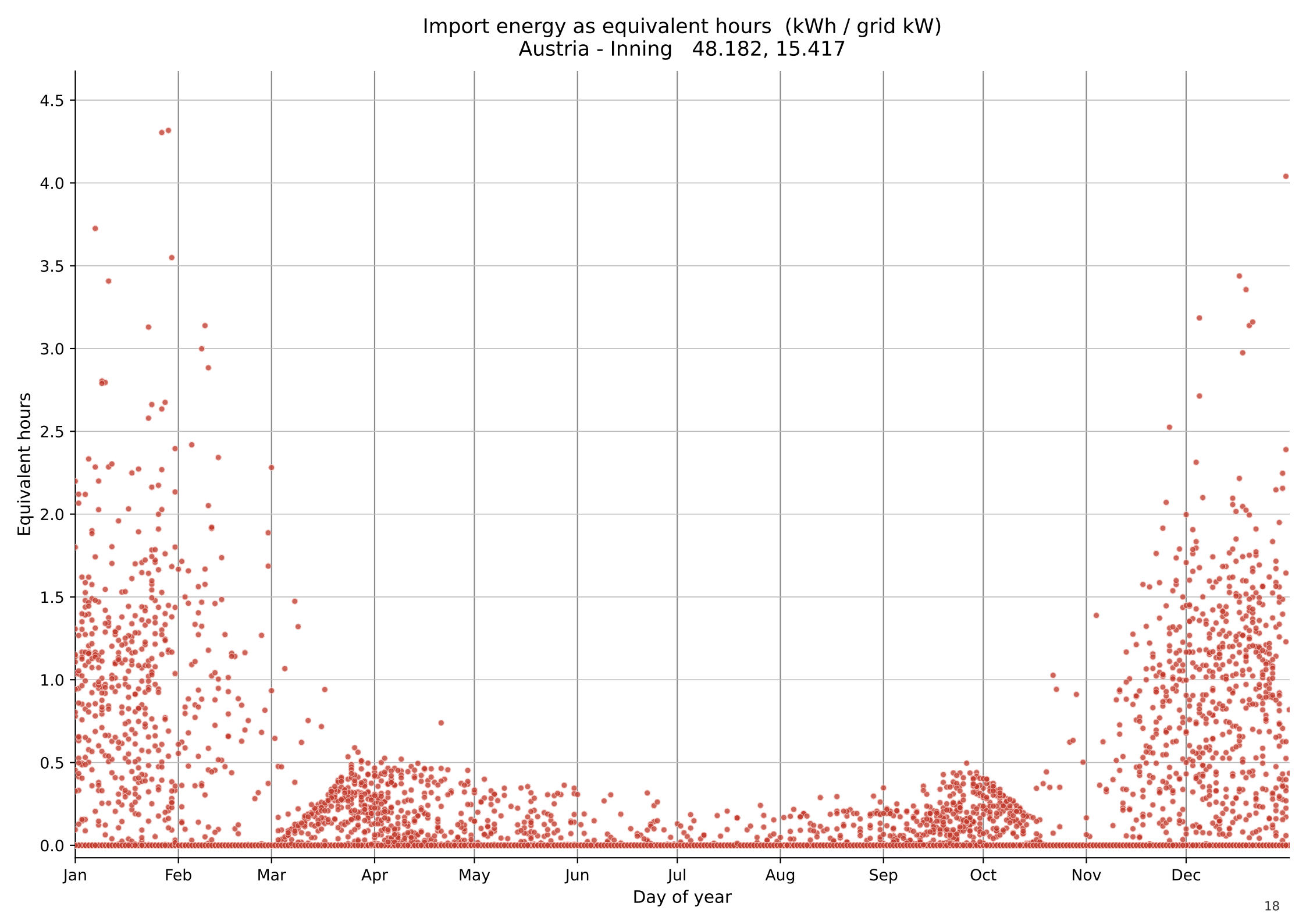
Highest combined yield hour: 2016-05-15 12:10 UTC 26,396.4 W (0.638 W/Wp) of 41,390 Wp installed. Use this hour to size battery charge power.

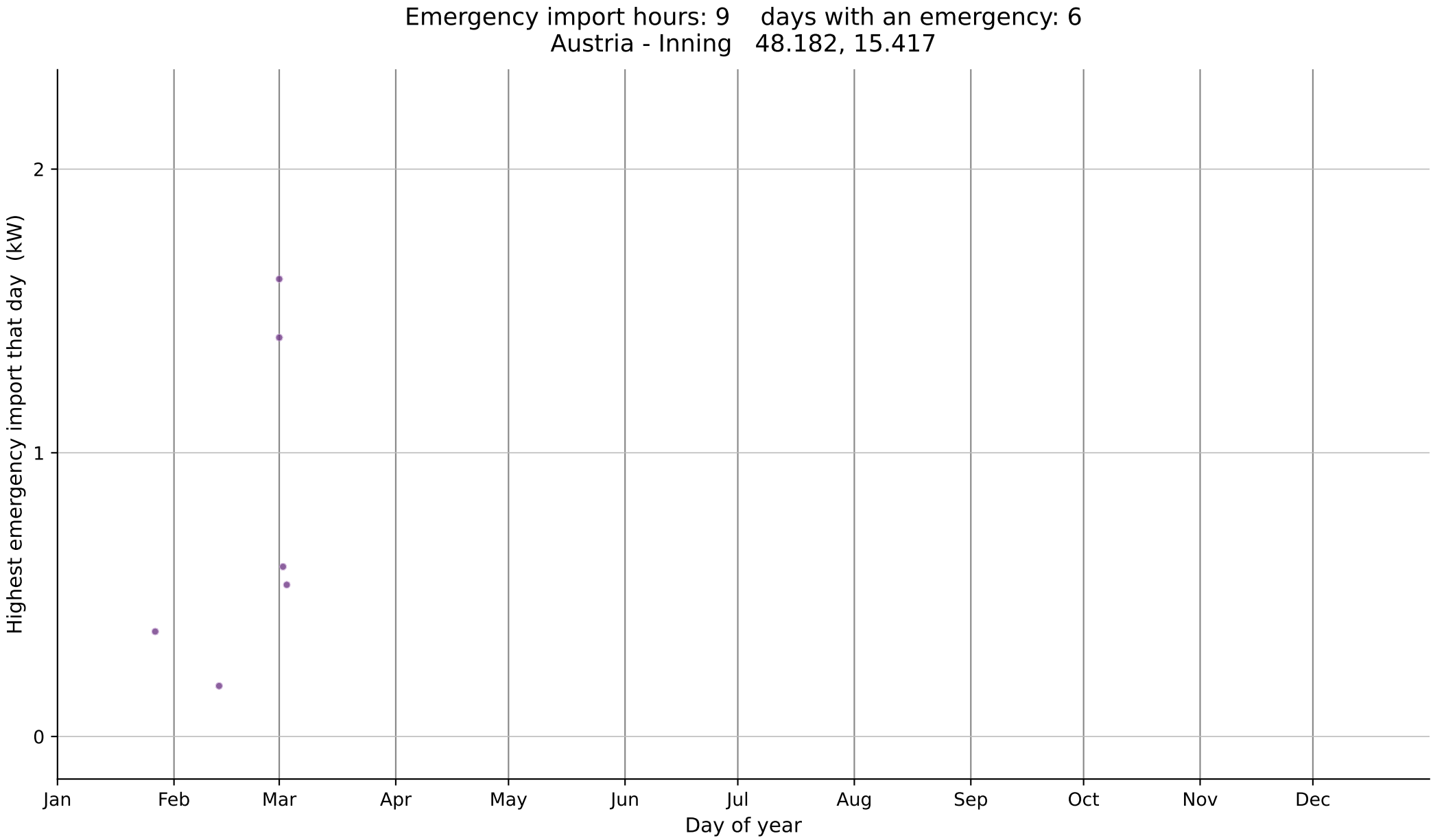
Monthly and yearly total yield (kWh)
Austria - Inning 48.182, 15.417

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	share central strucure west p 8°/90° 20,460 Wp	All together
January	Maximum	352.68	25.23	25.23	5.62	23.10	622.93	1,036.58
	average	253.64	18.29	18.29	4.15	17.08	469.30	780.75
	minimum	192.81	14.22	14.22	3.22	13.43	371.18	618.06
February	Maximum	553.71	34.00	34.00	8.22	28.11	1,025.23	1,665.08
	average	449.02	28.61	28.61	7.49	24.62	838.63	1,376.98
	minimum	327.93	24.35	24.35	6.69	22.49	615.02	1,038.51
March	Maximum	1,113.39	139.08	56.20	14.49	52.24	2,075.08	3,430.84
	average	839.69	111.66	49.08	12.97	47.33	1,581.71	2,642.43
	minimum	654.63	83.28	42.43	11.36	40.91	1,222.68	2,075.07
April	Maximum	1,488.40	298.38	72.30	24.93	93.97	2,786.37	4,752.54
	average	1,188.00	238.16	65.95	22.80	84.27	2,237.60	3,836.77
	minimum	935.83	187.80	58.33	19.13	69.12	1,770.60	3,042.56
May	Maximum	1,552.93	264.04	91.09	34.99	113.45	2,933.89	4,978.52
	average	1,331.89	229.81	83.95	30.10	101.03	2,513.77	4,290.55
	minimum	982.45	170.05	77.49	24.10	83.62	1,860.25	3,200.10
June	Maximum	1,753.66	254.25	98.25	35.46	143.28	3,295.06	5,572.08
	average	1,457.52	218.06	91.75	31.57	124.41	2,757.00	4,680.31
	minimum	1,174.96	180.59	83.68	27.49	105.48	2,231.86	3,810.78
July	Maximum	1,706.42	268.23	96.72	34.89	124.10	3,217.23	5,437.78
	average	1,485.03	235.41	89.09	31.56	110.53	2,805.94	4,757.57
	minimum	1,103.61	173.81	80.15	25.74	85.15	2,088.65	3,558.50
August	Maximum	1,418.83	275.17	79.90	28.35	102.58	2,663.17	4,553.38
	average	1,264.60	245.38	69.46	25.71	93.15	2,388.66	4,086.96
	minimum	1,101.14	211.18	61.15	22.81	84.50	2,089.81	3,589.20
September	Maximum	1,125.43	207.56	57.06	16.85	58.18	2,125.85	3,581.37
	average	931.05	170.64	48.91	15.04	52.95	1,753.67	2,972.26
	minimum	751.23	139.67	41.01	13.22	46.33	1,411.88	2,411.51
October	Maximum	734.70	39.26	39.13	9.03	32.97	1,436.28	2,276.84
	average	585.91	34.17	34.07	8.01	29.69	1,109.95	1,801.80
	minimum	403.85	29.90	29.87	6.86	25.23	762.32	1,258.03
November	Maximum	360.26	22.49	22.49	5.27	19.59	672.20	1,096.21
	average	285.88	19.98	19.98	4.74	17.43	535.04	883.05
	minimum	217.55	18.50	18.50	4.22	15.26	410.24	685.03
December	Maximum	272.47	18.04	18.04	4.09	16.56	498.26	815.40
	average	206.03	14.54	14.54	3.38	13.77	381.16	633.42
	minimum	170.14	10.09	10.09	2.42	9.80	318.90	521.44
All years	Maximum	10,798.9	1,661.5	635.6	204.0	749.6	20,257.1	34,279.7
	average	10,278.3	1,564.7	613.7	197.5	716.3	19,372.4	32,742.9
	minimum	9,753.0	1,472.9	597.2	191.8	684.5	18,395.7	31,154.7

Highest combined yield hour: 2016-05-15 12:10 UTC 26,396.4 W (0.638 W/Wp) of 41,390 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
12.5
12.0
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
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
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	307	1,007	2,312	2,790	2,996	3,312	3,345	2,976	2,389	1,649	559	246	20,731
month average	199	679	1,744	2,267	2,552	2,842	2,923	2,632	1,970	1,233	352	149	19,541
month minimum	123	344	1,261	1,657	1,971	2,429	2,150	2,249	1,585	684	207	78	18,209
day Maximum	43.4	91.4	125.4	133.2	139.9	145.3	144.2	132.2	129.1	111.9	61.1	20.1	145.3
day average	6.4	24.1	56.3	75.6	82.3	94.7	94.3	84.9	65.7	39.8	11.7	4.8	53.5
day minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Import from grid													
month Maximum	474	281	109	49	17	8	10	11	40	47	244	523	1,394
month average	264	58	41	28	9	3	2	5	25	19	85	283	822
month minimum	104	0	20	14	1	0	0	1	9	9	3	60	421
day Maximum	51.8	37.7	27.4	8.9	4.8	3.8	2.9	3.6	6.0	12.3	30.3	48.5	51.8
day average	8.5	2.1	1.3	0.9	0.3	0.1	0.1	0.2	0.8	0.6	2.8	9.1	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
Total energy used for house													
month Maximum	1,148	1,127	776	517	435	346	317	320	386	519	654	1,054	6,767
month average	778	679	610	456	387	317	304	303	338	451	555	706	5,884
month minimum	614	533	517	376	332	300	291	283	296	376	503	583	5,476
day Maximum	71.4	64.7	56.9	26.1	20.0	18.1	17.1	16.9	17.3	23.4	38.8	60.1	71.4
day average	25.1	24.1	19.7	15.2	12.5	10.6	9.8	9.8	11.3	14.5	18.5	22.8	16.1
day minimum	8.9	13.1	11.3	8.7	8.6	8.6	8.6	8.6	8.6	8.7	11.0	13.9	8.6

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	23	120	255	287	319	329	349	318	265	205	65	15	2,327
month average	13	70	208	249	285	305	321	295	234	153	31	8	2,173
month minimum	7	21	147	194	236	267	277	264	197	72	14	4	2,031
day Maximum	5.2	13.6	17.7	16.7	16.9	17.5	17.2	16.0	16.8	17.2	9.5	1.7	17.7
day average	0.4	2.5	6.7	8.3	9.2	10.2	10.4	9.5	7.8	4.9	1.0	0.3	6.0
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													
month Maximum	111	74	31	13	4	2	3	3	10	12	56	124	334
month average	62	14	12	7	2	1	0	1	7	5	20	66	197
month minimum	24	0	6	4	0	0	0	0	3	3	1	14	101
day Maximum	12.0	10.0	8.3	2.2	1.1	0.9	0.7	0.9	1.7	3.0	6.4	11.1	12.0
day average	2.0	0.5	0.4	0.2	0.1	0.0	0.0	0.0	0.2	0.2	0.7	2.1	0.5
day minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Peak grid fee													
month Maximum	47	39	42	19	10	8	5	6	9	19	38	44	257
month average	44	30	18	11	8	3	2	4	7	11	37	44	220
month minimum	44	0	10	8	3	0	0	3	5	6	13	44	174
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	155	113	73	28	13	9	7	8	18	31	94	168	592
month average	106	44	30	18	10	4	3	5	14	16	56	110	417
month minimum	68	0	17	13	3	0	0	4	8	10	13	58	317
day Maximum	12.0	10.0	8.3	2.2	1.1	0.9	0.7	0.9	1.7	3.0	6.4	11.1	12.0
day average	2.0	0.5	0.4	0.2	0.1	0.0	0.0	0.0	0.2	0.2	0.7	2.1	0.5
day minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Balance													
month Maximum	-45	120	232	269	315	329	349	314	254	191	30	-43	2,010
month average	-94	25	177	231	275	302	318	290	220	137	-25	-102	1,756
month minimum	-146	-74	105	166	227	258	274	257	183	50	-77	-164	1,504
day Maximum	5.2	13.6	17.7	16.7	16.9	17.5	17.2	16.0	16.8	17.2	9.5	1.7	17.7
day average	-1.6	2.0	6.3	8.1	9.1	10.2	10.4	9.5	7.6	4.8	0.4	-1.8	5.4
day minimum	-11.8	-10.0	-4.2	-0.5	0.0	0.0	0.0	-0.2	-0.4	-3.0	-6.4	-11.1	-11.8

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	307	1,007	2,312	2,790	2,996	3,312	3,345	2,976	2,389	1,649	559	246	20,731
month average	199	679	1,744	2,267	2,552	2,842	2,923	2,632	1,970	1,233	352	149	19,541
month minimum	123	344	1,261	1,657	1,971	2,429	2,150	2,249	1,585	684	207	78	18,209
day Maximum	43.4	91.4	125.4	133.2	139.9	145.3	144.2	132.2	129.1	111.9	61.1	20.1	145.3
day average	6.4	24.1	56.3	75.6	82.3	94.7	94.3	84.9	65.7	39.8	11.7	4.8	53.5
day minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Export during high price hours													
month Maximum	41	410	841	1,118	1,285	1,284	1,368	1,269	1,062	741	213	11	8,925
month average	8	198	698	994	1,170	1,220	1,305	1,193	952	552	76	1	8,368
month minimum	0	12	473	847	1,008	1,096	1,208	1,122	768	249	9	0	7,814
day Maximum	15.3	49.0	63.1	64.3	65.4	66.0	66.4	65.9	67.2	63.3	38.3	4.4	67.2
day average	0.3	7.0	22.5	33.1	37.7	40.7	42.1	38.5	31.7	17.8	2.5	0.0	22.9
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 medium price hours													
month Maximum	59	215	478	602	638	753	755	606	487	311	59	32	4,136
month average	37	158	347	470	507	610	619	527	377	180	38	16	3,887
month minimum	22	85	235	346	351	472	430	464	247	96	23	2	3,578
day Maximum	7.0	16.5	22.9	23.5	32.4	35.3	35.0	26.5	23.5	16.5	5.7	2.9	35.3
day average	1.2	5.6	11.2	15.7	16.4	20.3	20.0	17.0	12.6	5.8	1.3	0.5	10.6
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	243	504	1,038	1,099	1,115	1,302	1,252	1,152	863	624	303	213	7,788
month average	153	323	699	803	875	1,012	998	912	640	501	238	132	7,286
month minimum	64	169	446	435	612	772	513	645	478	338	146	76	6,643
day Maximum	30.4	44.4	47.0	58.8	66.3	70.1	67.9	58.9	55.0	47.0	41.7	18.6	70.1
day average	4.9	11.4	22.5	26.8	28.2	33.7	32.2	29.4	21.3	16.2	7.9	4.2	19.9
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
Austria - Inning 48.182, 15.417

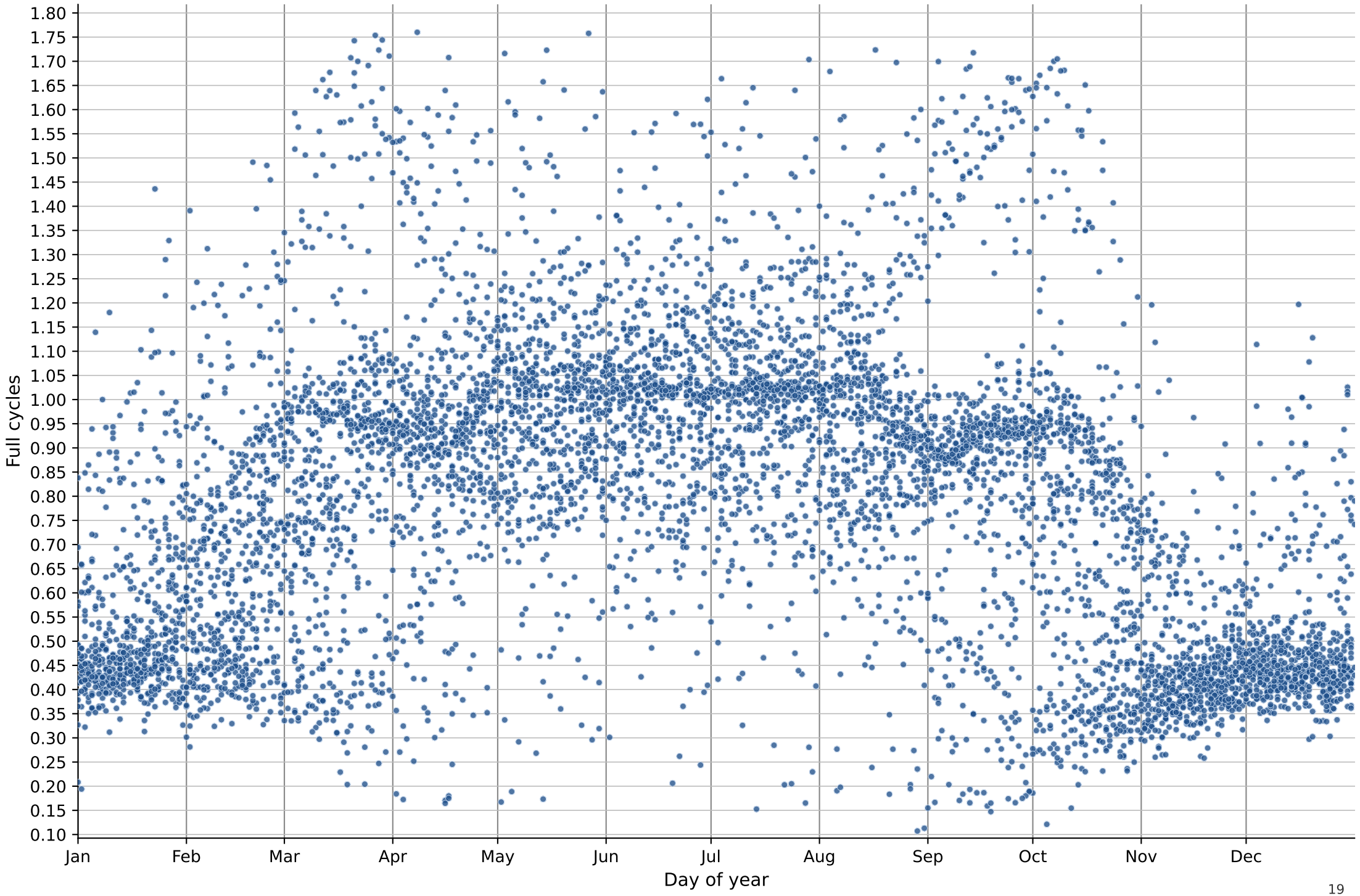
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	All
Heating													
month Maximum	872	869	500	253	162	84	48	51	124	245	388	780	3,553
month average	503	428	335	192	115	55	34	32	77	178	290	432	2,672
month minimum	338	284	242	114	62	38	20	8	37	104	238	309	2,261
day Maximum	62.4	55.8	48.0	17.2	11.2	9.3	8.4	8.1	8.5	14.5	30.0	51.3	62.4
day average	16.2	15.2	10.8	6.4	3.7	1.8	1.1	1.0	2.6	5.7	9.7	13.9	7.3
day minimum	0.0	4.3	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	5.1	0.0
Cooling													
month Maximum	0	0	0	0	0	2	8	11	0	0	0	0	18
month average	0	0	0	0	0	0	2	2	0	0	0	0	4
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	1.0	7.4	5.9	0.0	0.0	0.0	0.0	7.4
day average	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	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	28	26	28	25	24	22	21	21	22	26	25	26	289
month average	28	25	28	24	23	21	20	20	21	25	25	26	286
month minimum	28	25	27	22	22	20	19	19	19	23	25	26	280
day Maximum	1.1	0.9	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.1
day average	0.9	0.9	0.9	0.8	0.8	0.7	0.6	0.6	0.7	0.8	0.8	0.8	0.8
day minimum	0.9	0.8	0.8	0.7	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.8	0.6
Direct electric													
month Maximum	384	441	138	5	0	0	0	0	0	1	49	297	747
month average	94	76	24	1	0	0	0	0	0	0	6	49	250
month minimum	2	0	0	0	0	0	0	0	0	0	0	0	8
day Maximum	44.4	37.9	30.5	4.7	0.0	0.0	0.0	0.0	0.0	0.7	13.3	33.6	44.4
day average	3.0	2.7	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.6	0.7
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

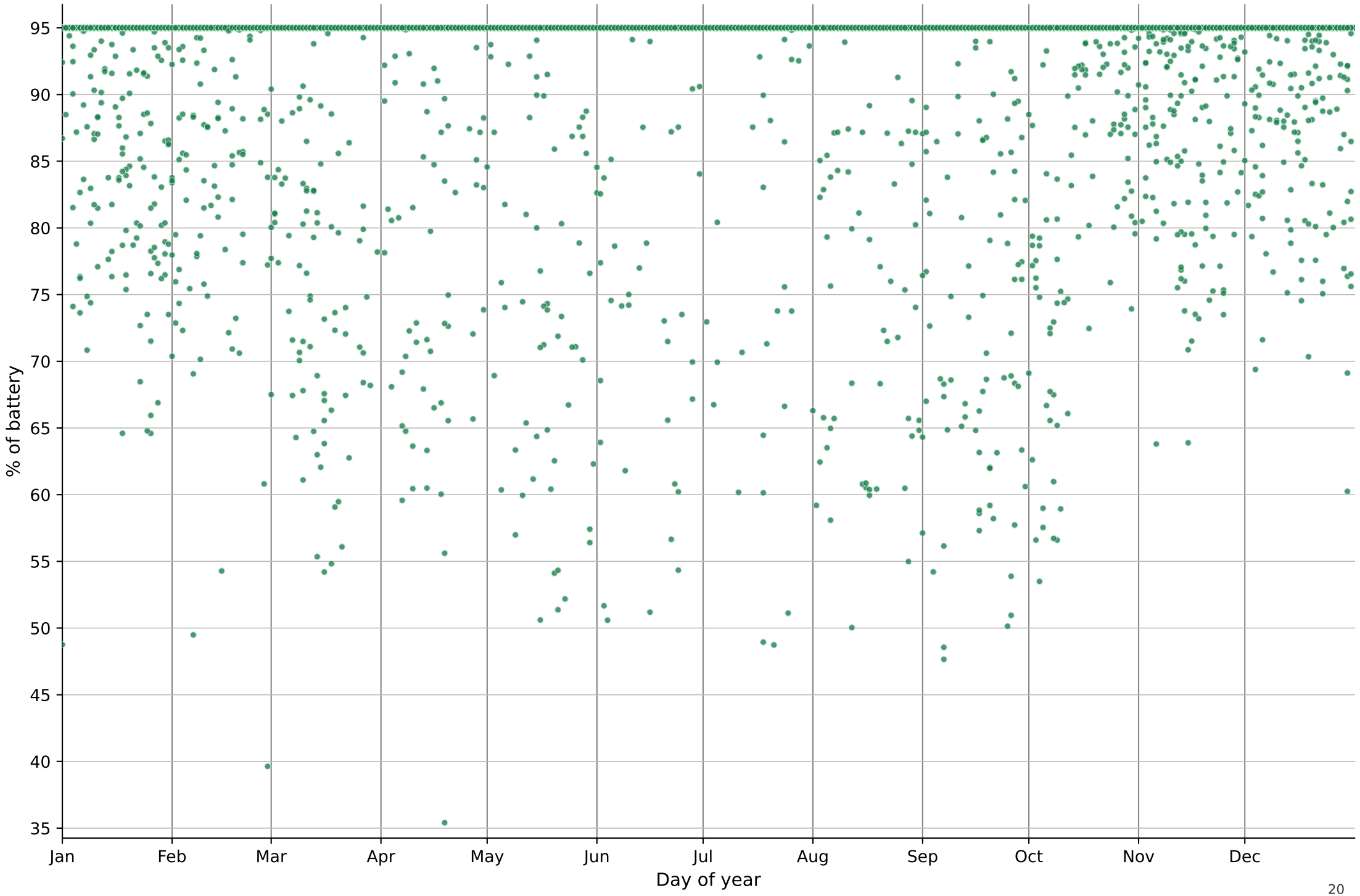
Heating, cooling and DHW are electricity. Direct electric is the part the heat pump could not cover.

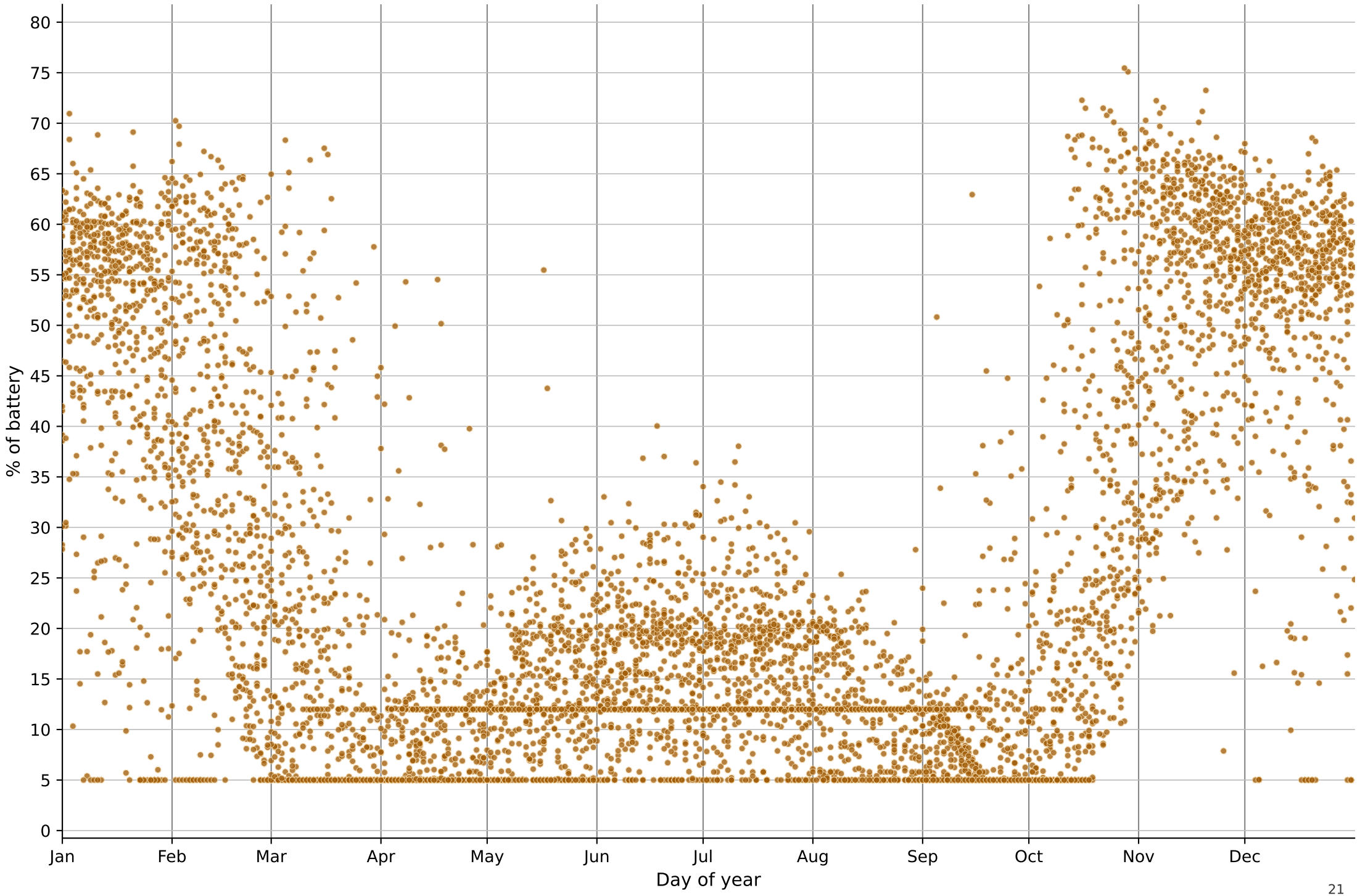
Battery
Austria - Inning 48.182, 15.417

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	All
Wasted													
month Maximum	0	31	438	1,538	1,585	1,853	1,784	1,320	837	74	1	0	8,164
month average	0	15	241	1,033	1,247	1,412	1,414	1,056	590	40	0	0	7,048
month minimum	0	4	112	679	737	948	956	779	358	13	0	0	6,298
day Maximum	0.0	7.8	37.8	122.2	127.4	135.3	127.5	111.5	82.3	13.9	0.7	0.0	135.3
day average	0.0	0.5	7.8	34.4	40.2	47.1	45.6	34.1	19.7	1.3	0.0	0.0	19.3
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	24	25	29	29	31	31	32	30	28	26	16	23	297
month average	17	19	27	28	30	30	31	29	26	22	14	15	288
month minimum	14	15	25	26	28	28	29	28	24	16	12	13	278
day Maximum	1.4	1.5	1.8	1.8	1.8	1.6	1.7	1.7	1.7	1.7	1.2	1.2	1.8
day average	0.5	0.7	0.9	0.9	1.0	1.0	1.0	0.9	0.9	0.7	0.5	0.5	0.8
day minimum	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.3	0.3	0.1
Charge C													
month Maximum	0	0	0	0	0	0	0	0	0	0	0	0	4
month average	0	0	0	0	0	0	0	0	0	0	0	0	4
month minimum	0	0	0	0	0	0	0	0	0	0	0	0	4
day Maximum	0.2	0.3	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.3	0.2	0.5
day average	0.1	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.1	0.1	0.2
day minimum	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	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	3
day Maximum	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.1	0.3
day average	0.1	0.1	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.1	0.0	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

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
0.10
Jan
Feb
Mar
Apr
May
Jun
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Aug
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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