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
Roof West	22	90	19,800	—	front	—	yes
Terrace railing south	90	0	4,620	5 / 4	front	—	yes
Terrace railing north	90	180	4,620	5 / 4	front	—	yes
share central structure east part	8	-90	20,460	—	front	—	yes
share central strucure west part	8	90	20,460	—	front	—	yes
Total counted			80,700				

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) 57,191 W 0.709 W/Wp of 80,700 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+only+roof+-+remain+with+air+heat+pump&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 / 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
	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 10 Feb 9 Mar 8 Apr 6 May 4 Jun 4
	Import cap Jul–Dec kW	Jul 4 Aug 4 Sep 6 Oct 6 Nov 9 Dec 10
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	2020-05-24 12:10	2013-05-13 11:10	2009-06-13 12:10	2012-05-18 11:10	2009-06-03 11:10	2005-04-22 11:10	2013-05-28 11:10
Garage roof	8,180	8,369	8,302	8,095	8,243	8,121	8,219	8,251	8,152	8,224
Roof West	15,912	14,741	14,686	15,691	14,598	15,609	14,560	14,572	14,359	14,541
Terrace railing south	2,262	2,083	2,248	2,087	2,425	1,921	2,337	2,120	2,899	2,178
Terrace railing north	184	221	214	184	217	198	221	231	153	154
share central structure east part	14,623	15,608	15,436	14,512	15,308	14,636	15,276	15,365	15,102	15,305
share central strucure west part	16,031	15,819	15,710	15,850	15,596	15,854	15,554	15,608	15,375	15,561
Watt at record	57,191	56,841	56,596	56,419	56,387	56,338	56,167	56,146	56,039	55,963
Percent of installed peak	70.9	70.4	70.1	69.9	69.9	69.8	69.6	69.6	69.4	69.3

Values are watts at that hour. Date and time are UTC. Record 57,191 W (70.9 % of 80,700 Wp).

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

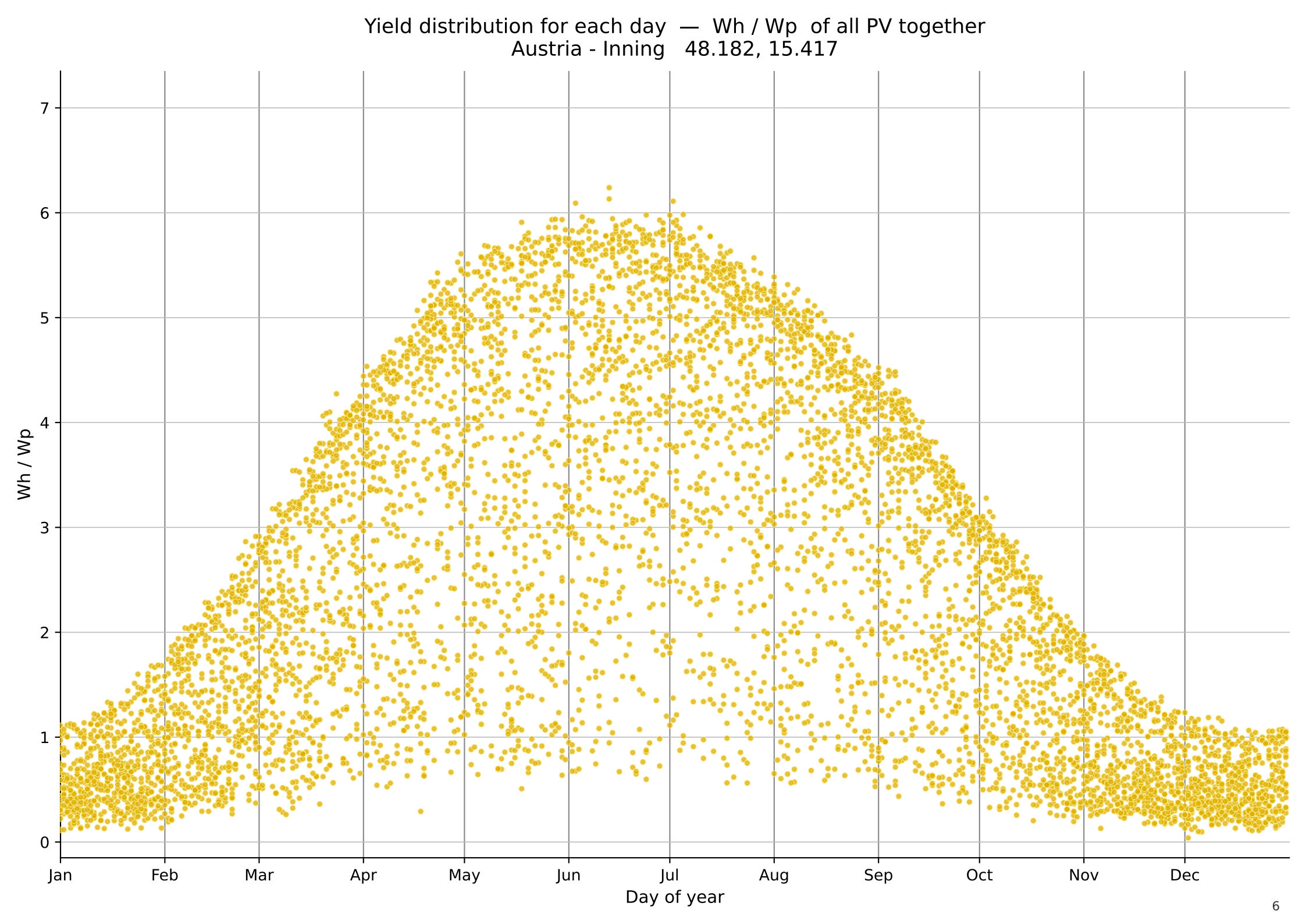
Of the record	Hours	Watts
98 %	8	56,048 W
96 %	32	54,904 W
94 %	90	53,760 W
92 %	272	52,616 W
90 %	646	51,472 W

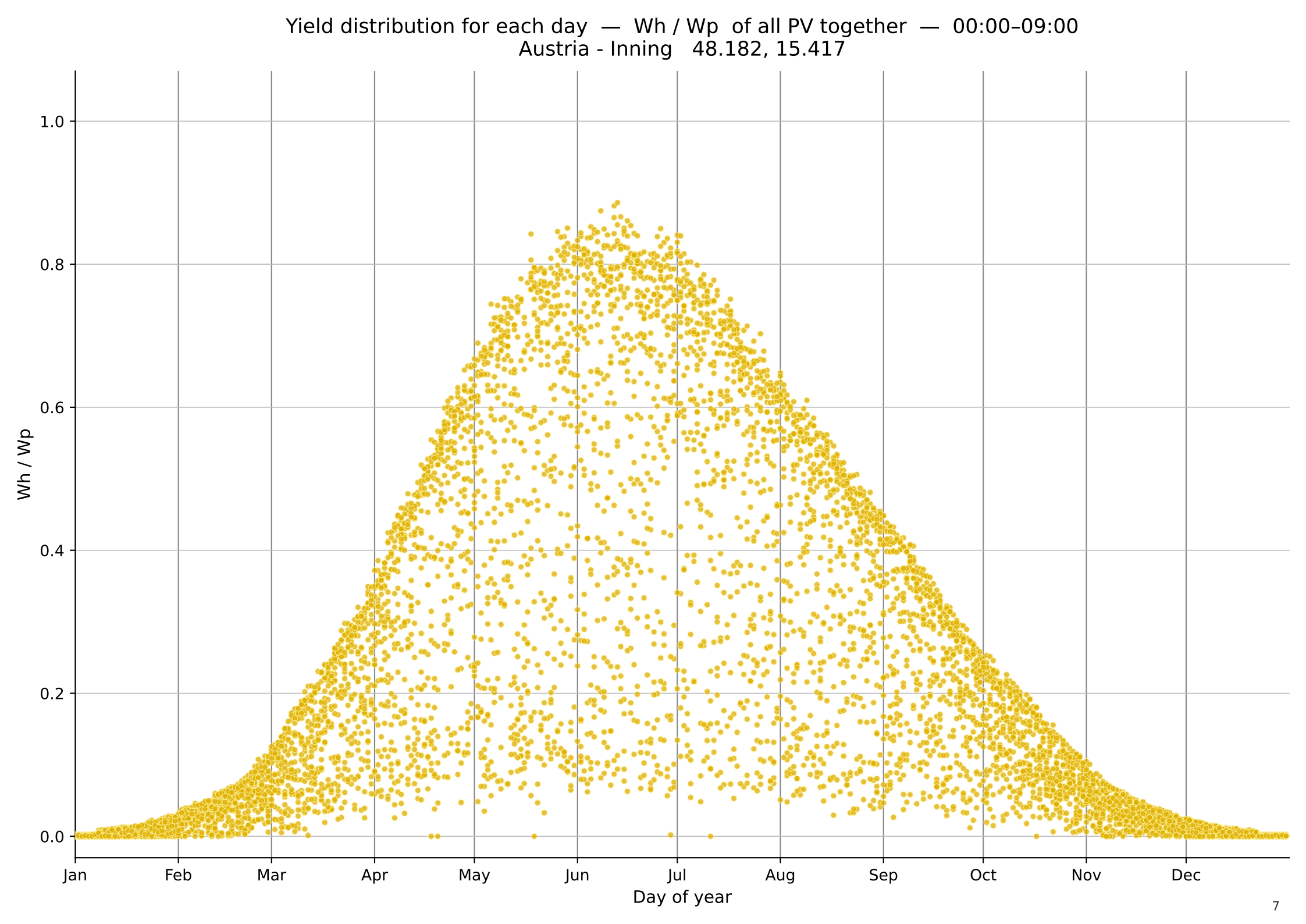
Record hour = 57,191 W combined.

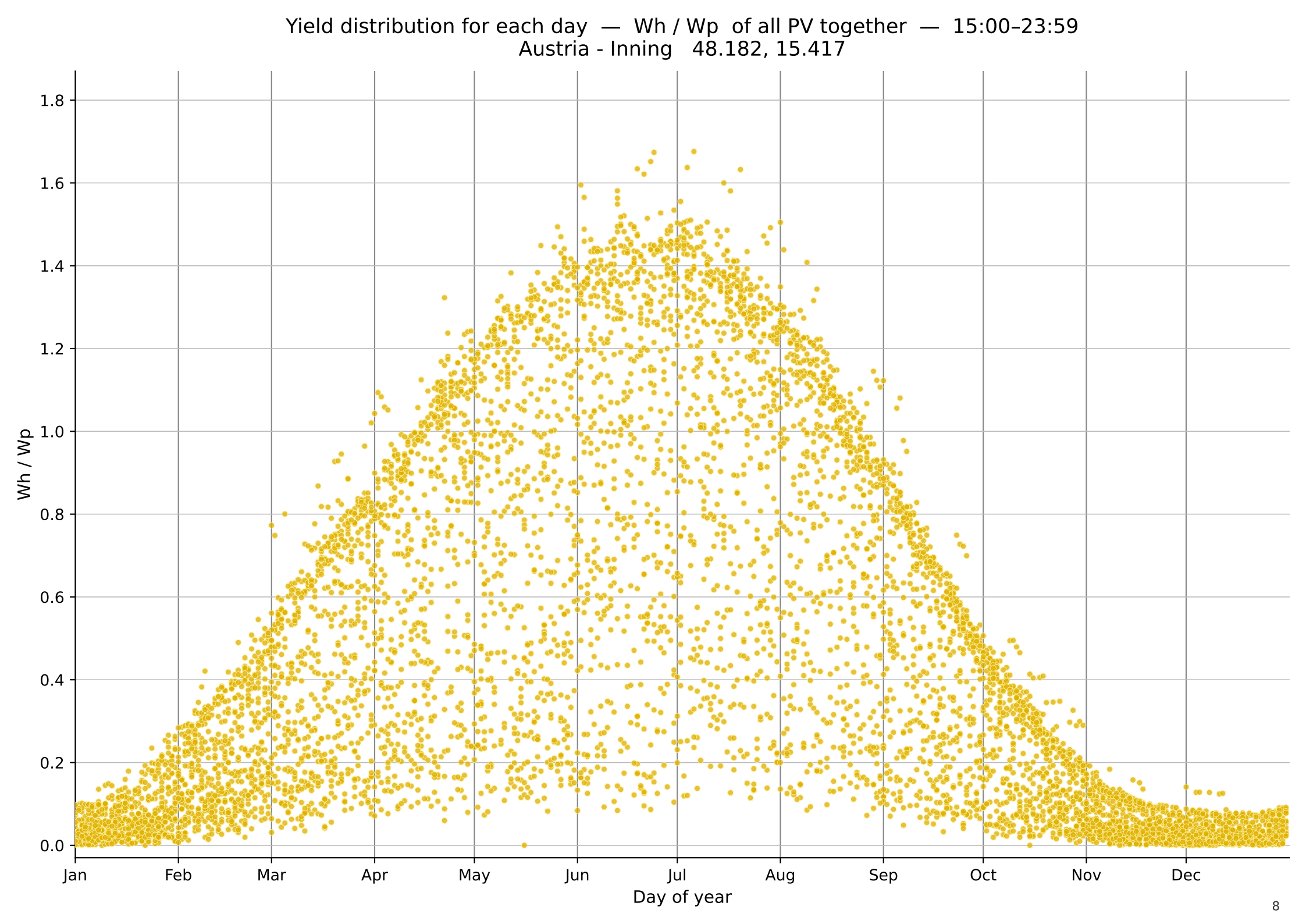
Records of each photovoltaic field
Austria - Inning 48.182, 15.417

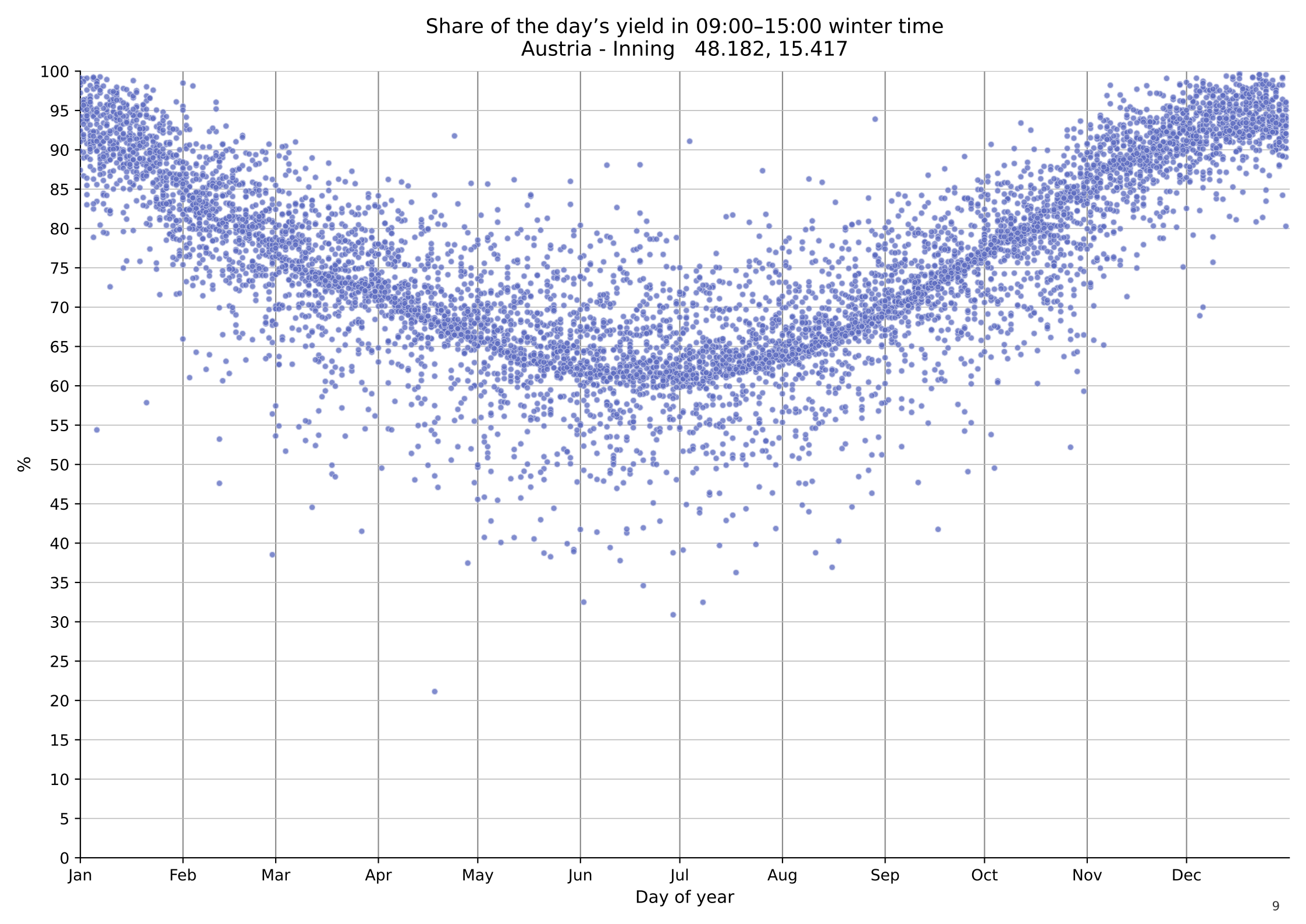
PV	Date	Watts	%	h ≥98%	h ≥96%	h ≥94%	h ≥92%	h ≥90%
Garage roof	2009-06-13 11:10	8,369	77.9	8	33	112	320	671
Roof West	2016-05-15 12:10	15,912	80.4	3	12	30	118	333
Terrace railing south	2009-03-22 11:10	3,507	75.9	8	17	26	45	75
Terrace railing north	2023-06-13 05:10	812	17.6	1	8	25	50	108
share central structure east part	2009-06-13 10:10	15,860	77.5	5	35	121	334	777
share central strucure west part	2016-05-15 12:10	16,031	78.4	4	21	59	189	471

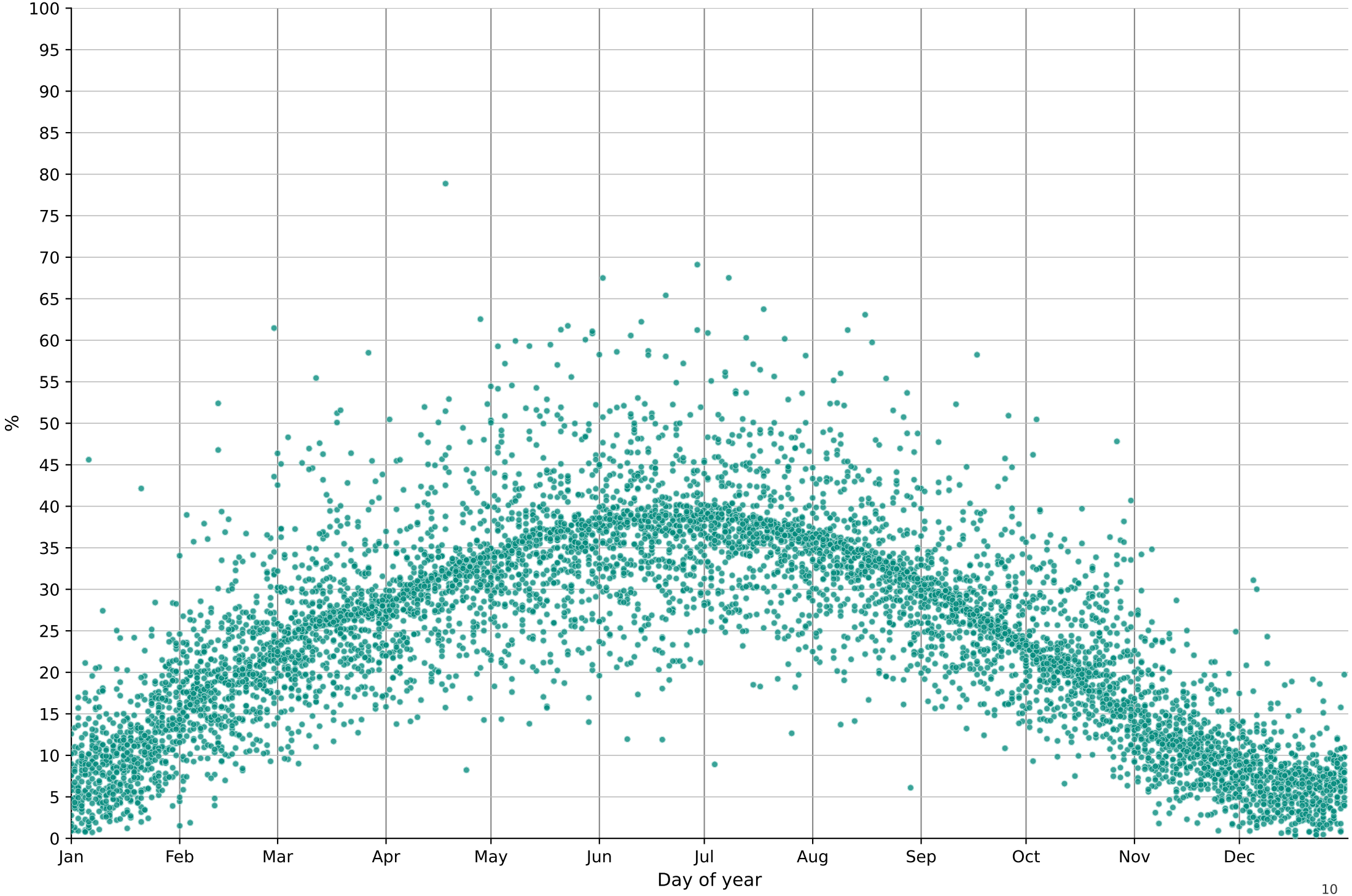
Watts is the highest hour of that field. % is of its own Wp. Hours are the count of hours at or above that share of its own record. Use this to size the MPPT or the inverter for that field.

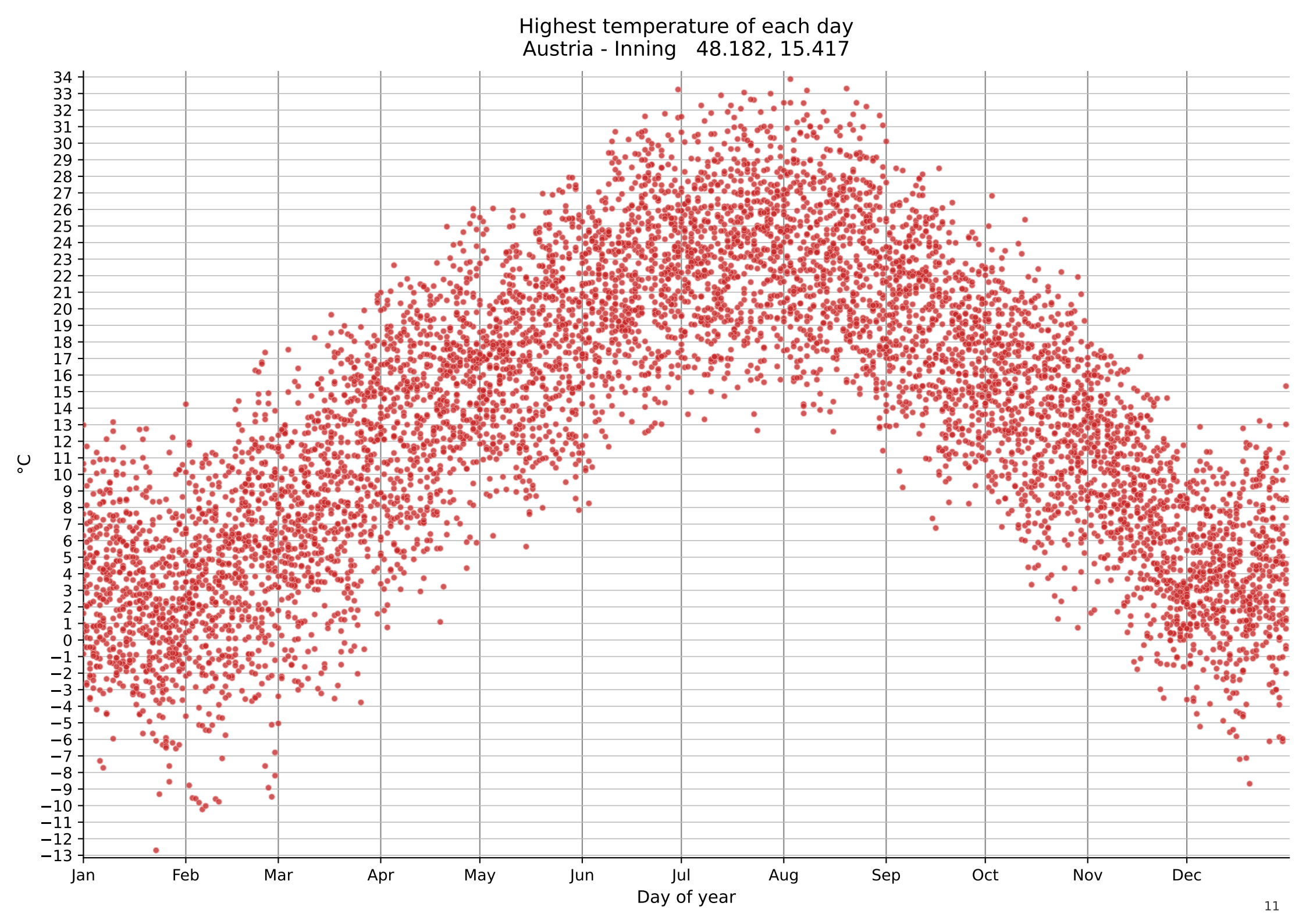

Yield distribution for each day — Wh / Wp of all PV together
Austria - Inning 48.182, 15.417
Wh / Wp
0
1
2
3
4
5
6
7
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year

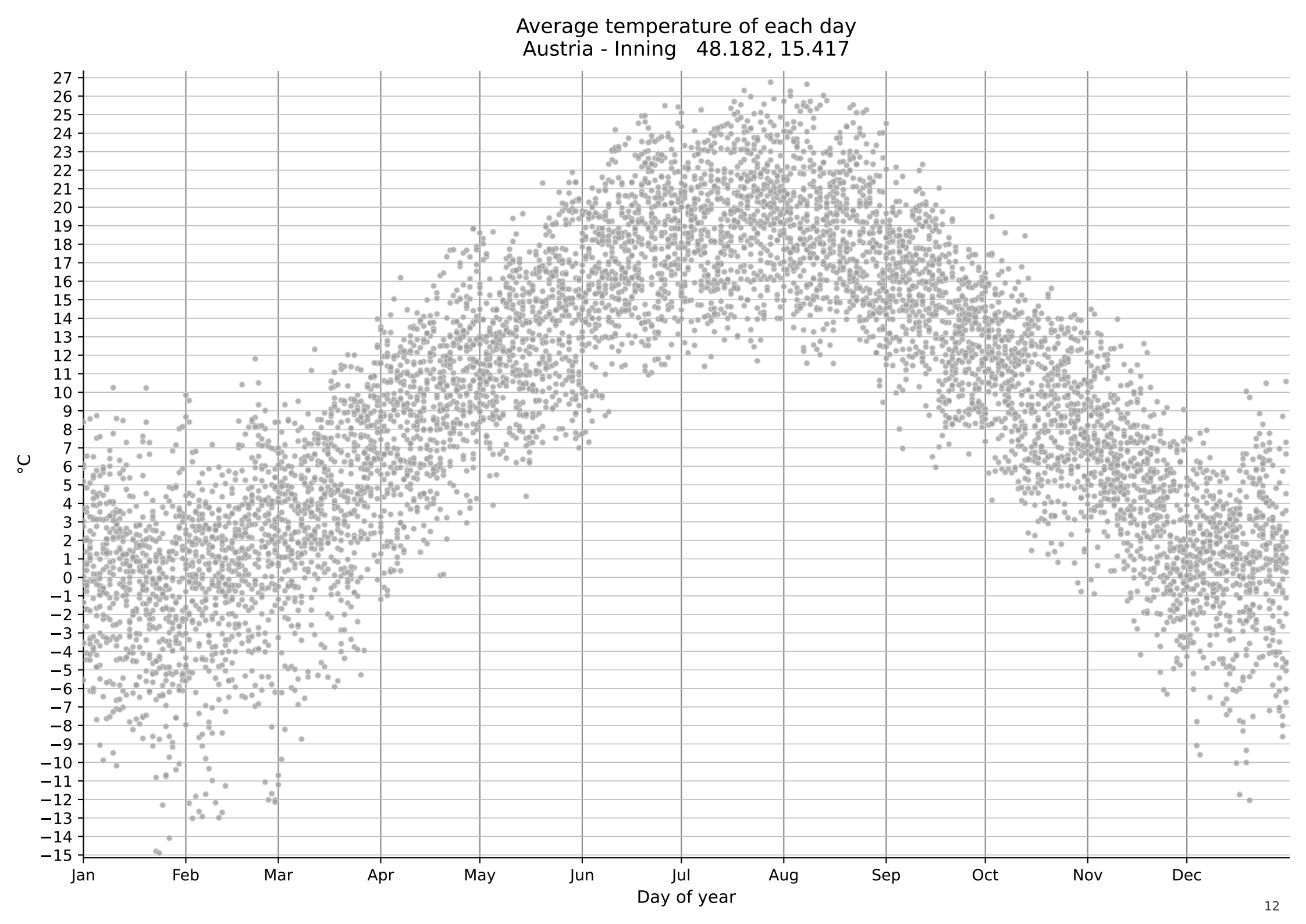

Yield distribution for each day — Wh / Wp of all PV together — 00:00–09:00
Austria - Inning 48.182, 15.417
1.0
0.8
0.6
0.4
0.2
0.0
Wh / Wp
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year

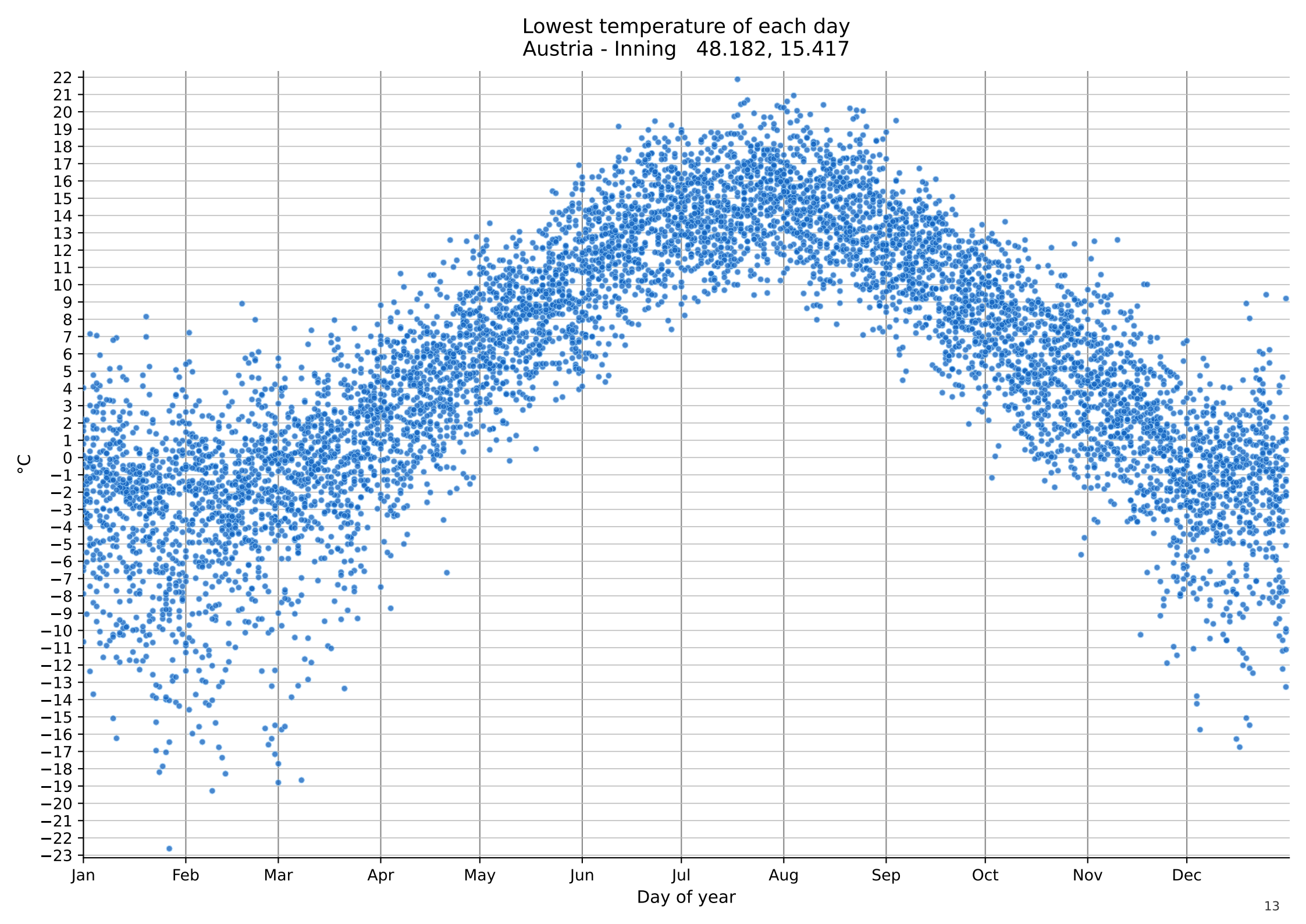

Yield distribution for each day — Wh / Wp of all PV together — 15:00–23:59
Austria - Inning 48.182, 15.417
Wh / Wp
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year

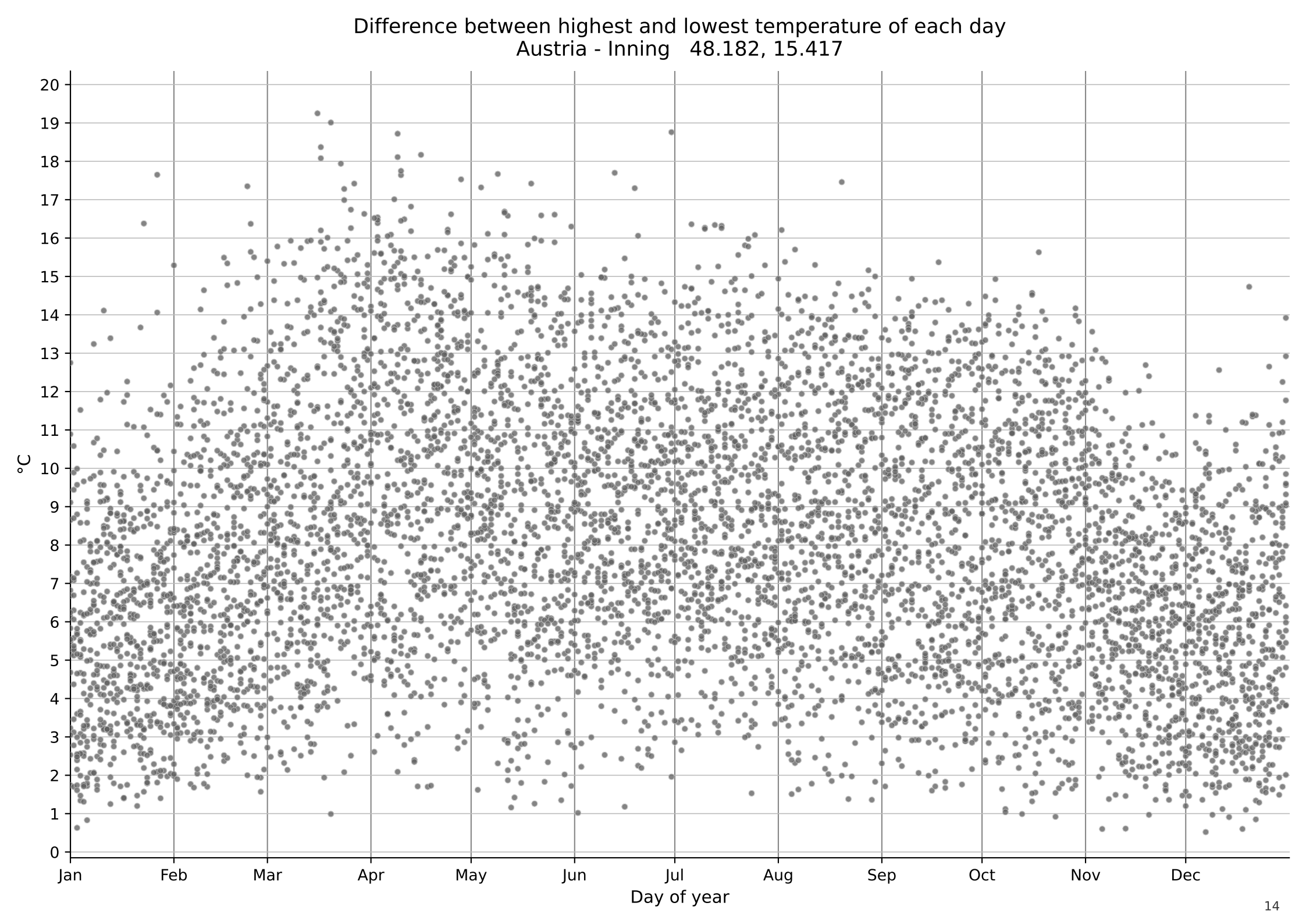

Share of the day’s yield in 09:00–15:00 winter time
Austria - Inning 48.182, 15.417
%
100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year


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

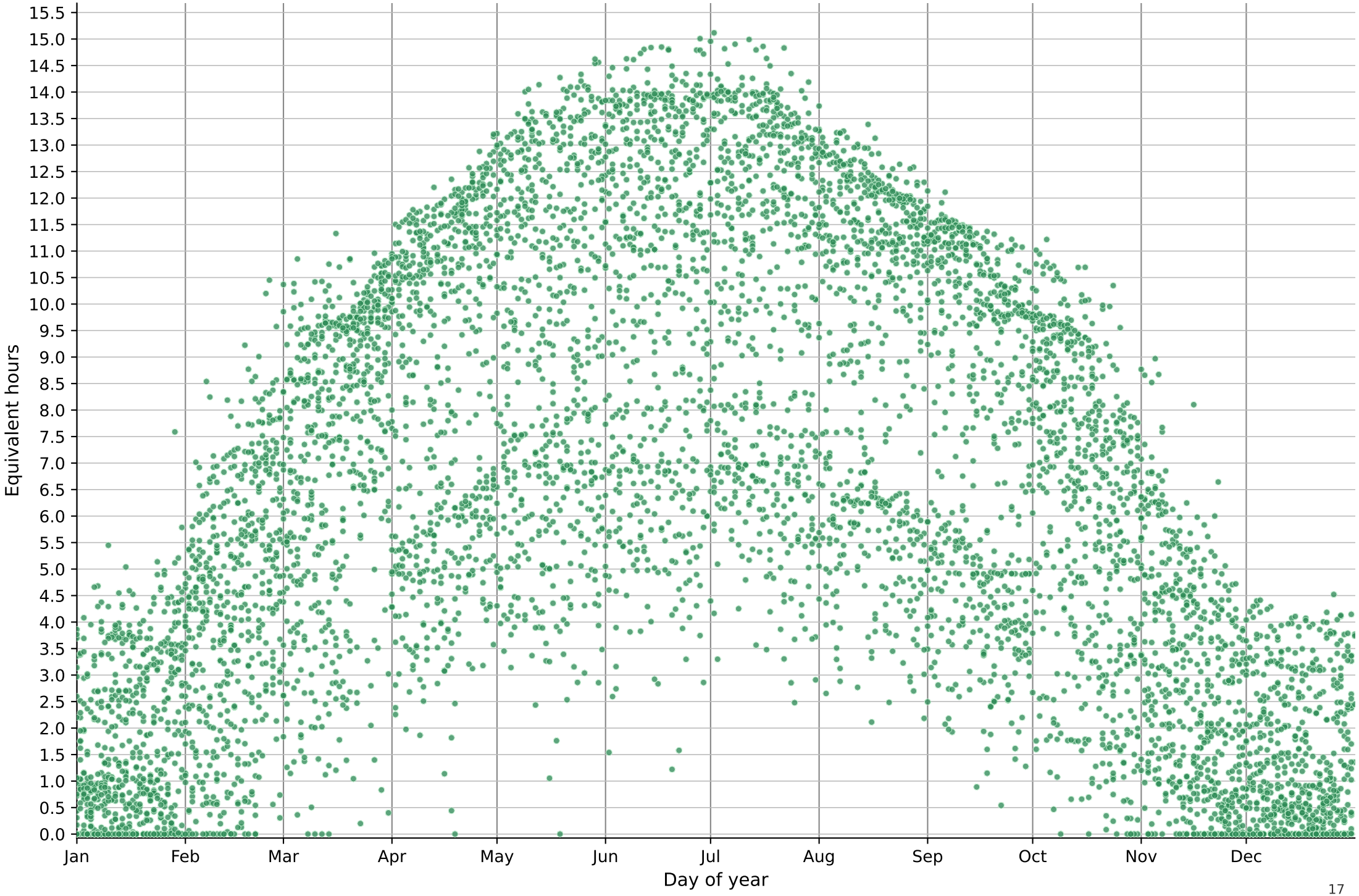
Month / year		Garage roof 1°/0° 10,740 Wp	Roof West 22°/90° 19,800 Wp	Terrace railing south 90°/0° 4,620 Wp	Terrace railing north 90°/180° 4,620 Wp	share central structure east 8°/-90° 20,460 Wp	share central strucure west p 8°/90° 20,460 Wp	All together
January	Maximum	32.84	30.08	7.26	7.26	33.23	30.45	28.50
	average	23.62	23.23	5.26	5.26	23.06	22.94	21.11
	minimum	17.95	18.03	4.09	4.09	17.27	18.14	16.56
February	Maximum	51.56	49.87	9.78	9.78	49.86	50.11	45.33
	average	41.81	41.12	8.23	8.23	40.57	40.99	37.27
	minimum	30.53	29.89	7.01	7.01	30.25	30.06	27.73
March	Maximum	103.67	99.70	40.02	16.17	101.33	101.42	92.65
	average	78.18	76.61	32.13	14.12	76.26	77.31	70.79
	minimum	60.95	58.23	23.96	12.21	60.47	59.76	55.18
April	Maximum	138.59	131.91	85.87	20.80	136.80	136.19	125.93
	average	110.61	106.56	68.54	18.98	108.84	109.36	101.20
	minimum	87.14	84.70	54.04	16.79	85.47	86.54	80.07
May	Maximum	144.59	139.02	75.98	26.21	142.58	143.40	131.60
	average	124.01	118.75	66.13	24.16	122.60	122.86	113.04
	minimum	91.48	88.28	48.94	22.30	90.46	90.92	83.93
June	Maximum	163.28	153.86	73.17	28.27	162.28	161.05	147.15
	average	135.71	130.27	62.75	26.40	134.18	134.75	123.31
	minimum	109.40	106.46	51.97	24.08	108.04	109.08	100.19
July	Maximum	158.88	151.66	77.19	27.83	157.42	157.25	143.86
	average	138.27	132.40	67.74	25.64	136.65	137.14	125.65
	minimum	102.76	99.10	50.02	23.06	101.57	102.08	93.83
August	Maximum	132.11	125.59	79.19	22.99	130.41	130.16	120.09
	average	117.75	113.81	70.61	19.99	115.74	116.75	107.73
	minimum	102.53	100.43	60.77	17.60	100.63	102.14	94.43
September	Maximum	104.79	103.01	59.73	16.42	101.99	103.90	95.65
	average	86.69	84.24	49.11	14.08	84.84	85.71	79.06
	minimum	69.95	67.69	40.19	11.80	68.91	69.01	63.98
October	Maximum	68.41	74.56	11.30	11.26	63.47	70.20	62.40
	average	54.55	54.92	9.83	9.80	52.48	54.25	48.92
	minimum	37.60	37.36	8.60	8.60	36.64	37.26	33.89
November	Maximum	33.54	33.83	6.47	6.47	32.07	32.85	29.89
	average	26.62	26.53	5.75	5.75	25.59	26.15	23.83
	minimum	20.26	20.38	5.33	5.33	19.74	20.05	18.41
December	Maximum	25.37	25.32	5.19	5.19	24.10	24.35	22.31
	average	19.18	19.08	4.19	4.19	18.56	18.63	17.14
	minimum	15.84	15.87	2.90	2.90	14.96	15.59	14.21
All years	Maximum	1,005.5	966.2	478.1	182.9	991.6	990.1	909.5
	average	957.0	927.5	450.3	176.6	939.4	946.8	869.0
	minimum	908.1	881.1	423.9	171.8	892.1	899.1	826.0

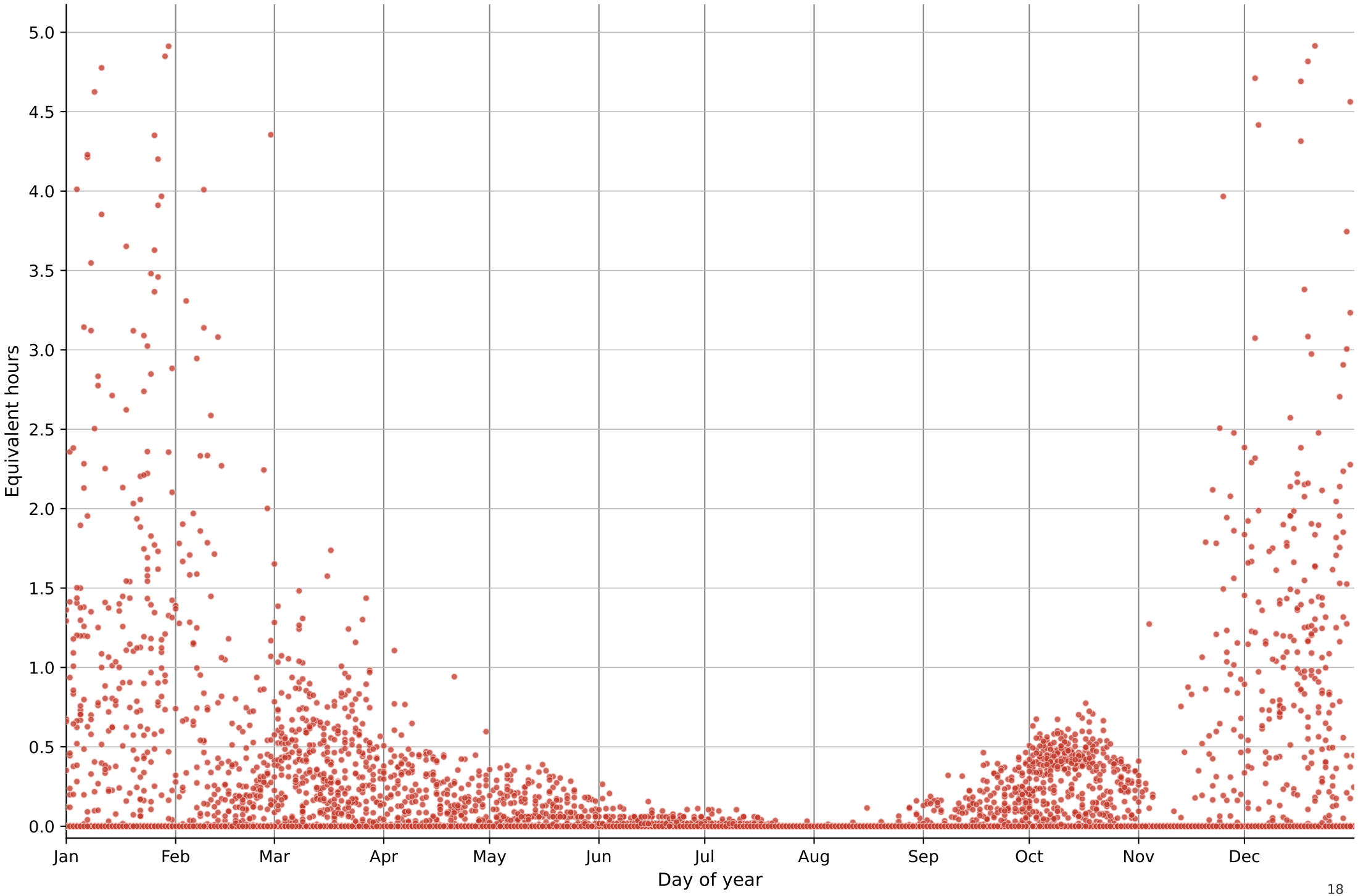
Highest combined yield hour: 2016-05-15 12:10 UTC 57,191.4 W (0.709 W/Wp) of 80,700 Wp installed. Use this hour to size battery charge power.

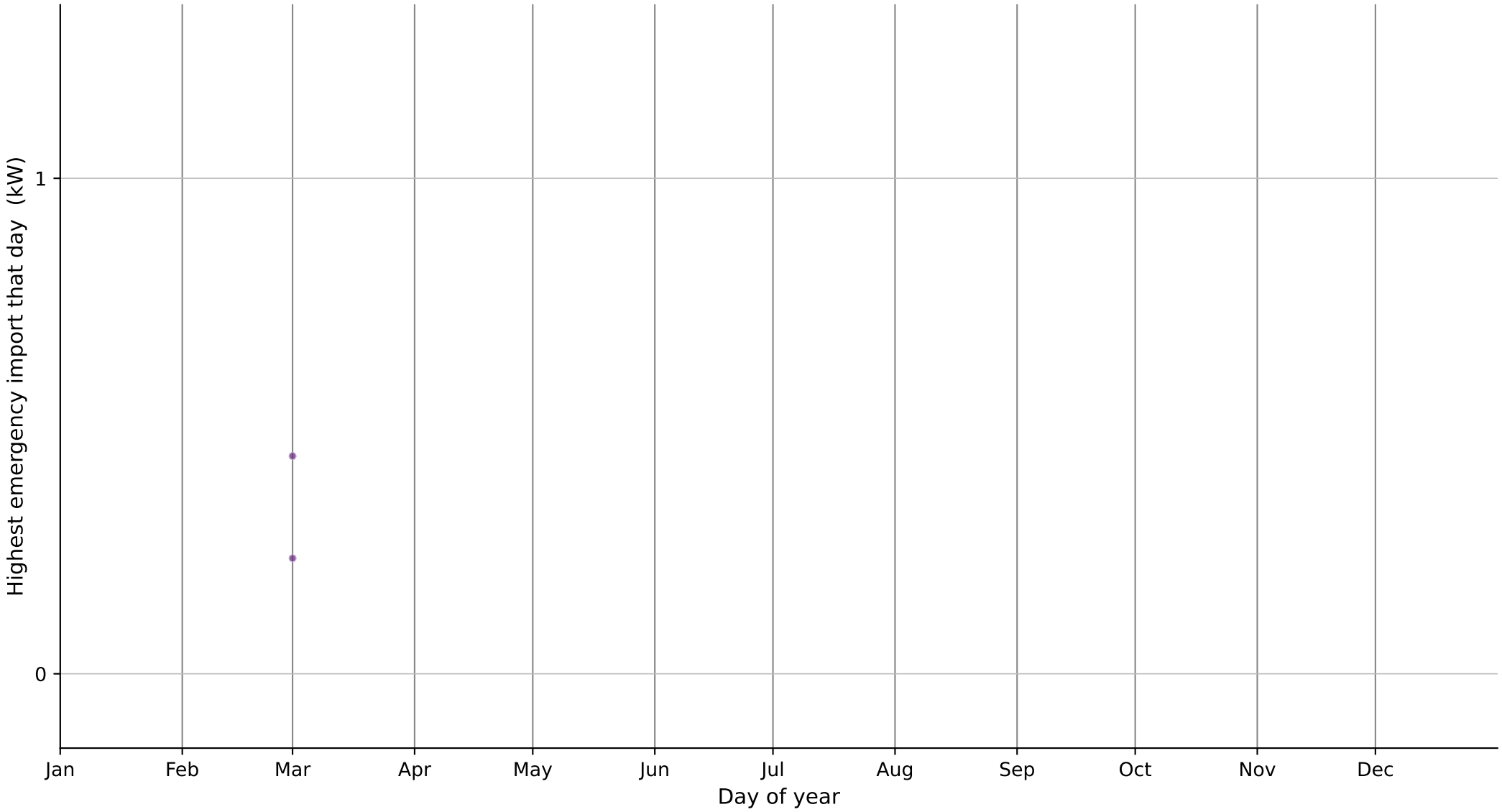
Monthly and yearly total yield (kWh)
Austria - Inning 48.182, 15.417

Month / year		Garage roof 1°/0° 10,740 Wp	Roof West 22°/90° 19,800 Wp	Terrace railing south 90°/0° 4,620 Wp	Terrace railing north 90°/180° 4,620 Wp	share central structure east 8°/-90° 20,460 Wp	share central strucure west p 8°/90° 20,460 Wp	All together
January	Maximum	352.68	595.63	33.54	33.54	679.89	622.93	2,300.30
	average	253.64	459.87	24.32	24.32	471.74	469.30	1,703.18
	minimum	192.81	356.93	18.91	18.91	353.24	371.18	1,336.54
February	Maximum	553.71	987.50	45.20	45.20	1,020.22	1,025.23	3,658.33
	average	449.02	814.20	38.04	38.04	830.07	838.63	3,008.01
	minimum	327.93	591.90	32.37	32.37	618.91	615.02	2,237.64
March	Maximum	1,113.39	1,974.12	184.90	74.72	2,073.19	2,075.08	7,477.09
	average	839.69	1,516.95	148.45	65.25	1,560.34	1,581.71	5,712.39
	minimum	654.63	1,153.01	110.72	56.41	1,237.19	1,222.68	4,453.08
April	Maximum	1,488.40	2,611.90	396.70	96.12	2,798.87	2,786.37	10,162.77
	average	1,188.00	2,109.91	316.63	87.68	2,226.85	2,237.60	8,166.67
	minimum	935.83	1,677.11	249.68	77.55	1,748.73	1,770.60	6,461.82
May	Maximum	1,552.93	2,752.50	351.04	121.11	2,917.26	2,933.89	10,620.19
	average	1,331.89	2,351.18	305.53	111.61	2,508.38	2,513.77	9,122.37
	minimum	982.45	1,748.01	226.09	103.02	1,850.80	1,860.25	6,773.47
June	Maximum	1,753.66	3,046.33	338.03	130.62	3,320.27	3,295.06	11,874.77
	average	1,457.52	2,579.32	289.91	121.99	2,745.36	2,757.00	9,951.10
	minimum	1,174.96	2,107.91	240.09	111.25	2,210.53	2,231.86	8,085.55
July	Maximum	1,706.42	3,002.90	356.62	128.59	3,220.71	3,217.23	11,609.49
	average	1,485.03	2,621.47	312.97	118.45	2,795.95	2,805.94	10,139.81
	minimum	1,103.61	1,962.25	231.08	106.55	2,078.03	2,088.65	7,572.02
August	Maximum	1,418.83	2,486.63	365.84	106.22	2,668.10	2,663.17	9,691.59
	average	1,264.60	2,253.51	326.23	92.35	2,368.10	2,388.66	8,693.45
	minimum	1,101.14	1,988.43	280.77	81.31	2,058.91	2,089.81	7,620.14
September	Maximum	1,125.43	2,039.67	275.95	75.86	2,086.76	2,125.85	7,718.93
	average	931.05	1,667.88	226.87	65.03	1,735.89	1,753.67	6,380.39
	minimum	751.23	1,340.33	185.69	54.53	1,409.95	1,411.88	5,162.86
October	Maximum	734.70	1,476.25	52.20	52.02	1,298.62	1,436.28	5,035.61
	average	585.91	1,087.48	45.43	45.30	1,073.71	1,109.95	3,947.77
	minimum	403.85	739.66	39.75	39.71	749.67	762.32	2,734.97
November	Maximum	360.26	669.76	29.90	29.90	656.20	672.20	2,411.85
	average	285.88	525.39	26.56	26.56	523.52	535.04	1,922.95
	minimum	217.55	403.60	24.60	24.60	403.95	410.24	1,485.53
December	Maximum	272.47	501.26	23.98	23.98	493.06	498.26	1,800.05
	average	206.03	377.79	19.33	19.33	379.64	381.16	1,383.28
	minimum	170.14	314.19	13.41	13.41	306.08	318.90	1,146.77
All years	Maximum	10,798.9	19,131.5	2,209.0	845.0	20,288.6	20,257.1	73,399.3
	average	10,278.3	18,365.0	2,080.3	815.9	19,219.5	19,372.4	70,131.4
	minimum	9,753.0	17,444.8	1,958.2	793.9	18,253.1	18,395.7	66,654.6

Highest combined yield hour: 2016-05-15 12:10 UTC 57,191.4 W (0.709 W/Wp) of 80,700 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
15.5
15.0
14.5
14.0
13.5
13.0
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
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	949	1,939	3,175	3,508	3,880	4,130	4,219	3,723	3,121	2,813	1,394	936	30,439
month average	634	1,423	2,708	3,032	3,489	3,698	3,805	3,438	2,770	2,299	1,003	511	28,810
month minimum	367	841	2,126	2,392	2,861	3,230	3,101	3,113	2,454	1,574	699	308	27,239
day Maximum	91.1	125.4	136.0	158.6	175.5	180.1	181.4	160.7	145.6	134.6	107.6	54.3	181.4
day average	20.5	50.5	87.4	101.1	112.6	123.3	122.7	110.9	92.3	74.2	33.4	16.5	78.9
day minimum	0.0	0.0	0.0	0.0	0.0	14.7	29.8	25.4	6.5	0.0	0.0	0.0	0.0
Import from grid													
month Maximum	554	370	166	59	24	9	4	3	36	104	251	506	1,528
month average	182	73	94	27	14	4	1	1	17	76	32	170	692
month minimum	30	3	51	4	5	1	0	0	6	42	0	0	266
day Maximum	58.9	52.3	20.8	13.3	4.7	3.2	1.2	1.9	5.6	9.3	47.6	59.0	59.0
day average	5.9	2.6	3.0	0.9	0.5	0.1	0.0	0.0	0.6	2.4	1.1	5.5	1.9
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
Total energy used for house													
month Maximum	1,631	1,541	1,017	572	446	350	330	330	396	555	844	1,534	8,422
month average	1,049	891	731	484	393	320	310	310	346	467	637	910	6,847
month minimum	734	599	557	387	335	302	294	287	310	379	538	659	6,065
day Maximum	95.6	89.3	79.2	34.8	20.8	18.5	16.5	18.2	19.7	33.0	58.1	84.6	95.6
day average	33.8	31.6	23.6	16.1	12.7	10.7	10.0	10.0	11.5	15.1	21.2	29.4	18.7
day minimum	9.0	13.2	11.4	8.7	8.6	8.6	8.6	8.6	8.6	8.7	11.0	14.0	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	76	196	325	322	377	390	398	357	306	304	144	71	3,029
month average	45	134	288	297	351	366	374	341	285	255	94	33	2,864
month minimum	30	57	223	255	315	331	336	318	254	186	57	18	2,712
day Maximum	12.5	17.2	18.7	16.9	17.9	18.8	18.4	17.4	16.8	18.1	15.5	6.1	18.8
day average	1.4	4.8	9.3	9.9	11.3	12.2	12.1	11.0	9.5	8.2	3.1	1.1	7.8
day minimum	0.0	0.0	0.0	0.0	0.0	1.2	3.3	1.8	0.3	0.0	0.0	0.0	0.0
Import													
month Maximum	149	105	49	15	6	2	1	1	9	29	60	140	389
month average	46	22	28	7	3	1	0	0	4	21	8	42	183
month minimum	8	1	15	1	1	0	0	0	2	12	0	0	71
day Maximum	16.6	14.1	6.5	4.0	1.2	0.8	0.3	0.5	1.6	2.8	12.9	16.3	16.6
day average	1.5	0.8	0.9	0.2	0.1	0.0	0.0	0.0	0.1	0.7	0.3	1.4	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	63	57	54	33	11	7	3	3	10	38	57	63	343
month average	63	37	30	16	9	4	2	2	7	13	39	58	281
month minimum	63	12	14	10	3	3	0	0	3	8	0	0	190
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	212	162	98	44	16	9	4	4	17	59	117	203	731
month average	110	59	58	23	12	5	3	2	12	34	46	100	464
month minimum	71	14	29	11	5	4	0	0	7	22	0	0	308
day Maximum	16.6	14.1	6.5	4.0	1.2	0.8	0.3	0.5	1.6	2.8	12.9	16.3	16.6
day average	1.5	0.8	0.9	0.2	0.1	0.0	0.0	0.0	0.1	0.7	0.3	1.4	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	4	167	282	309	373	381	395	357	296	269	130	71	2,639
month average	-65	76	230	273	339	361	371	339	274	221	48	-67	2,400
month minimum	-181	-70	145	217	303	325	332	316	241	163	-41	-181	2,032
day Maximum	12.5	17.2	18.7	16.9	17.9	18.8	18.4	17.4	16.8	18.1	15.5	6.1	18.8
day average	-0.1	4.0	8.4	9.7	11.2	12.2	12.1	11.0	9.4	7.6	2.9	-0.3	7.3
day minimum	-15.8	-13.8	-4.3	-0.1	0.0	1.2	3.3	1.8	-0.2	-1.6	-12.4	-15.6	-15.8

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	949	1,939	3,175	3,508	3,880	4,130	4,219	3,723	3,121	2,813	1,394	936	30,439
month average	634	1,423	2,708	3,032	3,489	3,698	3,805	3,438	2,770	2,299	1,003	511	28,810
month minimum	367	841	2,126	2,392	2,861	3,230	3,101	3,113	2,454	1,574	699	308	27,239
day Maximum	91.1	125.4	136.0	158.6	175.5	180.1	181.4	160.7	145.6	134.6	107.6	54.3	181.4
day average	20.5	50.5	87.4	101.1	112.6	123.3	122.7	110.9	92.3	74.2	33.4	16.5	78.9
day minimum	0.0	0.0	0.0	0.0	0.0	14.7	29.8	25.4	6.5	0.0	0.0	0.0	0.0
Export during high price hours													
month Maximum	192	547	1,003	1,208	1,416	1,425	1,448	1,374	1,200	954	421	123	10,504
month average	55	335	885	1,125	1,344	1,366	1,398	1,294	1,113	840	251	33	10,038
month minimum	0	58	655	1,059	1,233	1,294	1,351	1,236	1,032	670	108	0	9,470
day Maximum	41.2	57.2	62.9	62.6	65.7	64.3	63.5	66.9	64.7	65.9	56.8	20.1	66.9
day average	1.8	11.9	28.6	37.5	43.4	45.5	45.1	41.7	37.1	27.1	8.4	1.0	27.5
day minimum	0.0	-0.0	0.0	0.0	0.0	7.3	24.1	9.3	0.6	0.0	0.0	0.0	-0.0
Export during medium price hours													
month Maximum	174	431	629	895	1,066	1,222	1,279	926	668	575	166	94	6,902
month average	117	340	535	709	877	1,011	1,047	823	563	384	112	59	6,578
month minimum	80	226	446	571	650	848	774	747	434	220	82	35	6,128
day Maximum	16.5	23.5	23.5	44.4	57.6	62.3	63.6	47.7	31.0	23.5	13.8	9.6	63.6
day average	3.8	12.1	17.3	23.6	28.3	33.7	33.8	26.6	18.8	12.4	3.7	1.9	18.0
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
Export during low price hours													
month Maximum	667	960	1,621	1,485	1,441	1,529	1,566	1,533	1,306	1,311	807	729	13,033
month average	462	748	1,288	1,198	1,268	1,321	1,360	1,321	1,094	1,074	641	419	12,193
month minimum	226	540	1,017	746	938	1,021	964	1,077	895	684	376	248	11,142
day Maximum	46.0	55.6	70.3	70.6	70.6	70.6	70.6	70.6	70.6	58.8	57.8	45.8	70.6
day average	14.9	26.5	41.5	39.9	40.9	44.0	43.9	42.6	36.5	34.7	21.4	13.5	33.4
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

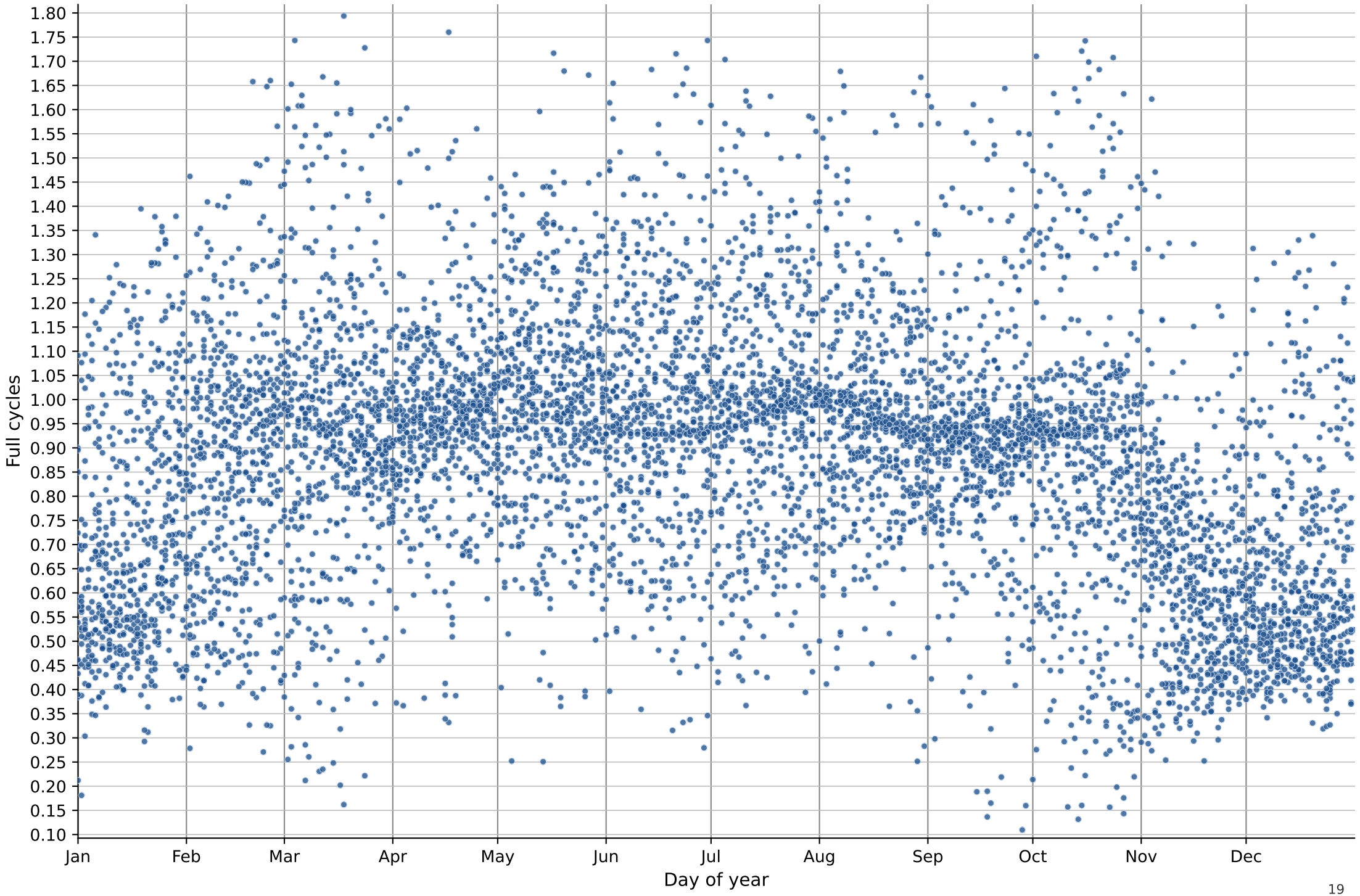
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	All
Heating													
month Maximum	1,335	1,258	734	305	173	88	61	61	134	281	574	1,245	5,162
month average	765	633	452	219	121	59	40	39	85	194	369	630	3,606
month minimum	454	347	280	125	65	40	21	14	51	107	271	382	2,839
day Maximum	84.6	78.3	69.3	25.8	12.0	9.7	7.7	9.5	11.0	24.0	48.6	73.8	84.6
day average	24.7	22.4	14.6	7.3	3.9	2.0	1.3	1.3	2.8	6.3	12.3	20.3	9.9
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	7	9	0	0	0	0	16
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	0.9	7.1	6.8	0.3	0.0	0.0	0.0	7.1
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	48	51	34	26	25	22	21	21	22	27	30	41	336
month average	37	32	31	24	24	21	20	20	21	25	28	32	315
month minimum	32	28	28	22	22	20	19	19	19	24	27	29	304
day Maximum	3.0	3.0	1.9	1.1	1.0	0.9	0.8	0.8	0.9	1.1	1.5	2.8	3.0
day average	1.2	1.1	1.0	0.8	0.8	0.7	0.6	0.6	0.7	0.8	0.9	1.0	0.9
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	734	738	303	27	0	0	0	0	0	13	171	661	1,875
month average	266	205	82	5	0	0	0	0	0	1	35	162	756
month minimum	39	7	0	0	0	0	0	0	0	0	0	14	204
day Maximum	62.6	56.5	48.2	10.5	0.0	0.0	0.0	0.0	0.0	7.3	28.5	52.1	62.6
day average	8.6	7.3	2.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	1.2	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

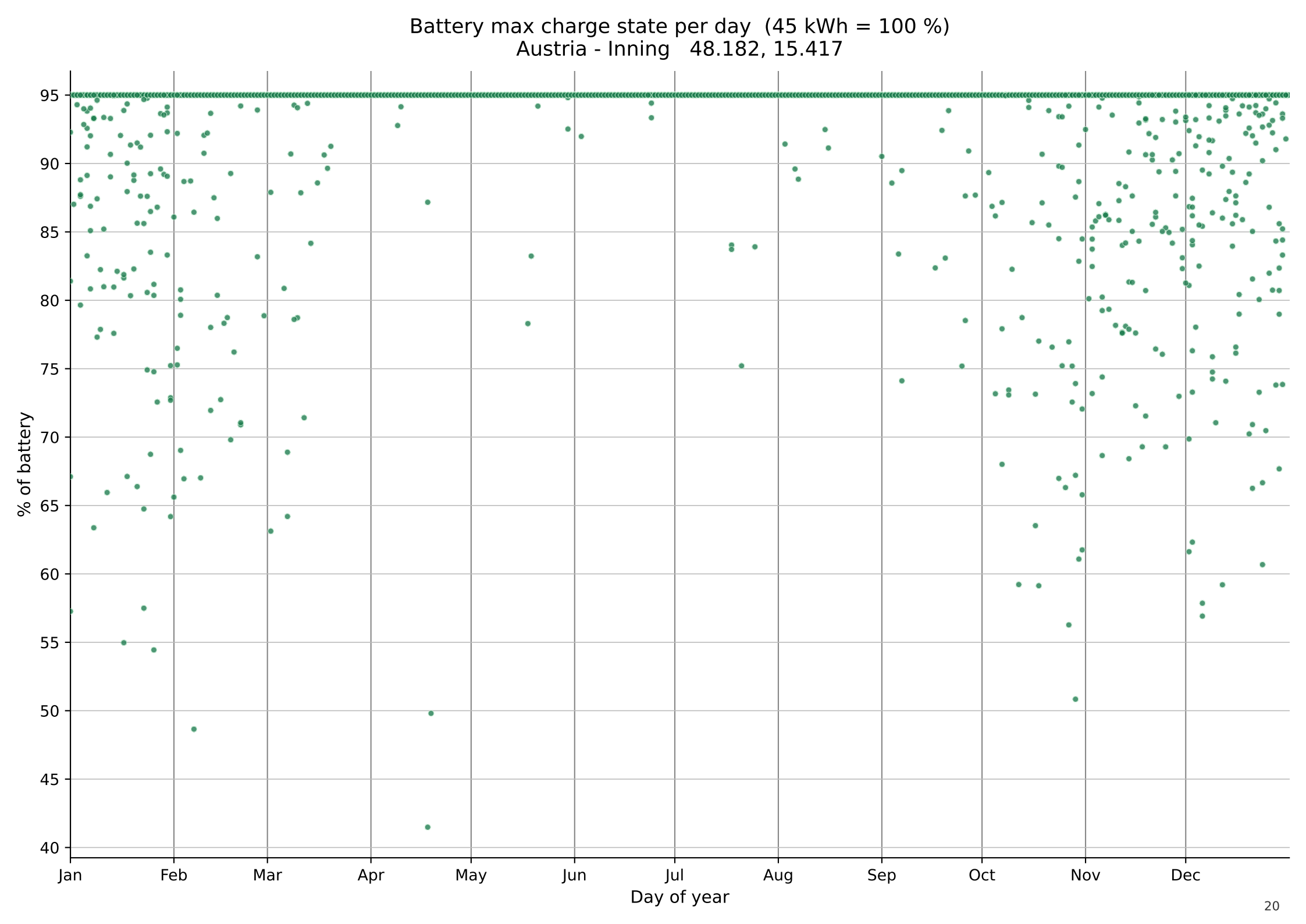
Heating, cooling and DHW are electricity. Direct electric is the part the heat pump could not cover.

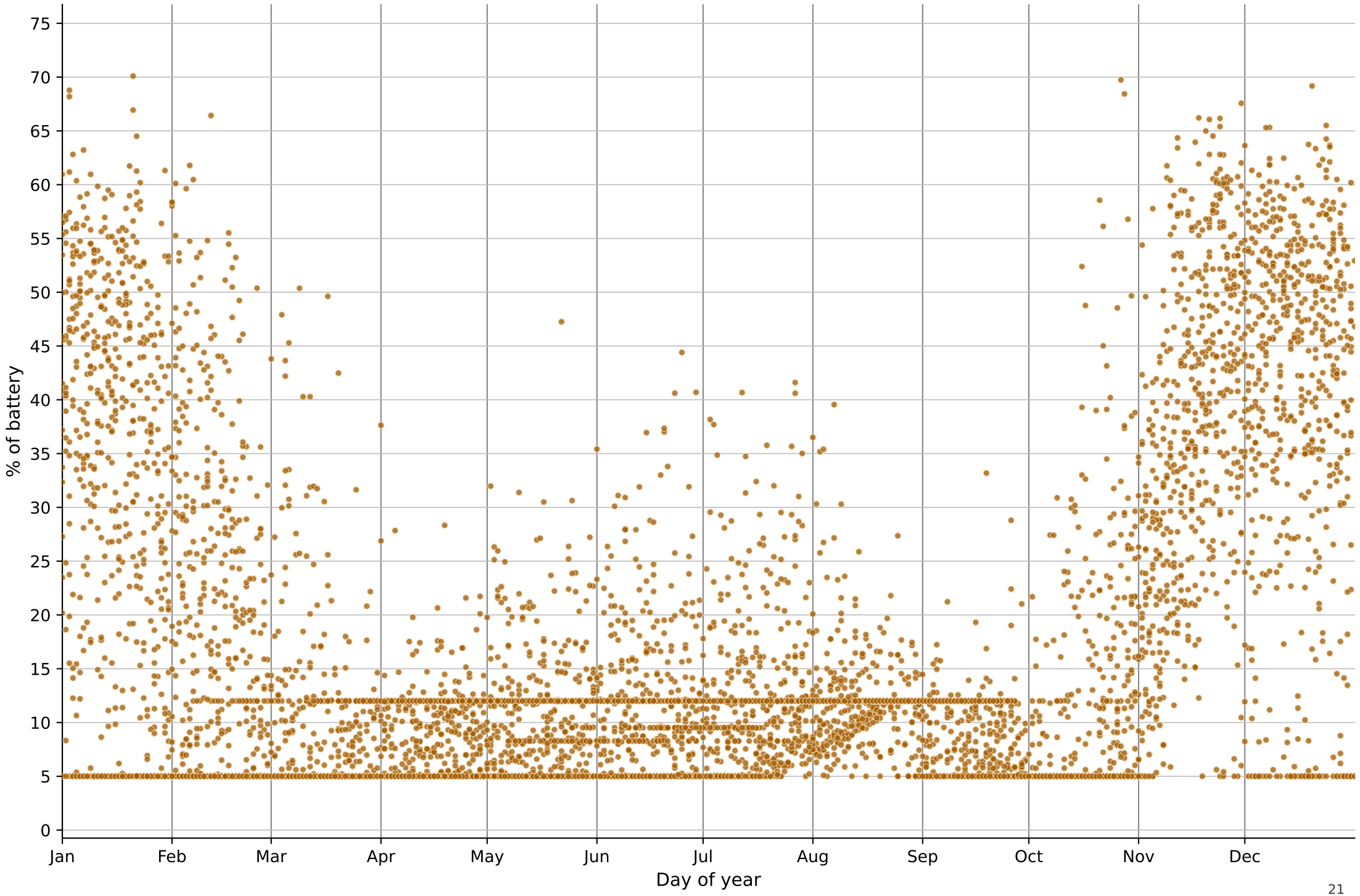
Battery
Austria - Inning 48.182, 15.417

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	All
Wasted													
month Maximum	228	1,072	3,542	6,222	6,329	7,343	7,126	5,580	4,218	1,716	368	142	36,995
month average	120	680	2,262	4,569	5,139	5,825	5,910	4,838	3,180	1,148	227	55	33,953
month minimum	29	216	1,346	3,313	3,388	4,191	4,013	3,859	2,269	608	96	8	30,931
day Maximum	36.6	110.1	200.3	345.8	364.2	386.3	364.4	324.0	254.0	133.7	51.7	18.1	386.3
day average	3.9	24.1	73.0	152.3	165.8	194.2	190.6	156.1	106.0	37.0	7.6	1.8	93.0
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
Full cycles													
month Maximum	30	30	30	30	32	30	31	30	29	28	23	28	338
month average	23	25	29	29	31	30	31	30	28	27	19	20	320
month minimum	18	22	28	27	31	29	30	29	27	25	17	16	313
day Maximum	1.4	1.7	1.8	1.8	1.7	1.7	1.7	1.7	1.6	1.7	1.6	1.3	1.8
day average	0.7	0.9	0.9	1.0	1.0	1.0	1.0	1.0	0.9	0.9	0.6	0.6	0.9
day minimum	0.2	0.3	0.2	0.3	0.3	0.3	0.4	0.3	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	6
month average	0	0	0	0	0	0	0	0	0	0	0	0	6
month minimum	0	0	0	0	0	0	0	0	0	0	0	0	5
day Maximum	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.5
day average	0.2	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.2	0.2	0.3
day minimum	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	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	0.3	0.3
day average	0.1	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.1	0.2
day minimum	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	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
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