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	10740	—	front	—	yes
Garage side wall south	90	0	3475	5 / 4	front	—	yes
Garage side wall north	90	180	3475	5 / 4	front	—	yes
Garage door side	90	90	700	5 / 4	front	—	yes
Garage back side	90	-90	2540	5 / 4	front	—	yes
Garden fence east	90	-90	6000	5 / 4	face 1	—	yes
Garden fence east face2	90	90	4800	5 / 4	face 2	80 %	no
Total counted			26930				

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 2012-05-18 09:10 local (08:10 UTC) 13586 W 0.505 W/Wp of 26930 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 winter time, battery export is only the kWh that would not fit in the next 72 h.

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 / 3300.0 W
	Heat on / cool on / ground	20.0 °C / 25.0 °C / 10.0 °C
	Curve / flow min / max	0.35 / 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	200.0 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 5 6
	kW −10/0/10 @ 50 °C	3.5 4.5 5
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	2012-05-18 08:10	2020-05-06 08:10	2009-05-29 08:10	2020-05-07 08:10	2016-05-17 09:10	2020-04-21 09:10	2013-05-13 09:10	2012-05-18 09:10	2016-04-26 08:10	2012-04-25 09:10
Garage roof	6898	6654	6938	6601	7574	7160	7581	7617	6319	7242
Garage side wall south	1144	1278	1032	1244	1520	1846	1561	1509	1384	1785
Garage side wall north	137	152	149	135	202	150	171	178	132	153
Garage door side	28	31	30	27	41	30	34	36	27	31
Garage back side	1544	1560	1513	1542	1115	1175	1118	1114	1569	1158
Garden fence east	3648	3686	3573	3641	2634	2775	2642	2632	3707	2734
Garden fence east face2	189	211	206	187	279	207	236	245	183	211
Watt at record	13586	13572	13441	13378	13364	13343	13343	13331	13320	13313
Percent of installed peak	50.5	50.4	49.9	49.7	49.6	49.5	49.5	49.5	49.5	49.4

Values are watts at that hour. Date and time are UTC. Record 13586 W (50.5 % of 26930 Wp).

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

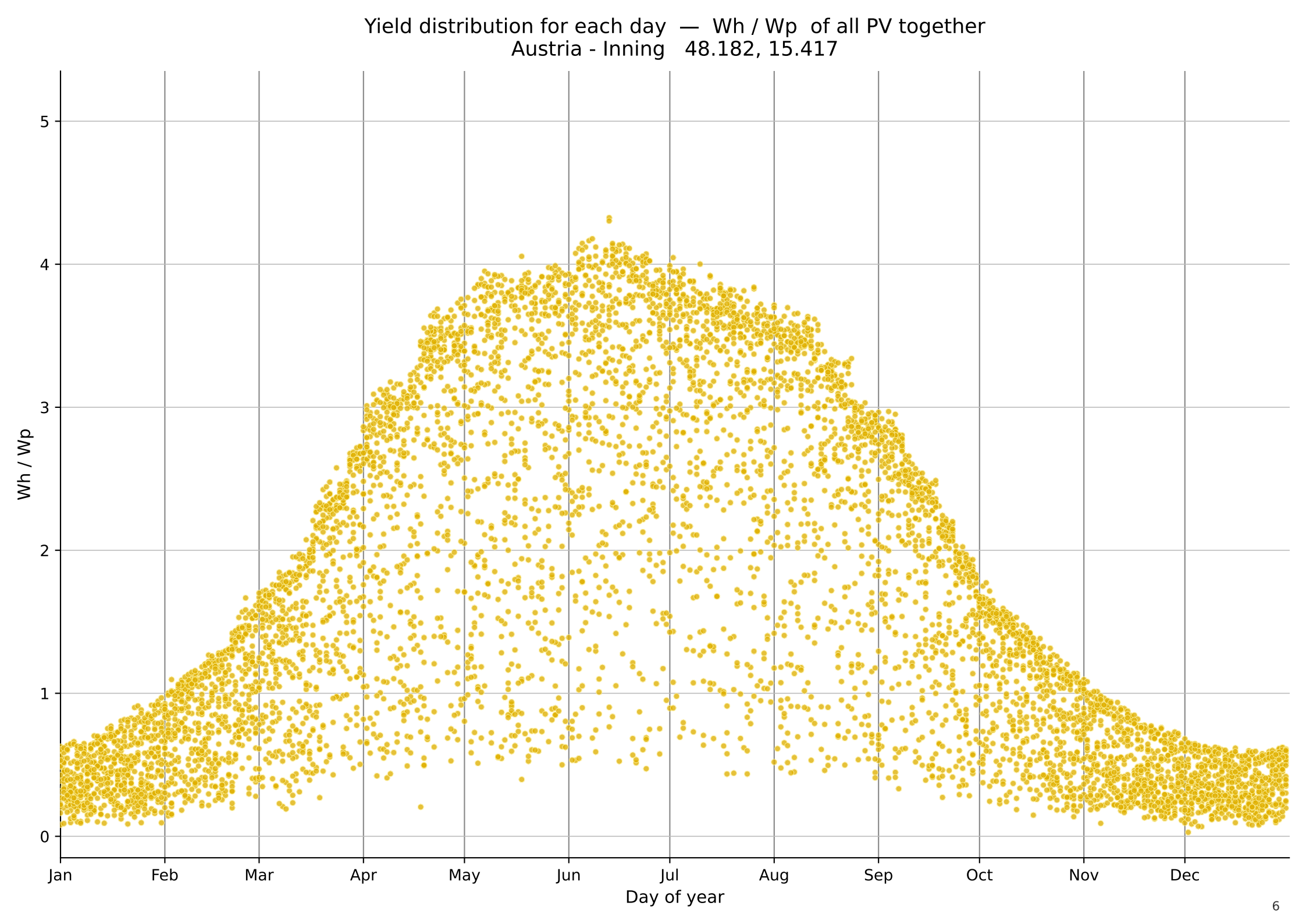
Of the record	Hours	Watts
98 %	9	13315 W
96 %	63	13043 W
94 %	188	12771 W
92 %	451	12500 W
90 %	866	12228 W

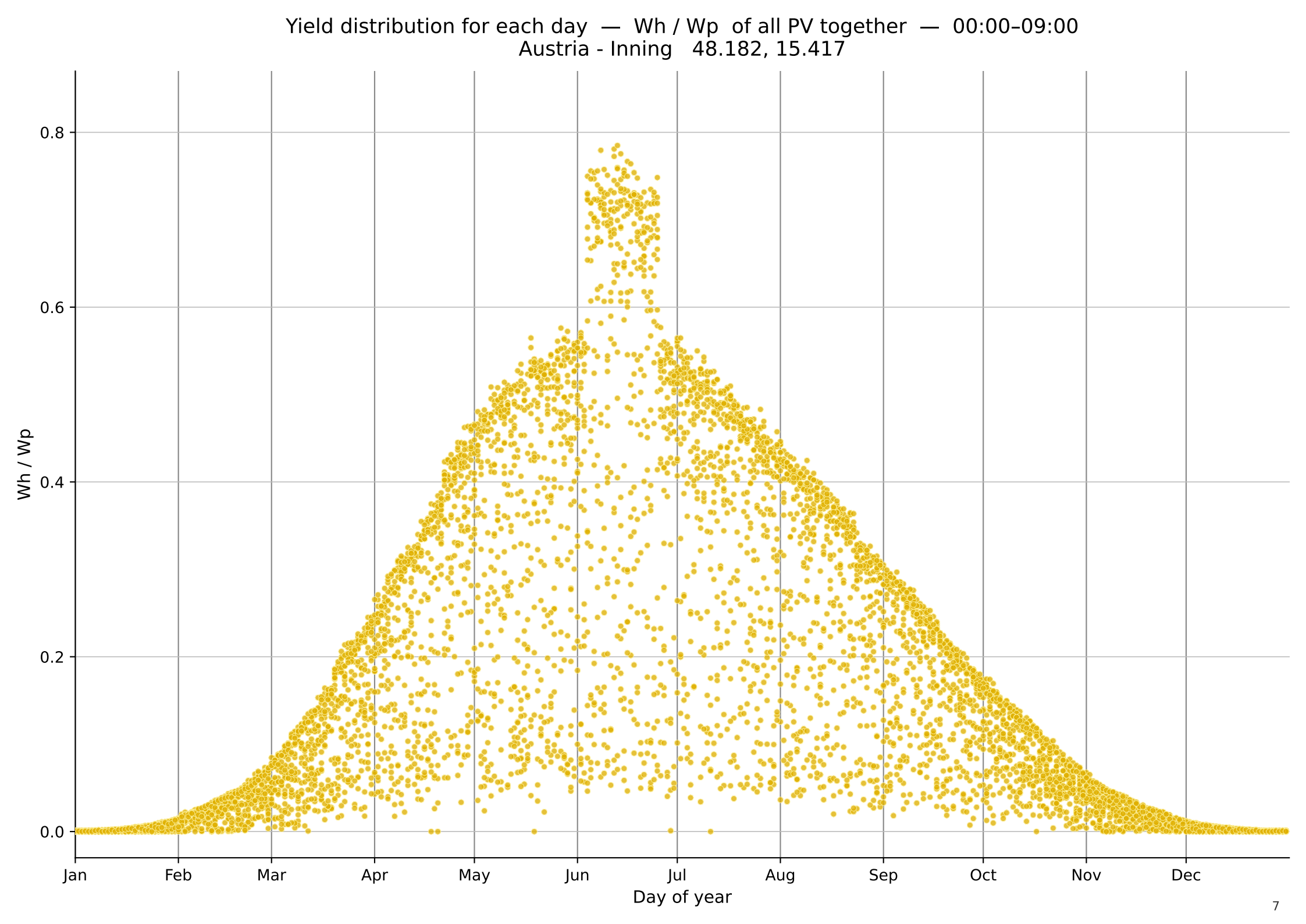
Record hour = 13586 W combined.

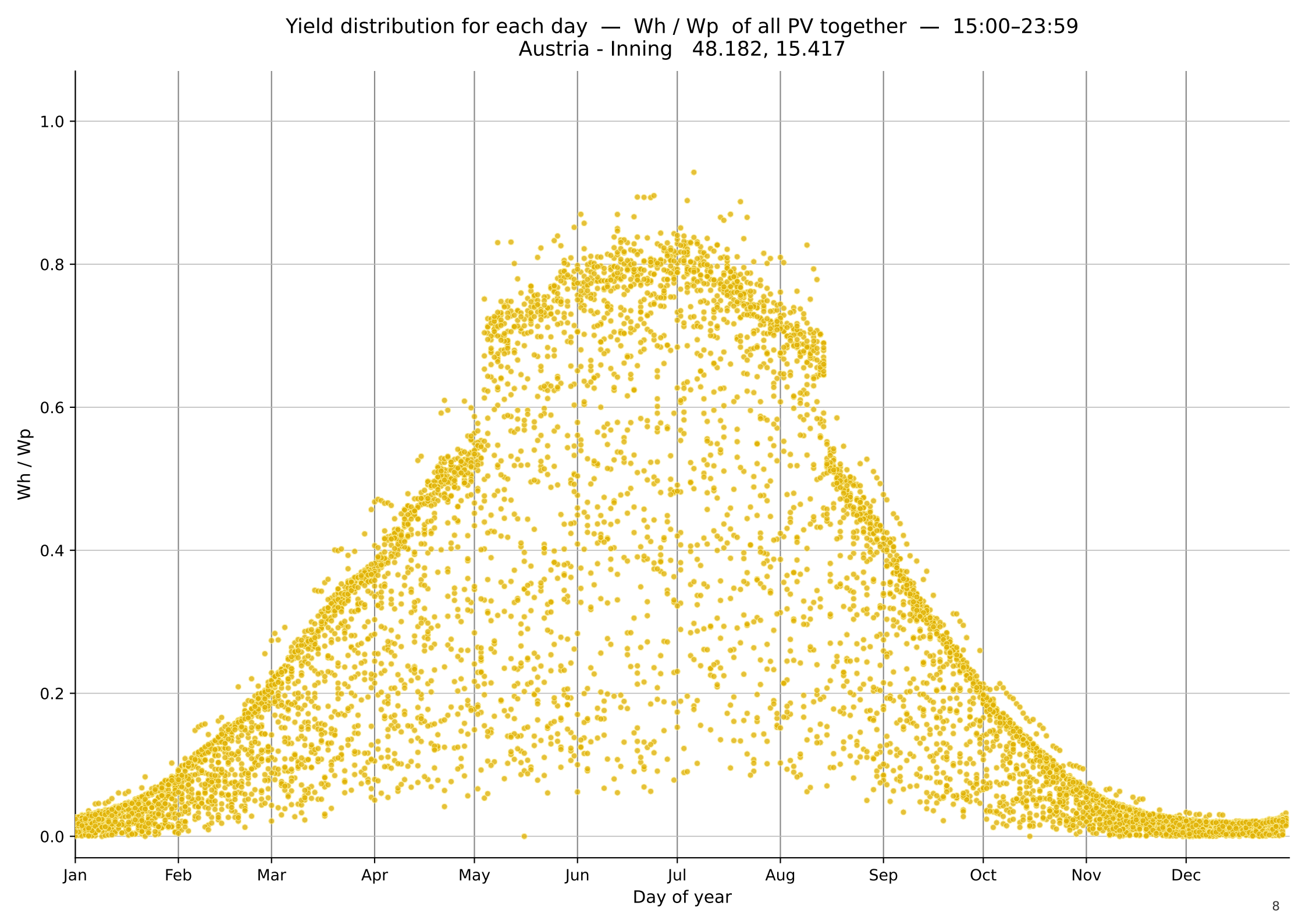
Records of each photovoltaic field
Austria - Inning 48.182, 15.417

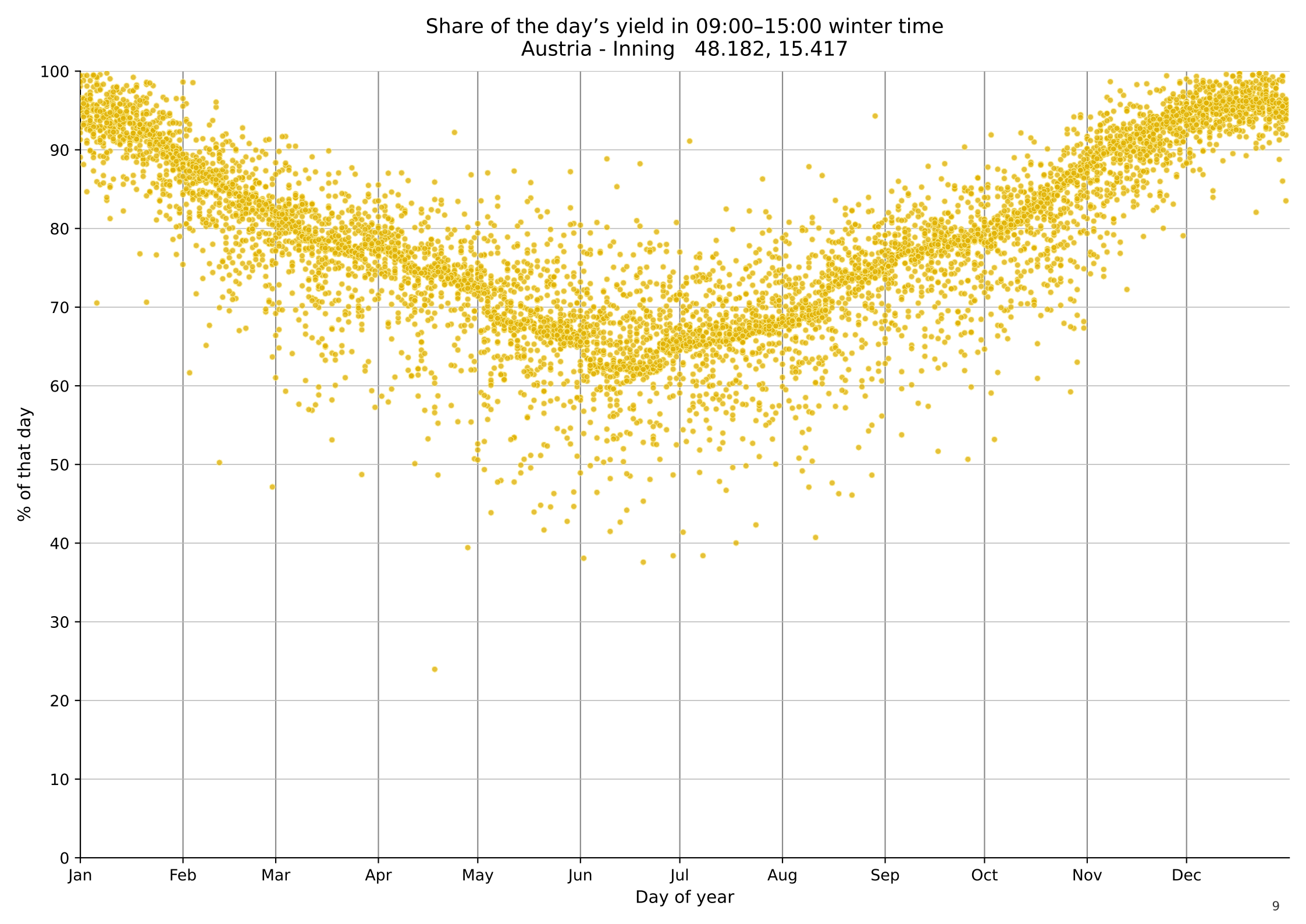
PV	Date	Watts	%	h ≥98%	h ≥96%	h ≥94%	h ≥92%	h ≥90%
Garage roof	2009-06-13 11:10	8369	77.9	8	33	112	320	671
Garage side wall south	2009-03-22 11:10	2638	75.9	8	17	26	45	75
Garage side wall north	2023-06-13 05:10	611	17.6	1	8	25	50	108
Garage door side	2005-05-08 14:10	473	67.6	1	3	5	16	49
Garage back side	2009-06-13 07:10	1695	66.7	3	8	16	44	84
Garden fence east	2009-06-13 07:10	4197	70.0	3	10	18	47	102

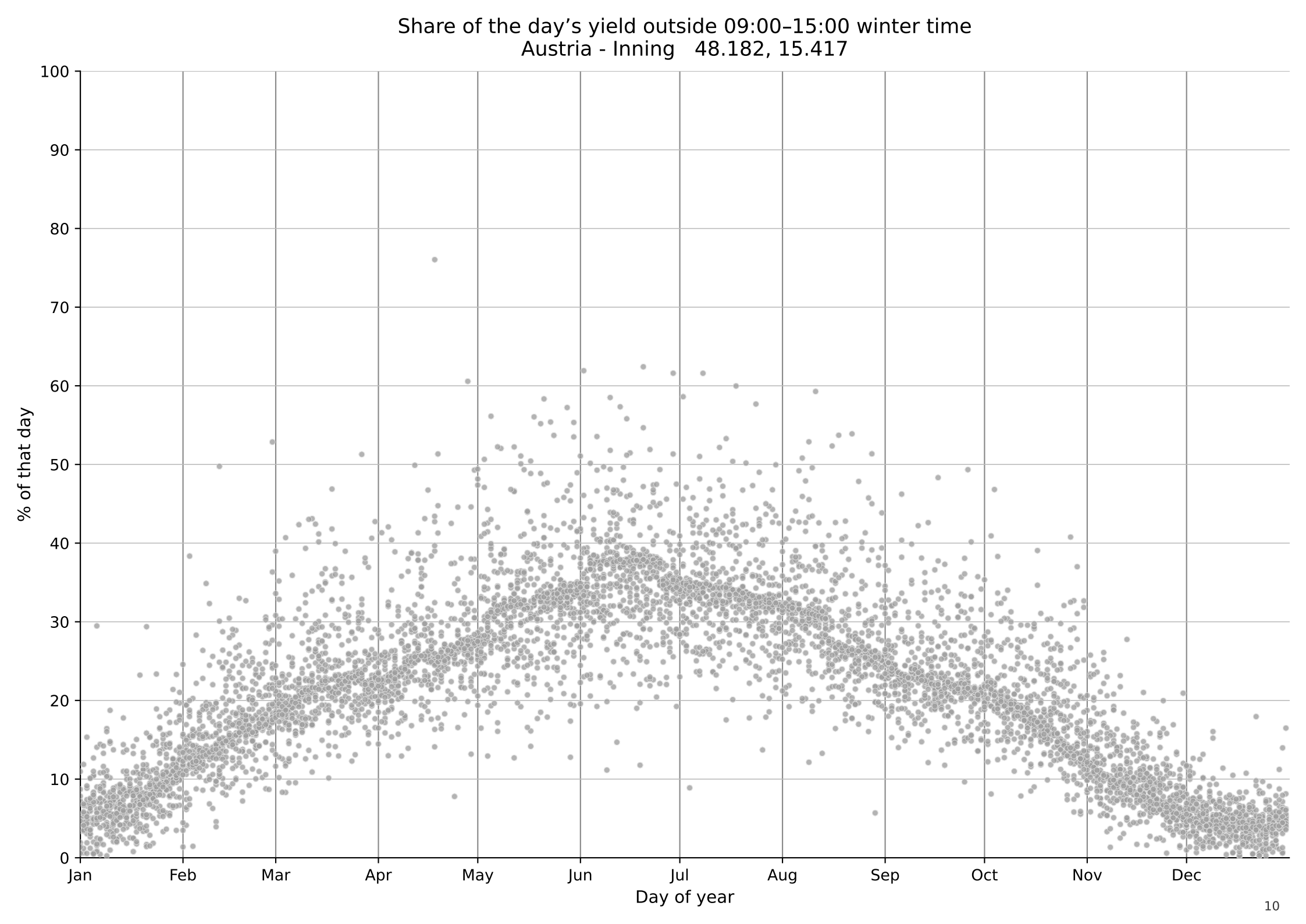
Watts is the highest hour of that field. % is of its own Wp. Hours are the count of hours at or above that share of its own record. Use this to size the MPPT or the inverter for that field.

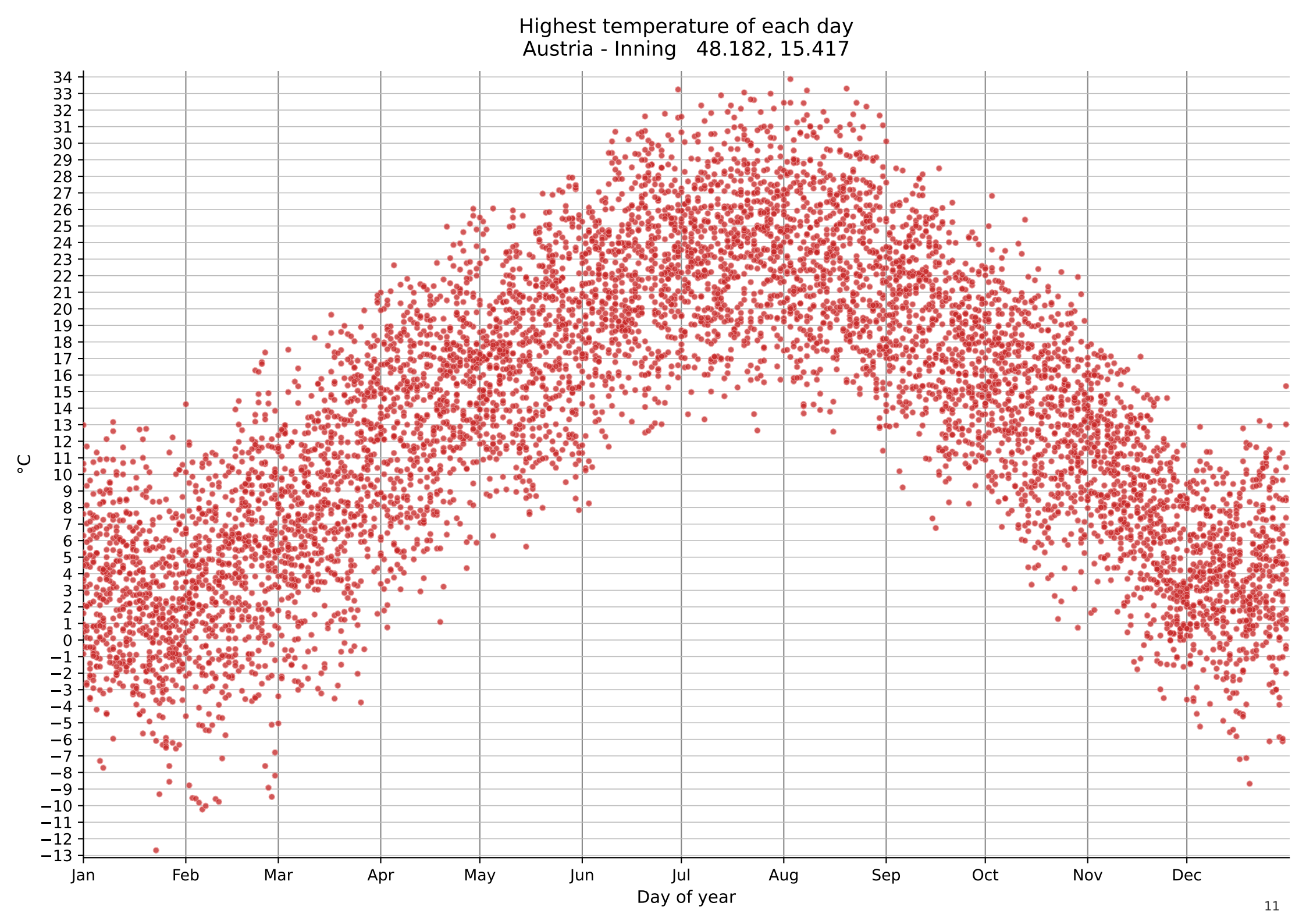

Yield distribution for each day — Wh / Wp of all PV together
Austria - Inning 48.182, 15.417
Wh / Wp
0
1
2
3
4
5
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year

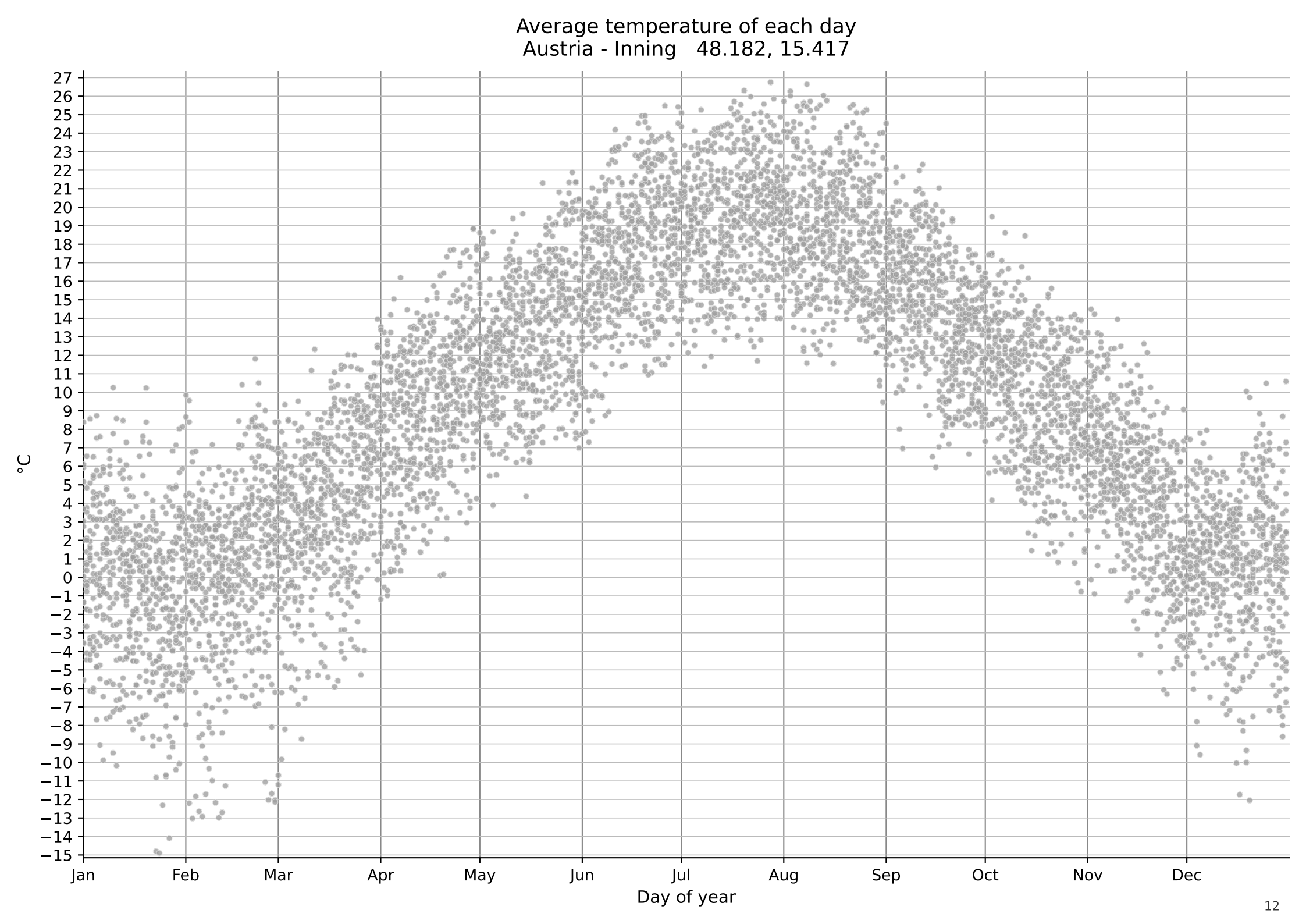

Yield distribution for each day — Wh / Wp of all PV together — 00:00–09:00
Austria - Inning 48.182, 15.417
Wh / Wp
0.0
0.2
0.4
0.6
0.8
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year

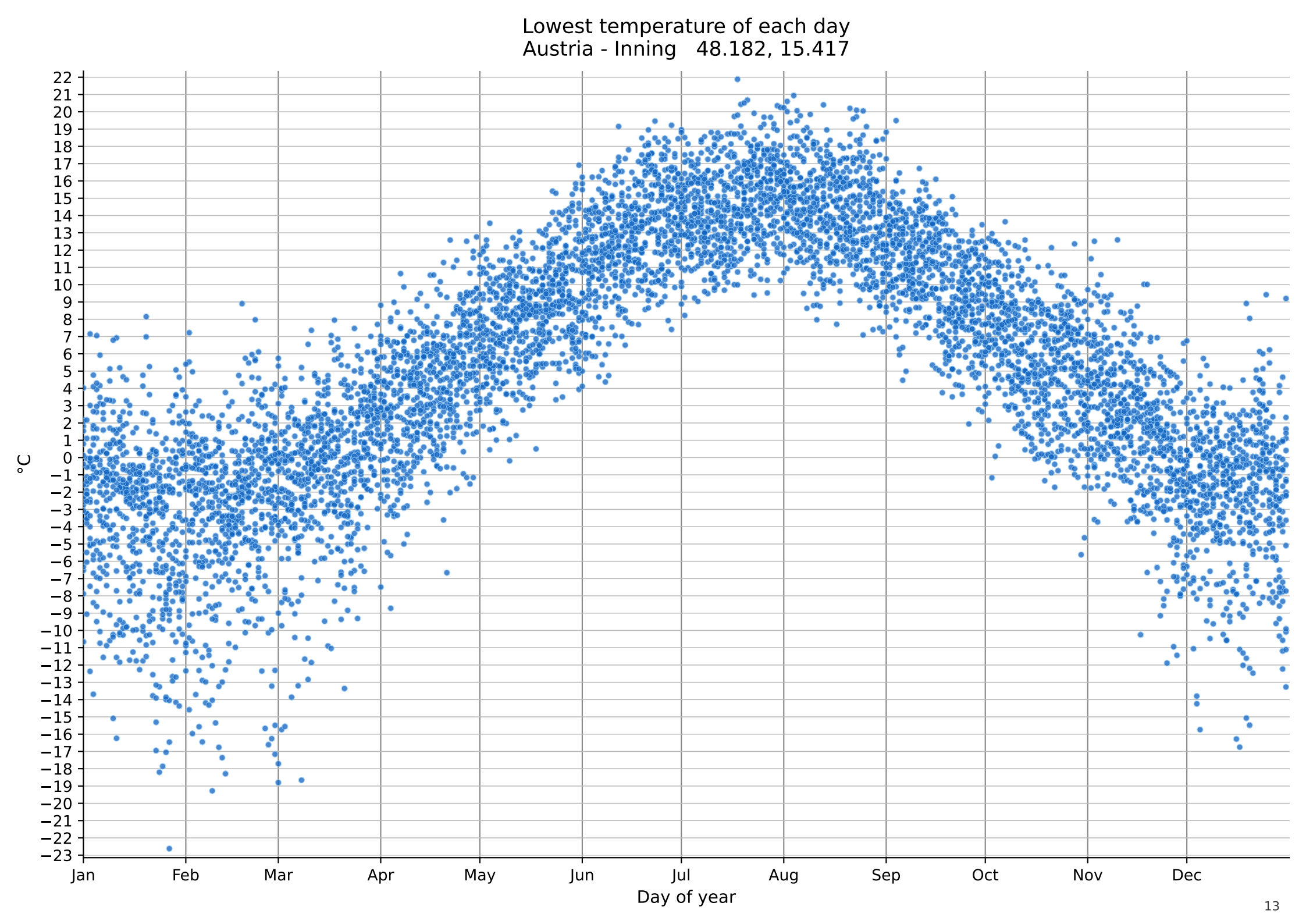

Yield distribution for each day — Wh / Wp of all PV together — 15:00–23:59
Austria - Inning 48.182, 15.417
1.0
0.8
0.6
0.4
0.2
0.0
Wh / Wp
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year

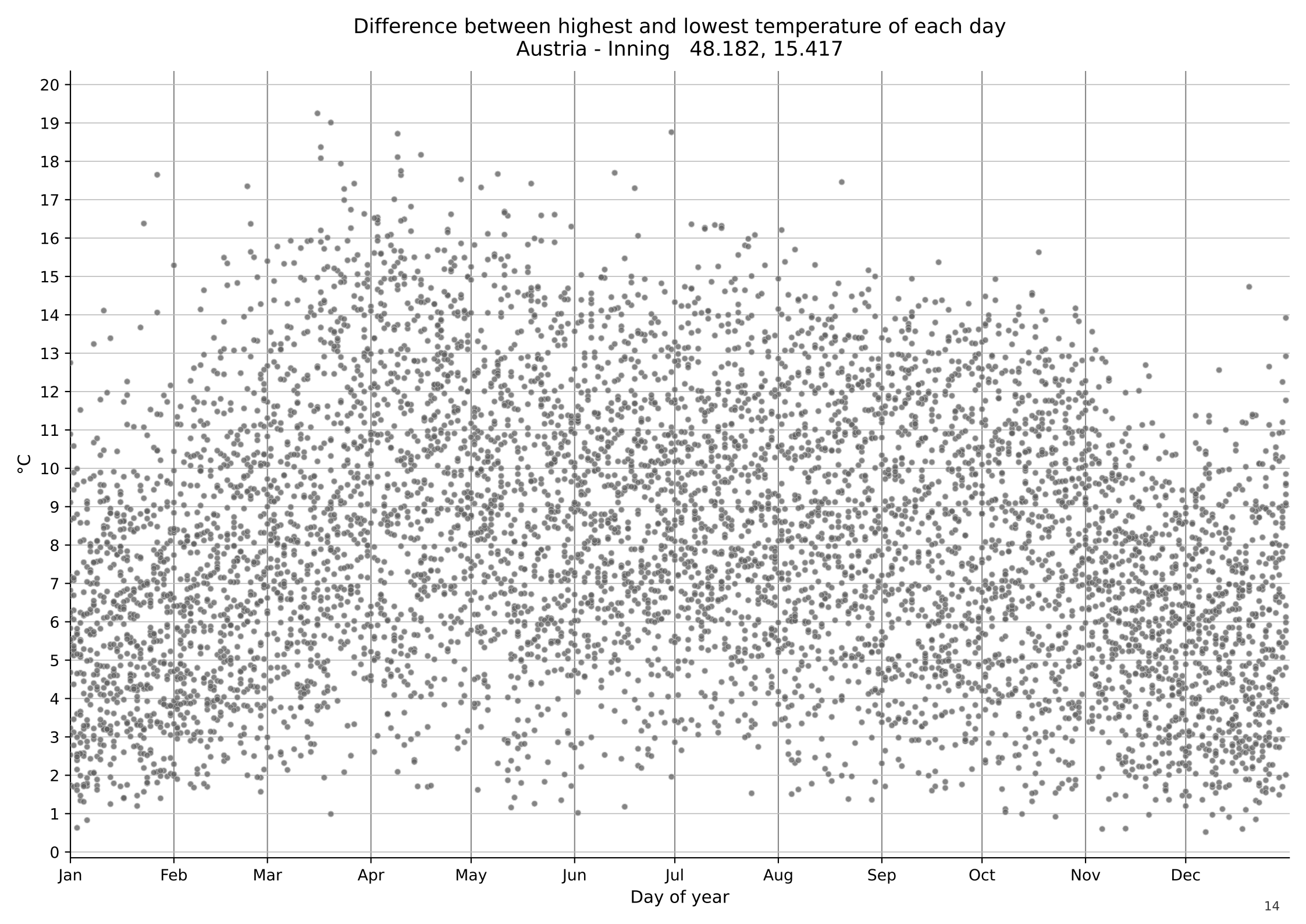

Share of the day’s yield in 09:00–15:00 winter time
Austria - Inning 48.182, 15.417
% of that day
100
90
80
70
60
50
40
30
20
10
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year


Share of the day’s yield outside 09:00–15:00 winter time
Austria - Inning 48.182, 15.417
% of that day
Day of year
0
10
20
30
40
50
60
70
80
90
100
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec


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

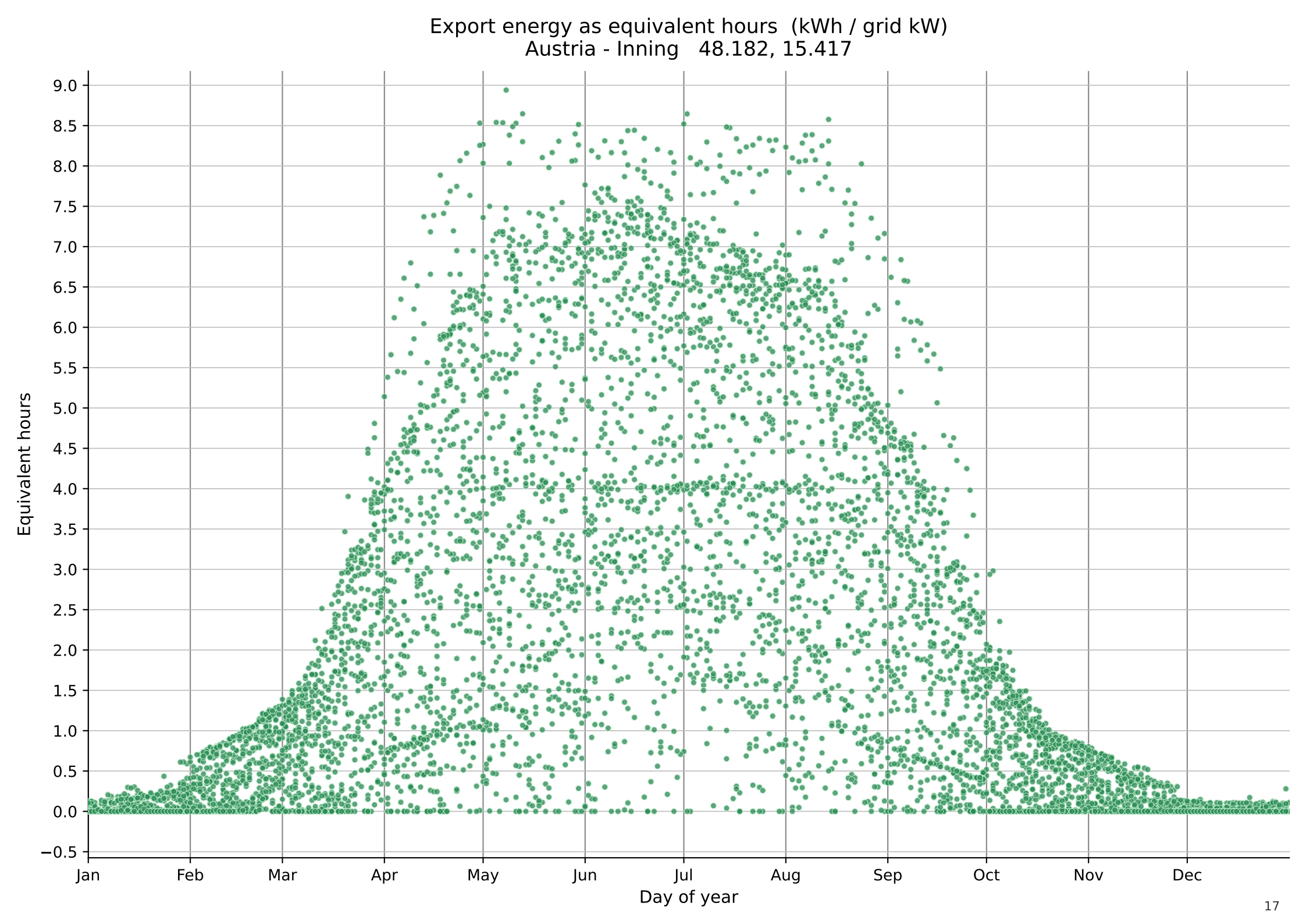
Month / year		Garage roof 1°/0° 10740 Wp	Garage side wall south 90°/0° 3475 Wp	Garage side wall north 90°/180° 3475 Wp	Garage door side 90°/90° 700 Wp	Garage back side 90°/-90° 2540 Wp	Garden fence east 90°/-90° + 90°/90° 6000 Wp bifacial ×80%	All together
January	Maximum	32.84	7.26	7.26	8.02	9.10	15.51	18.21
	average	23.62	5.26	5.26	5.93	6.73	11.47	14.12
	minimum	17.95	4.09	4.09	4.60	5.29	8.97	11.23
February	Maximum	51.56	9.78	9.78	11.74	11.07	20.46	27.93
	average	41.81	8.23	8.23	10.69	9.69	18.25	24.06
	minimum	30.53	7.01	7.01	9.55	8.85	16.58	19.75
March	Maximum	103.67	40.02	16.17	20.69	20.57	37.09	57.83
	average	78.18	32.13	14.12	18.52	18.64	33.45	46.84
	minimum	60.95	23.96	12.21	16.23	16.11	29.09	38.81
April	Maximum	138.59	85.87	20.80	35.62	37.00	65.39	87.58
	average	110.61	68.54	18.98	32.57	33.18	59.23	72.58
	minimum	87.14	54.04	16.79	27.32	27.21	49.07	58.17
May	Maximum	144.59	75.98	26.21	49.99	44.67	82.61	94.20
	average	124.01	66.13	24.16	43.00	39.77	74.17	82.50
	minimum	91.48	48.94	22.30	34.42	32.92	60.46	63.22
June	Maximum	163.28	73.17	28.27	50.65	56.41	95.84	105.91
	average	135.71	62.75	26.40	45.09	48.98	85.06	90.37
	minimum	109.40	51.97	24.08	39.28	41.53	72.95	74.88
July	Maximum	158.88	77.19	27.83	49.85	48.86	88.73	102.34
	average	138.27	67.74	25.64	45.09	43.52	79.59	90.20
	minimum	102.76	50.02	23.06	36.77	33.52	62.94	68.60
August	Maximum	132.11	79.19	22.99	40.50	40.39	70.89	85.98
	average	117.75	70.61	19.99	36.73	36.67	66.05	77.78
	minimum	102.53	60.77	17.60	32.59	33.27	60.58	69.32
September	Maximum	104.79	59.73	16.42	24.07	22.91	41.44	63.26
	average	86.69	49.11	14.08	21.48	20.85	38.03	53.72
	minimum	69.95	40.19	11.80	18.89	18.24	33.35	44.71
October	Maximum	68.41	11.30	11.26	12.90	12.98	23.30	35.95
	average	54.55	9.83	9.80	11.44	11.69	20.84	30.33
	minimum	37.60	8.60	8.60	9.79	9.93	17.77	22.37
November	Maximum	33.54	6.47	6.47	7.53	7.71	13.74	18.65
	average	26.62	5.75	5.75	6.77	6.86	12.28	15.66
	minimum	20.26	5.33	5.33	6.04	6.01	10.83	12.62
December	Maximum	25.37	5.19	5.19	5.84	6.52	11.19	13.93
	average	19.18	4.19	4.19	4.82	5.42	9.28	11.43
	minimum	15.84	2.90	2.90	3.46	3.86	6.63	9.00
All years	Maximum	1005.5	478.1	182.9	291.4	295.1	527.0	637.7
	average	957.0	450.3	176.6	282.1	282.0	507.7	609.6
	minimum	908.1	423.9	171.8	274.0	269.5	495.0	584.2

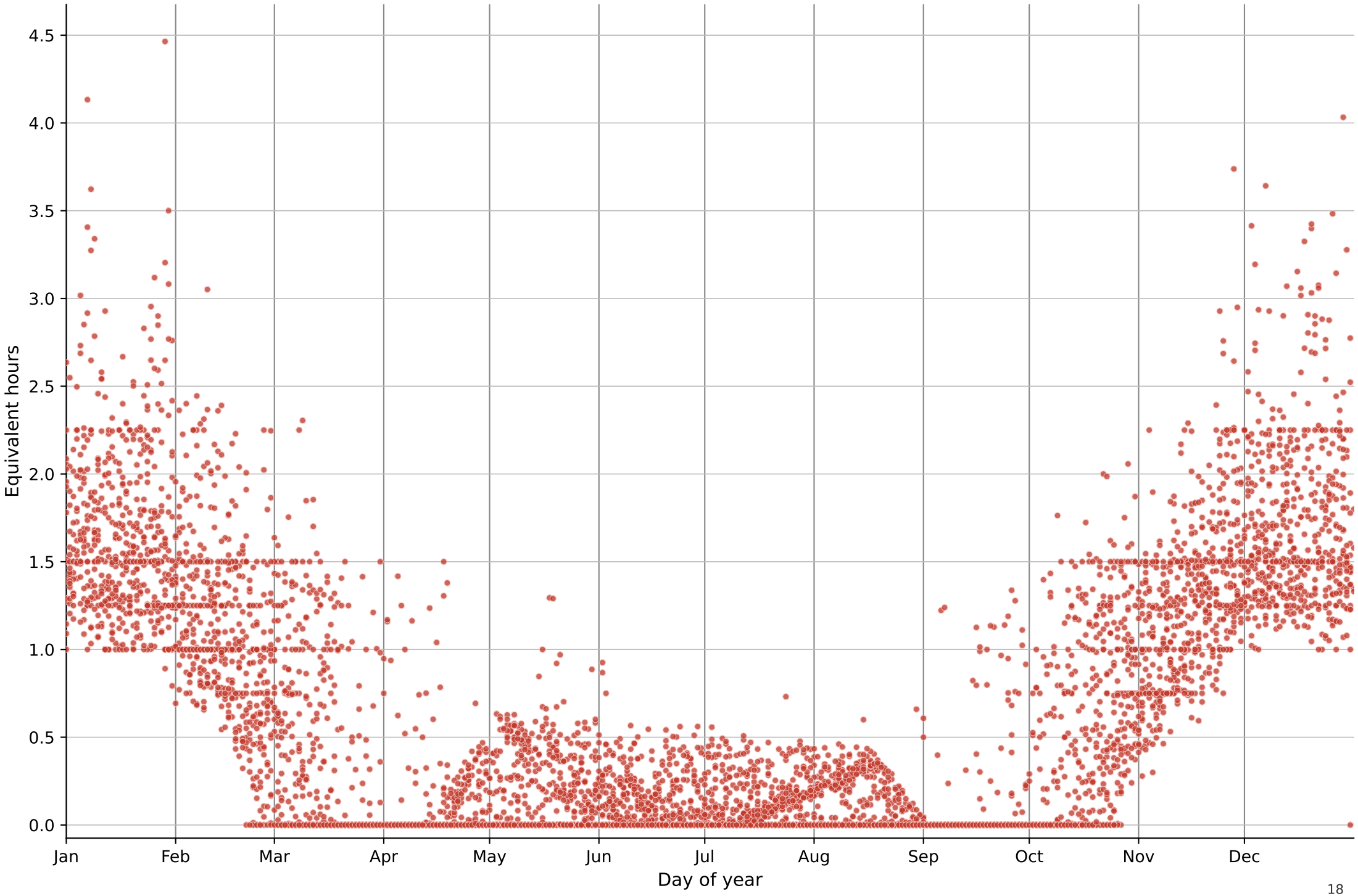
Highest combined yield hour: 2012-05-18 08:10 UTC 13586.5 W (0.505 W/Wp) of 26930 Wp installed. Use this hour to size battery charge power.

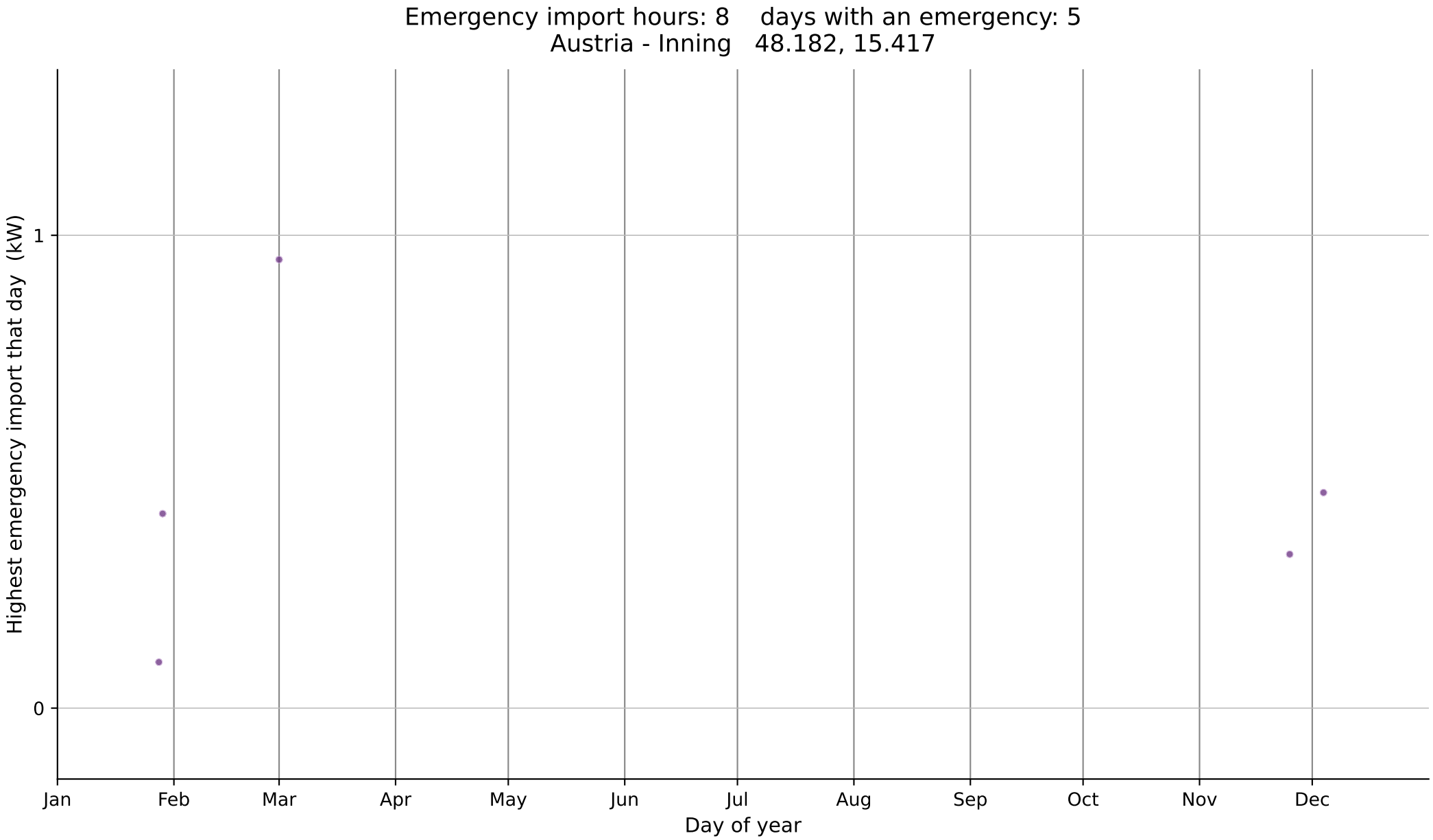
Monthly and yearly total yield (kWh)
Austria - Inning 48.182, 15.417

Month / year		Garage roof 1°/0° 10740 Wp	Garage side wall south 90°/0° 3475 Wp	Garage side wall north 90°/180° 3475 Wp	Garage door side 90°/90° 700 Wp	Garage back side 90°/-90° 2540 Wp	Garden fence east 90°/-90° + 90°/90° 6000 Wp bifacial ×80%	All together
January	Maximum	352.7	25.2	25.2	5.6	23.1	93.1	490.5
	average	253.6	18.3	18.3	4.2	17.1	68.8	380.3
	minimum	192.8	14.2	14.2	3.2	13.4	53.8	302.3
February	Maximum	553.7	34.0	34.0	8.2	28.1	122.8	752.3
	average	449.0	28.6	28.6	7.5	24.6	109.5	647.8
	minimum	327.9	24.3	24.3	6.7	22.5	99.5	532.0
March	Maximum	1113.4	139.1	56.2	14.5	52.2	222.6	1557.4
	average	839.7	111.7	49.1	13.0	47.3	200.7	1261.4
	minimum	654.6	83.3	42.4	11.4	40.9	174.5	1045.3
April	Maximum	1488.4	298.4	72.3	24.9	94.0	392.3	2358.5
	average	1188.0	238.2	65.9	22.8	84.3	355.4	1954.6
	minimum	935.8	187.8	58.3	19.1	69.1	294.4	1566.4
May	Maximum	1552.9	264.0	91.1	35.0	113.5	495.7	2536.8
	average	1331.9	229.8	83.9	30.1	101.0	445.0	2221.8
	minimum	982.4	170.1	77.5	24.1	83.6	362.8	1702.6
June	Maximum	1753.7	254.3	98.2	35.5	143.3	575.0	2852.0
	average	1457.5	218.1	91.8	31.6	124.4	510.3	2433.6
	minimum	1175.0	180.6	83.7	27.5	105.5	437.7	2016.6
July	Maximum	1706.4	268.2	96.7	34.9	124.1	532.4	2755.9
	average	1485.0	235.4	89.1	31.6	110.5	477.5	2429.1
	minimum	1103.6	173.8	80.1	25.7	85.1	377.7	1847.5
August	Maximum	1418.8	275.2	79.9	28.4	102.6	425.4	2315.4
	average	1264.6	245.4	69.5	25.7	93.1	396.3	2094.6
	minimum	1101.1	211.2	61.2	22.8	84.5	363.5	1866.8
September	Maximum	1125.4	207.6	57.1	16.8	58.2	248.7	1703.6
	average	931.1	170.6	48.9	15.0	53.0	228.2	1446.8
	minimum	751.2	139.7	41.0	13.2	46.3	200.1	1203.9
October	Maximum	734.7	39.3	39.1	9.0	33.0	139.8	968.1
	average	585.9	34.2	34.1	8.0	29.7	125.0	816.9
	minimum	403.9	29.9	29.9	6.9	25.2	106.6	602.3
November	Maximum	360.3	22.5	22.5	5.3	19.6	82.4	502.1
	average	285.9	20.0	20.0	4.7	17.4	73.7	421.7
	minimum	217.6	18.5	18.5	4.2	15.3	65.0	339.8
December	Maximum	272.5	18.0	18.0	4.1	16.6	67.1	375.1
	average	206.0	14.5	14.5	3.4	13.8	55.7	307.9
	minimum	170.1	10.1	10.1	2.4	9.8	39.8	242.3
All years	Maximum	10799	1662	636	204	750	3162	17173
	average	10278	1565	614	197	716	3046	16417
	minimum	9753	1473	597	192	684	2970	15733

Highest combined yield hour: 2012-05-18 08:10 UTC 13586.5 W (0.505 W/Wp) of 26930 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
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
−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
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	31	216	731	1497	1775	2070	2027	1609	1004	330	103	15	9616
month average	19	151	516	1087	1420	1675	1680	1389	739	253	60	7	8994
month minimum	7	71	340	662	911	1303	1049	1097	514	156	30	1	8162
day Maximum	7.3	15.6	57.7	102.4	107.3	101.3	103.7	102.9	82.1	35.8	9.6	3.4	107.3
day average	0.6	5.3	16.7	36.2	45.8	55.8	54.2	44.8	24.6	8.2	2.0	0.2	24.6
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 from grid													
month Maximum	723	552	218	79	111	59	58	52	99	320	576	751	2961
month average	614	369	118	28	60	39	38	36	20	175	458	636	2589
month minimum	527	274	23	8	34	18	27	18	0	84	378	505	2244
day Maximum	53.6	36.6	27.7	18.0	15.5	11.1	8.8	7.9	16.0	24.7	44.9	48.4	53.6
day average	19.8	13.1	3.8	0.9	1.9	1.3	1.2	1.2	0.7	5.6	15.3	20.5	7.1
day minimum	9.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3	0.0	0.0
Total energy used for house													
month Maximum	1050	1013	872	722	661	560	547	556	611	736	811	991	8604
month average	888	794	797	669	615	527	516	520	563	678	750	853	8170
month minimum	802	721	737	595	560	496	501	496	511	614	711	789	7911
day Maximum	52.2	47.2	44.3	28.5	25.7	25.5	23.3	23.6	24.3	28.2	34.2	44.6	52.2
day average	28.6	28.1	25.7	22.3	19.8	17.6	16.7	16.8	18.8	21.9	25.0	27.5	22.4
day minimum	16.3	20.7	19.3	15.7	15.6	15.6	15.5	15.5	15.5	15.8	18.9	21.5	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	2	12	65	169	220	243	256	210	129	27	6	1	1165
month average	1	9	44	117	174	208	217	178	86	17	3	0	1054
month minimum	0	4	20	56	101	170	147	141	52	8	2	0	949
day Maximum	0.5	1.1	7.7	14.9	15.3	15.0	15.4	15.0	12.0	6.4	0.6	0.2	15.4
day average	0.0	0.3	1.4	3.9	5.6	6.9	7.0	5.7	2.9	0.5	0.1	0.0	2.9
day minimum	-0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.0	-0.0	-0.0
Import													
month Maximum	175	132	52	14	22	12	14	13	16	74	140	184	712
month average	146	86	27	6	14	9	9	9	3	41	107	151	608
month minimum	124	64	5	2	8	5	6	4	0	19	88	118	524
day Maximum	13.4	9.4	6.9	3.1	2.2	1.9	1.6	1.4	2.9	5.9	12.1	13.1	13.4
day average	4.7	3.1	0.9	0.2	0.5	0.3	0.3	0.3	0.1	1.3	3.6	4.9	1.7
day minimum	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0
Peak grid fee													
month Maximum	22	19	25	19	19	19	19	19	19	19	21	22	217
month average	19	19	19	16	14	12	9	10	13	19	19	19	188
month minimum	19	19	19	11	10	7	7	7	0	19	19	19	158
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	194	151	77	33	41	31	27	29	35	93	161	203	927
month average	165	105	47	21	28	21	18	18	16	60	126	170	796
month minimum	143	83	24	13	19	15	15	12	0	38	107	137	700
day Maximum	13.4	9.4	6.9	3.1	2.2	1.9	1.6	1.4	2.9	5.9	12.1	13.1	13.4
day average	4.7	3.1	0.9	0.2	0.5	0.3	0.3	0.3	0.1	1.3	3.6	4.9	1.7
day minimum	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0
Balance													
month Maximum	-141	-70	35	153	191	222	237	188	129	-18	-101	-137	391
month average	-164	-96	-3	95	146	187	199	159	69	-42	-123	-170	258
month minimum	-192	-146	-40	29	72	139	131	125	26	-85	-158	-203	61
day Maximum	-2.0	1.0	7.7	14.9	15.3	15.0	15.4	15.0	12.0	6.4	-0.2	0.0	15.4
day average	-4.7	-2.7	0.5	3.7	5.1	6.6	6.7	5.5	2.7	-0.8	-3.5	-4.9	1.2
day minimum	-13.4	-9.4	-6.9	-3.1	-1.9	-1.7	-1.4	-0.9	-2.9	-5.9	-12.1	-13.1	-13.4

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	31	216	731	1497	1775	2070	2027	1609	1004	330	103	15	9616
month average	19	151	516	1087	1420	1675	1680	1389	739	253	60	7	8994
month minimum	7	71	340	662	911	1303	1049	1097	514	156	30	1	8162
day Maximum	7.3	15.6	57.7	102.4	107.3	101.3	103.7	102.9	82.1	35.8	9.6	3.4	107.3
day average	0.6	5.3	16.7	36.2	45.8	55.8	54.2	44.8	24.6	8.2	2.0	0.2	24.6
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 high price hours													
month Maximum	0	0	181	669	901	1006	1059	880	541	59	0	0	4730
month average	0	-0	86	450	717	874	916	737	338	17	0	0	4135
month minimum	0	-0	0	214	407	715	635	604	179	0	0	0	3654
day Maximum	0.0	0.0	29.3	60.6	60.9	62.2	63.0	60.5	49.1	25.7	0.0	0.0	63.0
day average	0.0	-0.0	2.8	15.0	23.1	29.1	29.6	23.8	11.3	0.5	0.0	0.0	11.3
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
Export during medium price hours													
month Maximum	13	56	153	246	345	357	391	291	171	78	15	3	1829
month average	5	41	119	196	262	297	315	253	136	49	6	1	1681
month minimum	0	24	83	148	185	218	206	210	93	25	1	-0	1554
day Maximum	1.5	4.6	8.5	11.1	16.7	16.0	16.3	15.8	9.4	4.6	1.3	0.5	16.7
day average	0.1	1.5	3.8	6.5	8.5	9.9	10.2	8.2	4.5	1.6	0.2	0.0	4.6
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	29	160	440	595	560	717	585	531	316	230	88	13	3435
month average	15	110	311	441	440	504	448	399	265	187	53	6	3179
month minimum	3	47	228	286	312	347	208	271	214	131	29	1	2860
day Maximum	6.3	11.6	39.2	57.7	58.5	57.2	43.7	47.3	42.5	20.5	8.4	3.1	58.5
day average	0.5	3.9	10.0	14.7	14.2	16.8	14.5	12.9	8.8	6.0	1.8	0.2	8.7
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

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

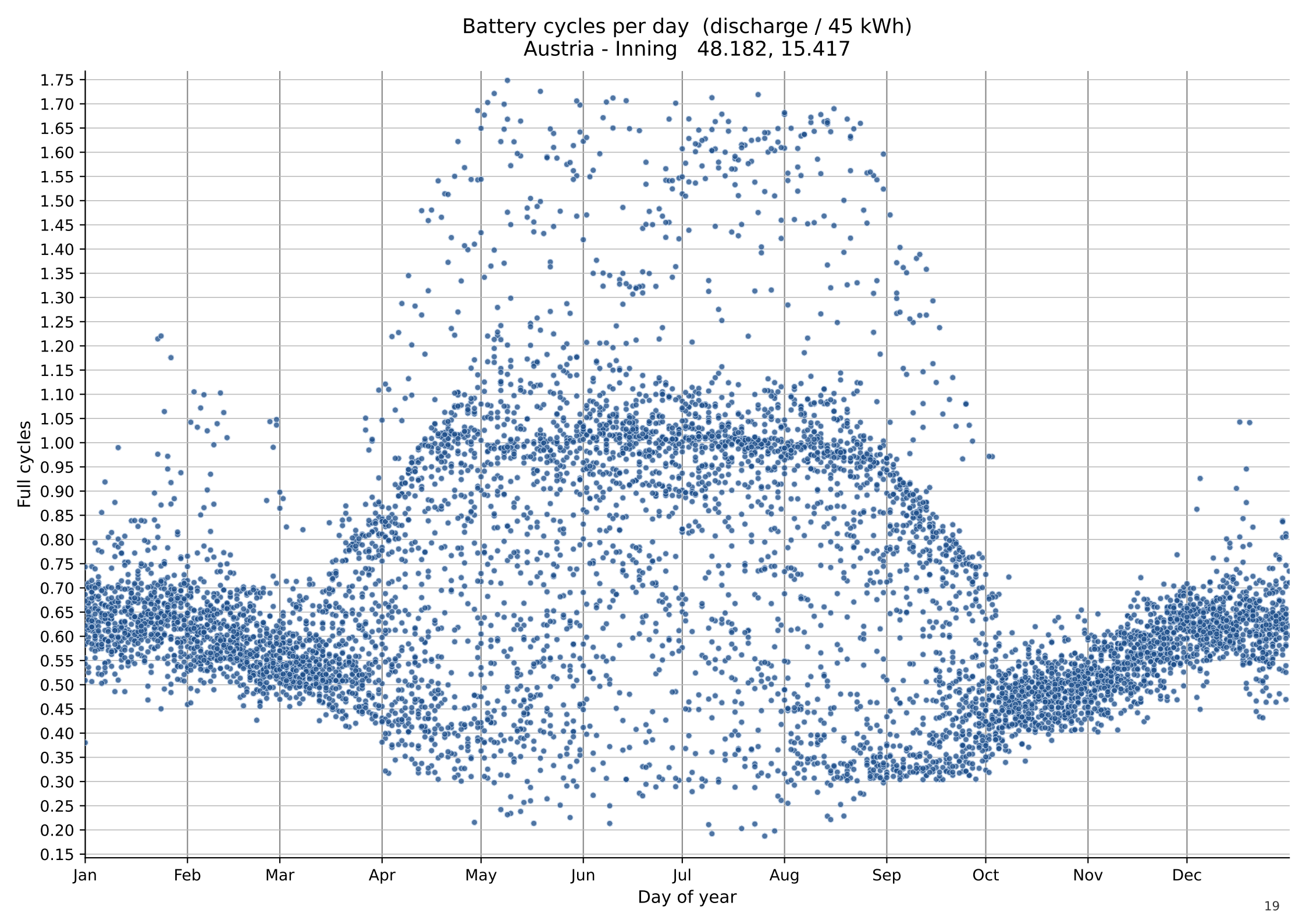
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	All
Heating													
month Maximum	546	542	369	240	166	85	61	69	137	238	328	491	2768
month average	384	336	294	189	122	55	32	34	91	182	267	354	2340
month minimum	298	266	235	119	71	26	15	8	43	121	230	290	2085
day Maximum	35.9	31.0	28.1	12.4	9.8	9.6	7.6	7.8	8.5	12.1	18.1	28.5	35.9
day average	12.4	11.9	9.5	6.3	4.0	1.8	1.0	1.1	3.0	5.9	8.9	11.4	6.4
day minimum	0.0	4.6	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	5.4	0.0
Cooling													
month Maximum	0.00	0.00	0.00	0.00	0.00	0.44	8.04	7.16	0.00	0.00	0.00	0.00	10.38
month average	0.00	0.00	0.00	0.00	0.00	0.09	1.17	1.53	0.00	0.00	0.00	0.00	2.79
month minimum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
day Maximum	0.00	0.00	0.00	0.00	0.00	0.44	5.93	4.74	0.00	0.00	0.00	0.00	5.93
day average	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.05	0.00	0.00	0.00	0.00	0.01
day minimum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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	110	157	39	0	0	0	0	0	0	0	4	59	164
month average	16	17	4	0	0	0	0	0	0	0	0	7	44
month minimum	0	0	0	0	0	0	0	0	0	0	0	0	0
day Maximum	19.9	15.0	12.5	0.4	0.0	0.0	0.0	0.0	0.0	0.0	3.5	12.5	19.9
day average	0.5	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	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

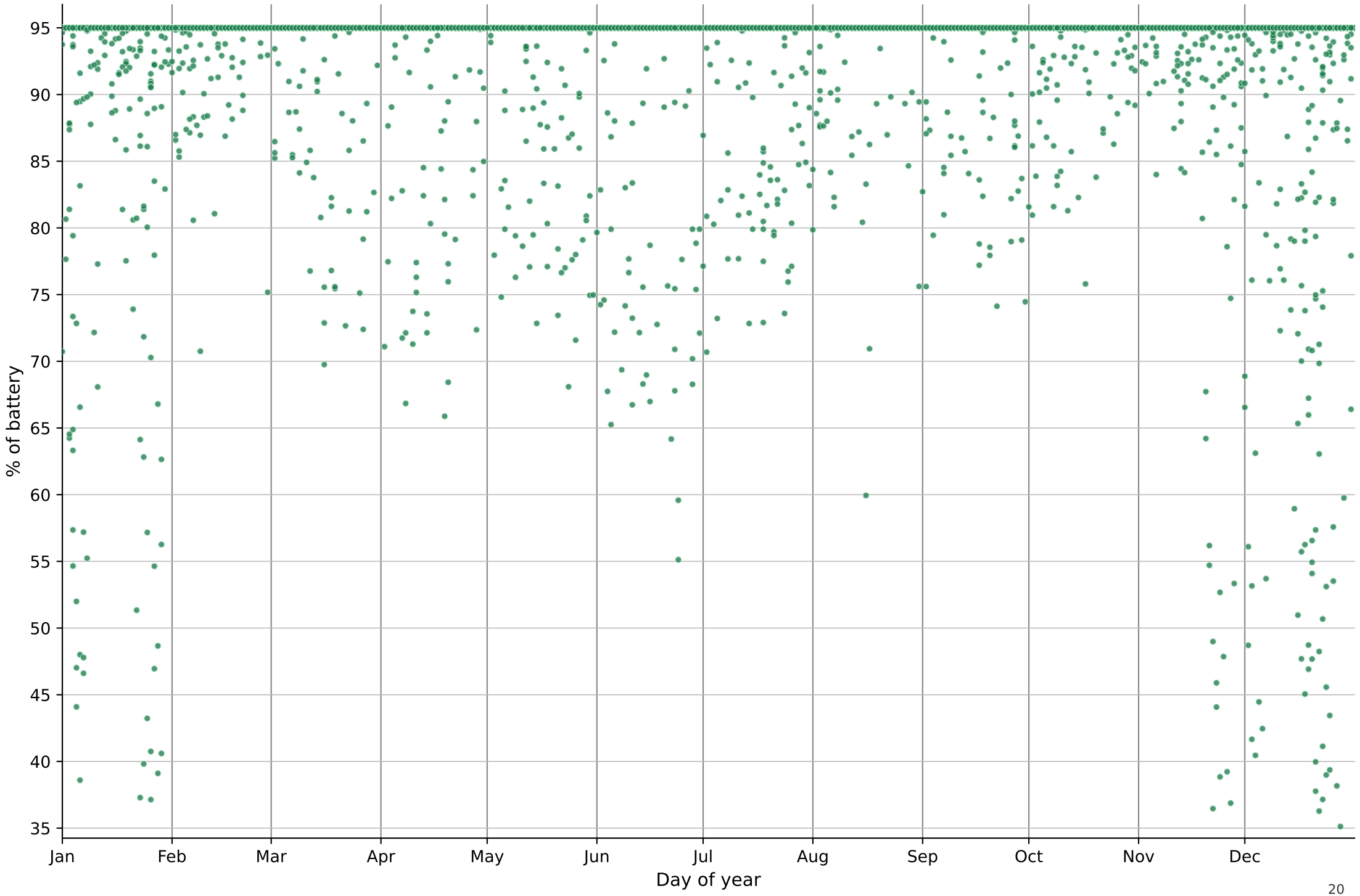
Heating, cooling and DHW are electricity. Direct electric is the part the heat pump could not cover.

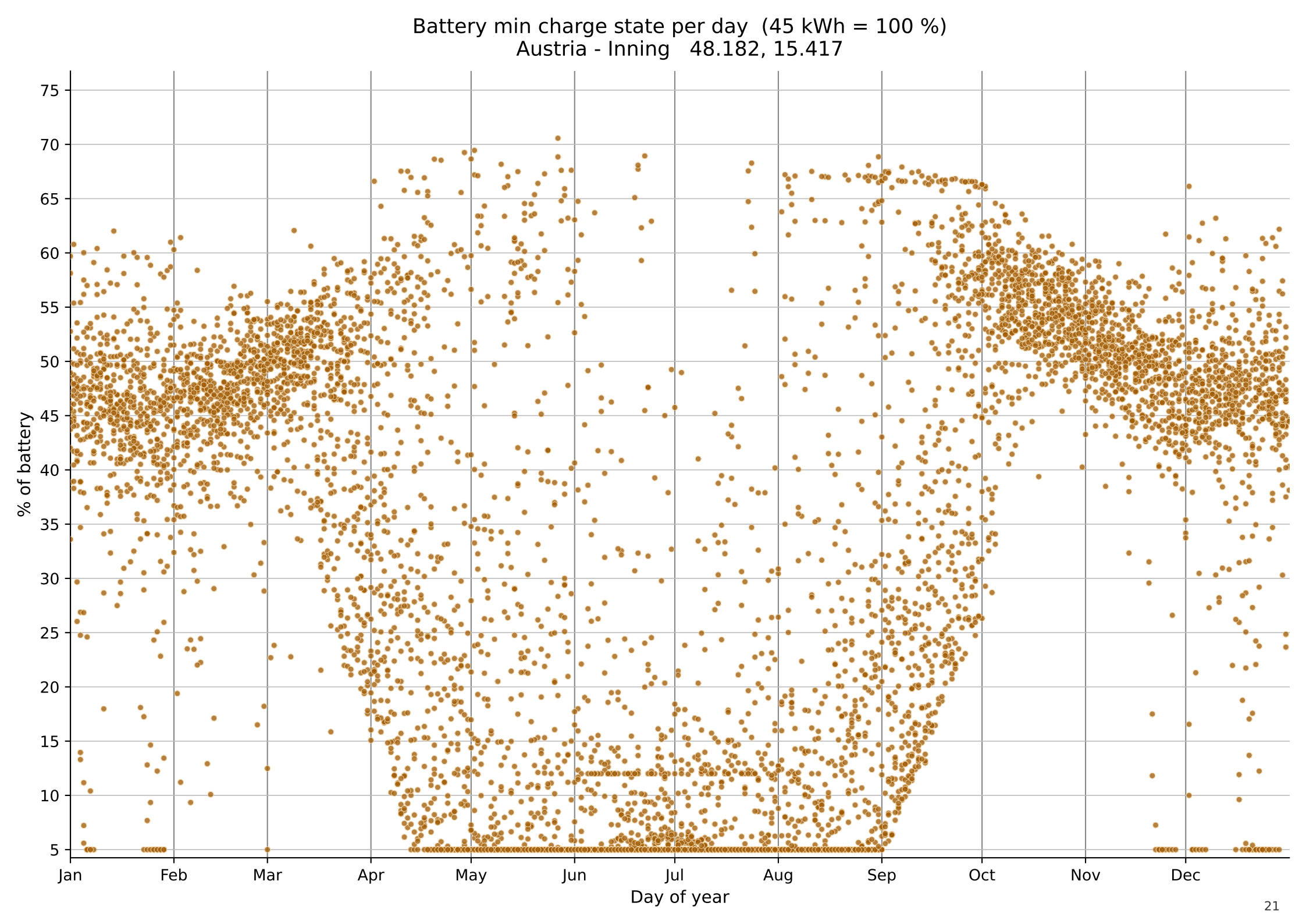
Battery
Austria - Inning 48.182, 15.417

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	All
Wasted													
month Maximum	0	0	0	229	197	274	223	173	117	0	0	0	1010
month average	0	0	0	148	152	168	159	118	81	0	0	0	826
month minimum	0	0	0	82	105	103	75	54	32	0	0	0	690
day Maximum	0.0	0.0	0.0	51.9	34.8	59.8	34.8	44.1	34.6	0.0	0.0	0.0	59.8
day average	0.0	0.0	0.0	4.9	4.9	5.6	5.1	3.8	2.7	0.0	0.0	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
Full cycles													
month Maximum	24.28	22.77	20.17	26.48	29.94	30.46	31.86	28.49	22.55	15.99	18.47	22.97	266.77
month average	20.12	17.16	18.30	22.56	26.32	28.22	29.01	25.61	18.93	14.95	16.75	19.48	257.41
month minimum	18.11	15.29	17.23	18.37	20.35	25.26	24.04	23.38	15.93	14.05	15.72	17.83	249.42
day Maximum	1.22	1.11	1.11	1.69	1.75	1.71	1.72	1.69	1.47	0.97	0.77	1.04	1.75
day average	0.65	0.61	0.59	0.75	0.85	0.94	0.94	0.83	0.63	0.48	0.56	0.63	0.70
day minimum	0.38	0.43	0.41	0.22	0.21	0.21	0.19	0.22	0.30	0.32	0.40	0.43	0.19
Charge C													
month Maximum	0.13	0.18	0.28	0.29	0.29	0.28	0.28	0.27	0.26	0.17	0.12	0.09	2.55
month average	0.11	0.16	0.25	0.28	0.28	0.27	0.27	0.26	0.25	0.16	0.11	0.09	2.51
month minimum	0.09	0.13	0.21	0.27	0.27	0.26	0.27	0.26	0.24	0.15	0.11	0.09	2.46
day Maximum	0.13	0.18	0.28	0.29	0.29	0.28	0.28	0.27	0.26	0.17	0.12	0.09	0.29
day average	0.06	0.10	0.15	0.21	0.22	0.23	0.23	0.21	0.18	0.10	0.07	0.05	0.15
day minimum	0.01	0.01	0.02	0.02	0.03	0.04	0.04	0.04	0.02	0.02	0.01	0.01	0.01
Discharge C													
month Maximum	0.13	0.11	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.08	0.10	2.50
month average	0.08	0.07	0.25	0.28	0.28	0.28	0.28	0.28	0.28	0.15	0.06	0.07	2.35
month minimum	0.05	0.05	0.08	0.28	0.28	0.28	0.28	0.28	0.28	0.05	0.05	0.05	2.11
day Maximum	0.13	0.11	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.08	0.10	0.28
day average	0.05	0.05	0.09	0.18	0.21	0.25	0.24	0.21	0.16	0.05	0.05	0.05	0.13
day minimum	0.03	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.03

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
1.75
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
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