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
Garden fence east	90	-90	6,000	5 / 4	face 1	—	yes
Garden fence east face2	90	90	4,800	5 / 4	face 2	80 %	no
Roof south	22	0	3,000	—	front	—	yes
Total counted			29,930				

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 2016-05-17 10:10 local (09:10 UTC) 15,685 W 0.524 W/Wp of 29,930 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.

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	20.0 °C / 25.0 °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	60.0 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 2 Jun 2
	Import cap Jul–Dec kW	Jul 2 Aug 2 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	2016-05-17 09:10	2013-05-13 09:10	2012-05-18 09:10	2012-05-18 08:10	2020-04-21 09:10	2017-04-30 09:10	2012-04-25 09:10	2020-05-07 09:10	2020-05-06 08:10	2019-05-01 09:10
Garage roof	7,574	7,581	7,617	6,898	7,160	7,365	7,242	7,489	6,654	7,362
Garage side wall south	1,520	1,561	1,509	1,144	1,846	1,723	1,785	1,625	1,278	1,696
Garage side wall north	202	171	178	137	150	141	153	155	152	143
Garage door side	41	34	36	28	30	28	31	31	31	29
Garage back side	1,115	1,118	1,114	1,544	1,175	1,146	1,158	1,124	1,560	1,133
Garden fence east	2,634	2,642	2,632	3,648	2,775	2,708	2,734	2,654	3,686	2,678
Garden fence east face2	279	236	245	189	207	195	211	214	211	198
Roof south	2,321	2,341	2,331	2,074	2,317	2,330	2,321	2,341	2,048	2,330
Watt at record	15,685	15,684	15,662	15,660	15,660	15,637	15,634	15,634	15,620	15,568
Percent of installed peak	52.4	52.4	52.3	52.3	52.3	52.2	52.2	52.2	52.2	52.0

Values are watts at that hour. Date and time are UTC. Record 15,685 W (52.4 % of 29,930 Wp).

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

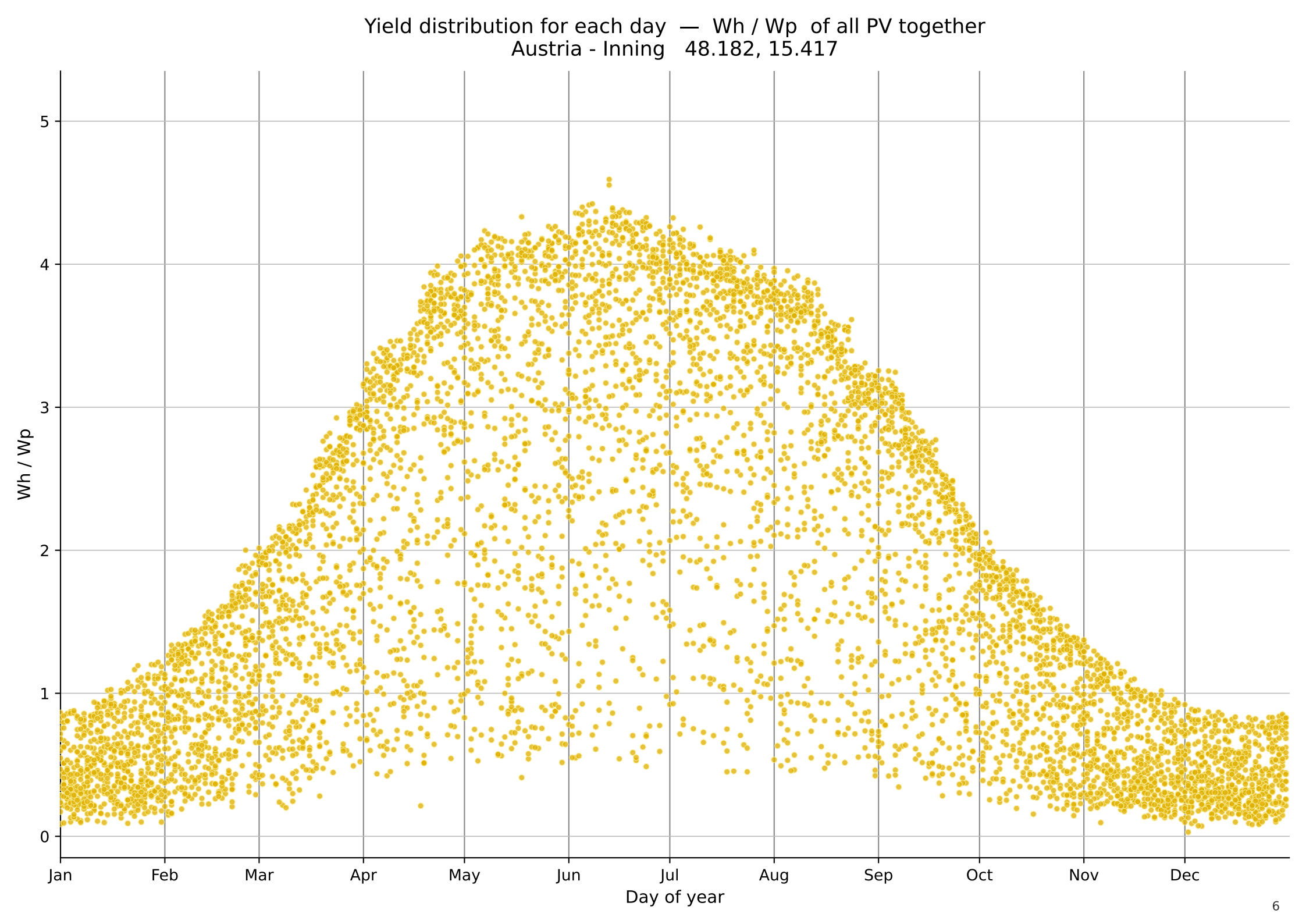
Of the record	Hours	Watts
98 %	35	15,371 W
96 %	97	15,057 W
94 %	288	14,743 W
92 %	618	14,430 W
90 %	1,188	14,116 W

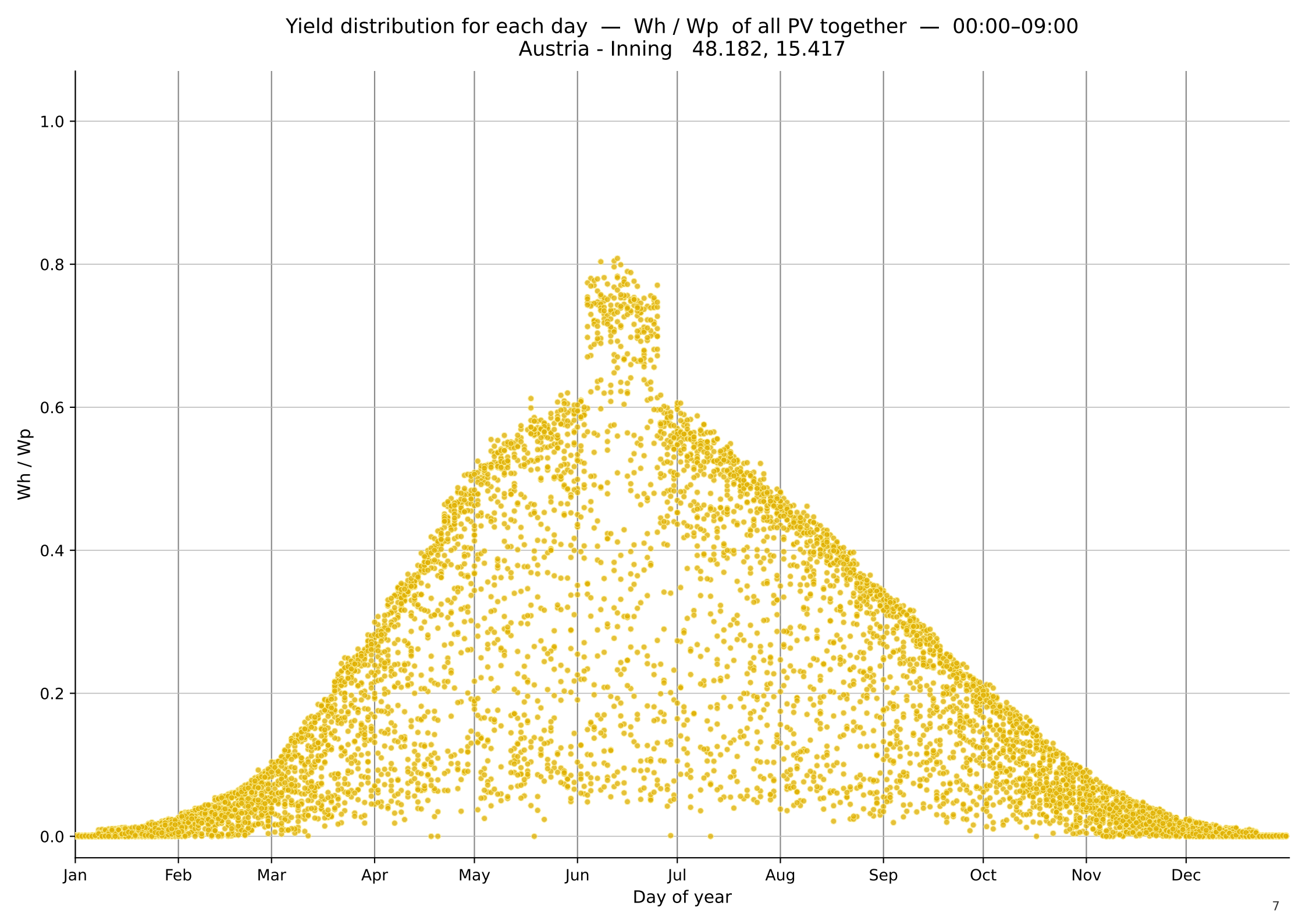
Record hour = 15,685 W combined.

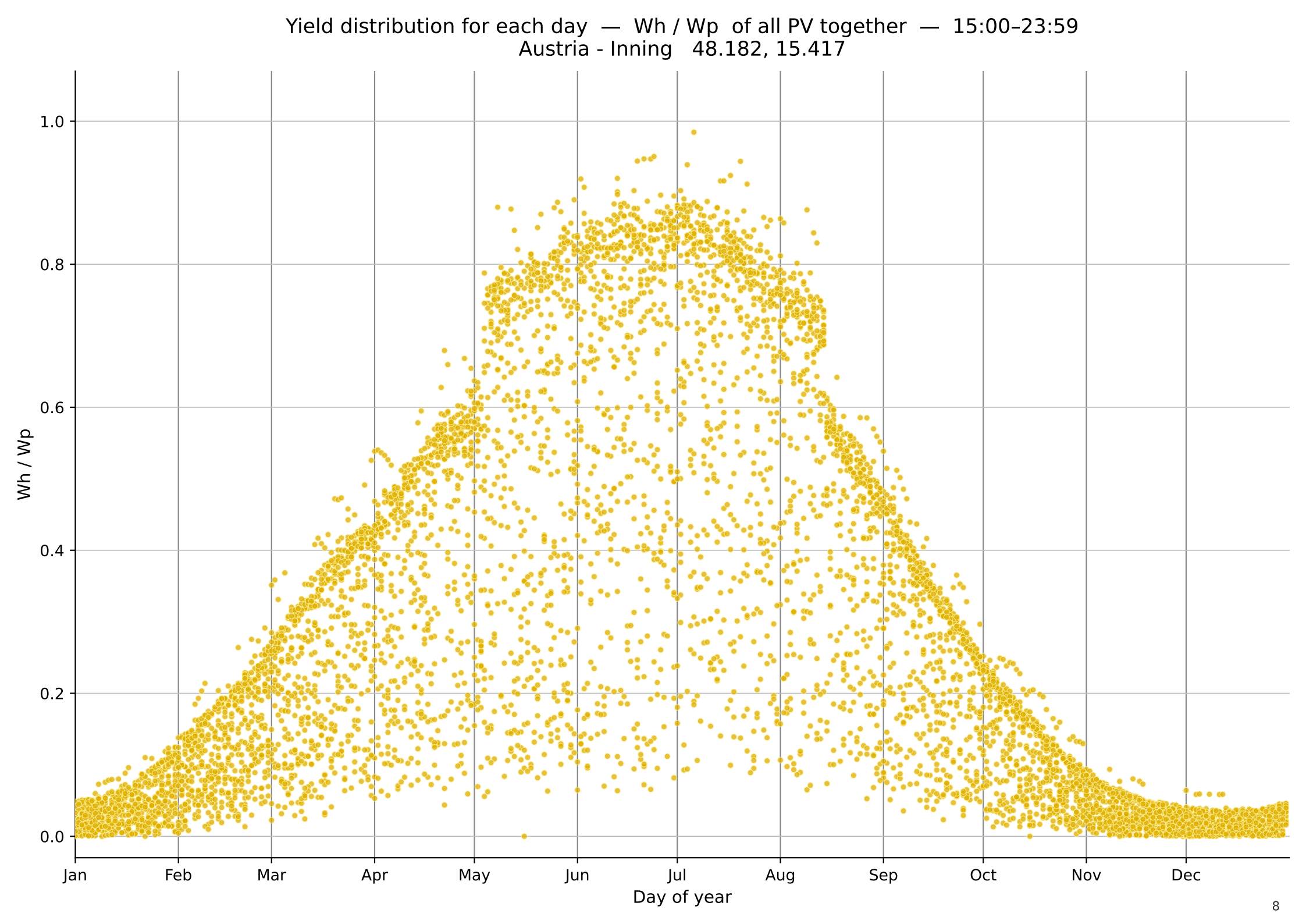
Records of each photovoltaic field
Austria - Inning 48.182, 15.417

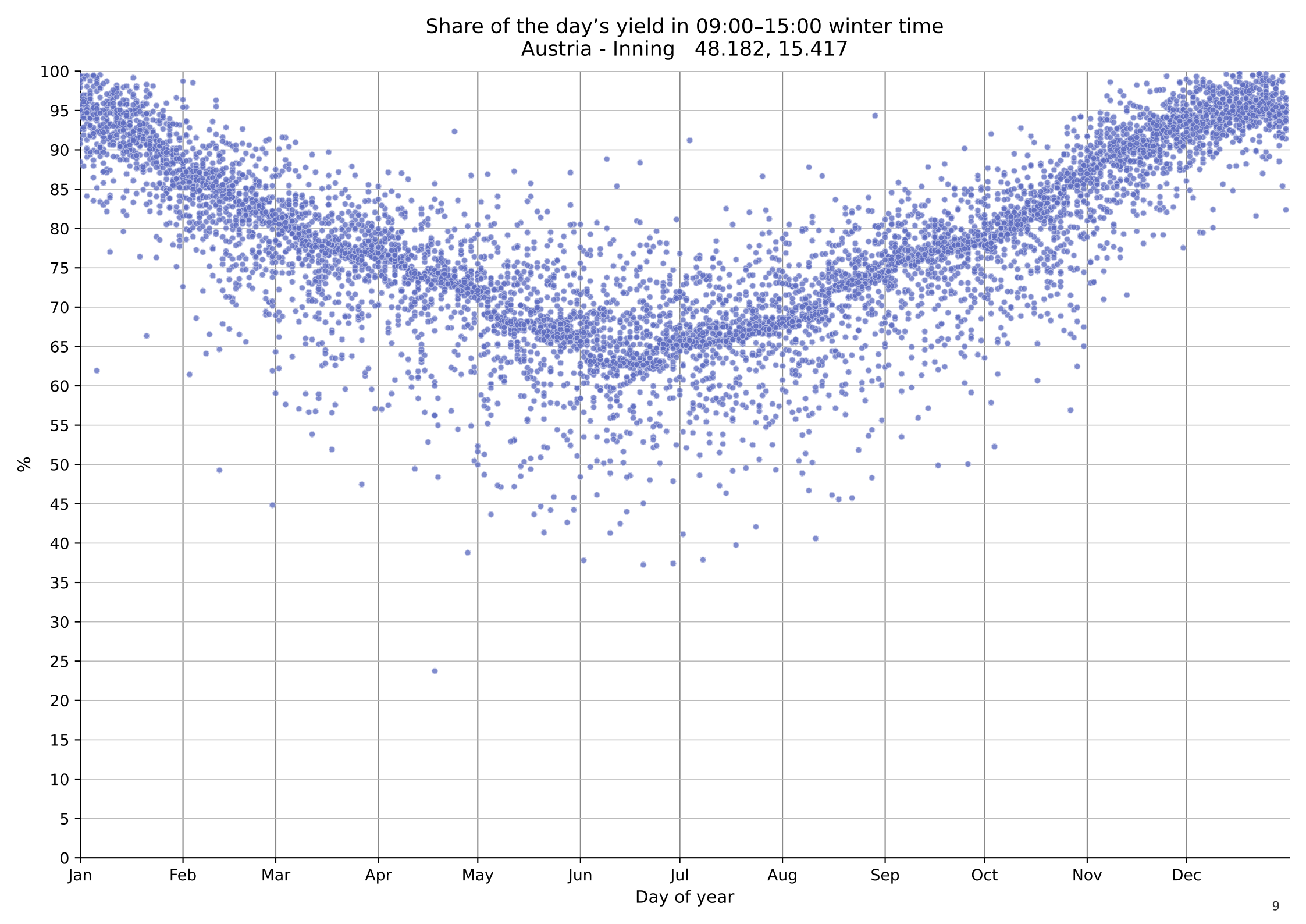
PV	Date	Watts	%	h ≥98%	h ≥96%	h ≥94%	h ≥92%	h ≥90%
Garage roof	2009-06-13 11:10	8,369	77.9	8	33	112	320	671
Garage side wall south	2009-03-22 11:10	2,638	75.9	8	17	26	45	75
Garage side wall north	2023-06-13 05:10	611	17.6	1	8	25	50	108
Garage door side	2005-05-08 14:10	473	67.6	1	3	5	16	49
Garage back side	2009-06-13 07:10	1,695	66.7	3	8	16	44	84
Garden fence east	2009-06-13 07:10	4,197	70.0	3	10	18	47	102
Roof south	2005-04-22 11:10	2,645	88.2	2	11	52	161	376

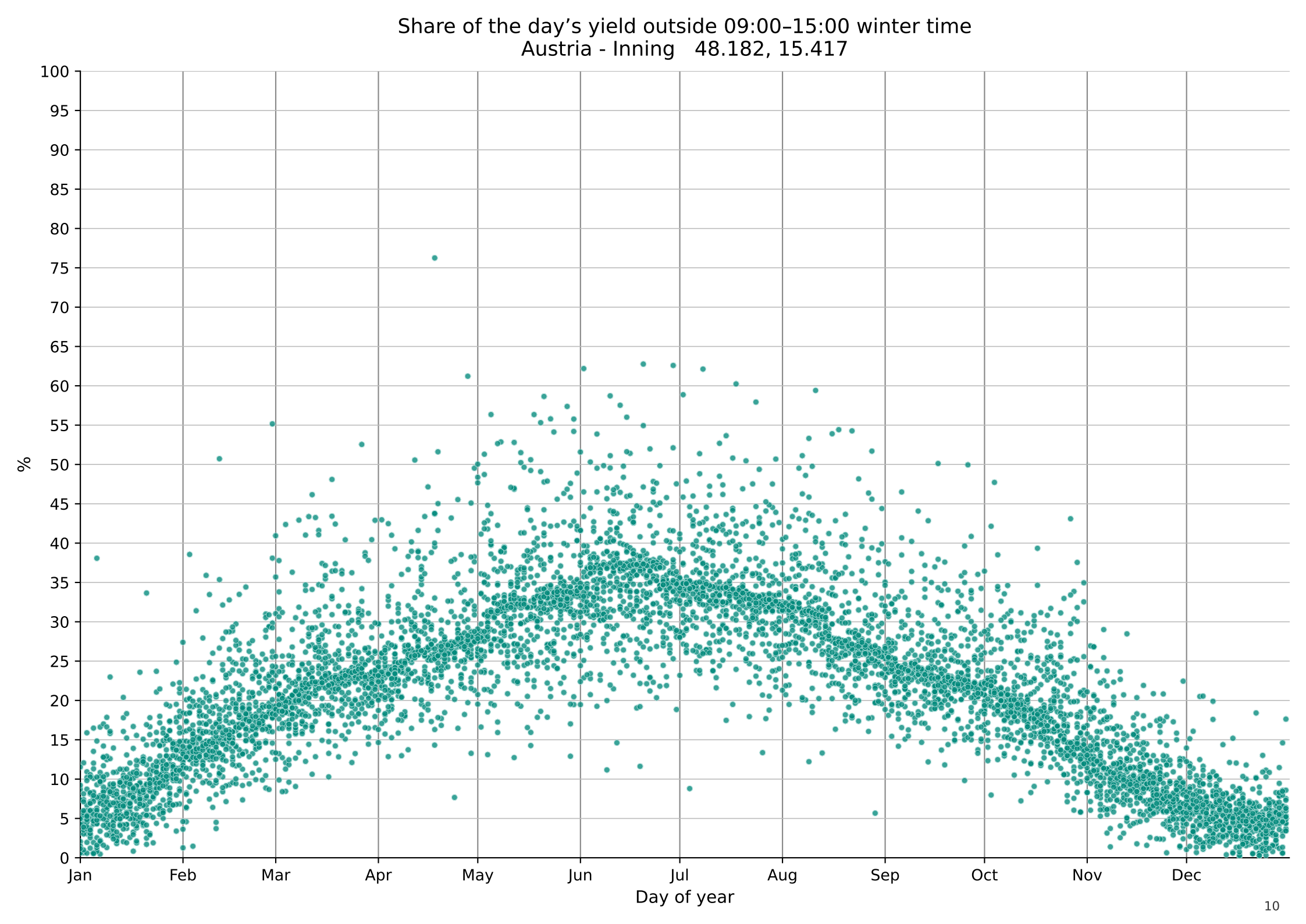
Watts is the highest hour of that field. % is of its own Wp. Hours are the count of hours at or above that share of its own record. Use this to size the MPPT or the inverter for that field.

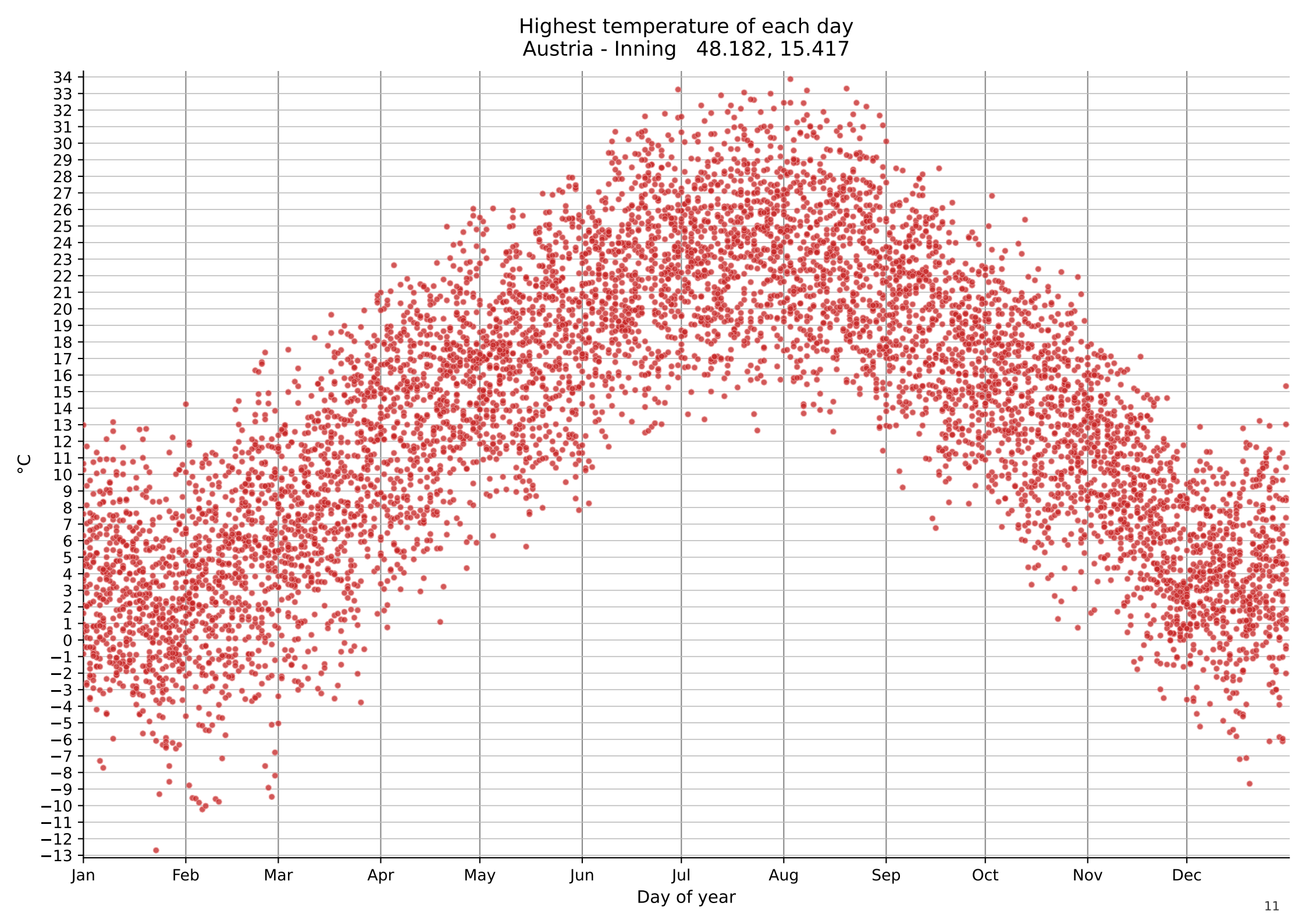

Yield distribution for each day — Wh / Wp of all PV together
Austria - Inning 48.182, 15.417
Wh / Wp
0
1
2
3
4
5
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year

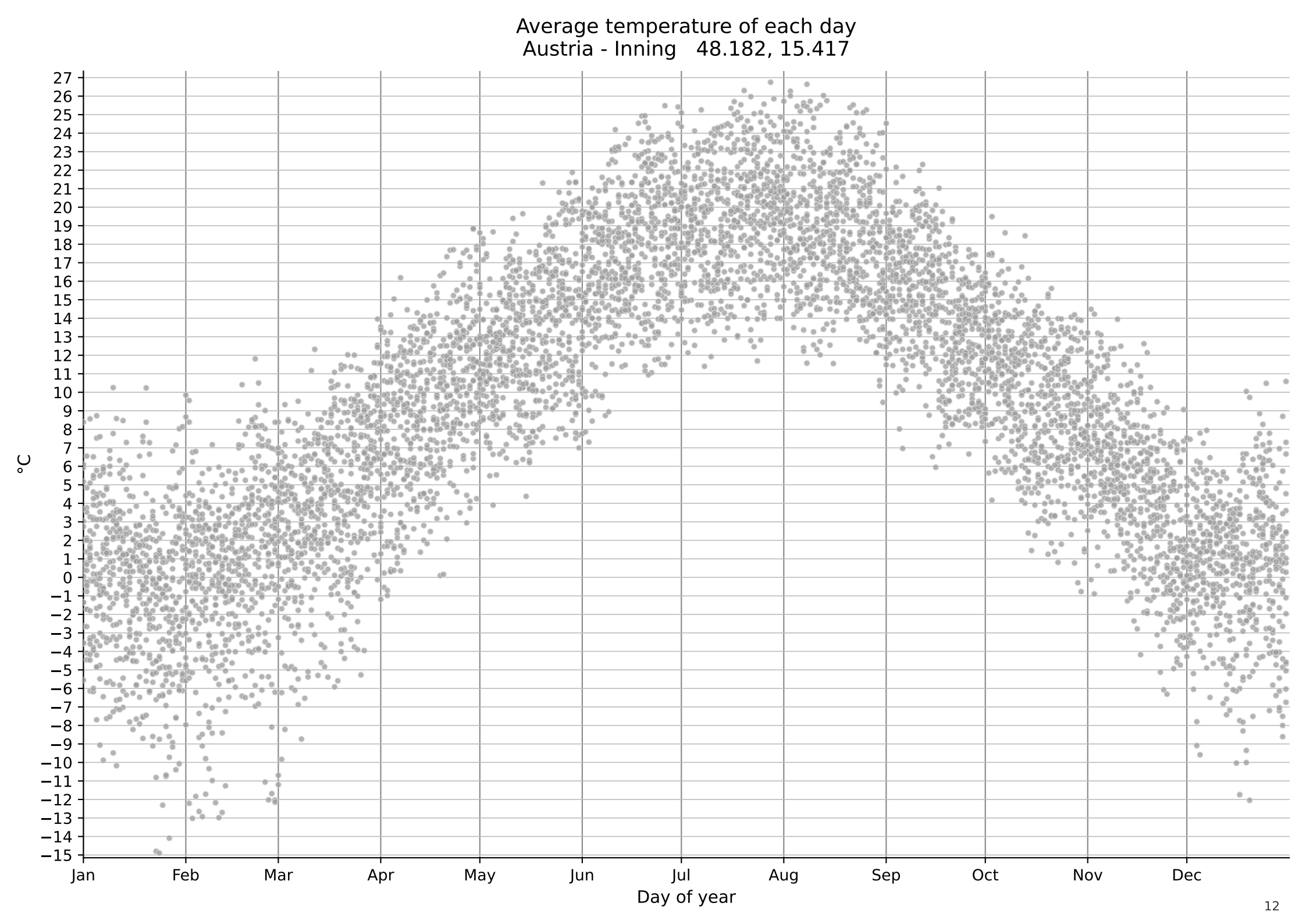

Yield distribution for each day — Wh / Wp of all PV together — 00:00–09:00
Austria - Inning 48.182, 15.417
1.0
0.8
0.6
0.4
0.2
0.0
Wh / Wp
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year

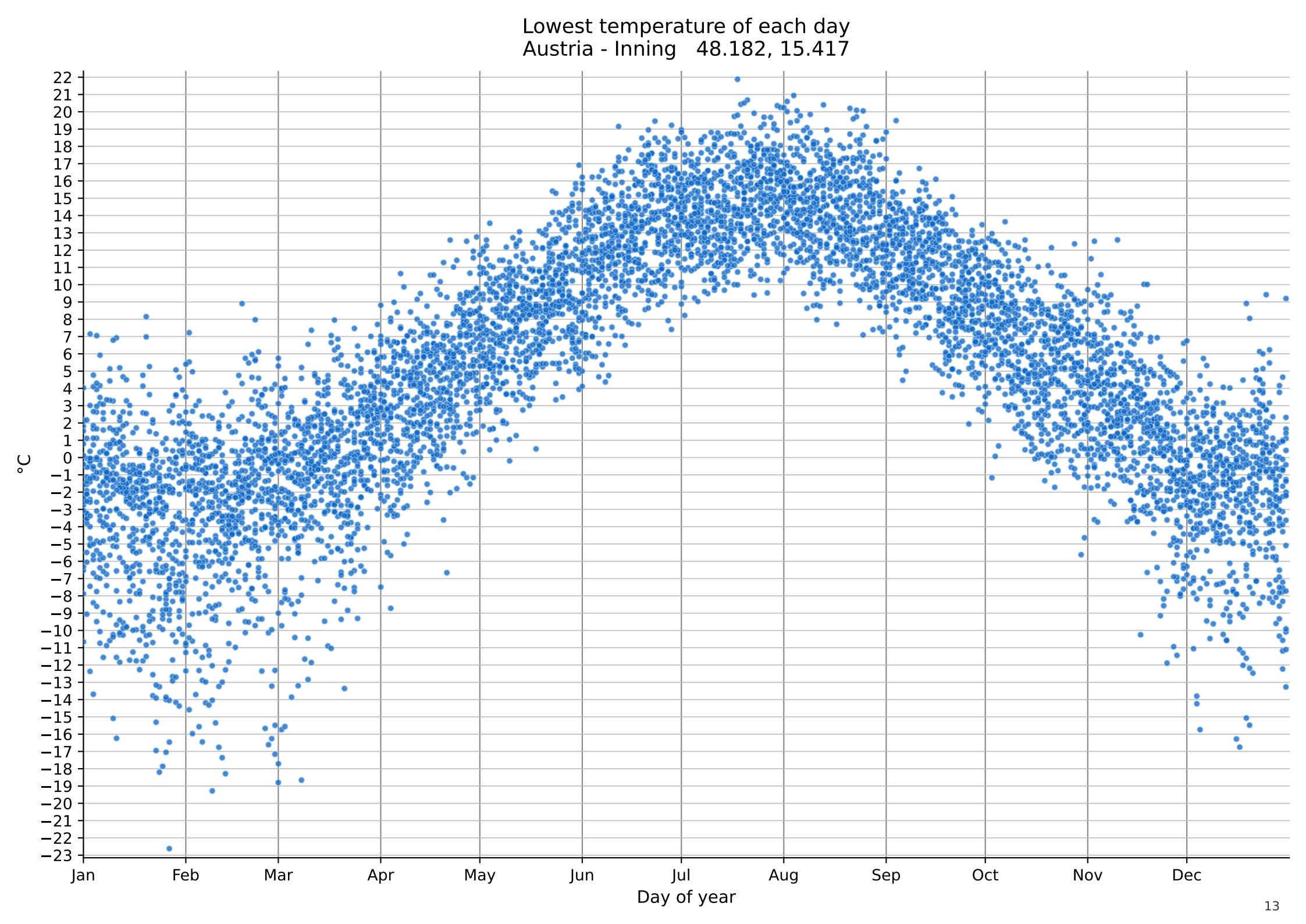

Yield distribution for each day — Wh / Wp of all PV together — 15:00–23:59
Austria - Inning 48.182, 15.417
Wh / Wp
1.0
0.8
0.6
0.4
0.2
0.0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year

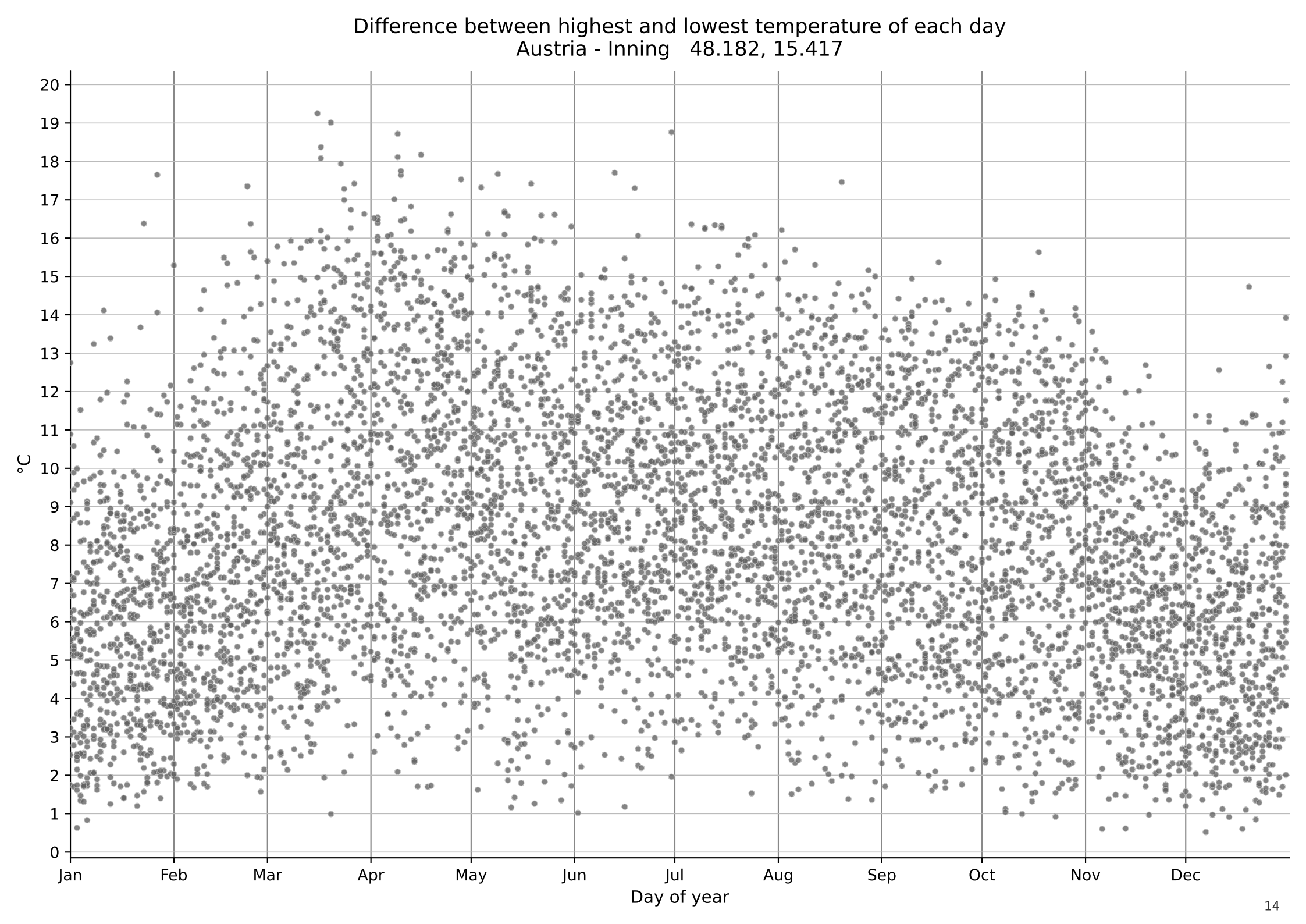

Share of the day’s yield in 09:00–15:00 winter time
Austria - Inning 48.182, 15.417
%
100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year


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	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	22.33
	average	23.62	5.26	5.26	5.93	6.73	11.47	16.42
	minimum	17.95	4.09	4.09	4.60	5.29	8.97	12.63
February	Maximum	51.56	9.78	9.78	11.74	11.07	20.46	32.71
	average	41.81	8.23	8.23	10.69	9.69	18.25	27.50
	minimum	30.53	7.01	7.01	9.55	8.85	16.58	21.48
March	Maximum	103.67	40.02	16.17	20.69	20.57	37.09	65.42
	average	78.18	32.13	14.12	18.52	18.64	33.45	51.74
	minimum	60.95	23.96	12.21	16.23	16.11	29.09	42.07
April	Maximum	138.59	85.87	20.80	35.62	37.00	65.39	94.49
	average	110.61	68.54	18.98	32.57	33.18	59.23	77.60
	minimum	87.14	54.04	16.79	27.32	27.21	49.07	61.92
May	Maximum	144.59	75.98	26.21	49.99	44.67	82.61	99.80
	average	124.01	66.13	24.16	43.00	39.77	74.17	87.07
	minimum	91.48	48.94	22.30	34.42	32.92	60.46	66.22
June	Maximum	163.28	73.17	28.27	50.65	56.41	95.84	111.86
	average	135.71	62.75	26.40	45.09	48.98	85.06	95.01
	minimum	109.40	51.97	24.08	39.28	41.53	72.95	78.32
July	Maximum	158.88	77.19	27.83	49.85	48.86	88.73	108.35
	average	138.27	67.74	25.64	45.09	43.52	79.59	95.31
	minimum	102.76	50.02	23.06	36.77	33.52	62.94	72.11
August	Maximum	132.11	79.19	22.99	40.50	40.39	70.89	91.69
	average	117.75	70.61	19.99	36.73	36.67	66.05	82.71
	minimum	102.53	60.77	17.60	32.59	33.27	60.58	73.36
September	Maximum	104.79	59.73	16.42	24.07	22.91	41.44	69.60
	average	86.69	49.11	14.08	21.48	20.85	38.03	58.62
	minimum	69.95	40.19	11.80	18.89	18.24	33.35	48.36
October	Maximum	68.41	11.30	11.26	12.90	12.98	23.30	42.05
	average	54.55	9.83	9.80	11.44	11.69	20.84	34.57
	minimum	37.60	8.60	8.60	9.79	9.93	17.77	24.88
November	Maximum	33.54	6.47	6.47	7.53	7.71	13.74	22.18
	average	26.62	5.75	5.75	6.77	6.86	12.28	18.05
	minimum	20.26	5.33	5.33	6.04	6.01	10.83	14.06
December	Maximum	25.37	5.19	5.19	5.84	6.52	11.19	17.52
	average	19.18	4.19	4.19	4.82	5.42	9.28	13.52
	minimum	15.84	2.90	2.90	3.46	3.86	6.63	10.91
All years	Maximum	1,005.5	478.1	182.9	291.4	295.1	527.0	688.2
	average	957.0	450.3	176.6	282.1	282.0	507.7	658.1
	minimum	908.1	423.9	171.8	274.0	269.5	495.0	629.2

Highest combined yield hour: 2016-05-17 09:10 UTC 15,684.5 W (0.524 W/Wp) of 29,930 Wp installed. Use this hour to size battery charge power.

Monthly and yearly specific yield (kWh/kWp = Wh/Wp)
Austria - Inning 48.182, 15.417

Month / year		Roof south 22°/0° 3,000 Wp	All together
January	Maximum	59.27	22.33
	average	37.06	16.42
	minimum	23.55	12.63
February	Maximum	75.54	32.71
	average	58.38	27.50
	minimum	36.92	21.48
March	Maximum	133.58	65.42
	average	95.71	51.74
	minimum	71.29	42.07
April	Maximum	156.48	94.49
	average	122.70	77.60
	minimum	95.59	61.92
May	Maximum	150.08	99.80
	average	128.09	87.07
	minimum	93.07	66.22
June	Maximum	165.27	111.86
	average	136.66	95.01
	minimum	109.18	78.32
July	Maximum	162.55	108.35
	average	141.16	95.31
	minimum	103.60	72.11
August	Maximum	142.95	91.69
	average	126.99	82.71
	minimum	109.63	73.36
September	Maximum	126.49	69.60
	average	102.56	58.62
	minimum	81.14	48.36
October	Maximum	96.83	42.05
	average	72.60	34.57
	minimum	47.41	24.88
November	Maximum	53.94	22.18
	average	39.49	18.05
	minimum	27.00	14.06
December	Maximum	49.81	17.52
	average	32.24	13.52
	minimum	24.36	10.91
All years	Maximum	1,149.3	688.2
	average	1,093.6	658.1
	minimum	1,028.3	629.2

Highest combined yield hour: 2016-05-17 09:10 UTC 15,684.5 W (0.524 W/Wp) of 29,930 Wp installed. Use this hour to size battery charge power.

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

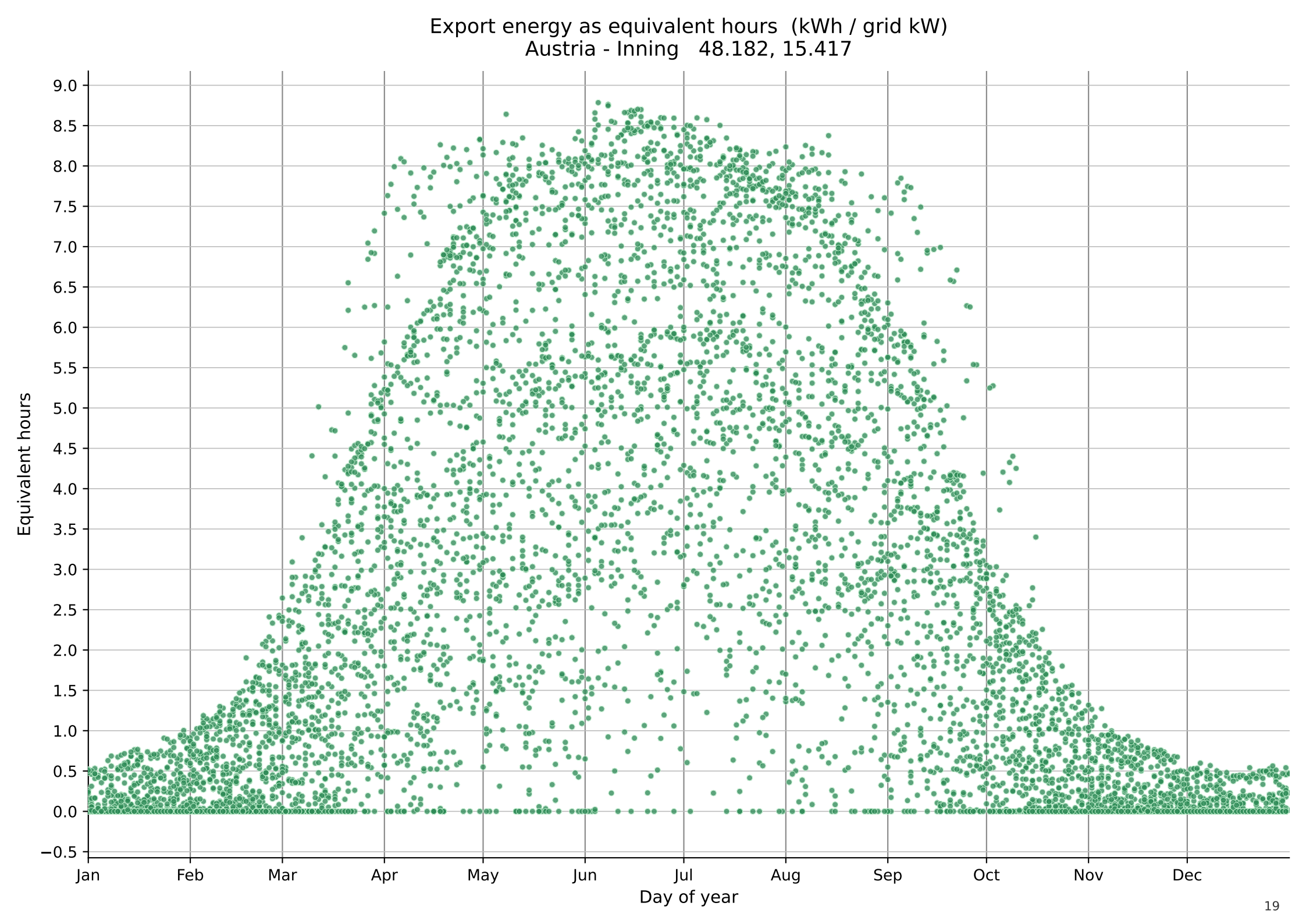
Month / year		Garage roof 1°/0° 10,740 Wp	Garage side wall south 90°/0° 3,475 Wp	Garage side wall north 90°/180° 3,475 Wp	Garage door side 90°/90° 700 Wp	Garage back side 90°/-90° 2,540 Wp	Garden fence east 90°/-90° + 90°/90° 6000 Wp bifacial ×80%	All together
January	Maximum	352.68	25.23	25.23	5.62	23.10	93.08	668.28
	average	253.64	18.29	18.29	4.15	17.08	68.84	491.47
	minimum	192.81	14.22	14.22	3.22	13.43	53.81	378.11
February	Maximum	553.71	34.00	34.00	8.22	28.11	122.77	978.90
	average	449.02	28.61	28.61	7.49	24.62	109.49	822.99
	minimum	327.93	24.35	24.35	6.69	22.49	99.50	642.76
March	Maximum	1,113.39	139.08	56.20	14.49	52.24	222.56	1,958.11
	average	839.69	111.66	49.08	12.97	47.33	200.73	1,548.58
	minimum	654.63	83.28	42.43	11.36	40.91	174.54	1,259.13
April	Maximum	1,488.40	298.38	72.30	24.93	93.97	392.34	2,827.96
	average	1,188.00	238.16	65.95	22.80	84.27	355.39	2,322.67
	minimum	935.83	187.80	58.33	19.13	69.12	294.43	1,853.17
May	Maximum	1,552.93	264.04	91.09	34.99	113.45	495.67	2,987.04
	average	1,331.89	229.81	83.95	30.10	101.03	445.05	2,606.09
	minimum	982.45	170.05	77.49	24.10	83.62	362.77	1,981.83
June	Maximum	1,753.66	254.25	98.25	35.46	143.28	575.03	3,347.85
	average	1,457.52	218.06	91.75	31.57	124.41	510.33	2,843.61
	minimum	1,174.96	180.59	83.68	27.49	105.48	437.68	2,344.14
July	Maximum	1,706.42	268.23	96.72	34.89	124.10	532.41	3,242.79
	average	1,485.03	235.41	89.09	31.56	110.53	477.52	2,852.64
	minimum	1,103.61	173.81	80.15	25.74	85.15	377.65	2,158.30
August	Maximum	1,418.83	275.17	79.90	28.35	102.58	425.37	2,744.25
	average	1,264.60	245.38	69.46	25.71	93.15	396.32	2,475.57
	minimum	1,101.14	211.18	61.15	22.81	84.50	363.46	2,195.67
September	Maximum	1,125.43	207.56	57.06	16.85	58.18	248.65	2,083.08
	average	931.05	170.64	48.91	15.04	52.95	228.18	1,754.46
	minimum	751.23	139.67	41.01	13.22	46.33	200.12	1,447.34
October	Maximum	734.70	39.26	39.13	9.03	32.97	139.81	1,258.56
	average	585.91	34.17	34.07	8.01	29.69	125.04	1,034.68
	minimum	403.85	29.90	29.87	6.86	25.23	106.61	744.56
November	Maximum	360.26	22.49	22.49	5.27	19.59	82.43	663.96
	average	285.88	19.98	19.98	4.74	17.43	73.67	540.15
	minimum	217.55	18.50	18.50	4.22	15.26	65.01	420.80
December	Maximum	272.47	18.04	18.04	4.09	16.56	67.15	524.49
	average	206.03	14.54	14.54	3.38	13.77	55.68	404.66
	minimum	170.14	10.09	10.09	2.42	9.80	39.77	326.40
All years	Maximum	10,798.9	1,661.5	635.6	204.0	749.6	3,161.9	20,598.4
	average	10,278.3	1,564.7	613.7	197.5	716.3	3,046.2	19,697.6
	minimum	9,753.0	1,472.9	597.2	191.8	684.5	2,969.9	18,832.7

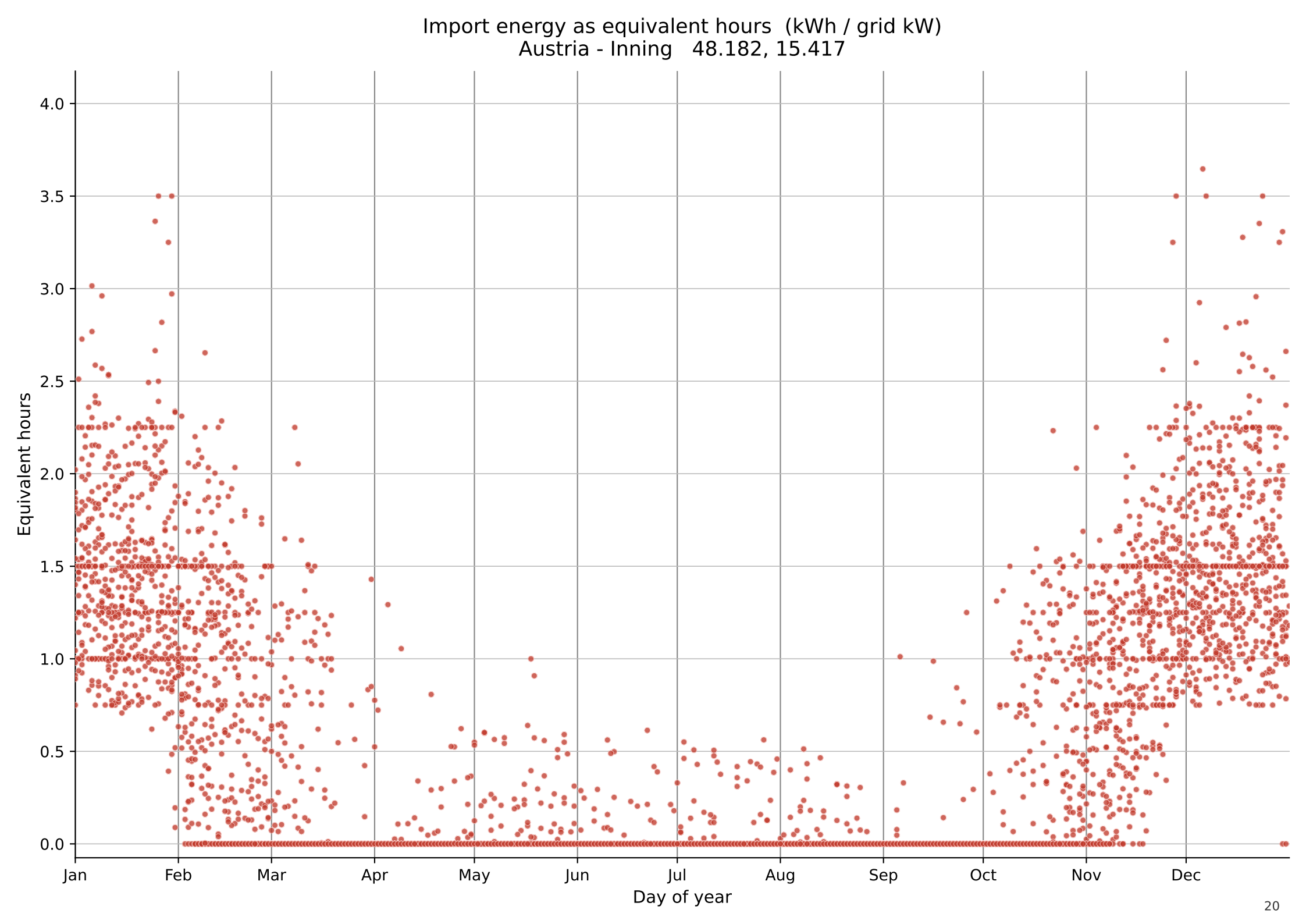
Highest combined yield hour: 2016-05-17 09:10 UTC 15,684.5 W (0.524 W/Wp) of 29,930 Wp installed. Use this hour to size battery charge power.

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

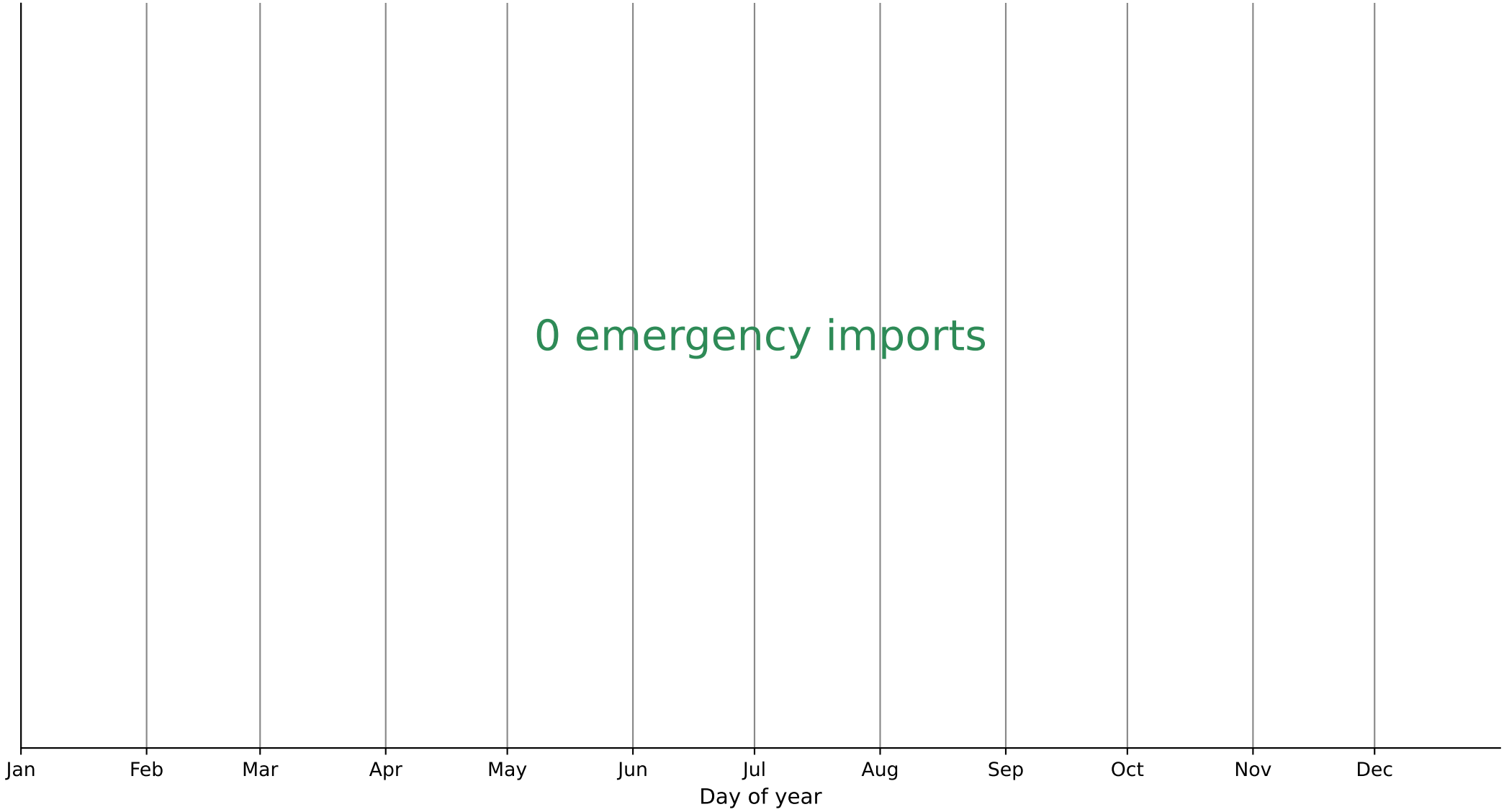
Month / year		Roof south 22°/0° 3,000 Wp	All together
January	Maximum	177.82	668.28
	average	111.17	491.47
	minimum	70.66	378.11
February	Maximum	226.61	978.90
	average	175.15	822.99
	minimum	110.76	642.76
March	Maximum	400.74	1,958.11
	average	287.14	1,548.58
	minimum	213.87	1,259.13
April	Maximum	469.45	2,827.96
	average	368.11	2,322.67
	minimum	286.78	1,853.17
May	Maximum	450.23	2,987.04
	average	384.27	2,606.09
	minimum	279.21	1,981.83
June	Maximum	495.80	3,347.85
	average	409.98	2,843.61
	minimum	327.54	2,344.14
July	Maximum	487.65	3,242.79
	average	423.49	2,852.64
	minimum	310.80	2,158.30
August	Maximum	428.84	2,744.25
	average	380.96	2,475.57
	minimum	328.90	2,195.67
September	Maximum	379.46	2,083.08
	average	307.69	1,754.46
	minimum	243.42	1,447.34
October	Maximum	290.50	1,258.56
	average	217.80	1,034.68
	minimum	142.24	744.56
November	Maximum	161.81	663.96
	average	118.48	540.15
	minimum	81.01	420.80
December	Maximum	149.42	524.49
	average	96.72	404.66
	minimum	73.07	326.40
All years	Maximum	3,447.9	20,598.4
	average	3,280.9	19,697.6
	minimum	3,084.8	18,832.7

Highest combined yield hour: 2016-05-17 09:10 UTC 15,684.5 W (0.524 W/Wp) of 29,930 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
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
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Day of year

Emergency import hours: 0 days with an emergency: 0
Austria - Inning 48.182, 15.417



Emergency = this hour’s grid import is above the month’s max import kW. 2 kW means up to 48 kWh in 24 hours. More than 2 kW in an hour is the higher grid fee.
Import inside that cap is not an emergency. Preferred cheap hours are 00:00–06:00 and 09:00–15:00 winter time.

Energy in kWh
Austria - Inning 48.182, 15.417

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	All
Export to grid													
month Maximum	99	284	1,062	1,862	2,098	2,480	2,425	1,960	1,350	507	104	94	12,164
month average	61	193	720	1,395	1,706	2,009	2,046	1,708	1,025	359	85	35	11,342
month minimum	15	98	447	901	1,127	1,545	1,349	1,370	733	146	57	10	10,308
day Maximum	12.0	29.1	86.3	100.0	103.7	105.4	103.1	100.5	94.2	63.3	15.8	7.2	105.4
day average	2.0	6.8	23.2	46.5	55.0	67.0	66.0	55.1	34.2	11.6	2.8	1.1	31.1
day minimum	-0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.0	0.0	-0.0
Import from grid													
month Maximum	658	397	134	36	28	23	17	13	44	179	513	699	2,375
month average	542	231	46	7	10	4	6	4	6	81	366	566	1,869
month minimum	445	69	0	0	0	0	0	0	0	0	194	432	1,473
day Maximum	42.0	31.8	27.0	15.5	12.0	7.4	6.7	6.2	15.0	26.8	42.0	43.8	43.8
day average	17.5	8.2	1.5	0.2	0.3	0.1	0.2	0.1	0.2	2.6	12.2	18.3	5.1
day minimum	1.1	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	1,050	1,013	872	721	661	558	545	555	608	736	811	991	8,600
month average	888	794	797	668	614	526	514	519	562	678	750	853	8,163
month minimum	802	721	737	592	560	494	500	494	507	615	711	789	7,902
day Maximum	52.2	47.2	44.3	28.5	25.5	24.2	21.9	23.0	24.6	28.2	34.4	44.6	52.2
day average	28.6	28.1	25.7	22.3	19.8	17.5	16.6	16.7	18.7	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	16.5	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	6	23	136	241	286	310	335	273	205	79	6	5	1,672
month average	3	13	90	183	233	270	289	241	150	45	5	2	1,525
month minimum	1	6	41	103	154	224	206	203	103	7	3	1	1,395
day Maximum	0.8	4.6	14.8	15.4	16.3	15.8	16.0	15.2	15.5	13.3	1.3	0.4	16.3
day average	0.1	0.5	2.9	6.1	7.5	9.0	9.3	7.8	5.0	1.4	0.2	0.1	4.2
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													
month Maximum	158	94	32	7	6	6	4	3	7	41	121	167	563
month average	128	54	11	2	2	1	2	1	1	19	85	133	438
month minimum	104	16	0	0	0	0	0	0	0	0	45	101	345
day Maximum	10.8	8.1	6.8	2.8	1.8	1.9	1.7	1.4	2.7	6.7	10.8	11.6	11.6
day average	4.1	1.9	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.6	2.8	4.3	1.2
day minimum	0.3	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	19	19	19	19	13	13	10	10	19	19	19	19	176
month average	19	19	16	11	9	6	7	6	7	18	19	19	155
month minimum	19	19	0	0	0	0	0	0	0	0	19	19	138
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	177	113	51	26	19	16	14	12	26	60	140	186	726
month average	147	73	27	12	11	7	8	7	8	37	104	152	593
month minimum	123	35	0	0	0	0	0	0	0	0	64	120	493
day Maximum	10.8	8.1	6.8	2.8	1.8	1.9	1.7	1.4	2.7	6.7	10.8	11.6	11.6
day average	4.1	1.9	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.6	2.8	4.3	1.2
day minimum	0.3	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	-118	-18	117	229	276	310	332	271	205	52	-59	-115	1,102
month average	-143	-60	63	171	222	263	281	234	142	8	-100	-151	932
month minimum	-174	-107	6	101	143	210	192	193	82	-52	-136	-184	736
day Maximum	-0.0	4.6	14.8	15.4	16.3	15.8	16.0	15.2	15.5	13.3	1.3	0.0	16.3
day average	-4.0	-1.5	2.6	6.0	7.5	9.0	9.3	7.7	5.0	0.8	-2.7	-4.2	3.0
day minimum	-10.8	-8.1	-6.8	-2.8	-1.4	-0.4	0.0	0.0	-2.7	-6.7	-10.8	-11.6	-11.6

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	99	284	1,062	1,862	2,098	2,480	2,425	1,960	1,350	507	104	94	12,164
month average	61	193	720	1,395	1,706	2,009	2,046	1,708	1,025	359	85	35	11,342
month minimum	15	98	447	901	1,127	1,545	1,349	1,370	733	146	57	10	10,308
day Maximum	12.0	29.1	86.3	100.0	103.7	105.4	103.1	100.5	94.2	63.3	15.8	7.2	105.4
day average	2.0	6.8	23.2	46.5	55.0	67.0	66.0	55.1	34.2	11.6	2.8	1.1	31.1
day minimum	-0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.0	0.0	-0.0
Export during high price hours													
month Maximum	0	50	491	1,033	1,257	1,357	1,492	1,212	918	318	9	0	7,368
month average	0	11	314	789	1,045	1,201	1,307	1,070	662	160	0	0	6,560
month minimum	0	-0	92	486	684	987	953	922	423	0	0	0	5,941
day Maximum	0.0	18.2	60.1	64.3	67.7	66.8	67.1	66.3	66.7	59.0	4.9	0.0	67.7
day average	0.0	0.4	10.1	26.3	33.7	40.0	42.2	34.5	22.1	5.2	0.0	0.0	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 medium price hours													
month Maximum	22	73	207	308	386	477	459	342	214	106	19	11	2,144
month average	10	57	148	231	292	369	362	282	167	62	10	2	1,993
month minimum	3	30	97	168	197	252	217	214	114	26	3	-0	1,812
day Maximum	2.3	6.4	11.3	14.1	19.1	24.9	20.4	18.3	12.1	6.3	2.1	0.9	24.9
day average	0.3	2.0	4.8	7.7	9.4	12.3	11.7	9.1	5.6	2.0	0.3	0.1	5.5
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 low price hours													
month Maximum	86	187	364	538	512	651	493	503	258	194	92	82	3,022
month average	51	125	257	375	369	439	376	356	197	137	75	33	2,790
month minimum	12	65	194	234	234	293	178	201	131	92	52	10	2,509
day Maximum	9.9	22.9	48.3	52.8	59.1	51.4	38.0	45.4	43.0	30.8	13.7	6.5	59.1
day average	1.6	4.4	8.3	12.5	11.9	14.6	12.1	11.5	6.6	4.4	2.5	1.1	7.6
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

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

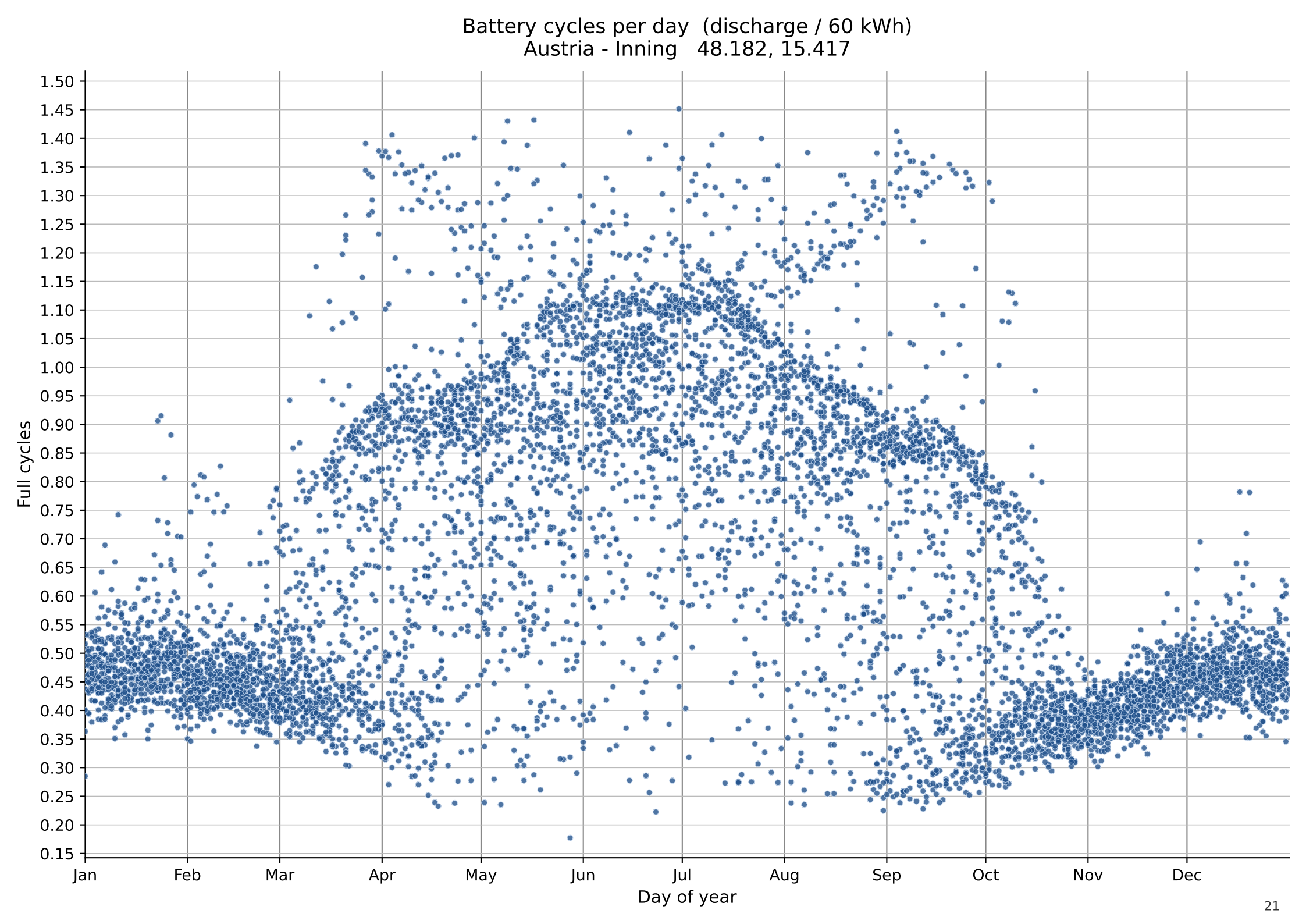
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	All
Heating													
month Maximum	546	542	369	240	165	83	60	68	134	238	328	491	2,765
month average	384	336	294	189	122	53	29	33	90	183	267	354	2,334
month minimum	298	266	235	117	70	24	15	7	39	123	230	290	2,077
day Maximum	35.9	31.0	28.1	12.4	9.4	8.3	6.1	7.4	8.8	12.1	18.3	28.5	35.9
day average	12.4	11.9	9.5	6.3	3.9	1.8	0.9	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	0.8	3.0	5.4	0.0
Cooling													
month Maximum	0	0	0	0	0	0	7	5	0	0	0	0	7
month average	0	0	0	0	0	0	1	1	0	0	0	0	2
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	0.5	4.4	3.9	0.0	0.0	0.0	0.0	4.4
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	109	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	3.6	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

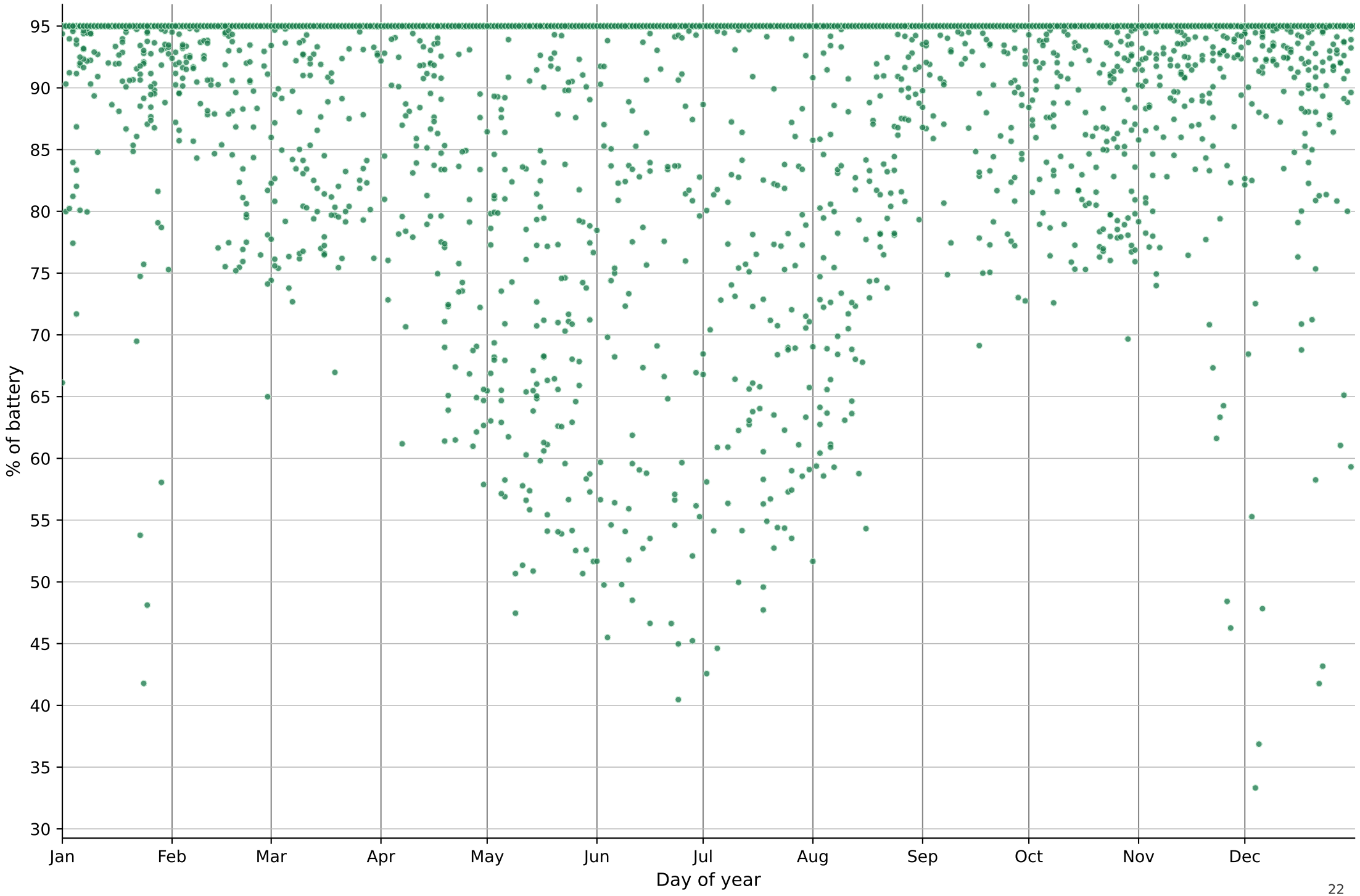
Heating, cooling and DHW are electricity. Direct electric is the part the heat pump could not cover.

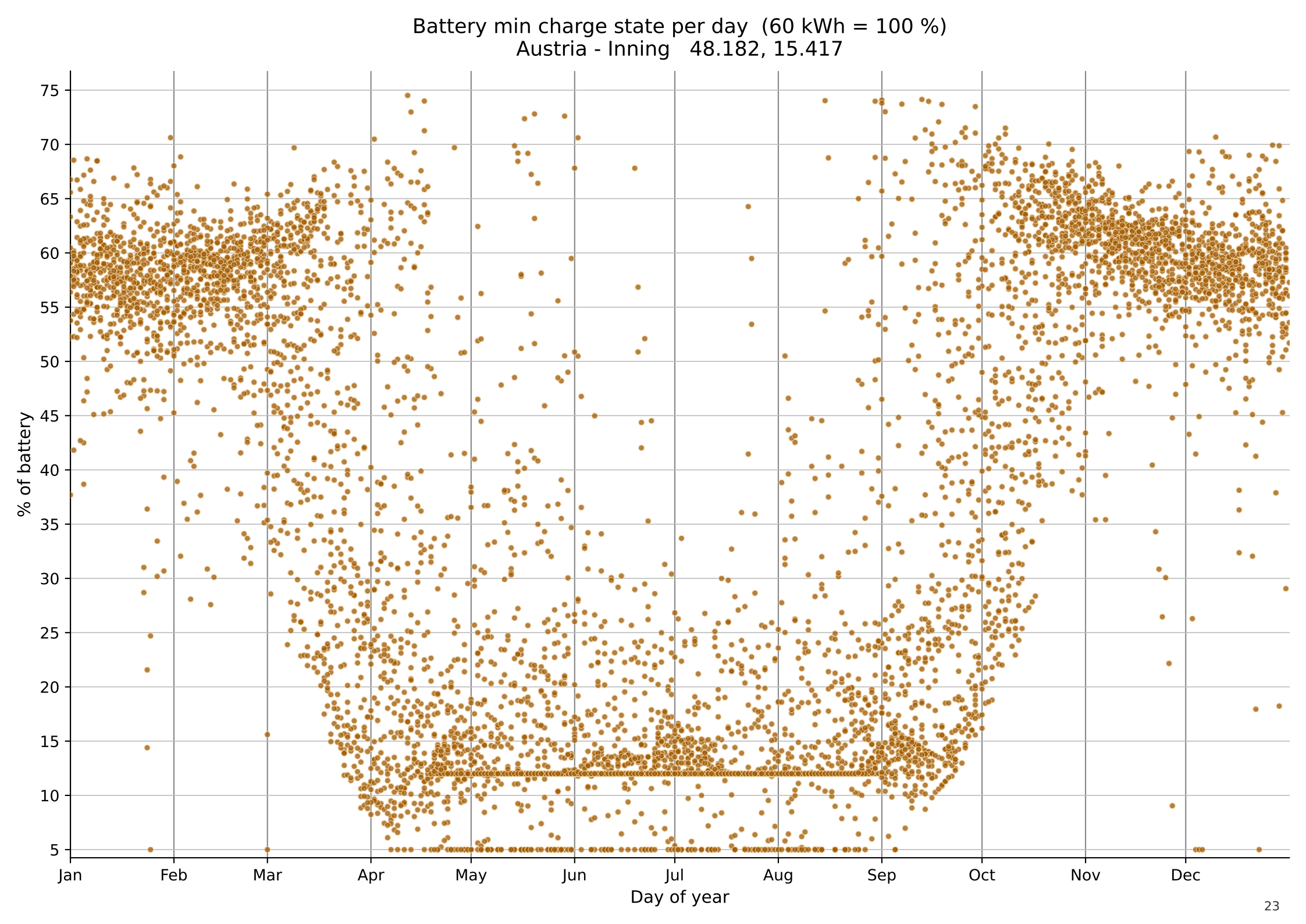
Battery
Austria - Inning 48.182, 15.417

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	All
Wasted													
month Maximum	0	0	8	254	221	281	208	171	120	0	0	0	1,050
month average	0	0	2	158	162	174	153	121	61	0	0	0	831
month minimum	0	0	0	65	102	78	76	52	6	0	0	0	657
day Maximum	0.0	0.0	2.7	52.6	35.1	55.8	36.4	38.0	37.3	0.0	0.0	0.0	55.8
day average	0.0	0.0	0.1	5.3	5.2	5.8	4.9	3.9	2.0	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	18	17	21	26	30	32	32	28	24	16	14	17	251
month average	15	13	18	23	27	29	29	26	20	14	13	15	241
month minimum	13	12	15	19	21	25	24	24	17	12	12	13	233
day Maximum	0.9	0.8	1.4	1.4	1.4	1.5	1.4	1.4	1.4	1.3	0.6	0.8	1.5
day average	0.5	0.5	0.6	0.8	0.9	1.0	0.9	0.8	0.7	0.5	0.4	0.5	0.7
day minimum	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.2	0.2	0.3	0.3	0.3	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	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.3
day average	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1
day minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2
day average	0.0	0.0	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.0	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

Wasted = PV left when the export price is negative and the battery is full. Full cycles = discharge kWh / 60 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 / 60 kWh)
Austria - Inning 48.182, 15.417
Full cycles
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 (60 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


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