

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
Roof south	22	0	3000	—	front	—	yes
Roof east	22	-90	3000	—	front	—	yes
Roof west	22	90	3000	—	front	—	yes
Roof north	22	180	3000	—	front	—	yes
Total counted			38930				

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 10:10 local (09:10 UTC) 21261 W 0.546 W/Wp of 38930 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	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 2 Feb 2 Mar 2 Apr 2 May 2 Jun 2
	Import cap Jul-Dec kW	Jul 2 Aug 2 Sep 2 Oct 2 Nov 2 Dec 2
Cars	Lunch DC / night AC	0.0 kWh @ 30.0 kW night 10.0 kWh @ 4.0 kW

Records 1-10 — contribution of each PV
Austria - Inning 48.182, 15.417

PV	2012-05-18 09:10	2016-05-17 09:10	2013-05-13 09:10	2006-05-25 09:10	2009-06-13 09:10	2020-05-07 09:10	2021-05-26 09:10	2009-06-03 09:10	2009-06-04 09:10	2017-04-30 09:10
Garage roof	7617	7574	7581	7713	7701	7489	7689	7640	7498	7365
Garage side wall south	1509	1520	1561	1424	1299	1625	1409	1339	1342	1723
Garage side wall north	178	202	171	137	175	155	111	168	228	141
Garage door side	36	41	34	28	35	31	22	34	46	28
Garage back side	1114	1115	1118	1098	1102	1124	1094	1086	1086	1146
Garden fence east	2632	2634	2642	2595	2604	2654	2585	2564	2566	2708
Garden fence east face2	245	279	236	190	242	214	154	232	315	195
Roof south	2331	2321	2341	2343	2304	2341	2329	2301	2251	2330
Roof east	2335	2323	2333	2363	2357	2318	2351	2338	2288	2290
Roof west	1626	1621	1604	1643	1654	1563	1640	1638	1629	1519
Roof north	1637	1629	1602	1673	1721	1544	1672	1687	1677	1478
Watt at record	21261	21257	21223	21206	21194	21058	21057	21028	20926	20923
Percent of installed peak	54.6	54.6	54.5	54.5	54.4	54.1	54.1	54.0	53.8	53.7

Hours at or above a share of the record
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Of the record	Hours	Watts
98 %	14	20836 W
96 %	78	20410 W
94 %	255	19985 W
92 %	654	19560 W
90 %	1338	19135 W

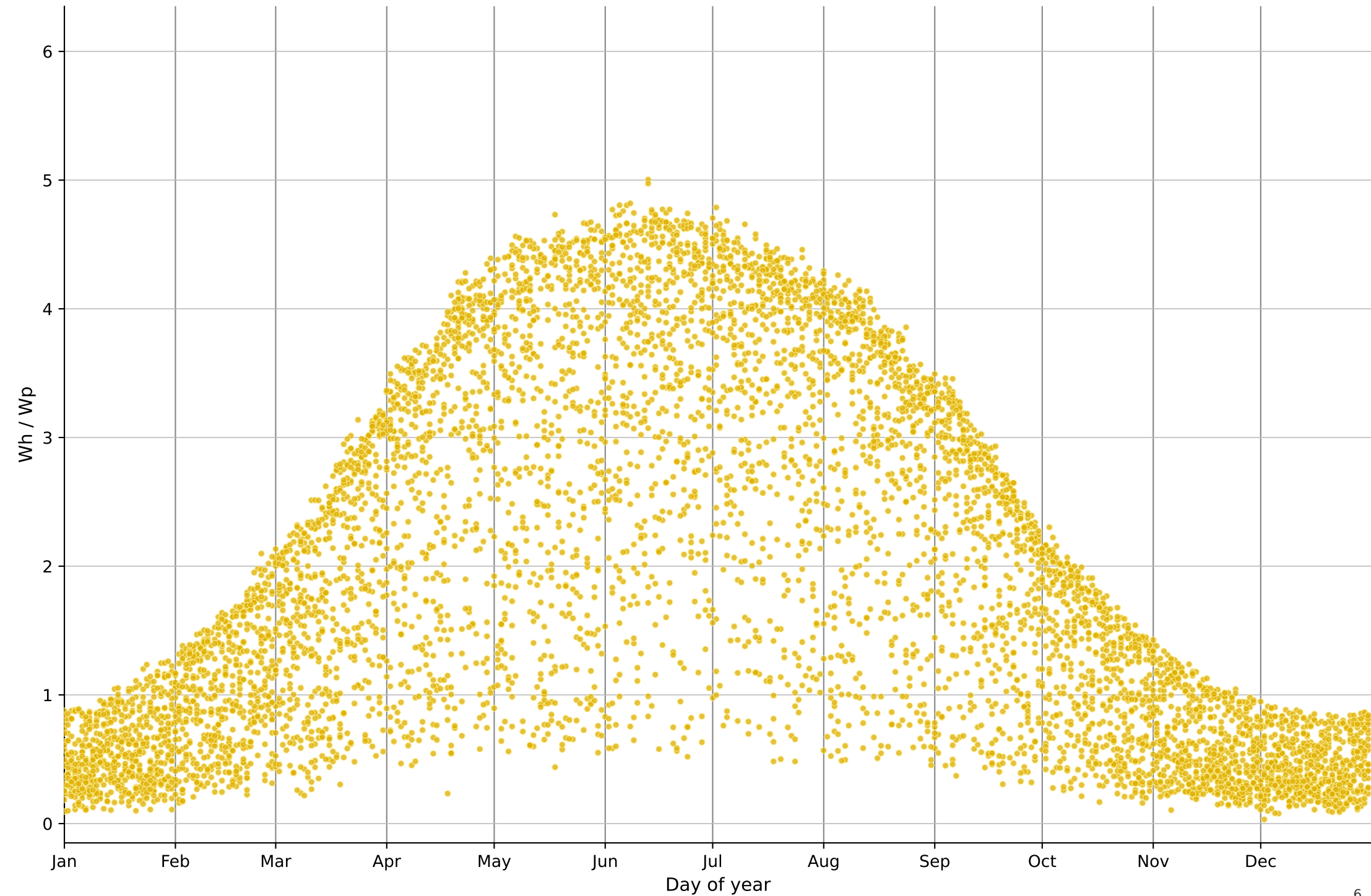
Records of each photovoltaic field

Austria - Inning 48.182, 15.417

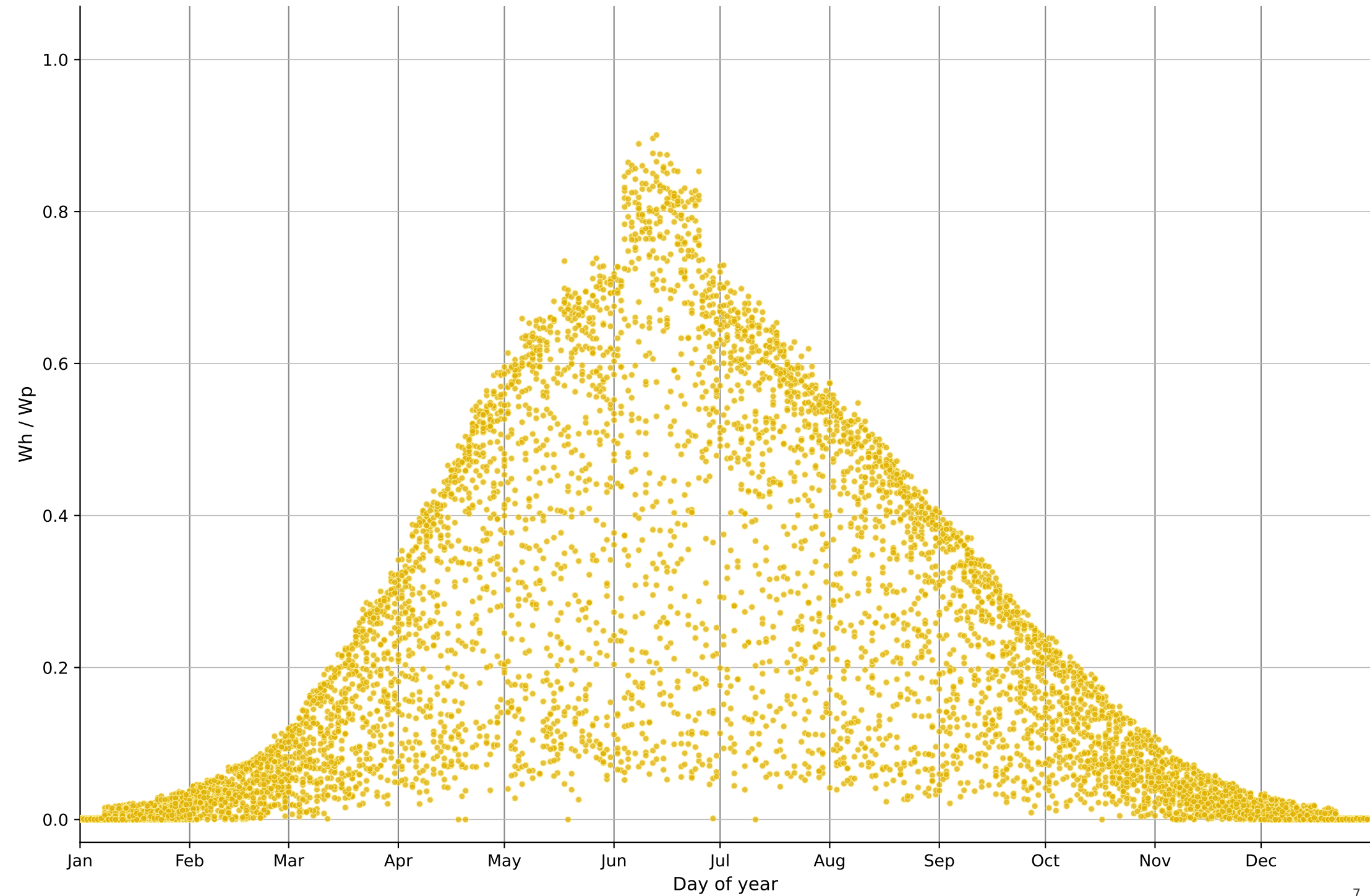
PV	Date	Watts	%	h ≥98%	h ≥96%	h ≥94%	h ≥92%	h ≥90%
Garage roof	2009-06-13 11:10	8369	77.9	8	33	112	320	671
Garage side wall south	2009-03-22 11:10	2638	75.9	8	17	26	45	75
Garage side wall north	2023-06-13 05:10	611	17.6	1	8	25	50	108
Garage door side	2005-05-08 14:10	473	67.6	1	3	5	16	49
Garage back 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
Roof south	2005-04-22 11:10	2645	88.2	2	11	52	161	376
Roof east	2006-05-25 09:10	2363	78.8	11	38	156	391	806
Roof west	2016-05-15 12:10	2411	80.4	3	12	30	118	333
Roof north	2009-06-13 11:10	1822	60.7	2	17	86	282	654

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.

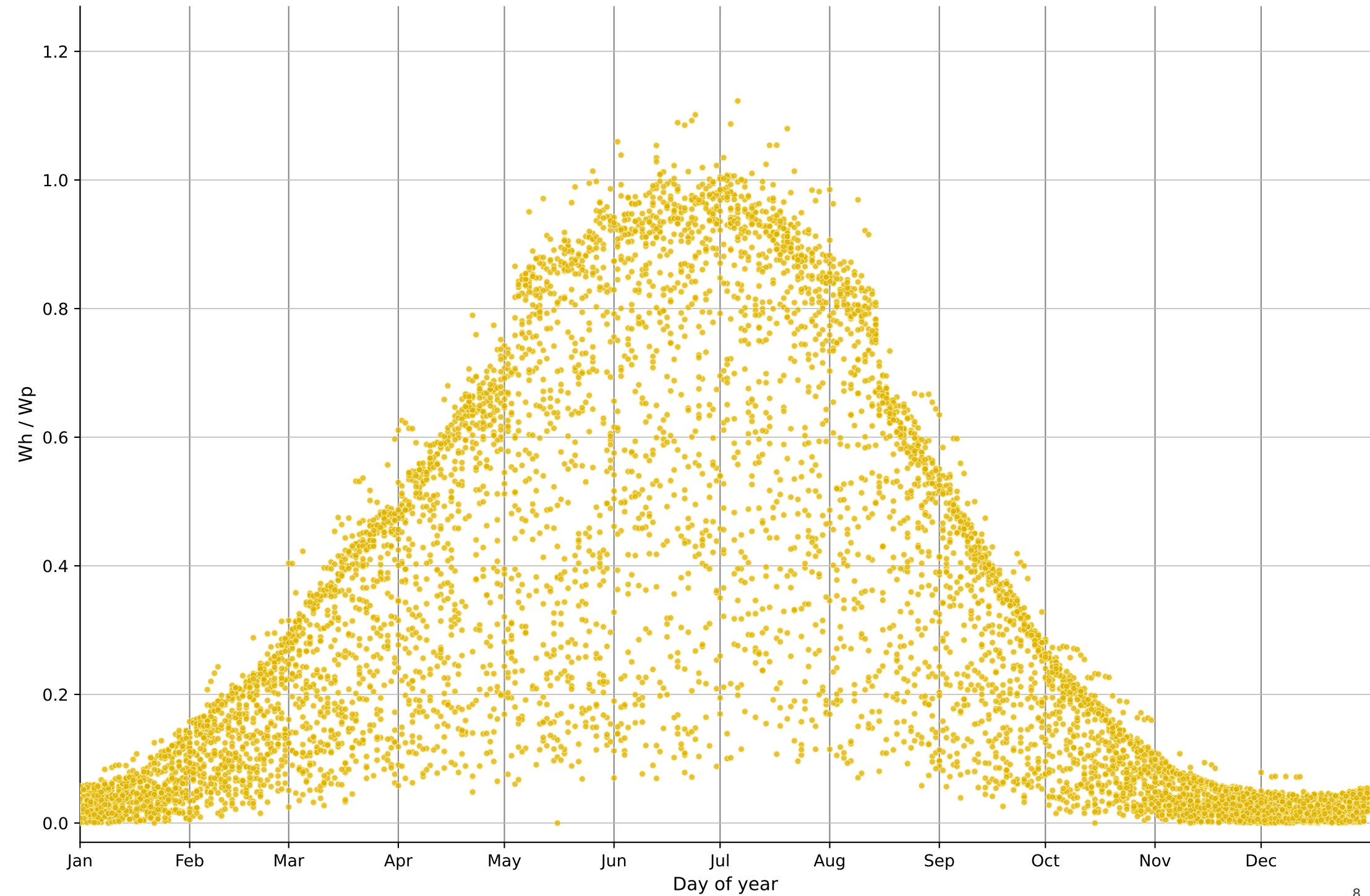
Yield distribution for each day — W_h / W_p of all PV together
Austria - Inning 48.182, 15.417



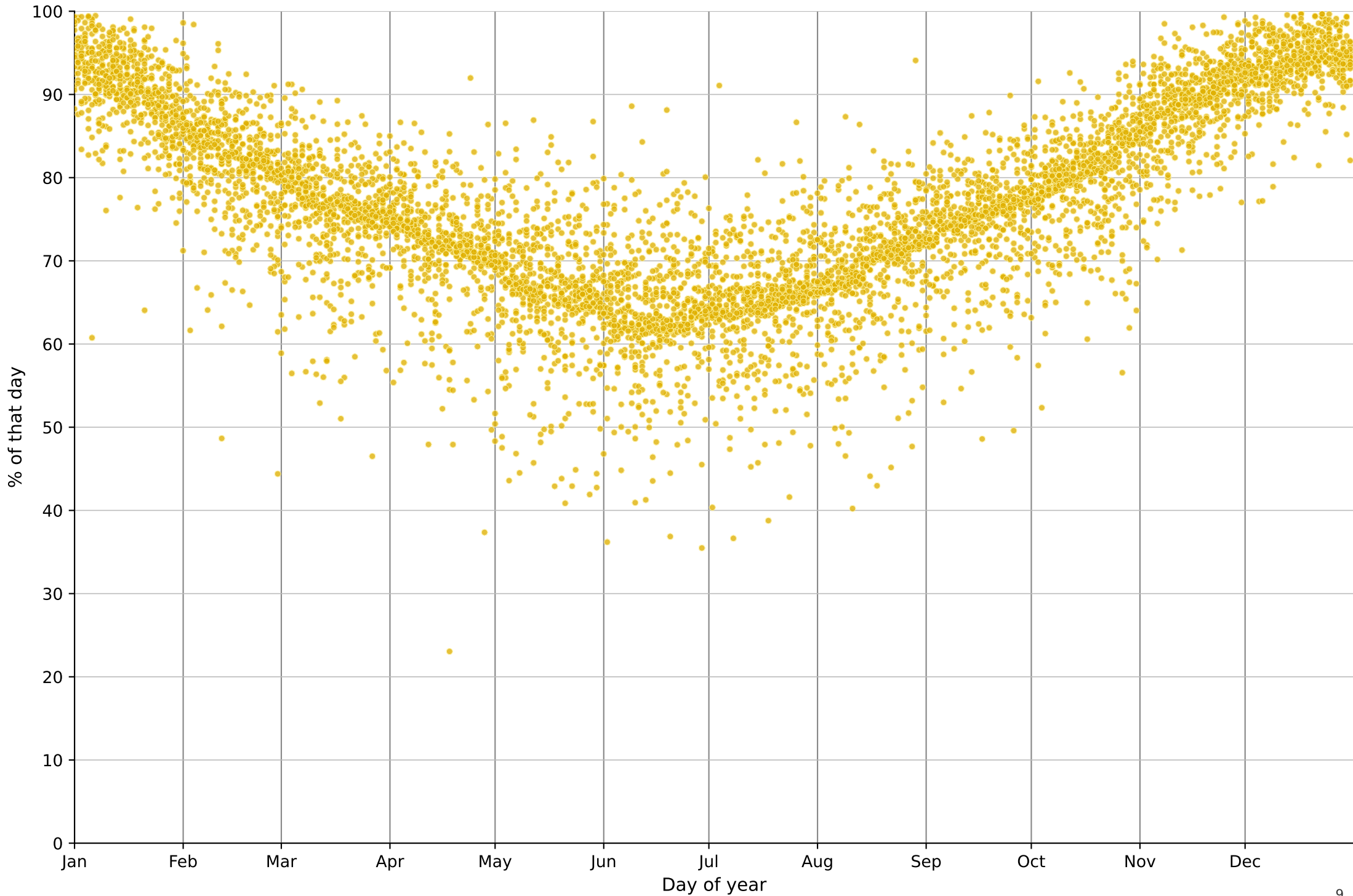
Yield distribution for each day — Wh / Wp of all PV together — 00:00-09:00
Austria - Inning 48.182, 15.417



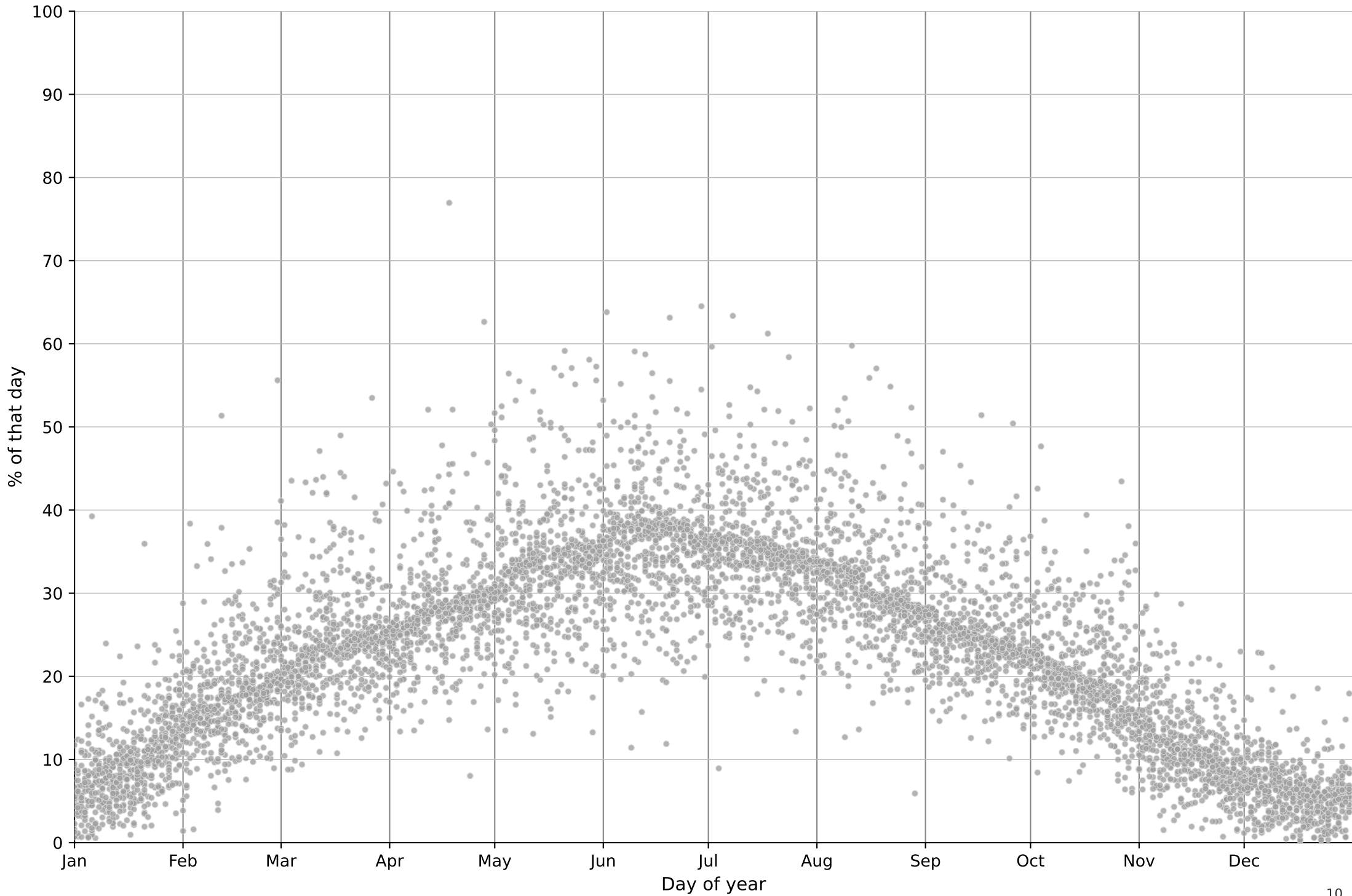
Yield distribution for each day — Wh / Wp of all PV together — 15:00-23:59
Austria - Inning 48.182, 15.417



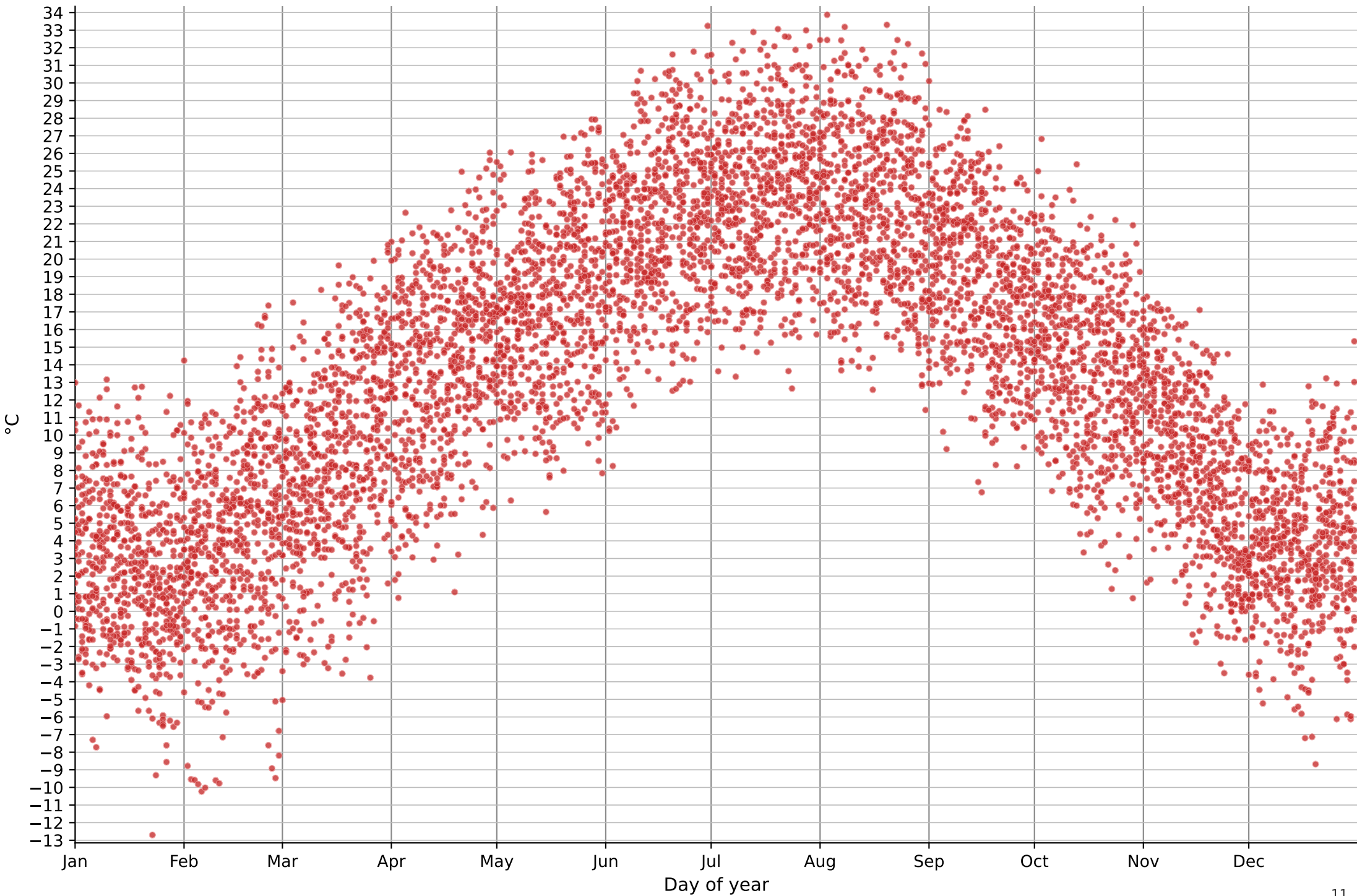
Share of the day's yield in 09:00-15:00 winter time
Austria - Inning 48.182, 15.417



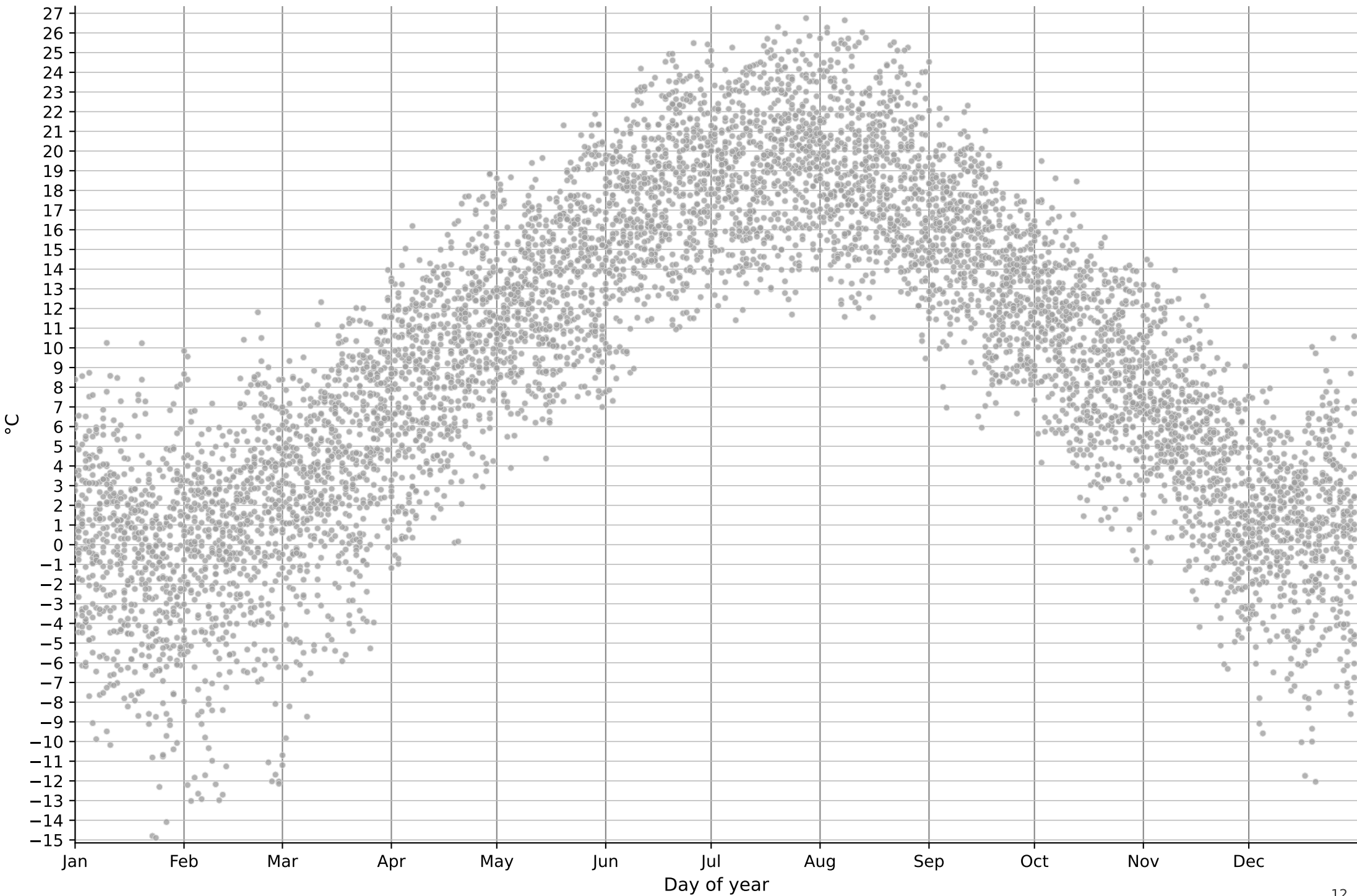
Share of the day's yield outside 09:00-15:00 winter time
Austria - Inning 48.182, 15.417



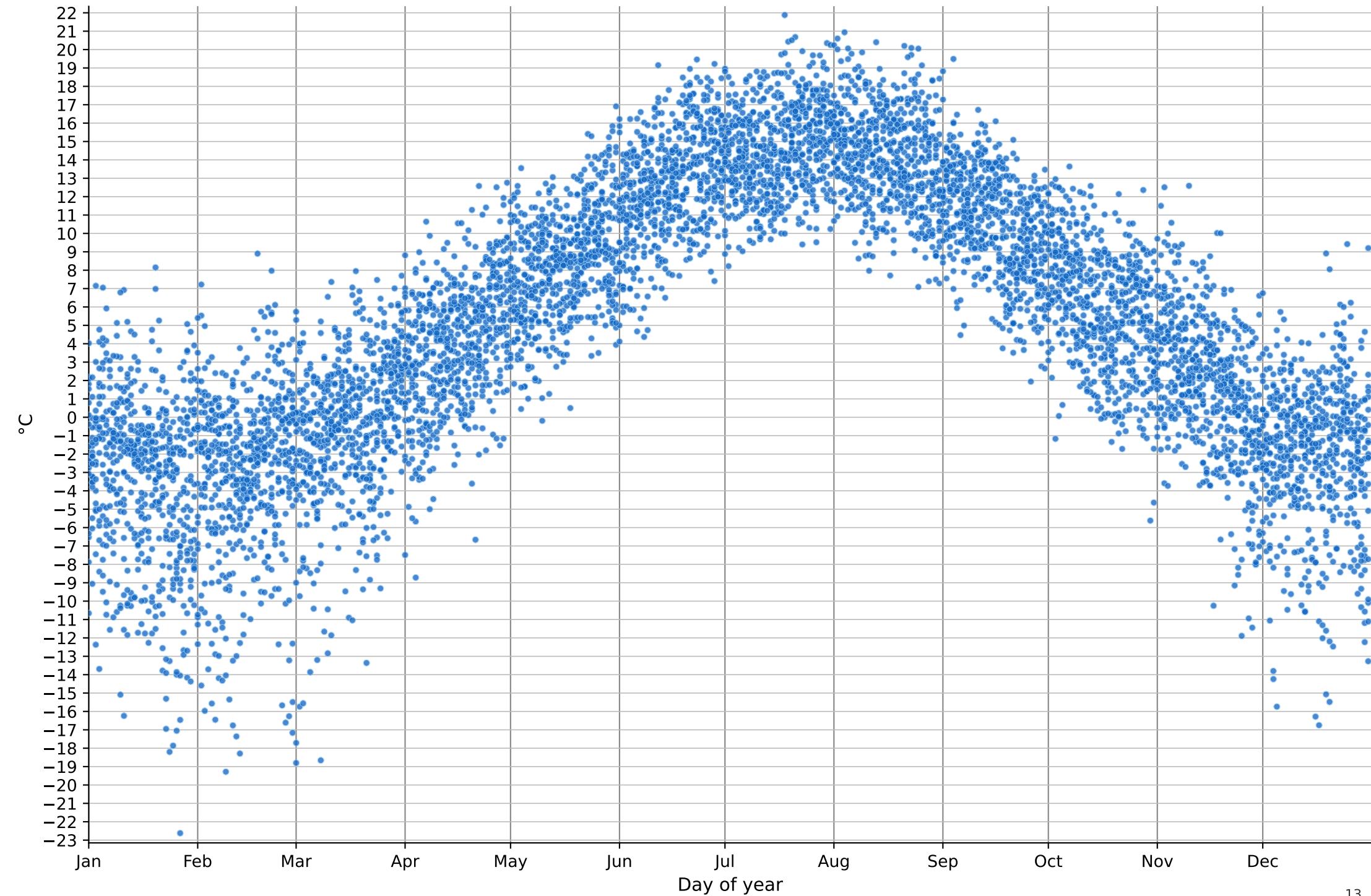
Highest temperature of each day
Austria - Inning 48.182, 15.417



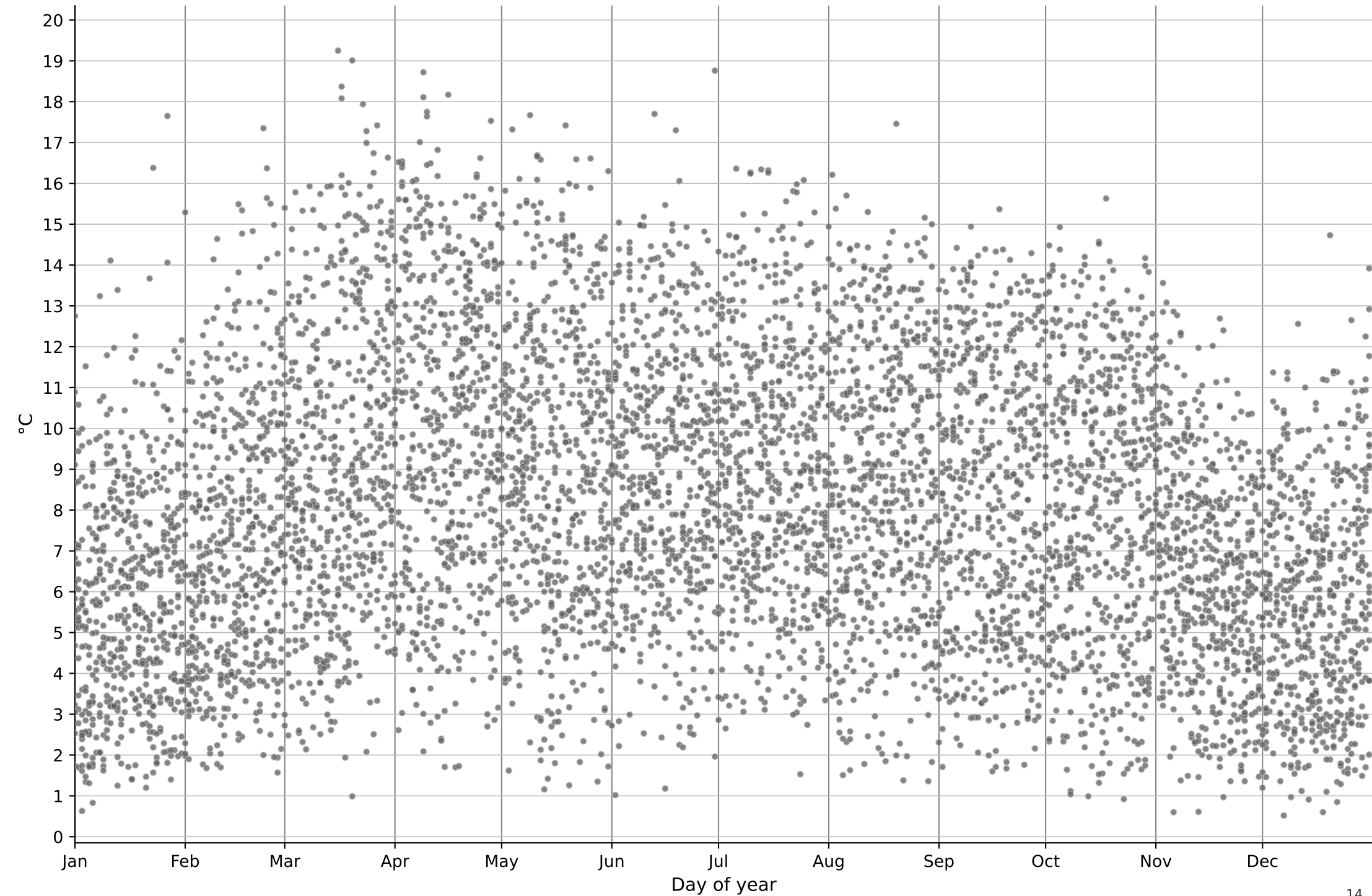
Average temperature of each day
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Lowest temperature of each day
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Difference between highest and lowest temperature of each day
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Monthly and yearly 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°/90° 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	23.32
	average	23.62	5.26	5.26	5.93	6.73	11.47	17.25
	minimum	17.95	4.09	4.09	4.60	5.29	8.97	13.47
February	Maximum	51.56	9.78	9.78	11.74	11.07	20.46	34.32
	average	41.81	8.23	8.23	10.69	9.69	18.25	28.99
	minimum	30.53	7.01	7.01	9.55	8.85	16.58	22.87
March	Maximum	103.67	40.02	16.17	20.69	20.57	37.09	69.86
	average	78.18	32.13	14.12	18.52	18.64	33.45	55.15
	minimum	60.95	23.96	12.21	16.23	16.11	29.09	44.76
April	Maximum	138.59	85.87	20.80	35.62	37.00	65.39	100.82
	average	110.61	68.54	18.98	32.57	33.18	59.23	82.45
	minimum	87.14	54.04	16.79	27.32	27.21	49.07	65.67
May	Maximum	144.59	75.98	26.21	49.99	44.67	82.61	107.44
	average	124.01	66.13	24.16	43.00	39.77	74.17	93.43
	minimum	91.48	48.94	22.30	34.42	32.92	60.46	70.69
June	Maximum	163.28	73.17	28.27	50.65	56.41	95.84	121.00
	average	135.71	62.75	26.40	45.09	48.98	85.06	102.32
	minimum	109.40	51.97	24.08	39.28	41.53	72.95	84.08
July	Maximum	158.88	77.19	27.83	49.85	48.86	88.73	117.29
	average	138.27	67.74	25.64	45.09	43.52	79.59	102.89
	minimum	102.76	50.02	23.06	36.77	33.52	62.94	77.63
August	Maximum	132.11	79.19	22.99	40.50	40.39	70.89	97.93
	average	117.75	70.61	19.99	36.73	36.67	66.05	88.18
	minimum	102.53	60.77	17.60	32.59	33.27	60.58	78.08
September	Maximum	104.79	59.73	16.42	24.07	22.91	41.44	74.12
	average	86.69	49.11	14.08	21.48	20.85	38.03	62.35
	minimum	69.95	40.19	11.80	18.89	18.24	33.35	51.36
October	Maximum	68.41	11.30	11.26	12.90	12.98	23.30	44.86
	average	54.55	9.83	9.80	11.44	11.69	20.84	36.89
	minimum	37.60	8.60	8.60	9.79	9.93	17.77	26.53
November	Maximum	33.54	6.47	6.47	7.53	7.71	13.74	23.18
	average	26.62	5.75	5.75	6.77	6.86	12.28	18.94
	minimum	20.26	5.33	5.33	6.04	6.01	10.83	14.95
December	Maximum	25.37	5.19	5.19	5.84	6.52	11.19	18.10
	average	19.18	4.19	4.19	4.82	5.42	9.28	14.17
	minimum	15.84	2.90	2.90	3.46	3.86	6.63	11.41
All years	Maximum	1005.5	478.1	182.9	291.4	295.1	527.0	735.8
	average	957.0	450.3	176.6	282.1	282.0	507.7	703.0
	minimum	908.1	423.9	171.8	274.0	269.5	495.0	671.6

Highest combined yield hour: 2012-05-18 09:10 UTC 21260.8 W (0.546 W/Wp) of 38930 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° 3000 Wp	Roof east 22°/-90° 3000 Wp	Roof west 22°/90° 3000 Wp	Roof north 22°/180° 3000 Wp	All together
January	Maximum	59.27	36.85	30.08	17.71	23.32
	average	37.06	23.58	23.23	13.24	17.25
	minimum	23.55	16.80	18.03	10.69	13.47
February	Maximum	75.54	49.26	49.87	23.55	34.32
	average	58.38	40.22	41.12	20.50	28.99
	minimum	36.92	30.48	29.89	18.44	22.87
March	Maximum	133.58	99.75	99.70	54.35	69.86
	average	95.71	74.39	76.61	48.43	55.15
	minimum	71.29	59.28	58.23	42.81	44.76
April	Maximum	156.48	133.40	131.91	100.37	100.82
	average	122.70	105.31	106.56	83.78	82.45
	minimum	95.59	82.02	84.70	67.76	65.67
May	Maximum	150.08	137.57	139.02	122.48	107.44
	average	128.09	118.60	118.75	106.36	93.43
	minimum	93.07	87.34	88.28	81.07	70.69
June	Maximum	165.27	156.95	153.86	143.41	121.00
	average	136.66	128.94	130.27	120.75	102.32
	minimum	109.18	103.92	106.46	99.35	84.08
July	Maximum	162.55	152.09	151.66	137.84	117.29
	average	141.16	131.40	132.40	120.47	102.89
	minimum	103.60	97.26	99.10	91.58	77.63
August	Maximum	142.95	126.69	125.59	103.83	97.93
	average	126.99	111.62	113.81	93.60	88.18
	minimum	109.63	94.28	100.43	83.46	78.08
September	Maximum	126.49	98.66	103.01	65.83	74.12
	average	102.56	82.54	84.24	57.46	62.35
	minimum	81.14	67.58	67.69	48.81	51.36
October	Maximum	96.83	60.47	74.56	30.14	44.86
	average	72.60	50.79	54.92	28.08	36.89
	minimum	47.41	35.78	37.36	22.97	26.53
November	Maximum	53.94	32.08	33.83	15.44	23.18
	average	39.49	25.23	26.53	13.99	18.94
	minimum	27.00	19.79	20.38	12.86	14.95
December	Maximum	49.81	24.73	25.32	13.24	18.10
	average	32.24	18.98	19.08	10.90	14.17
	minimum	24.36	15.07	15.87	7.84	11.41
All years	Maximum	1149.3	966.9	966.2	753.7	735.8
	average	1093.6	911.6	927.5	717.6	703.0
	minimum	1028.3	855.5	881.1	690.3	671.6

Highest combined yield hour: 2012-05-18 09:10 UTC 21260.8 W (0.546 W/Wp) of 38930 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	907.9
	average	253.6	18.3	18.3	4.2	17.1	68.8	671.6
	minimum	192.8	14.2	14.2	3.2	13.4	53.8	524.2
February	Maximum	553.7	34.0	34.0	8.2	28.1	122.8	1336.2
	average	449.0	28.6	28.6	7.5	24.6	109.5	1128.5
	minimum	327.9	24.3	24.3	6.7	22.5	99.5	890.4
March	Maximum	1113.4	139.1	56.2	14.5	52.2	222.6	2719.5
	average	839.7	111.7	49.1	13.0	47.3	200.7	2146.9
	minimum	654.6	83.3	42.4	11.4	40.9	174.5	1742.3
April	Maximum	1488.4	298.4	72.3	24.9	94.0	392.3	3924.9
	average	1188.0	238.2	65.9	22.8	84.3	355.4	3209.6
	minimum	935.8	187.8	58.3	19.1	69.1	294.4	2556.6
May	Maximum	1552.9	264.0	91.1	35.0	113.5	495.7	4182.5
	average	1331.9	229.8	83.9	30.1	101.0	445.0	3637.2
	minimum	982.4	170.1	77.5	24.1	83.6	362.8	2751.9
June	Maximum	1753.7	254.3	98.2	35.5	143.3	575.0	4710.5
	average	1457.5	218.1	91.8	31.6	124.4	510.3	3983.5
	minimum	1175.0	180.6	83.7	27.5	105.5	437.7	3273.3
July	Maximum	1706.4	268.2	96.7	34.9	124.1	532.4	4565.9
	average	1485.0	235.4	89.1	31.6	110.5	477.5	4005.4
	minimum	1103.6	173.8	80.1	25.7	85.1	377.7	3022.1
August	Maximum	1418.8	275.2	79.9	28.4	102.6	425.4	3812.5
	average	1264.6	245.4	69.5	25.7	93.1	396.3	3432.7
	minimum	1101.1	211.2	61.2	22.8	84.5	363.5	3039.5
September	Maximum	1125.4	207.6	57.1	16.8	58.2	248.7	2885.6
	average	931.1	170.6	48.9	15.0	53.0	228.2	2427.2
	minimum	751.2	139.7	41.0	13.2	46.3	200.1	1999.6
October	Maximum	734.7	39.3	39.1	9.0	33.0	139.8	1746.5
	average	585.9	34.2	34.1	8.0	29.7	125.0	1436.1
	minimum	403.9	29.9	29.9	6.9	25.2	106.6	1032.9
November	Maximum	360.3	22.5	22.5	5.3	19.6	82.4	902.5
	average	285.9	20.0	20.0	4.7	17.4	73.7	737.4
	minimum	217.6	18.5	18.5	4.2	15.3	65.0	582.1
December	Maximum	272.5	18.0	18.0	4.1	16.6	67.1	704.6
	average	206.0	14.5	14.5	3.4	13.8	55.7	551.6
	minimum	170.1	10.1	10.1	2.4	9.8	39.8	444.3
All years	Maximum	10799	1662	636	204	750	3162	28644
	average	10278	1565	614	197	716	3046	27368
	minimum	9753	1473	597	192	684	2970	26147

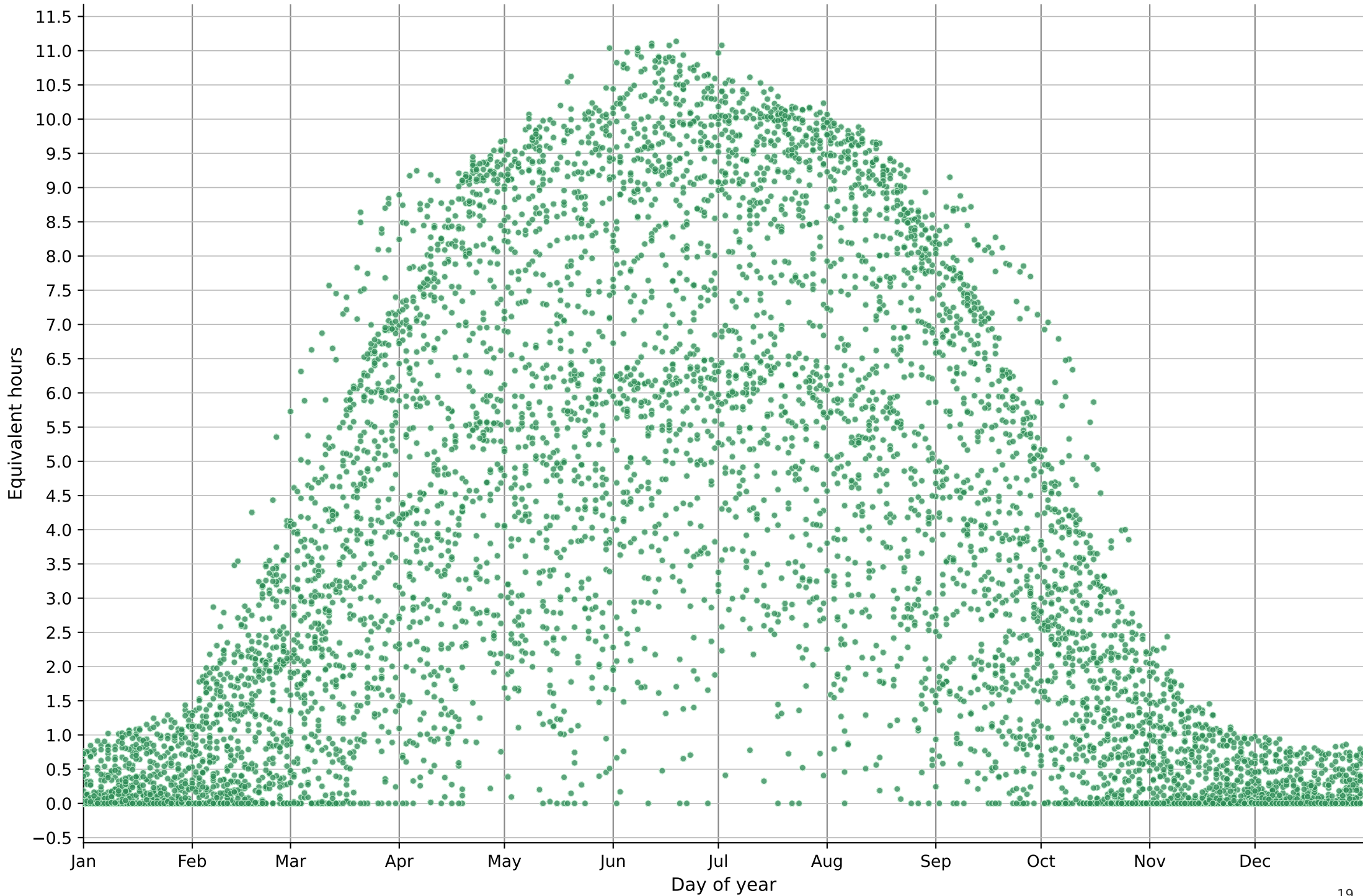
Highest combined yield hour: 2012-05-18 09:10 UTC 21260.8 W (0.546 W/Wp) of 38930 Wp installed. Use this hour to size battery charge power.

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

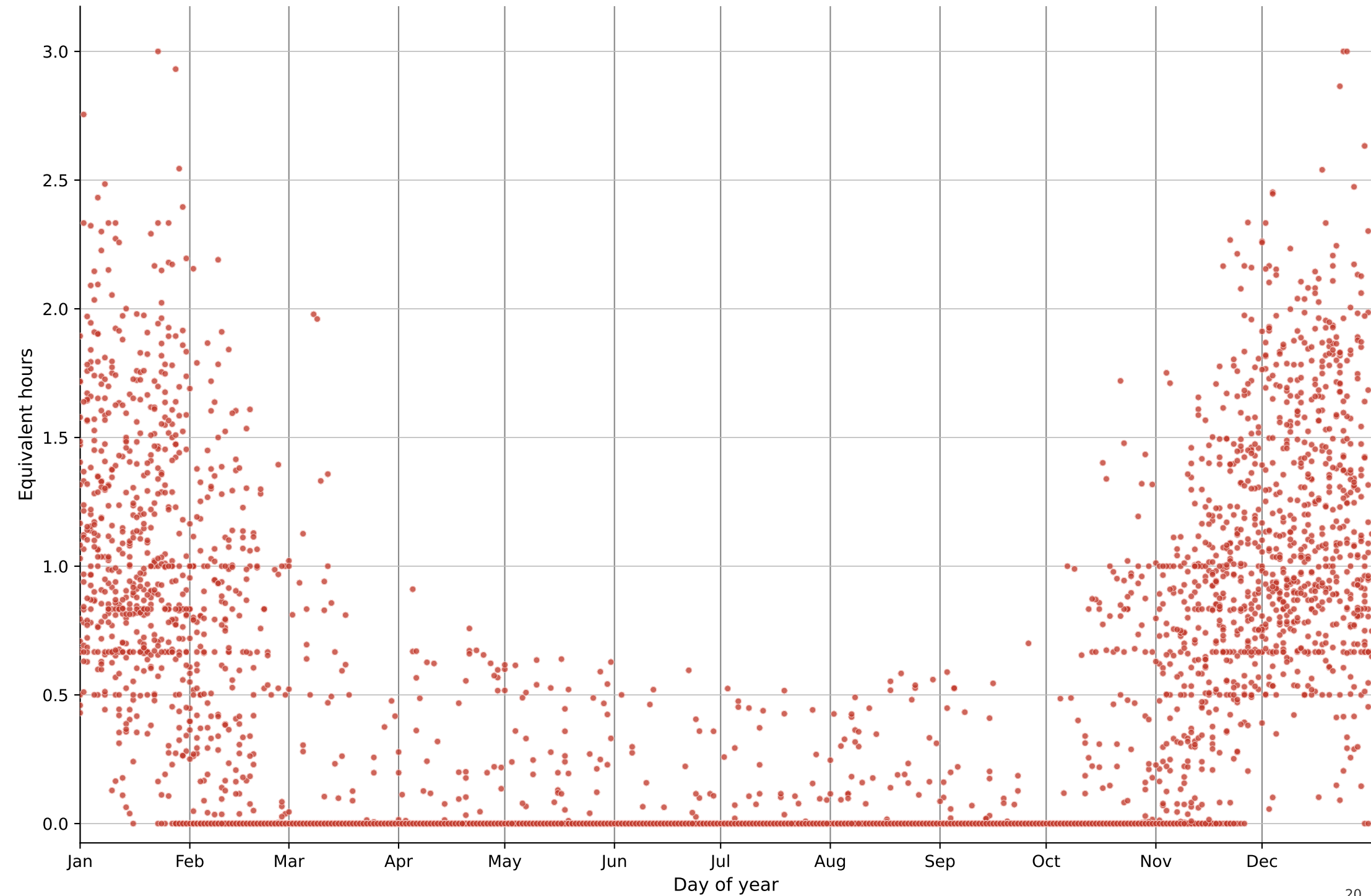
Month / year		Roof south 22°/0° 3000 Wp	Roof east 22°/-90° 3000 Wp	Roof west 22°/90° 3000 Wp	Roof north 22°/180° 3000 Wp	All together
January	Maximum	177.8	110.5	90.2	53.1	907.9
	average	111.2	70.7	69.7	39.7	671.6
	minimum	70.7	50.4	54.1	32.1	524.2
February	Maximum	226.6	147.8	149.6	70.6	1336.2
	average	175.1	120.7	123.4	61.5	1128.5
	minimum	110.8	91.4	89.7	55.3	890.4
March	Maximum	400.7	299.3	299.1	163.0	2719.5
	average	287.1	223.2	229.8	145.3	2146.9
	minimum	213.9	177.8	174.7	128.4	1742.3
April	Maximum	469.5	400.2	395.7	301.1	3924.9
	average	368.1	315.9	319.7	251.4	3209.6
	minimum	286.8	246.1	254.1	203.3	2556.6
May	Maximum	450.2	412.7	417.0	367.4	4182.5
	average	384.3	355.8	356.2	319.1	3637.2
	minimum	279.2	262.0	264.8	243.2	2751.9
June	Maximum	495.8	470.9	461.6	430.2	4710.5
	average	410.0	386.8	390.8	362.3	3983.5
	minimum	327.5	311.8	319.4	298.0	3273.3
July	Maximum	487.6	456.3	455.0	413.5	4565.9
	average	423.5	394.2	397.2	361.4	4005.4
	minimum	310.8	291.8	297.3	274.7	3022.1
August	Maximum	428.8	380.1	376.8	311.5	3812.5
	average	381.0	334.9	341.4	280.8	3432.7
	minimum	328.9	282.8	301.3	250.4	3039.5
September	Maximum	379.5	296.0	309.0	197.5	2885.6
	average	307.7	247.6	252.7	172.4	2427.2
	minimum	243.4	202.8	203.1	146.4	1999.6
October	Maximum	290.5	181.4	223.7	90.4	1746.5
	average	217.8	152.4	164.8	84.2	1436.1
	minimum	142.2	107.3	112.1	68.9	1032.9
November	Maximum	161.8	96.3	101.5	46.3	902.5
	average	118.5	75.7	79.6	42.0	737.4
	minimum	81.0	59.4	61.2	38.6	582.1
December	Maximum	149.4	74.2	75.9	39.7	704.6
	average	96.7	56.9	57.2	32.7	551.6
	minimum	73.1	45.2	47.6	23.5	444.3
All years	Maximum	3448	2901	2899	2261	28644
	average	3281	2735	2783	2153	27368
	minimum	3085	2566	2643	2071	26147

Highest combined yield hour: 2012-05-18 09:10 UTC 21260.8 W (0.546 W/Wp) of 38930 Wp installed. Use this hour to size battery charge power.

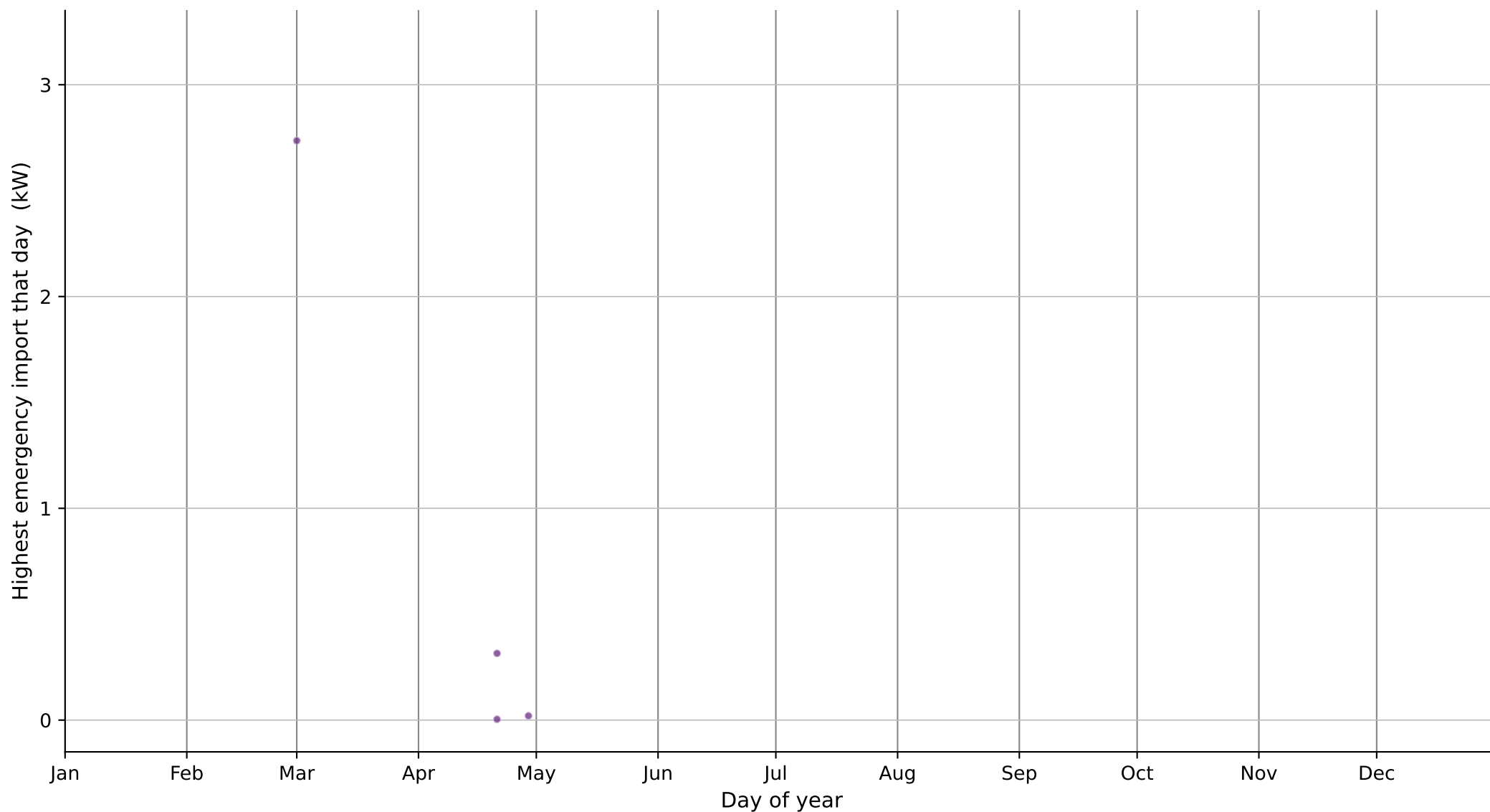
Export energy as equivalent hours (kWh / grid kW)
Austria - Inning 48.182, 15.417



Import energy as equivalent hours (kWh / grid kW)
Austria - Inning 48.182, 15.417



Emergency import hours: 7 days with an emergency: 4
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	154	541	1723	2480	2701	3090	3085	2639	1927	958	248	124	16828
month average	103	377	1232	1946	2260	2587	2652	2317	1518	696	153	64	15905
month minimum	33	189	815	1366	1646	2099	1839	1928	1157	312	99	32	14667
day Maximum	17.2	64.2	106.1	116.1	132.5	133.6	133.0	120.8	109.8	84.4	29.2	11.7	133.6
day average	3.3	13.3	39.8	64.9	72.9	86.2	85.6	74.8	50.6	22.4	5.1	2.1	43.6
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	535	227	101	34	17	12	21	17	20	125	386	616	1820
month average	401	107	15	10	9	3	4	7	4	34	236	445	1276
month minimum	299	12	0	1	0	0	0	0	0	0	121	278	954
day Maximum	36.0	26.3	23.7	10.9	7.7	7.1	6.3	7.0	8.4	20.6	28.0	36.0	36.0
day average	12.9	3.8	0.5	0.3	0.3	0.1	0.1	0.2	0.1	1.1	7.9	14.4	3.5
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
Total energy used for house													
month Maximum	1050	1013	872	722	661	565	547	556	611	736	811	991	8610
month average	888	794	797	669	616	529	518	521	562	678	750	853	8176
month minimum	802	721	737	595	562	500	502	496	512	613	711	789	7918
day Maximum	52.2	47.2	44.3	28.5	26.3	25.1	23.6	23.1	25.6	28.2	34.2	44.6	52.2
day average	28.6	28.1	25.7	22.3	19.9	17.6	16.7	16.8	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	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	9	57	205	288	316	324	342	323	251	130	18	7	2036
month average	6	33	155	235	270	294	314	293	202	88	10	4	1904
month minimum	2	11	100	159	201	250	256	255	152	20	6	2	1756
day Maximum	1.1	10.3	16.4	15.8	17.0	16.8	16.4	15.5	16.0	15.1	4.7	0.8	17.0
day average	0.2	1.2	5.0	7.8	8.7	9.8	10.1	9.5	6.7	2.8	0.3	0.1	5.2
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	131	55	26	8	4	3	5	4	3	29	93	150	444
month average	96	25	4	3	2	1	1	2	1	8	56	107	305
month minimum	71	3	0	0	0	0	0	0	0	0	28	66	226
day Maximum	9.4	6.7	6.1	2.3	2.0	1.9	1.6	1.9	1.8	5.2	7.0	8.9	9.4
day average	3.1	0.9	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.3	1.9	3.5	0.8
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	13	13	30	15	13	10	10	10	13	13	13	13	133
month average	13	13	8	11	10	5	5	7	6	10	13	13	112
month minimum	13	13	0	4	1	0	0	0	0	0	13	13	91
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	144	67	56	23	16	12	15	14	16	42	105	163	563
month average	109	38	12	14	12	5	6	8	6	18	69	120	417
month minimum	84	16	0	5	1	0	0	0	0	0	41	78	330
day Maximum	9.4	6.7	6.1	2.3	2.0	1.9	1.6	1.9	1.8	5.2	7.0	8.9	9.4
day average	3.1	0.9	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.3	1.9	3.5	0.8
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	-75	42	205	276	301	324	342	322	251	129	-27	-71	1660
month average	-103	-5	143	222	258	288	309	285	196	70	-59	-116	1487
month minimum	-139	-51	81	136	189	240	243	243	137	-7	-99	-159	1302
day Maximum	1.1	10.3	16.4	15.8	17.0	16.8	16.4	15.5	16.0	15.1	4.7	0.1	17.0
day average	-2.9	0.3	4.9	7.8	8.6	9.8	10.1	9.4	6.7	2.6	-1.5	-3.3	4.4
day minimum	-9.4	-6.7	-6.1	-1.2	-0.6	0.0	0.0	0.0	-1.5	-5.2	-7.0	-8.9	-9.4

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	154	541	1723	2480	2701	3090	3085	2639	1927	958	248	124	16828
month average	103	377	1232	1946	2260	2587	2652	2317	1518	696	153	64	15905
month minimum	33	189	815	1366	1646	2099	1839	1928	1157	312	99	32	14667
day Maximum	17.2	64.2	106.1	116.1	132.5	133.6	133.0	120.8	109.8	84.4	29.2	11.7	133.6
day average	3.3	13.3	39.8	64.9	72.9	86.2	85.6	74.8	50.6	22.4	5.1	2.1	43.6
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	173	723	1219	1293	1285	1386	1387	1108	488	53	0	8429
month average	0	73	551	1002	1142	1195	1313	1266	874	320	8	0	7744
month minimum	0	0	334	733	886	1031	1142	1159	616	32	0	0	7087
day Maximum	0.0	38.6	62.3	64.7	66.7	64.8	67.0	66.7	67.8	61.9	18.8	0.0	67.8
day average	0.0	2.6	17.8	33.4	36.9	39.8	42.3	40.8	29.1	10.3	0.3	0.0	21.2
day minimum	0.0	-0.0	-0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.0
Export during medium price hours													
month Maximum	40	121	314	481	625	807	819	506	323	186	38	22	3568
month average	24	96	228	366	489	635	620	430	247	109	21	8	3271
month minimum	6	60	134	256	305	461	371	329	154	52	10	1	2951
day Maximum	3.9	9.7	16.9	28.1	35.5	40.3	41.2	29.4	17.8	9.5	3.5	2.7	41.2
day average	0.8	3.4	7.3	12.2	15.8	21.2	20.0	13.9	8.2	3.5	0.7	0.3	9.0
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	128	284	699	819	839	1046	920	808	513	336	203	102	5255
month average	80	208	454	578	629	758	720	622	396	266	124	55	4890
month minimum	26	118	327	330	407	551	326	393	288	162	70	30	4348
day Maximum	13.8	40.3	53.6	55.4	61.3	58.4	57.2	47.4	47.3	48.1	24.0	10.4	61.3
day average	2.6	7.4	14.6	19.3	20.3	25.3	23.2	20.1	13.2	8.6	4.1	1.8	13.4
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	546	542	369	240	166	89	61	69	137	238	328	491	2773
month average	384	336	294	190	124	56	33	35	91	182	267	354	2346
month minimum	298	266	235	120	73	29	16	7	44	120	230	290	2092
day Maximum	35.9	31.0	28.1	12.4	10.3	9.2	7.9	7.3	9.8	12.1	18.1	28.5	35.9
day average	12.4	11.9	9.5	6.3	4.0	1.9	1.1	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	1.48	8.04	7.53	0.00	0.00	0.00	0.00	11.18
month average	0.00	0.00	0.00	0.00	0.00	0.24	1.34	1.71	0.00	0.00	0.00	0.00	3.28
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	1.48	5.93	5.02	0.00	0.00	0.00	0.00	5.93
day average	0.00	0.00	0.00	0.00	0.00	0.01	0.04	0.06	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

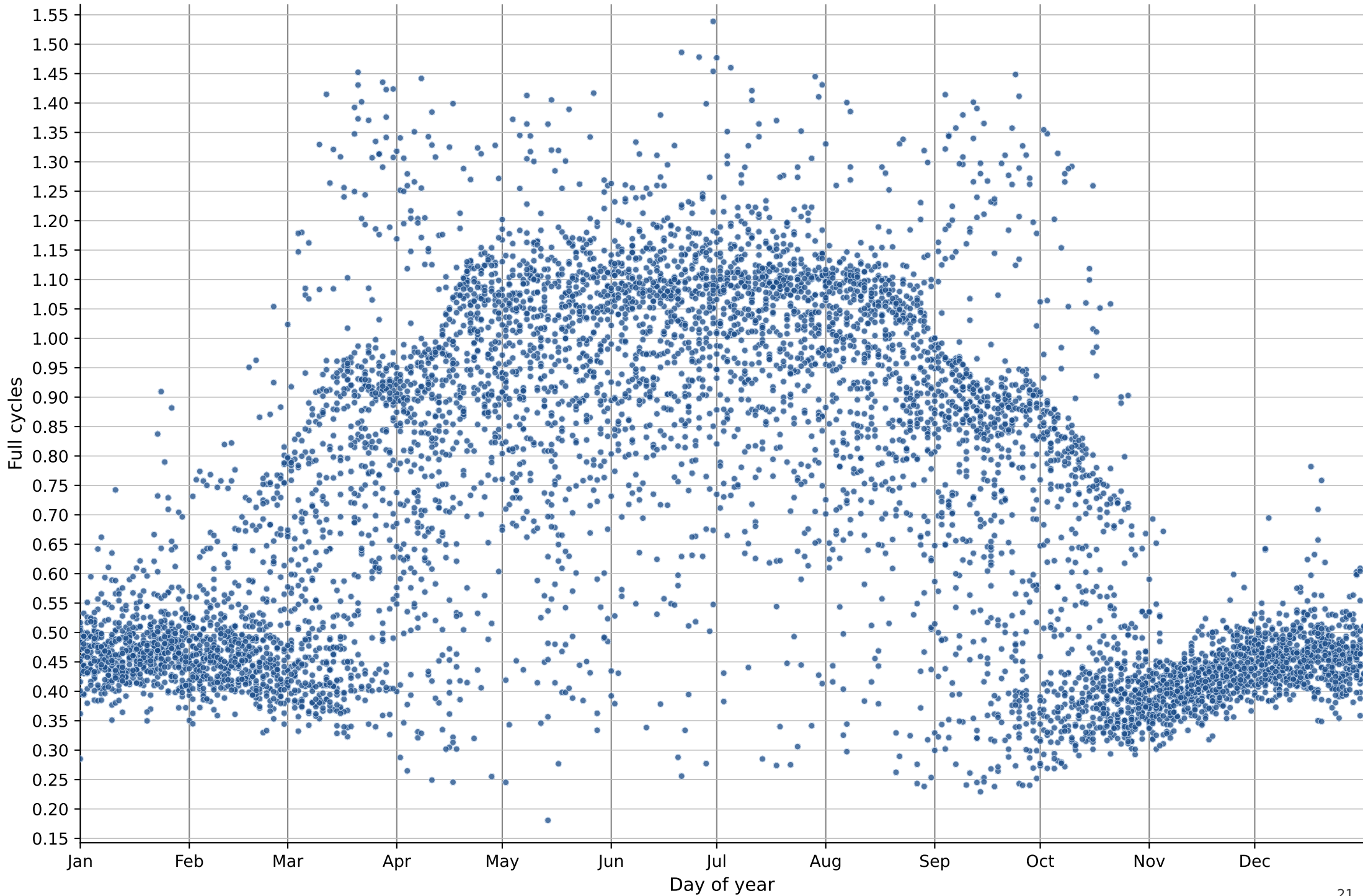
Heating, cooling and DHW are electricity. Direct electric is the part the heat pump could not cover.

Battery
Austria - Inning 48.182, 15.417

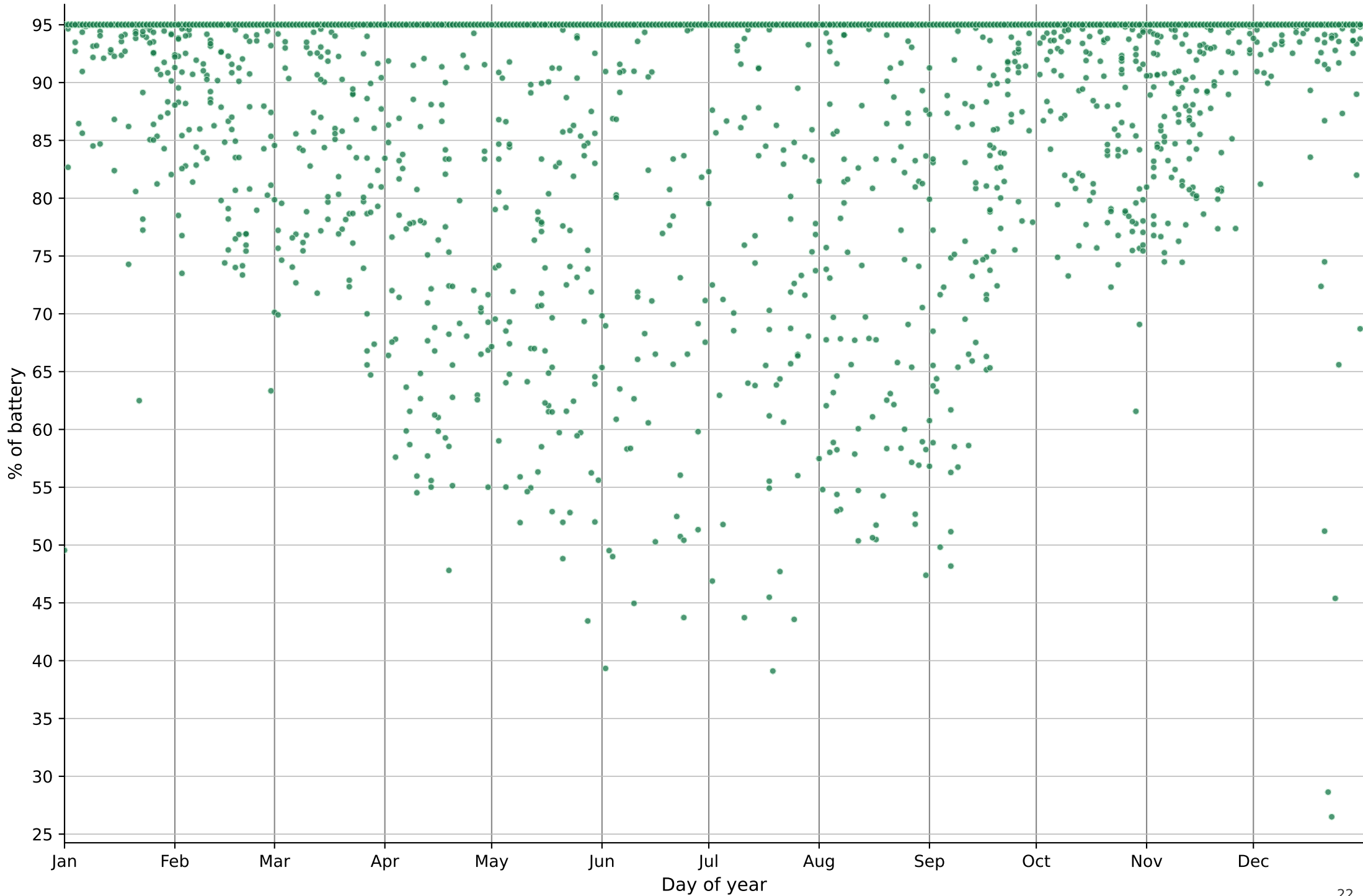
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	All
Wasted													
month Maximum	0	1	63	722	786	954	846	587	309	1	0	0	3841
month average	0	0	42	475	622	722	681	460	223	0	0	0	3225
month minimum	0	0	13	305	356	496	492	322	100	0	0	0	2845
day Maximum	0.0	0.7	15.8	71.3	81.5	88.7	81.8	70.1	55.8	1.2	0.0	0.0	88.7
day average	0.0	0.0	1.3	15.8	20.1	24.1	22.0	14.8	7.4	0.0	0.0	0.0	8.8
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	17.53	17.10	24.20	29.90	32.00	32.01	33.59	30.92	26.44	19.41	13.47	16.73	273.59
month average	14.77	14.07	21.70	26.55	29.58	30.16	31.40	28.93	23.31	16.66	12.62	14.37	264.13
month minimum	13.34	12.46	18.81	22.16	24.94	27.57	27.81	27.39	19.48	12.28	11.85	13.15	255.33
day Maximum	0.91	1.05	1.45	1.44	1.42	1.54	1.46	1.40	1.45	1.35	0.69	0.78	1.54
day average	0.48	0.50	0.70	0.89	0.95	1.01	1.01	0.93	0.78	0.54	0.42	0.46	0.72
day minimum	0.29	0.33	0.32	0.25	0.18	0.26	0.27	0.24	0.23	0.27	0.30	0.35	0.18
Charge C													
month Maximum	0.16	0.22	0.31	0.34	0.34	0.34	0.33	0.32	0.30	0.23	0.16	0.12	3.05
month average	0.14	0.19	0.29	0.33	0.33	0.32	0.32	0.31	0.29	0.21	0.15	0.12	3.00
month minimum	0.13	0.16	0.28	0.31	0.32	0.31	0.31	0.30	0.28	0.20	0.14	0.11	2.95
day Maximum	0.16	0.22	0.31	0.34	0.34	0.34	0.33	0.32	0.30	0.23	0.16	0.12	0.34
day average	0.08	0.12	0.19	0.25	0.25	0.27	0.27	0.25	0.21	0.13	0.09	0.07	0.18
day minimum	0.01	0.02	0.02	0.04	0.04	0.05	0.04	0.04	0.03	0.02	0.01	0.01	0.01
Discharge C													
month Maximum	0.10	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.08	2.28
month average	0.06	0.19	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.09	0.05	2.07
month minimum	0.04	0.05	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.18	0.04	0.04	1.91
day Maximum	0.10	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.08	0.21
day average	0.04	0.07	0.14	0.19	0.20	0.20	0.20	0.20	0.18	0.11	0.04	0.04	0.13
day minimum	0.02	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.02

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



Battery max charge state per day (60 kWh = 100 %)
Austria - Inning 48.182, 15.417



Battery min charge state per day (60 kWh = 100 %)
Austria - Inning 48.182, 15.417

