

Scenario — PV

GEMINI-60-house-with-garage Austria - Inning 48.182, 15.417

Name	Slope °	Azimuth °	Wp	Wall d/h m	Face	Bifacial	Wp counted
Roof East	22	-90	19800	—	front	—	yes
Roof West	22	90	19800	—	front	—	yes
Terrace railing south	90	0	4620	5 / 4	front	—	yes
Terrace railing north	90	180	4620	5 / 4	front	—	yes
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 west	90	90	700	5 / 4	front	—	yes
Garage back side east	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			75770				

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 2009-06-13 11:10 local (10:10 UTC) 42862 W 0.566 W/Wp of 75770 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
GEMINI-60-house-with-garage Austria - Inning 48.182, 15.417

Chapter	Parameter	Value
Building	Design out / in / heat	-10.0 °C / 20.0 °C / 1600.0 W
	Heat on / cool on / ground	22.0 °C / 25.0 °C / 10.0 °C
	Curve / flow min / max	0.4 / 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 42.0 °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	176.8 kWh C 0.5 5 / 95 / 50 %
	Nameplate	—
	Charge / discharge η	95 % / 90 %
Grid	Inverter / grid connection	34.0 kW / 17.0 kW
	Max export	17.0 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 @ 40.0 kW night 10.0 kWh @ 11.0 kW

Records 1-10 — contribution of each PV
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PV	2009-06-13 10:10	2016-05-15 12:10	2020-05-24 10:10	2012-05-18 10:10	2009-06-03 10:10	2013-05-13 11:10	2021-05-26 10:10	2009-06-13 11:10	2020-05-07 10:10	2005-04-22 11:10
Roof East	15272	12163	15115	14892	15107	13831	15100	14180	14873	13630
Roof West	13169	15912	13082	12912	13065	14598	13072	14741	12722	14359
Terrace railing south	2017	2262	2192	2274	2066	2425	2155	2083	2449	2899
Terrace railing north	228	184	223	259	230	217	164	221	201	153
Garage roof	8237	8180	8175	8050	8164	8243	8172	8369	8024	8152
Garage side wall south	1517	1701	1648	1711	1554	1824	1621	1567	1842	2180
Garage side wall north	172	138	168	195	173	163	123	166	152	115
Garage door side west	35	245	34	39	35	93	25	87	31	80
Garage back side east	589	101	567	583	571	119	544	121	564	84
Garden fence east	1391	239	1339	1376	1349	281	1285	287	1333	199
Garden fence east face2	237	1677	232	269	239	637	170	599	209	547
Watt at record	42862	42802	42775	42560	42553	42432	42431	42421	42400	42399
Percent of installed peak	56.6	56.5	56.5	56.2	56.2	56.0	56.0	56.0	56.0	56.0

Hours at or above a share of the record
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Of the record	Hours	Watts
98 %	17	42005 W
96 %	95	41148 W
94 %	348	40291 W
92 %	816	39433 W
90 %	1644	38576 W

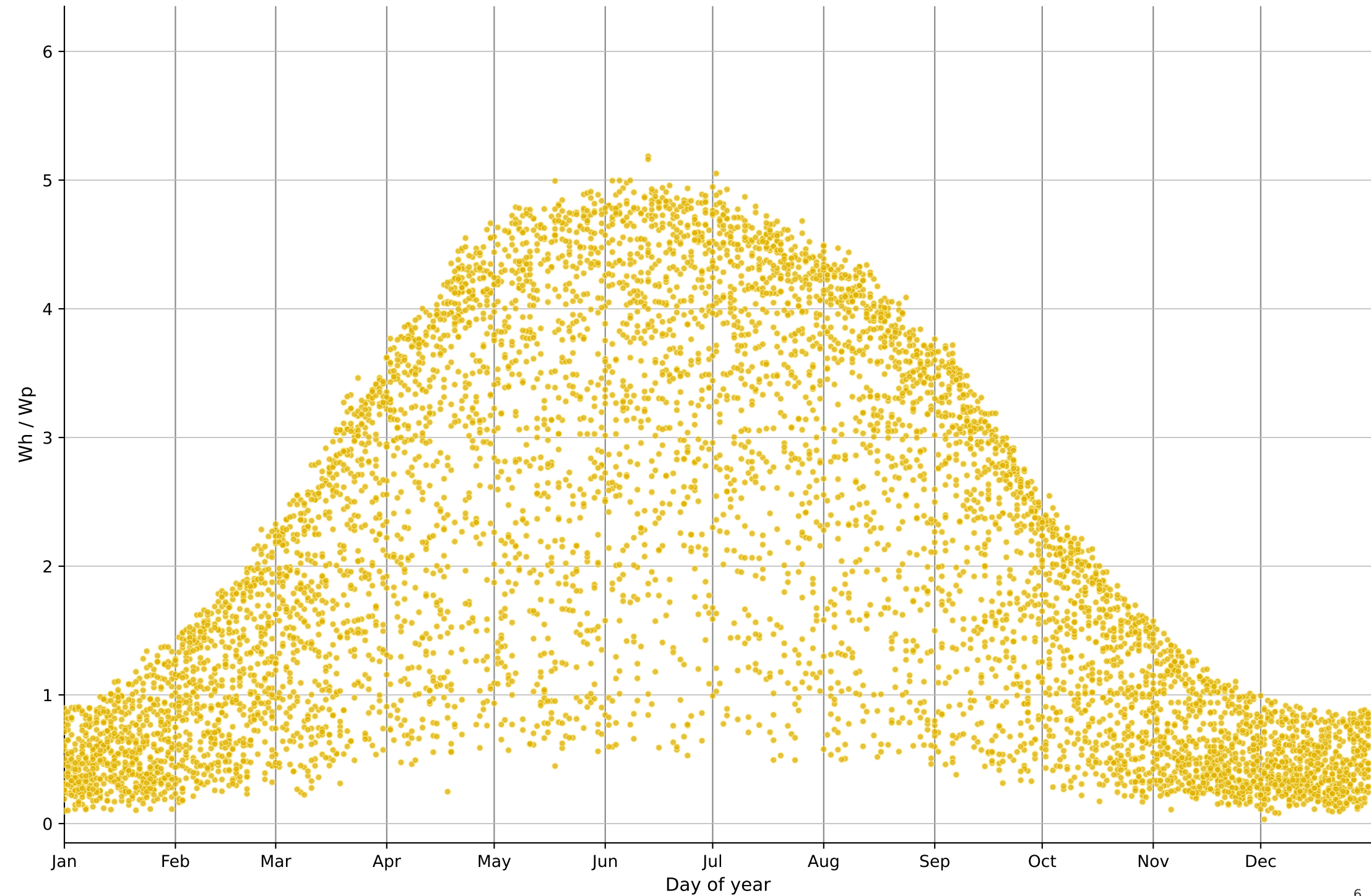
Records of each photovoltaic field

Austria - Inning 48.182, 15.417

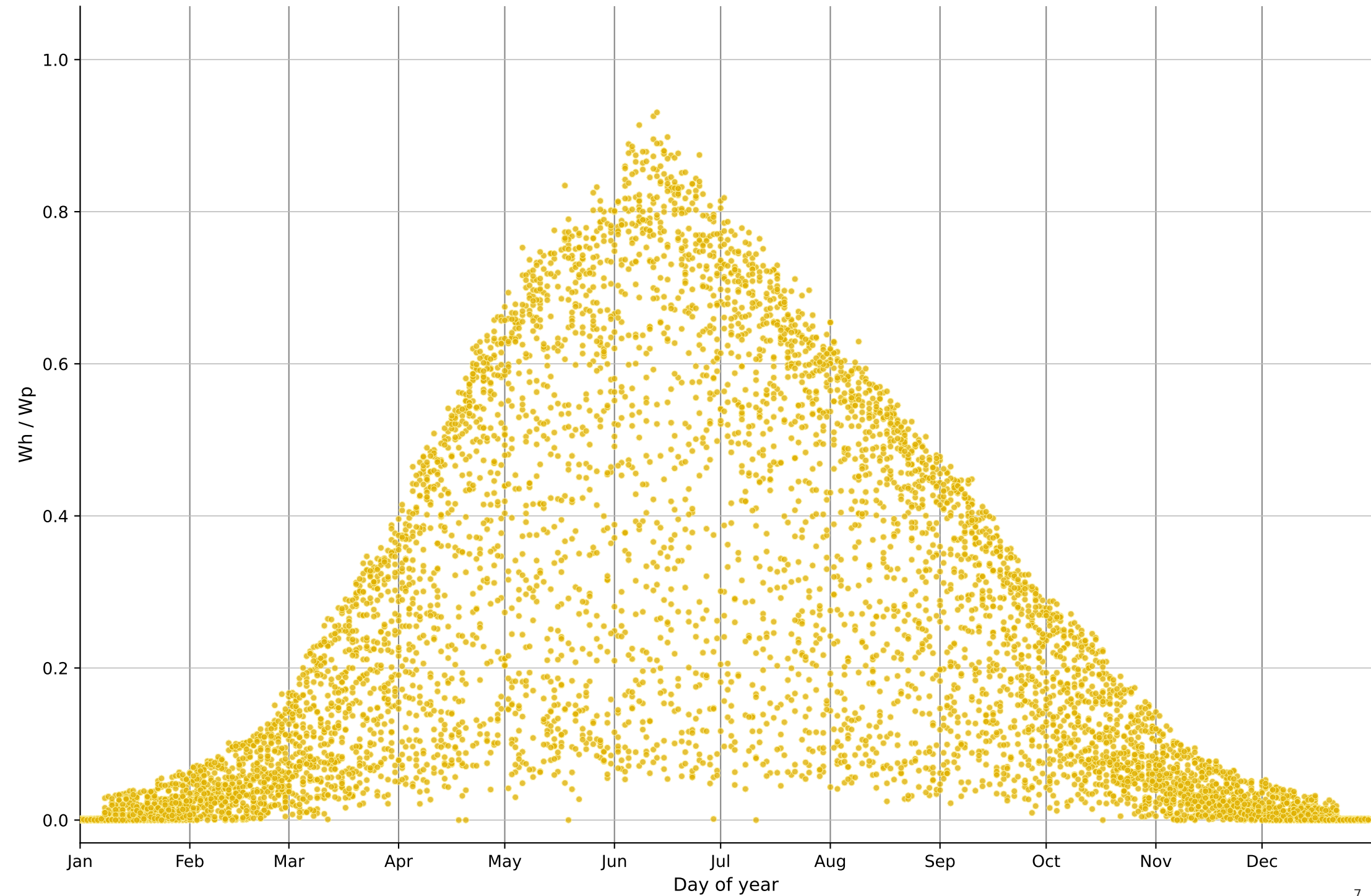
PV	Date	Watts	%	h ≥98%	h ≥96%	h ≥94%	h ≥92%	h ≥90%
Roof East	2006-05-25 09:10	15595	78.8	11	38	156	391	806
Roof West	2016-05-15 12:10	15912	80.4	3	12	30	118	333
Terrace railing south	2009-03-22 11:10	3507	75.9	8	17	26	45	75
Terrace railing north	2023-06-13 05:10	812	17.6	1	8	25	50	108
Garage roof	2009-06-13 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 west	2005-05-08 14:10	473	67.6	1	3	5	16	49
Garage back side east	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.

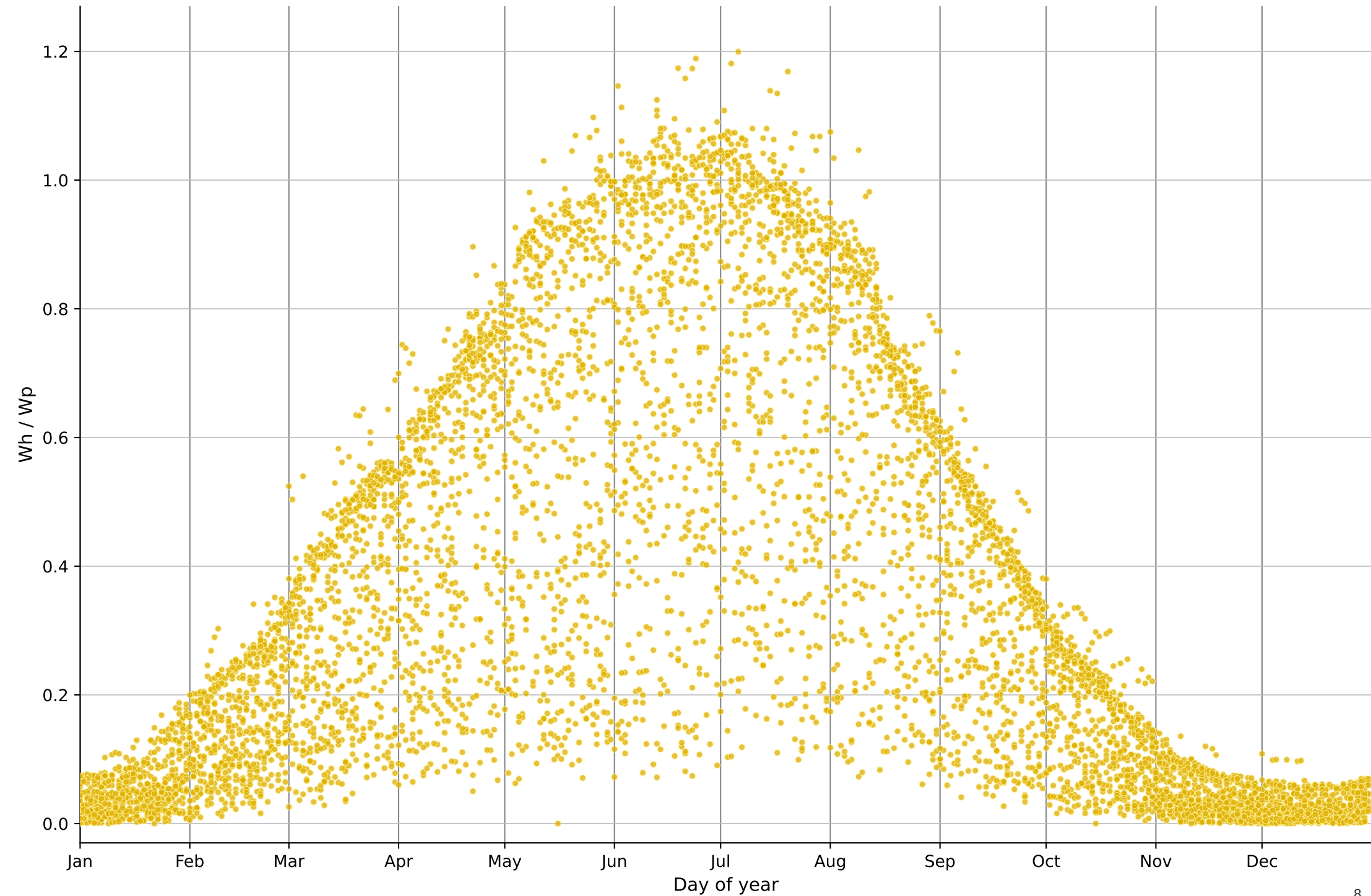
Yield distribution for each day — W_h / W_p of all PV together
Austria - Inning 48.182, 15.417



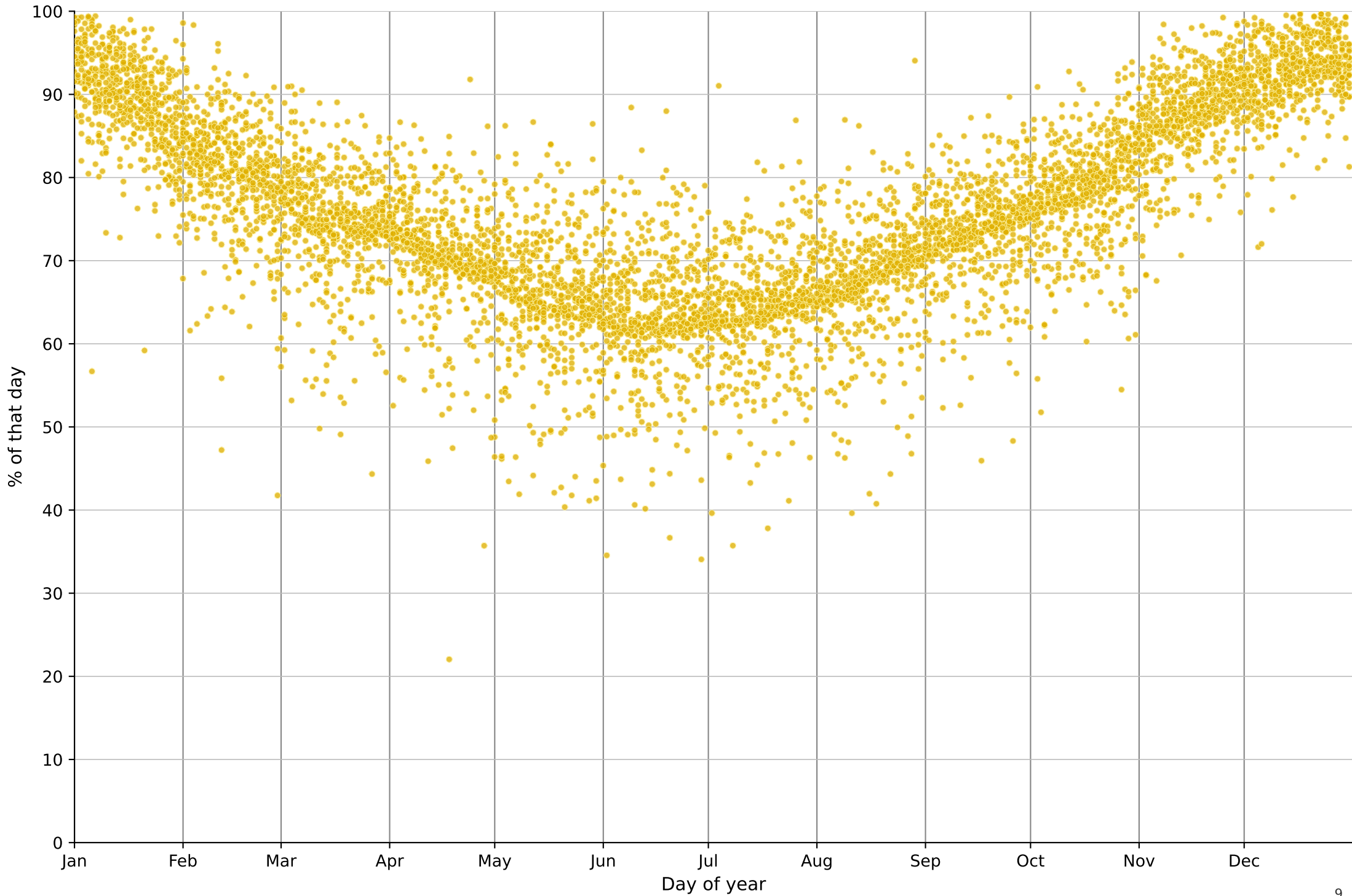
Yield distribution for each day — Wh / Wp of all PV together — 00:00-09:00
Austria - Inning 48.182, 15.417



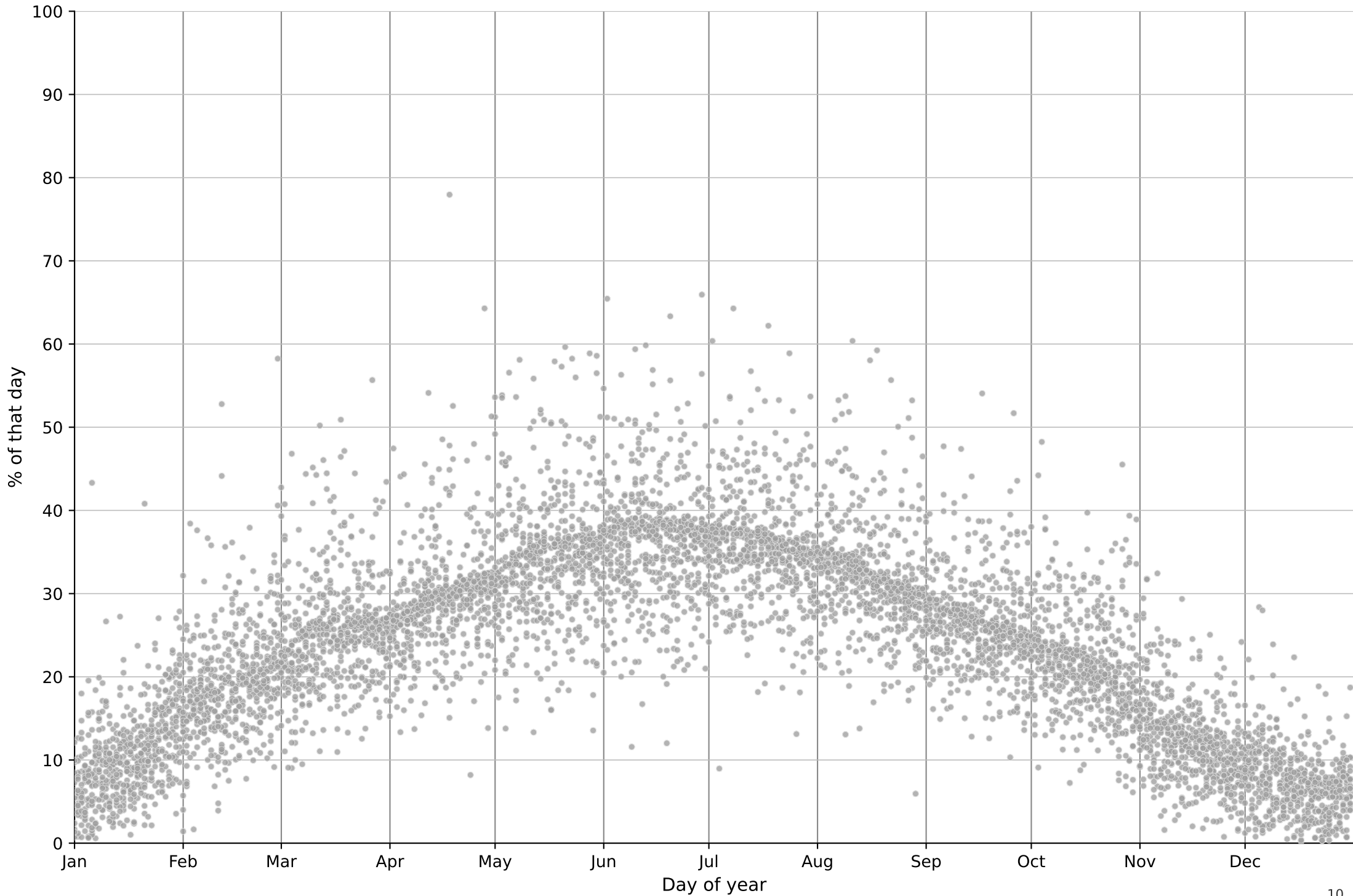
Yield distribution for each day — Wh / Wp of all PV together — 15:00-23:59
Austria - Inning 48.182, 15.417



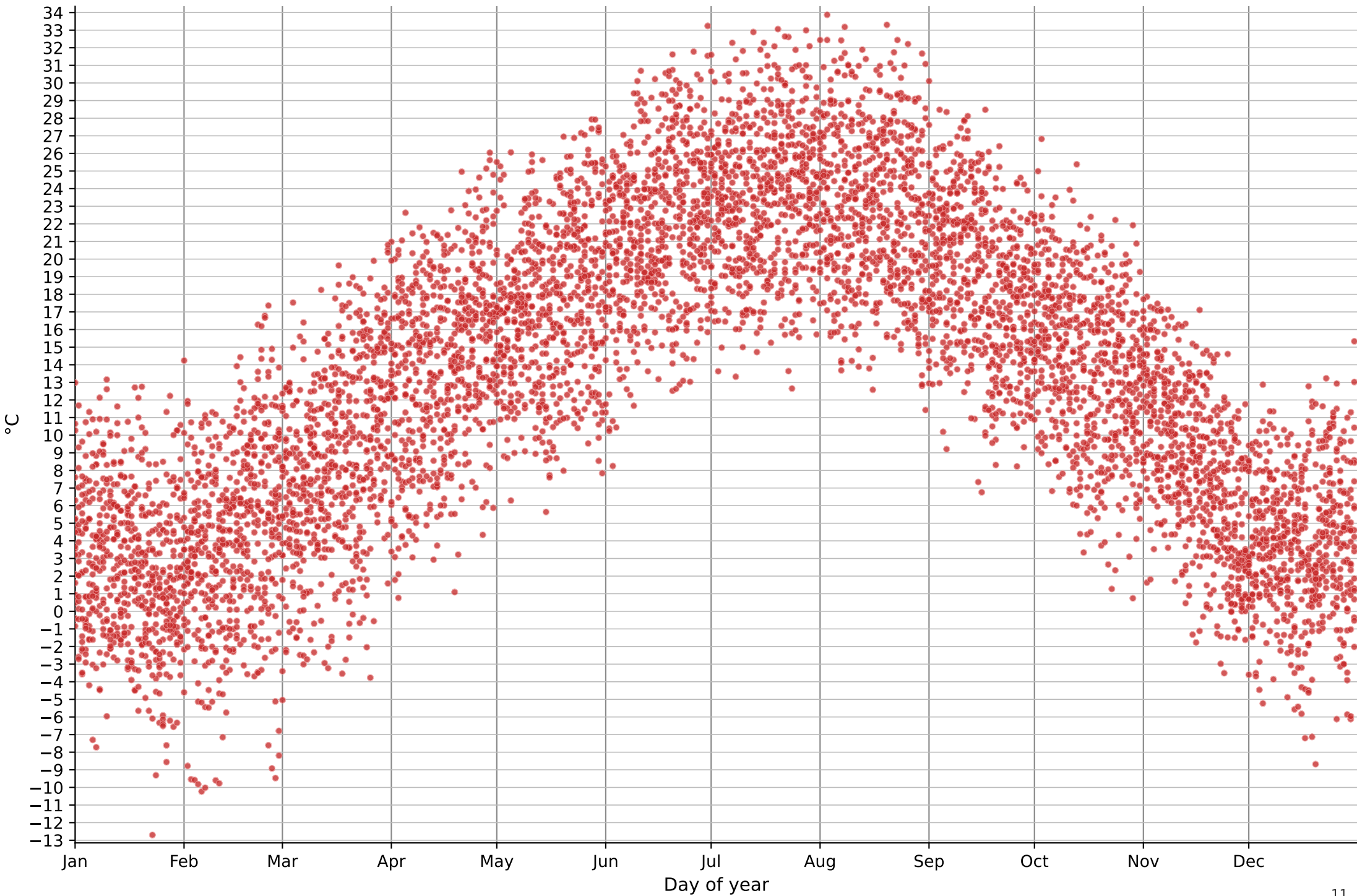
Share of the day's yield in 09:00-15:00 winter time
Austria - Inning 48.182, 15.417



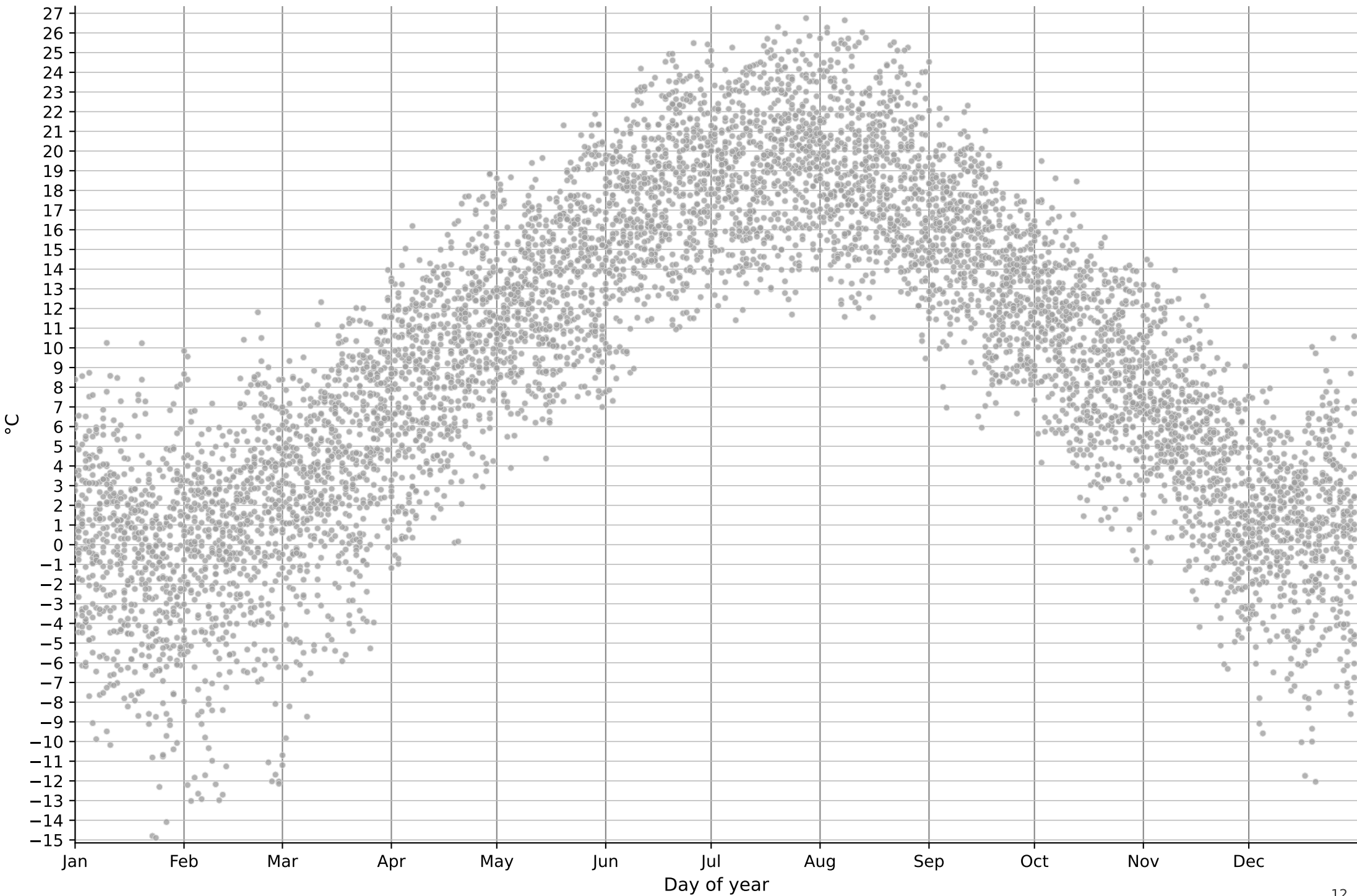
Share of the day's yield outside 09:00-15:00 winter time
Austria - Inning 48.182, 15.417



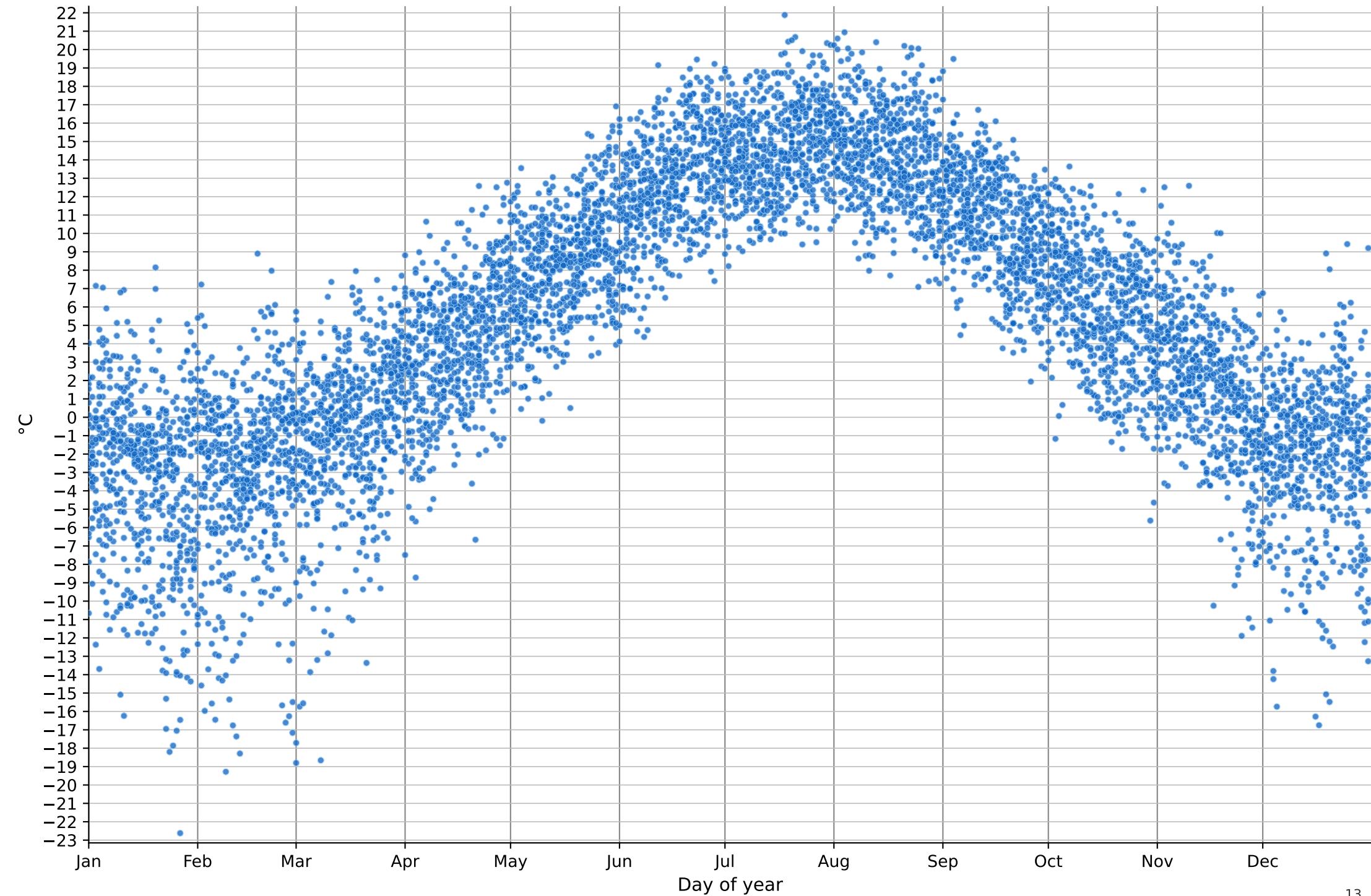
Highest temperature of each day
Austria - Inning 48.182, 15.417



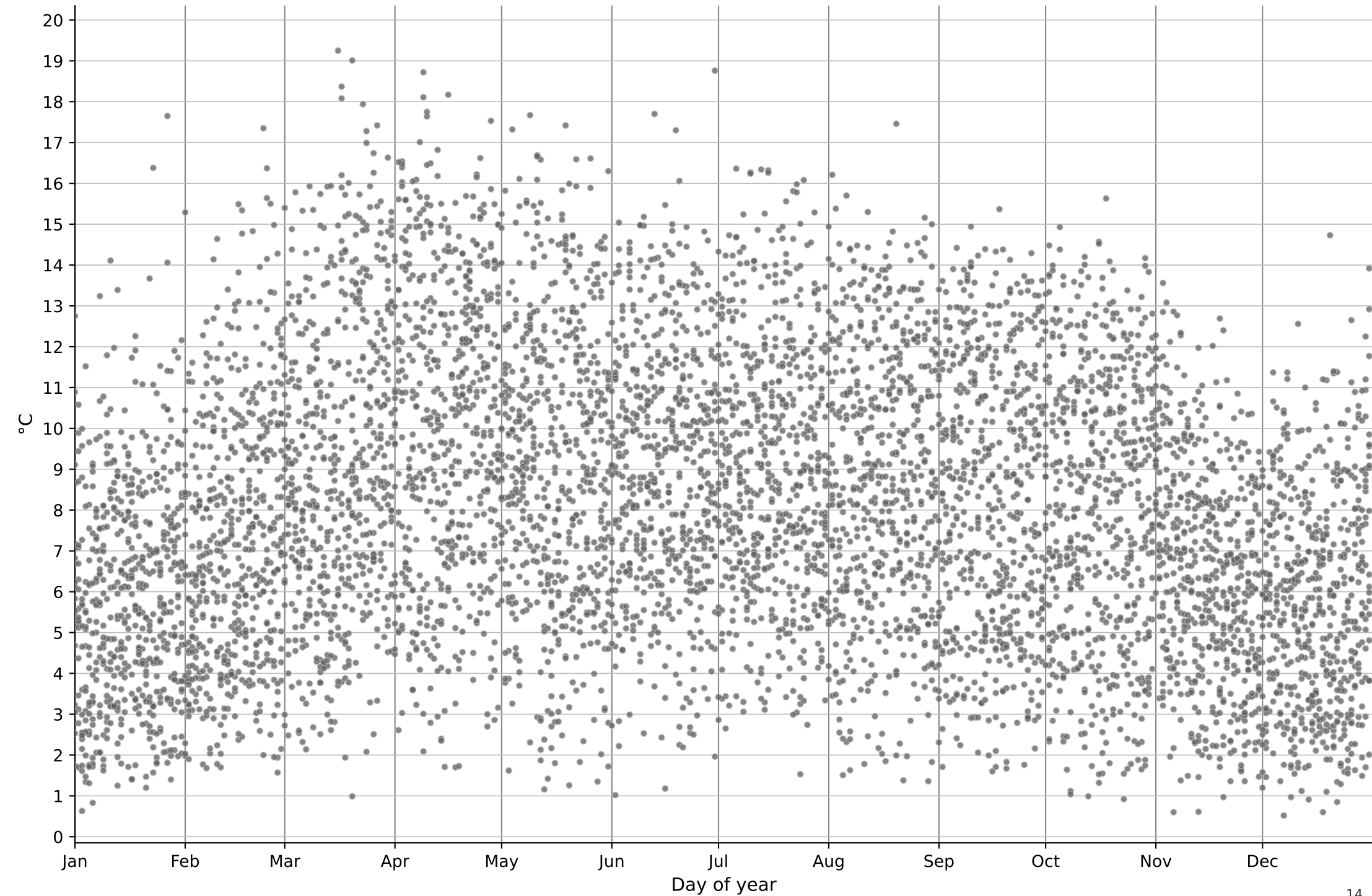
Average temperature of each day
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Lowest temperature of each day
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Difference between highest and lowest temperature of each day
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Monthly and yearly specific yield (kWh/kWp = Wh/Wp)
Austria - Inning 48.182, 15.417

Month / year		Roof East 22°/-90° 19800 Wp	Roof West 22°/90° 19800 Wp	Terrace railing south 90°/0° 4620 Wp	Terrace railing north 90°/180° 4620 Wp	Garage roof 1°/0° 10740 Wp	Garage side wall south 90°/0° 3475 Wp	All together
January	Maximum	36.85	30.08	7.26	7.26	32.84	7.26	24.61
	average	23.58	23.23	5.26	5.26	23.62	5.26	17.89
	minimum	16.80	18.03	4.09	4.09	17.95	4.09	13.98
February	Maximum	49.26	49.87	9.78	9.78	51.56	9.78	36.78
	average	40.22	41.12	8.23	8.23	41.81	8.23	30.81
	minimum	30.48	29.89	7.01	7.01	30.53	7.01	23.90
March	Maximum	99.75	99.70	40.02	16.17	103.67	40.02	75.86
	average	74.39	76.61	32.13	14.12	78.18	32.13	58.93
	minimum	59.28	58.23	23.96	12.21	60.95	23.96	47.14
April	Maximum	133.40	131.91	85.87	20.80	138.59	85.87	106.75
	average	105.31	106.56	68.54	18.98	110.61	68.54	86.50
	minimum	82.02	84.70	54.04	16.79	87.14	54.04	68.59
May	Maximum	137.57	139.02	75.98	26.21	144.59	75.98	111.72
	average	118.60	118.75	66.13	24.16	124.01	66.13	96.85
	minimum	87.34	88.28	48.94	22.30	91.48	48.94	72.75
June	Maximum	156.95	153.86	73.17	28.27	163.28	73.17	124.92
	average	128.94	130.27	62.75	26.40	135.71	62.75	105.29
	minimum	103.92	106.46	51.97	24.08	109.40	51.97	86.34
July	Maximum	152.09	151.66	77.19	27.83	158.88	77.19	121.89
	average	131.40	132.40	67.74	25.64	138.27	67.74	106.69
	minimum	97.26	99.10	50.02	23.06	102.76	50.02	80.18
August	Maximum	126.69	125.59	79.19	22.99	132.11	79.19	102.48
	average	111.62	113.81	70.61	19.99	117.75	70.61	92.08
	minimum	94.28	100.43	60.77	17.60	102.53	60.77	81.36
September	Maximum	98.66	103.01	59.73	16.42	104.79	59.73	79.69
	average	82.54	84.24	49.11	14.08	86.69	49.11	66.53
	minimum	67.58	67.69	40.19	11.80	69.95	40.19	54.53
October	Maximum	60.47	74.56	11.30	11.26	68.41	11.30	48.97
	average	50.79	54.92	9.83	9.80	54.55	9.83	39.60
	minimum	35.78	37.36	8.60	8.60	37.60	8.60	28.11
November	Maximum	32.08	33.83	6.47	6.47	33.54	6.47	24.56
	average	25.23	26.53	5.75	5.75	26.62	5.75	19.79
	minimum	19.79	20.38	5.33	5.33	20.26	5.33	15.64
December	Maximum	24.73	25.32	5.19	5.19	25.37	5.19	18.49
	average	18.98	19.08	4.19	4.19	19.18	4.19	14.52
	minimum	15.07	15.87	2.90	2.90	15.84	2.90	11.78
All years	Maximum	966.9	966.2	478.1	182.9	1005.5	478.1	770.4
	average	911.6	927.5	450.3	176.6	957.0	450.3	735.5
	minimum	855.5	881.1	423.9	171.8	908.1	423.9	701.4

Highest combined yield hour: 2009-06-13 10:10 UTC 42862.3 W (0.566 W/Wp) of 75770 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		Garage side wall north 90°/180° 3475 Wp	Garage door side west 90°/90° 700 Wp	Garage back side east 90°/90° 2540 Wp	Garden fence east 90°/-90° + 90°/90° 6000 Wp bifacial ×80%	All together
January	Maximum	7.26	8.02	9.10	15.51	24.61
	average	5.26	5.93	6.73	11.47	17.89
	minimum	4.09	4.60	5.29	8.97	13.98
February	Maximum	9.78	11.74	11.07	20.46	36.78
	average	8.23	10.69	9.69	18.25	30.81
	minimum	7.01	9.55	8.85	16.58	23.90
March	Maximum	16.17	20.69	20.57	37.09	75.86
	average	14.12	18.52	18.64	33.45	58.93
	minimum	12.21	16.23	16.11	29.09	47.14
April	Maximum	20.80	35.62	37.00	65.39	106.75
	average	18.98	32.57	33.18	59.23	86.50
	minimum	16.79	27.32	27.21	49.07	68.59
May	Maximum	26.21	49.99	44.67	82.61	111.72
	average	24.16	43.00	39.77	74.17	96.85
	minimum	22.30	34.42	32.92	60.46	72.75
June	Maximum	28.27	50.65	56.41	95.84	124.92
	average	26.40	45.09	48.98	85.06	105.29
	minimum	24.08	39.28	41.53	72.95	86.34
July	Maximum	27.83	49.85	48.86	88.73	121.89
	average	25.64	45.09	43.52	79.59	106.69
	minimum	23.06	36.77	33.52	62.94	80.18
August	Maximum	22.99	40.50	40.39	70.89	102.48
	average	19.99	36.73	36.67	66.05	92.08
	minimum	17.60	32.59	33.27	60.58	81.36
September	Maximum	16.42	24.07	22.91	41.44	79.69
	average	14.08	21.48	20.85	38.03	66.53
	minimum	11.80	18.89	18.24	33.35	54.53
October	Maximum	11.26	12.90	12.98	23.30	48.97
	average	9.80	11.44	11.69	20.84	39.60
	minimum	8.60	9.79	9.93	17.77	28.11
November	Maximum	6.47	7.53	7.71	13.74	24.56
	average	5.75	6.77	6.86	12.28	19.79
	minimum	5.33	6.04	6.01	10.83	15.64
December	Maximum	5.19	5.84	6.52	11.19	18.49
	average	4.19	4.82	5.42	9.28	14.52
	minimum	2.90	3.46	3.86	6.63	11.78
All years	Maximum	182.9	291.4	295.1	527.0	770.4
	average	176.6	282.1	282.0	507.7	735.5
	minimum	171.8	274.0	269.5	495.0	701.4

Highest combined yield hour: 2009-06-13 10:10 UTC 42862.3 W (0.566 W/Wp) of 75770 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 East 22°/-90° 19800 Wp	Roof West 22°/-90° 19800 Wp	Terrace railing south 90°/0° 4620 Wp	Terrace railing north 90°/180° 4620 Wp	Garage roof 1°/0° 10740 Wp	Garage side wall south 90°/0° 3475 Wp	All together
January	Maximum	729.6	595.6	33.5	33.5	352.7	25.2	1864.9
	average	466.9	459.9	24.3	24.3	253.6	18.3	1355.8
	minimum	332.6	356.9	18.9	18.9	192.8	14.2	1059.4
February	Maximum	975.3	987.5	45.2	45.2	553.7	34.0	2786.7
	average	796.4	814.2	38.0	38.0	449.0	28.6	2334.5
	minimum	603.4	591.9	32.4	32.4	327.9	24.3	1811.2
March	Maximum	1975.1	1974.1	184.9	74.7	1113.4	139.1	5747.9
	average	1473.0	1517.0	148.4	65.2	839.7	111.7	4465.1
	minimum	1173.7	1153.0	110.7	56.4	654.6	83.3	3572.1
April	Maximum	2641.2	2611.9	396.7	96.1	1488.4	298.4	8088.1
	average	2085.2	2109.9	316.6	87.7	1188.0	238.2	6554.0
	minimum	1624.0	1677.1	249.7	77.6	935.8	187.8	5197.0
May	Maximum	2723.9	2752.5	351.0	121.1	1552.9	264.0	8465.0
	average	2348.2	2351.2	305.5	111.6	1331.9	229.8	7338.3
	minimum	1729.4	1748.0	226.1	103.0	982.4	170.1	5512.0
June	Maximum	3107.7	3046.3	338.0	130.6	1753.7	254.3	9465.5
	average	2553.0	2579.3	289.9	122.0	1457.5	218.1	7977.9
	minimum	2057.6	2107.9	240.1	111.3	1175.0	180.6	6542.4
July	Maximum	3011.4	3002.9	356.6	128.6	1706.4	268.2	9235.5
	average	2601.8	2621.5	313.0	118.5	1485.0	235.4	8083.8
	minimum	1925.8	1962.3	231.1	106.6	1103.6	173.8	6075.0
August	Maximum	2508.4	2486.6	365.8	106.2	1418.8	275.2	7765.3
	average	2210.0	2253.5	326.2	92.3	1264.6	245.4	6976.7
	minimum	1866.7	1988.4	280.8	81.3	1101.1	211.2	6164.8
September	Maximum	1953.4	2039.7	275.9	75.9	1125.4	207.6	6037.9
	average	1634.2	1667.9	226.9	65.0	931.1	170.6	5040.8
	minimum	1338.2	1340.3	185.7	54.5	751.2	139.7	4131.9
October	Maximum	1197.2	1476.2	52.2	52.0	734.7	39.3	3710.3
	average	1005.7	1087.5	45.4	45.3	585.9	34.2	3000.8
	minimum	708.5	739.7	39.7	39.7	403.9	29.9	2129.9
November	Maximum	635.3	669.8	29.9	29.9	360.3	22.5	1860.6
	average	499.6	525.4	26.6	26.6	285.9	20.0	1499.8
	minimum	391.8	403.6	24.6	24.6	217.6	18.5	1185.4
December	Maximum	489.6	501.3	24.0	24.0	272.5	18.0	1401.0
	average	375.8	377.8	19.3	19.3	206.0	14.5	1100.2
	minimum	298.3	314.2	13.4	13.4	170.1	10.1	892.3
All years	Maximum	19145	19132	2209	845	10799	1662	58372
	average	18050	18365	2080	816	10278	1565	55728
	minimum	16939	17445	1958	794	9753	1473	53147

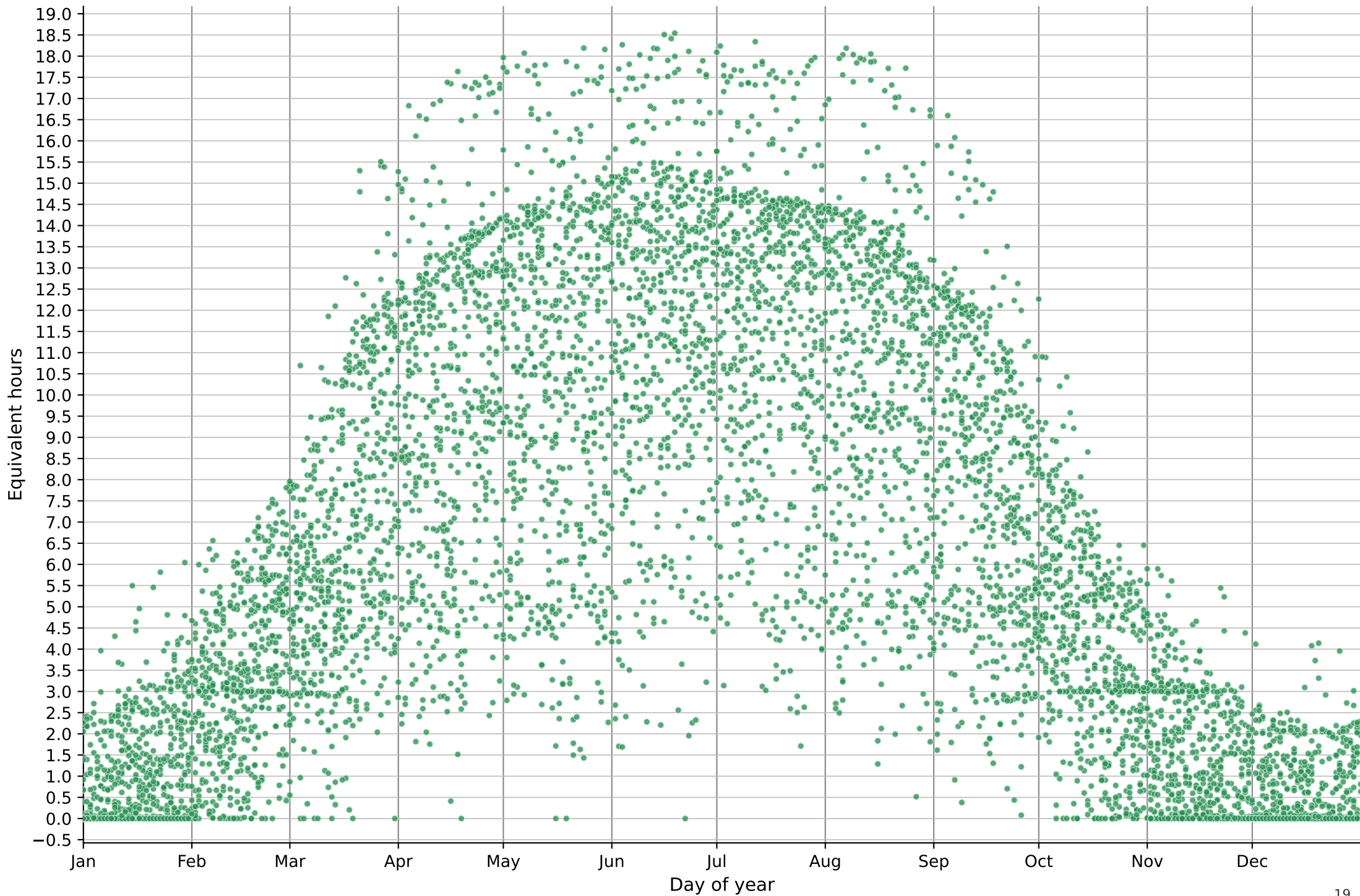
Highest combined yield hour: 2009-06-13 10:10 UTC 42862.3 W (0.566 W/Wp) of 75770 Wp installed. Use this hour to size battery charge power.

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

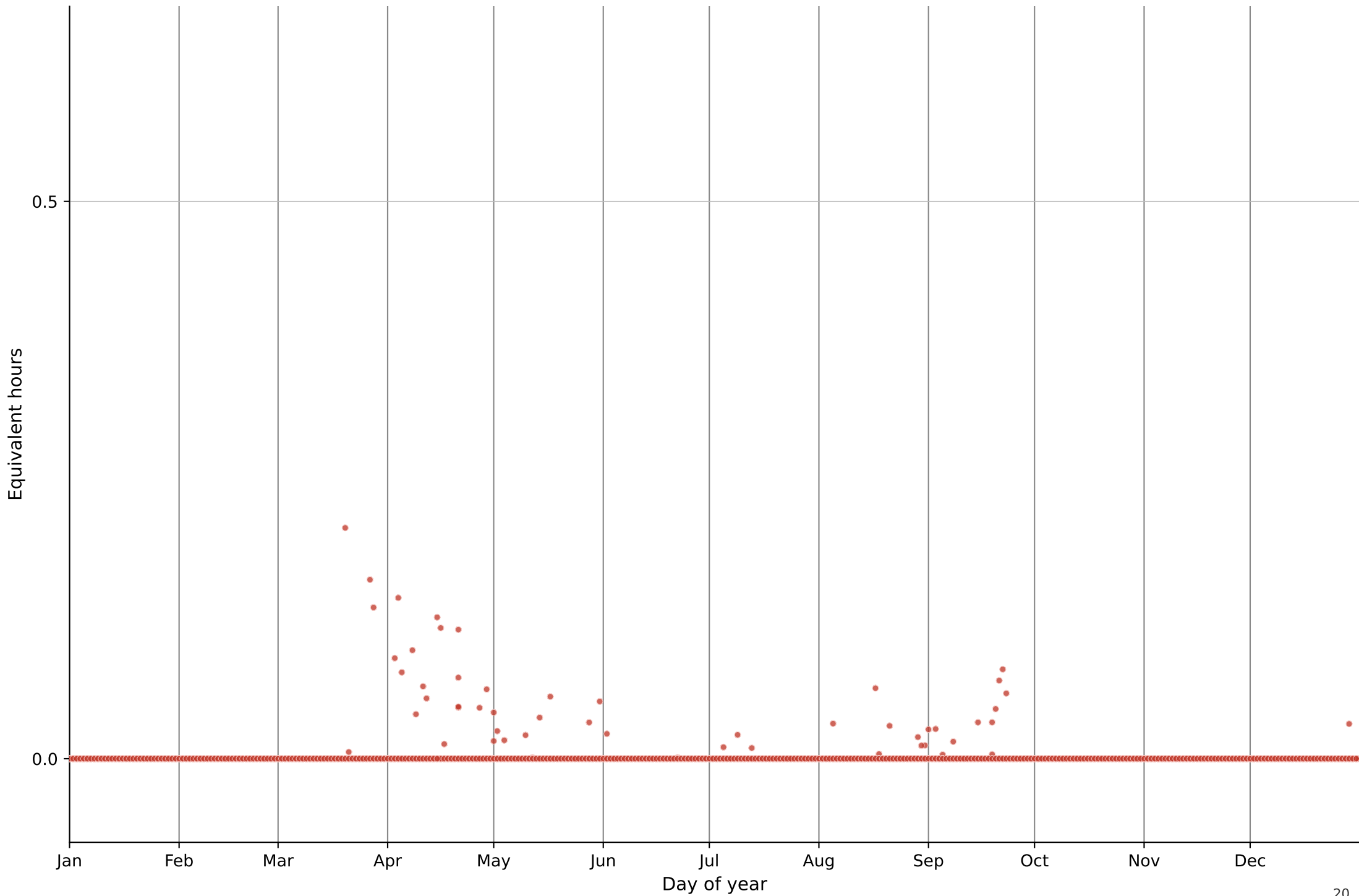
Month / year		Garage side wall north 90°/180° 3475 Wp	Garage door side west 90°/90° 700 Wp	Garage back side east 90°/90° 2540 Wp	Garden fence east 90°/-90° + 90°/90° 6000 Wp bifacial ×80%	All together
January	Maximum	25.2	5.6	23.1	93.1	1864.9
	average	18.3	4.2	17.1	68.8	1355.8
	minimum	14.2	3.2	13.4	53.8	1059.4
February	Maximum	34.0	8.2	28.1	122.8	2786.7
	average	28.6	7.5	24.6	109.5	2334.5
	minimum	24.3	6.7	22.5	99.5	1811.2
March	Maximum	56.2	14.5	52.2	222.6	5747.9
	average	49.1	13.0	47.3	200.7	4465.1
	minimum	42.4	11.4	40.9	174.5	3572.1
April	Maximum	72.3	24.9	94.0	392.3	8088.1
	average	65.9	22.8	84.3	355.4	6554.0
	minimum	58.3	19.1	69.1	294.4	5197.0
May	Maximum	91.1	35.0	113.5	495.7	8465.0
	average	83.9	30.1	101.0	445.0	7338.3
	minimum	77.5	24.1	83.6	362.8	5512.0
June	Maximum	98.2	35.5	143.3	575.0	9465.5
	average	91.8	31.6	124.4	510.3	7977.9
	minimum	83.7	27.5	105.5	437.7	6542.4
July	Maximum	96.7	34.9	124.1	532.4	9235.5
	average	89.1	31.6	110.5	477.5	8083.8
	minimum	80.1	25.7	85.1	377.7	6075.0
August	Maximum	79.9	28.4	102.6	425.4	7765.3
	average	69.5	25.7	93.1	396.3	6976.7
	minimum	61.2	22.8	84.5	363.5	6164.8
September	Maximum	57.1	16.8	58.2	248.7	6037.9
	average	48.9	15.0	53.0	228.2	5040.8
	minimum	41.0	13.2	46.3	200.1	4131.9
October	Maximum	39.1	9.0	33.0	139.8	3710.3
	average	34.1	8.0	29.7	125.0	3000.8
	minimum	29.9	6.9	25.2	106.6	2129.9
November	Maximum	22.5	5.3	19.6	82.4	1860.6
	average	20.0	4.7	17.4	73.7	1499.8
	minimum	18.5	4.2	15.3	65.0	1185.4
December	Maximum	18.0	4.1	16.6	67.1	1401.0
	average	14.5	3.4	13.8	55.7	1100.2
	minimum	10.1	2.4	9.8	39.8	892.3
All years	Maximum	636	204	750	3162	58372
	average	614	197	716	3046	55728
	minimum	597	192	684	2970	53147

Highest combined yield hour: 2009-06-13 10:10 UTC 42862.3 W (0.566 W/Wp) of 75770 Wp installed. Use this hour to size battery charge power.

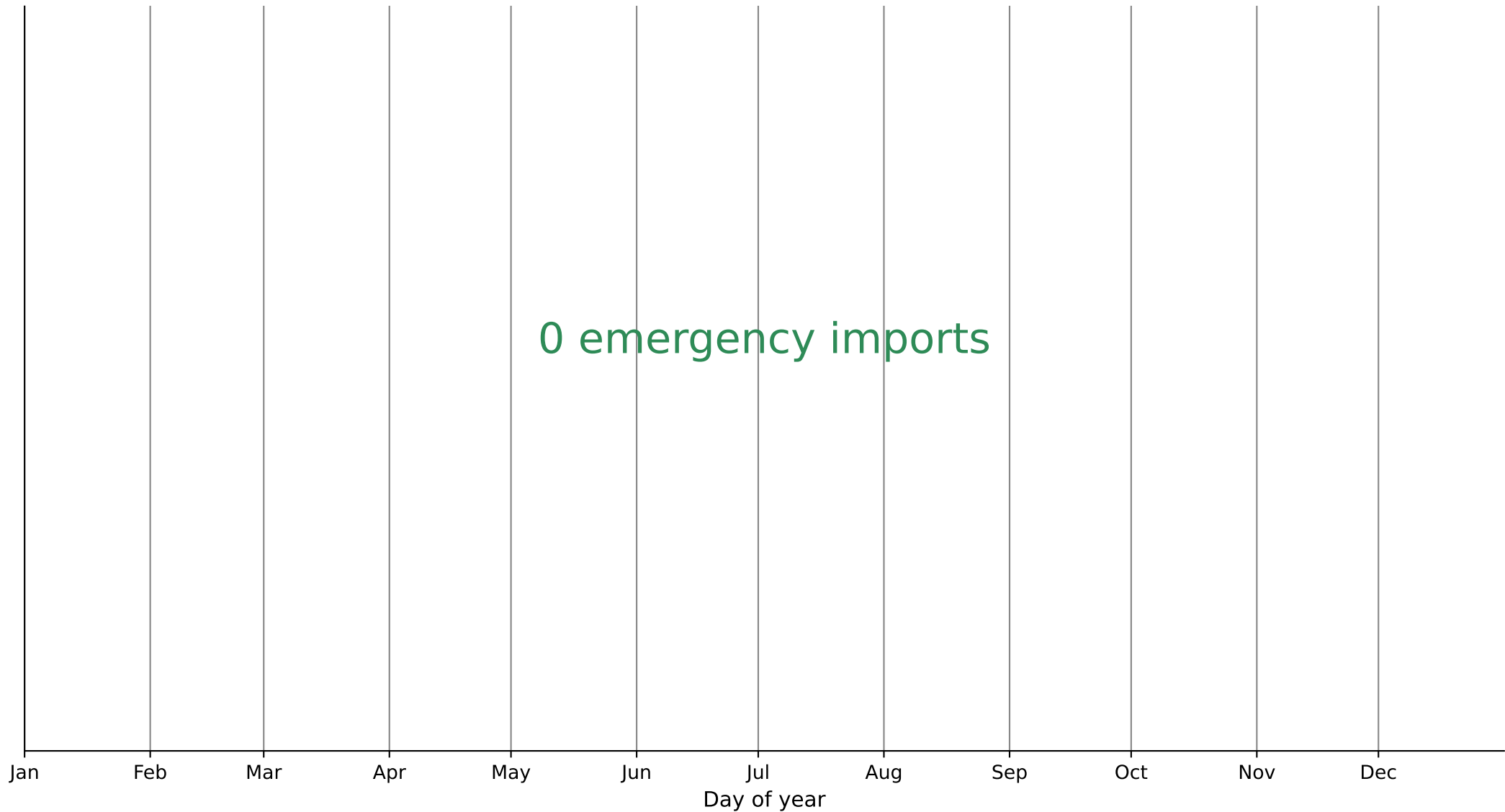
Export energy as equivalent hours (kWh / grid kW)
Austria - Inning 48.182, 15.417



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



Emergency import hours: 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	944	2034	4649	6109	6341	6956	7009	6077	4864	2787	1067	649	42878
month average	569	1581	3489	5017	5482	5990	6140	5486	4043	2136	742	343	41017
month minimum	305	1063	2658	3864	4198	4948	4541	4928	3176	1312	446	178	38883
day Maximum	102.8	132.8	263.6	305.4	309.2	315.2	311.8	309.2	282.2	208.5	100.2	70.4	315.2
day average	18.4	56.0	112.5	167.2	176.9	199.7	198.1	177.0	134.8	68.9	24.7	11.1	112.3
day minimum	0.0	0.0	0.0	0.0	0.0	0.0	29.1	8.7	1.3	0.0	0.0	-0.0	-0.0
Import from grid													
month Maximum	0	0	4	5	1	0	0	2	1	0	0	1	8
month average	0	0	0	1	0	0	0	0	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	3.5	2.5	0.9	0.4	0.4	1.1	1.4	0.0	0.0	0.5	3.5
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
Total energy used for house													
month Maximum	735	683	681	605	583	518	518	529	547	620	649	723	7186
month average	690	621	650	577	558	499	497	503	523	591	619	676	7005
month minimum	655	590	622	536	528	473	483	482	492	559	600	647	6873
day Maximum	26.7	26.1	25.5	22.4	20.9	19.9	18.5	19.2	20.2	22.2	23.8	25.6	26.7
day average	22.3	22.0	21.0	19.2	18.0	16.6	16.0	16.2	17.4	19.1	20.6	21.8	19.2
day minimum	15.9	18.5	17.8	16.1	15.3	15.3	15.2	15.2	15.2	16.1	17.5	18.9	15.2

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	187	375	626	571	606	594	628	612	562	474	210	135	5046
month average	113	294	522	527	546	560	584	569	505	377	150	70	4816
month minimum	58	209	446	459	481	498	494	528	441	245	92	33	4594
day Maximum	22.1	23.6	31.3	29.7	31.7	31.8	31.9	29.2	28.1	27.9	22.0	15.5	31.9
day average	3.6	10.4	16.8	17.6	17.6	18.7	18.8	18.4	16.8	12.1	5.0	2.3	13.2
day minimum	0.0	0.0	0.0	0.0	0.0	0.0	5.1	1.0	0.3	0.0	0.0	-0.0	-0.0
Import													
month Maximum	0	0	1	1	0	0	0	1	0	0	0	0	2
month average	0	0	0	0	0	0	0	0	0	0	0	0	1
month minimum	0	0	0	0	0	0	0	0	0	0	0	0	0
day Maximum	0.0	0.0	0.9	0.7	0.2	0.1	0.1	0.4	0.5	0.0	0.0	0.1	0.9
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
Peak grid fee													
month Maximum	0	0	11	8	6	2	2	7	6	0	0	3	23
month average	0	0	1	4	2	0	0	1	2	0	0	0	10
month minimum	0	0	0	0	0	0	0	0	0	0	0	0	1
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	0	0	12	8	6	3	2	7	7	0	0	3	25
month average	0	0	2	4	2	0	0	1	2	0	0	0	11
month minimum	0	0	0	0	0	0	0	0	0	0	0	0	1
day Maximum	0.0	0.0	0.9	0.7	0.2	0.1	0.1	0.4	0.5	0.0	0.0	0.1	0.9
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
Balance													
month Maximum	187	375	626	566	604	594	628	612	557	474	210	135	5044
month average	113	294	520	522	545	560	584	568	503	377	150	70	4805
month minimum	58	209	446	451	481	498	494	528	441	245	92	30	4572
day Maximum	22.1	23.6	31.3	29.7	31.7	31.8	31.9	29.2	28.1	27.9	22.0	15.5	31.9
day average	3.6	10.4	16.8	17.5	17.6	18.7	18.8	18.4	16.8	12.1	5.0	2.3	13.2
day minimum	0.0	0.0	0.0	0.0	0.0	0.0	5.1	1.0	0.3	0.0	0.0	-0.1	-0.1

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	944	2034	4649	6109	6341	6956	7009	6077	4864	2787	1067	649	42878
month average	569	1581	3489	5017	5482	5990	6140	5486	4043	2136	742	343	41017
month minimum	305	1063	2658	3864	4198	4948	4541	4928	3176	1312	446	178	38883
day Maximum	102.8	132.8	263.6	305.4	309.2	315.2	311.8	309.2	282.2	208.5	100.2	70.4	315.2
day average	18.4	56.0	112.5	167.2	176.9	199.7	198.1	177.0	134.8	68.9	24.7	11.1	112.3
day minimum	0.0	0.0	0.0	0.0	0.0	0.0	29.1	8.7	1.3	0.0	0.0	-0.0	-0.0
Export during high price hours													
month Maximum	902	1862	2394	1984	1966	1833	1900	2134	2175	2249	1041	646	19093
month average	540	1439	2120	1833	1801	1705	1810	1922	2003	1783	729	337	18022
month minimum	272	1014	1945	1684	1639	1568	1693	1825	1743	1265	411	156	17133
day Maximum	98.5	102.0	97.8	93.3	94.3	94.9	94.7	93.7	97.7	99.2	100.2	70.4	102.0
day average	17.4	51.0	68.4	61.1	58.1	56.8	58.4	62.0	66.8	57.5	24.3	10.9	49.3
day minimum	0.0	0.0	0.0	0.0	0.0	0.0	29.1	8.7	1.3	0.0	0.0	0.0	0.0
Export during medium price hours													
month Maximum	48	234	2096	3273	3465	3902	4054	3235	2343	572	35	22	19960
month average	29	142	1215	2471	2816	3258	3359	2813	1743	353	14	6	18220
month minimum	4	49	524	1541	1909	2523	2154	2440	1066	47	2	0	16797
day Maximum	8.2	50.7	171.0	199.6	201.3	202.5	203.2	203.7	184.7	138.6	7.0	5.5	203.7
day average	0.9	5.0	39.2	82.4	90.8	108.6	108.4	90.8	58.1	11.4	0.5	0.2	49.9
day minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.0	-0.0
Export during low price hours													
month Maximum	0	0	341	1112	1134	1486	1266	942	435	1	0	0	5572
month average	0	0	153	713	865	1027	971	751	296	0	0	0	4776
month minimum	0	0	23	408	437	734	541	515	119	0	0	0	4006
day Maximum	0.4	0.0	34.0	54.6	68.0	68.0	66.7	51.0	38.2	0.9	0.0	0.0	68.0
day average	0.0	0.0	4.9	23.8	27.9	34.2	31.3	24.2	9.9	0.0	0.0	0.0	13.1
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

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	242	222	188	134	98	52	41	51	82	133	176	234	1475
month average	198	173	159	108	75	36	22	27	60	106	147	187	1297
month minimum	162	145	131	70	49	12	9	9	32	76	128	158	1174
day Maximum	10.8	10.2	9.6	6.6	5.1	4.2	2.9	3.6	4.6	6.5	8.1	9.9	10.8
day average	6.4	6.1	5.1	3.6	2.4	1.2	0.7	0.9	2.0	3.4	4.9	6.0	3.6
day minimum	0.0	2.8	2.2	0.8	0.0	0.0	0.0	0.0	0.0	0.7	2.0	3.2	0.0
Cooling													
month Maximum	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
month average	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
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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
day average	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 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	59	55	58	52	51	45	43	44	45	54	53	55	601
month average	59	53	58	50	49	43	41	41	43	51	52	55	595
month minimum	58	52	57	46	46	41	39	40	40	49	51	55	583
day Maximum	1.9	1.9	1.9	1.8	1.8	1.8	1.6	1.6	1.7	1.8	1.8	1.8	1.9
day average	1.9	1.9	1.9	1.7	1.6	1.4	1.3	1.3	1.4	1.7	1.7	1.8	1.6
day minimum	1.8	1.7	1.6	1.3	1.3	1.3	1.2	1.2	1.2	1.4	1.5	1.7	1.2
Direct electric													
month Maximum	0	0	0	0	0	0	0	0	0	0	0	0	0
month average	0	0	0	0	0	0	0	0	0	0	0	0	0
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	0.0	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

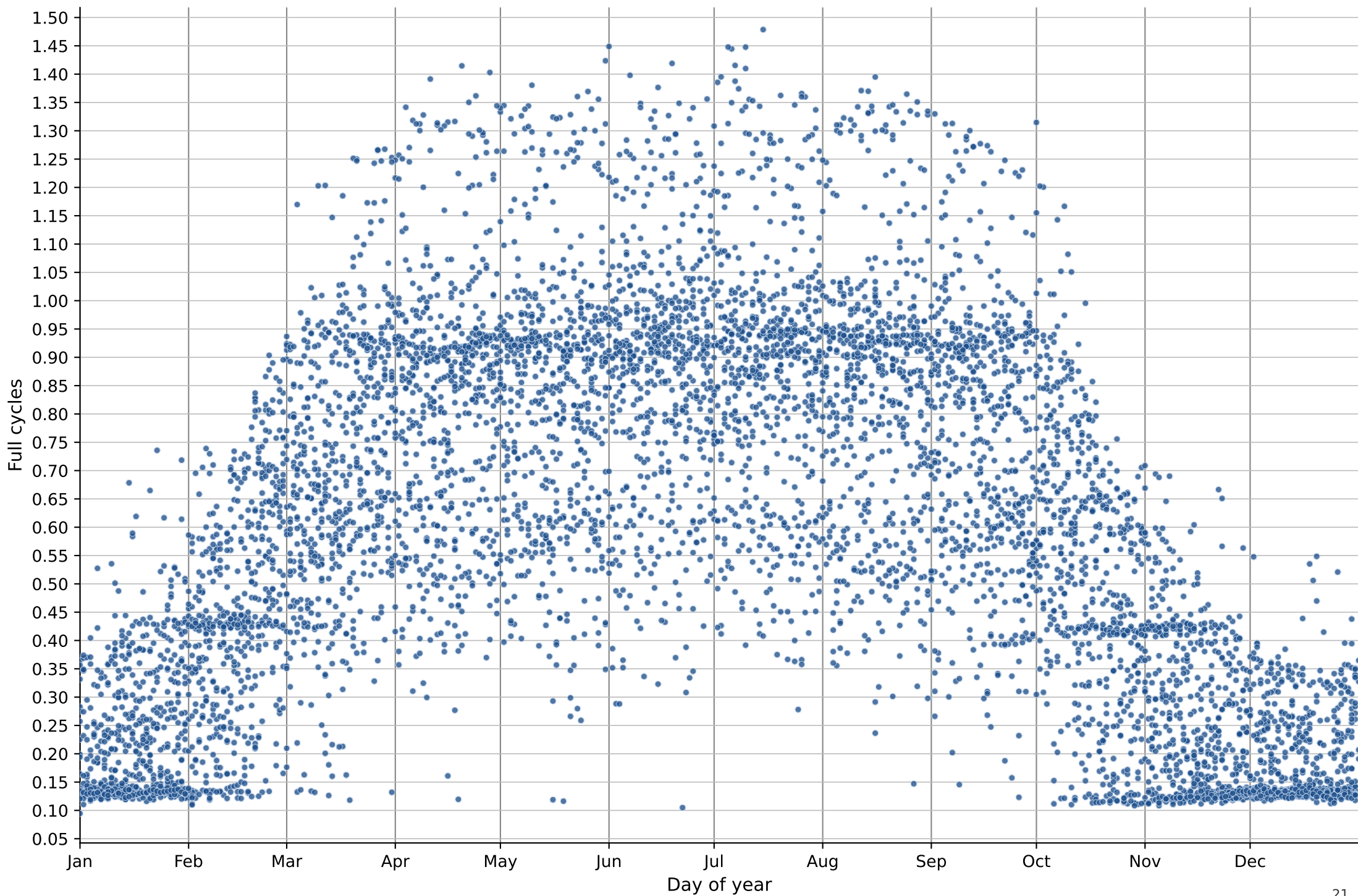
Heating, cooling and DHW are electricity. Direct electric is the part the heat pump could not cover.

Battery
Austria - Inning 48.182, 15.417

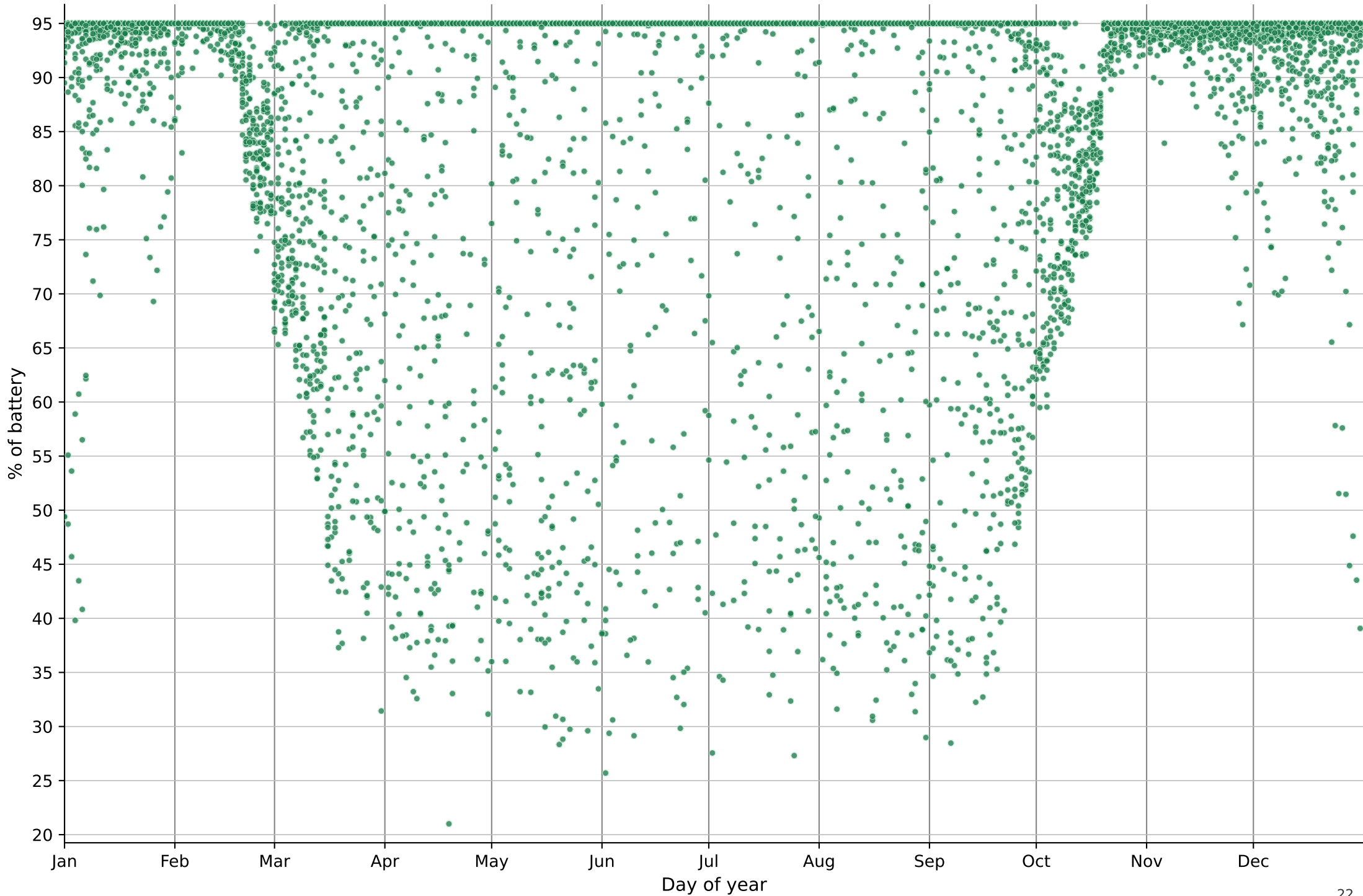
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	All
Wasted													
month Maximum	0	0	96	1075	1305	1675	1383	804	205	0	0	0	5383
month average	0	0	50	609	929	1108	1053	627	117	0	0	0	4493
month minimum	0	0	4	298	409	677	655	389	41	0	0	0	3719
day Maximum	0.0	0.0	27.4	78.4	87.6	98.1	86.8	72.6	38.1	0.0	0.0	0.0	98.1
day average	0.0	0.0	1.6	20.3	30.0	36.9	34.0	20.2	3.9	0.0	0.0	0.0	12.3
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	9.67	15.03	26.02	26.64	28.53	27.81	29.18	28.04	25.82	19.53	9.72	7.67	231.22
month average	7.26	12.60	21.91	24.55	25.82	26.35	27.22	25.90	22.80	16.02	7.99	6.01	224.43
month minimum	5.64	9.71	18.77	20.96	22.64	23.63	23.18	24.33	19.27	11.28	6.21	5.08	215.83
day Maximum	0.74	0.90	1.27	1.41	1.42	1.45	1.48	1.39	1.33	1.31	0.71	0.55	1.48
day average	0.23	0.45	0.71	0.82	0.83	0.88	0.88	0.84	0.76	0.52	0.27	0.19	0.61
day minimum	0.09	0.11	0.12	0.12	0.12	0.10	0.28	0.15	0.12	0.11	0.11	0.11	0.09
Charge C													
month Maximum	0.10	0.15	0.21	0.23	0.23	0.23	0.23	0.22	0.21	0.16	0.11	0.08	2.09
month average	0.09	0.14	0.20	0.22	0.23	0.22	0.22	0.21	0.20	0.15	0.10	0.07	2.05
month minimum	0.08	0.12	0.19	0.22	0.22	0.21	0.21	0.21	0.19	0.14	0.10	0.07	2.02
day Maximum	0.10	0.15	0.21	0.23	0.23	0.23	0.23	0.22	0.21	0.16	0.11	0.08	0.23
day average	0.05	0.09	0.13	0.18	0.18	0.19	0.19	0.17	0.15	0.09	0.06	0.05	0.13
day minimum	0.01	0.01	0.01	0.03	0.03	0.03	0.03	0.03	0.02	0.01	0.01	0.01	0.01
Discharge C													
month Maximum	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	1.33
month average	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	1.32
month minimum	0.10	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.10	0.11	1.31
day Maximum	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
day average	0.06	0.10	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.10	0.07	0.05	0.09
day minimum	0.01	0.01	0.01	0.01	0.01	0.01	0.09	0.05	0.01	0.01	0.01	0.01	0.01

Wasted = PV left when the export price is negative and the battery is full. Full cycles = discharge kWh / 176.8 kWh. Battery export only into hours whose export price is above 0, highest price first. At 0 cent on

Battery cycles per day (discharge / 176.8 kWh)
Austria - Inning 48.182, 15.417



Battery max charge state per day (176.8 kWh = 100 %)
Austria - Inning 48.182, 15.417



Battery min charge state per day (176.8 kWh = 100 %)
Austria - Inning 48.182, 15.417

