

Scenario — PV

GEMINI-60-house-with-garage Austria - Fürstenbrunn 47.744, 12.993

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: Fürstenbrunn is just north of Mount Untersberg. Several months in the winter with no direct sunlight.

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 2021-06-01 11:10 local (10:10 UTC) 41931 W 0.553 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 - Fürstenbrunn 47.744, 12.993

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

Austria - Fürstenbrunn 47.744, 12.993

PV	2021-06-01 10:10	2023-06-13 10:10	2022-04-17 10:10	2022-04-17 11:10	2022-04-29 10:10	2023-06-13 11:10	2017-04-30 10:10	2021-04-26 11:10	2021-04-23 10:10	2022-04-18 10:10
Roof East	15052	15101	14618	13719	14702	14277	14480	13682	14454	14455
Roof West	12690	12668	11678	13872	12063	14400	11975	13920	11743	11586
Terrace railing south	2019	1920	2812	2972	2531	2030	2489	2717	2634	2757
Terrace railing north	159	157	173	130	125	131	227	130	182	156
Garage roof	8034	8043	7675	8038	7793	8292	7676	8021	7627	7598
Garage side wall south	1519	1444	2115	2236	1904	1527	1873	2044	1981	2074
Garage side wall north	119	118	130	97	94	98	170	98	137	117
Garage door side west	24	24	26	63	19	65	34	65	28	24
Garage back side east	639	650	715	71	655	72	684	71	688	700
Garden fence east	1511	1535	1689	168	1548	170	1617	169	1624	1653
Garden fence east face2	165	163	180	429	129	449	235	443	189	162
Watt at record	41931	41824	41811	41796	41562	41511	41460	41360	41287	41281
Percent of installed peak	55.3	55.2	55.2	55.2	54.9	54.8	54.7	54.6	54.5	54.5

Hours at or above a share of the record
Austria - Fürstenbrunn 47.744, 12.993

Of the record	Hours	Watts
98 %	15	41092 W
96 %	70	40254 W
94 %	190	39415 W
92 %	452	38577 W
90 %	951	37738 W

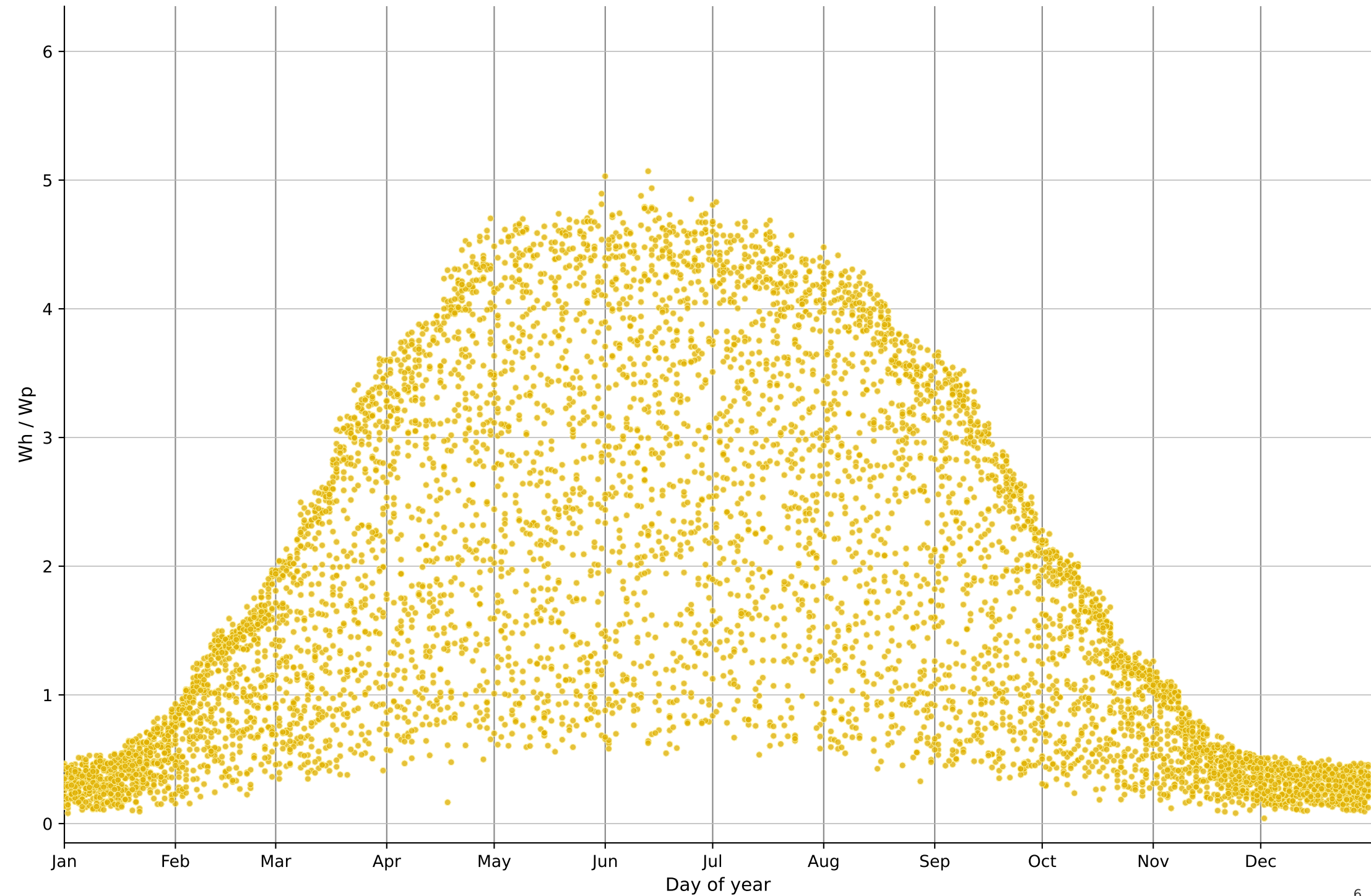
Records of each photovoltaic field

Austria - Fürstenbrunn 47.744, 12.993

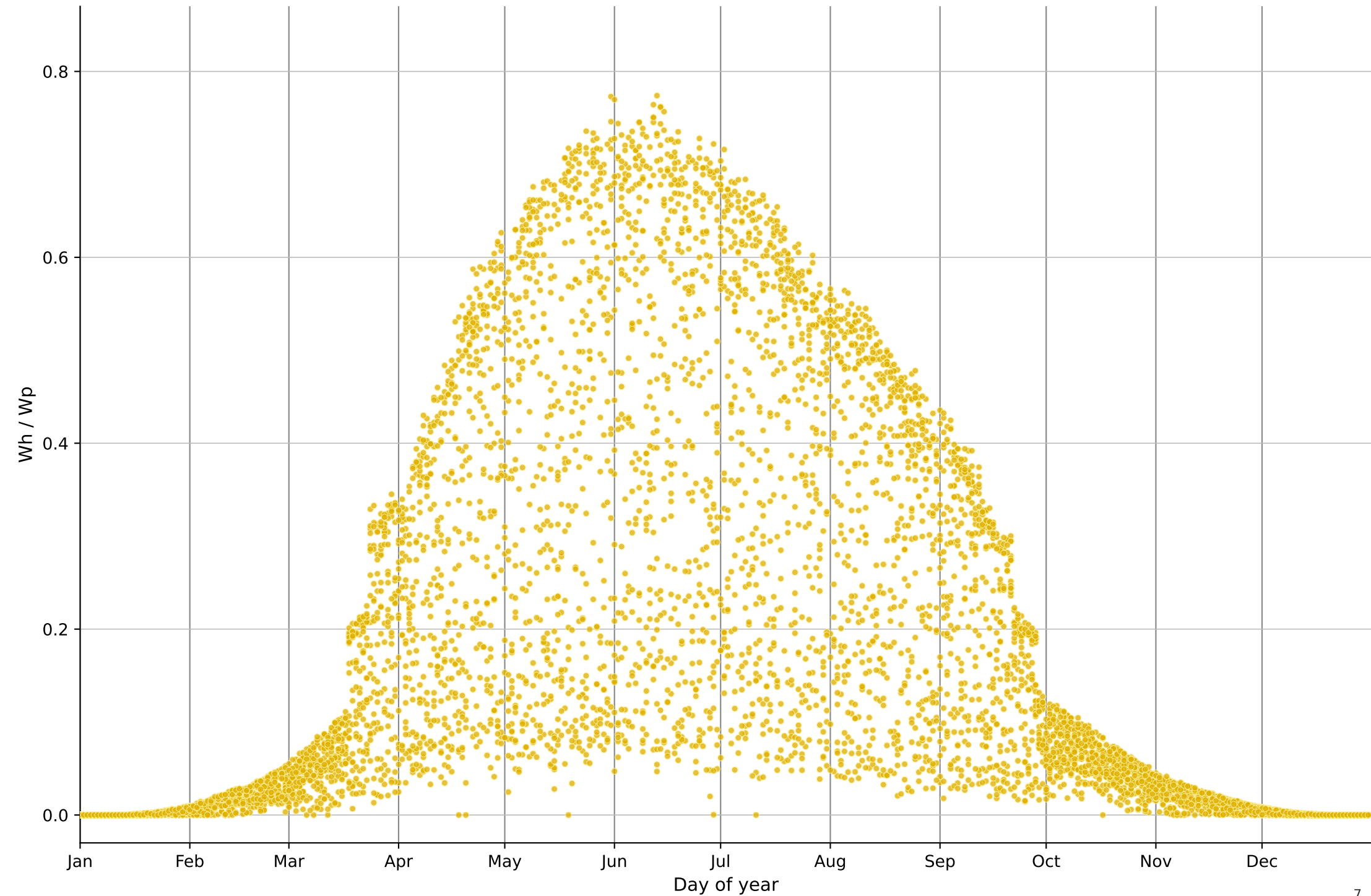
PV	Date	Watts	%	h ≥98%	h ≥96%	h ≥94%	h ≥92%	h ≥90%
Roof East	2021-06-01 09:10	15470	78.1	2	14	40	125	284
Roof West	2021-06-01 13:10	15331	77.4	5	20	80	171	373
Terrace railing south	2020-03-23 11:10	3601	77.9	2	5	11	17	38
Terrace railing north	2015-06-20 11:10	759	16.4	4	16	59	167	324
Garage roof	2023-06-13 11:10	8292	77.2	1	12	35	97	266
Garage side wall south	2020-03-23 11:10	2709	77.9	2	5	11	17	38
Garage side wall north	2015-06-20 11:10	571	16.4	4	16	59	167	324
Garage door side west	2021-04-26 14:10	449	64.2	2	8	23	44	75
Garage back side east	2021-04-23 08:10	1610	63.4	6	10	23	49	99
Garden fence east	2021-04-23 08:10	3944	65.7	6	16	41	77	178

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.

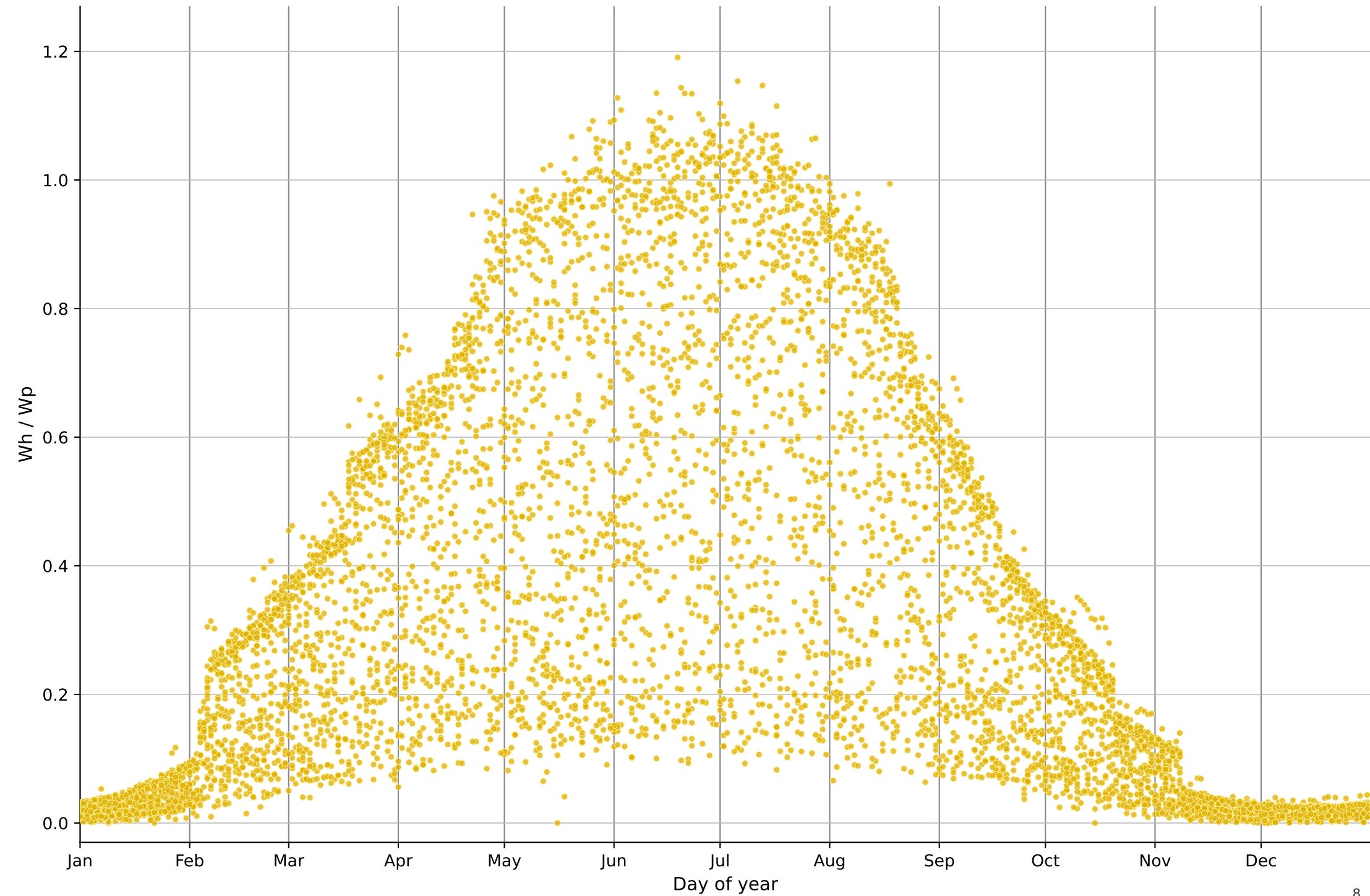
Yield distribution for each day — W_h / W_p of all PV together
Austria - Fürstenbrunn 47.744, 12.993



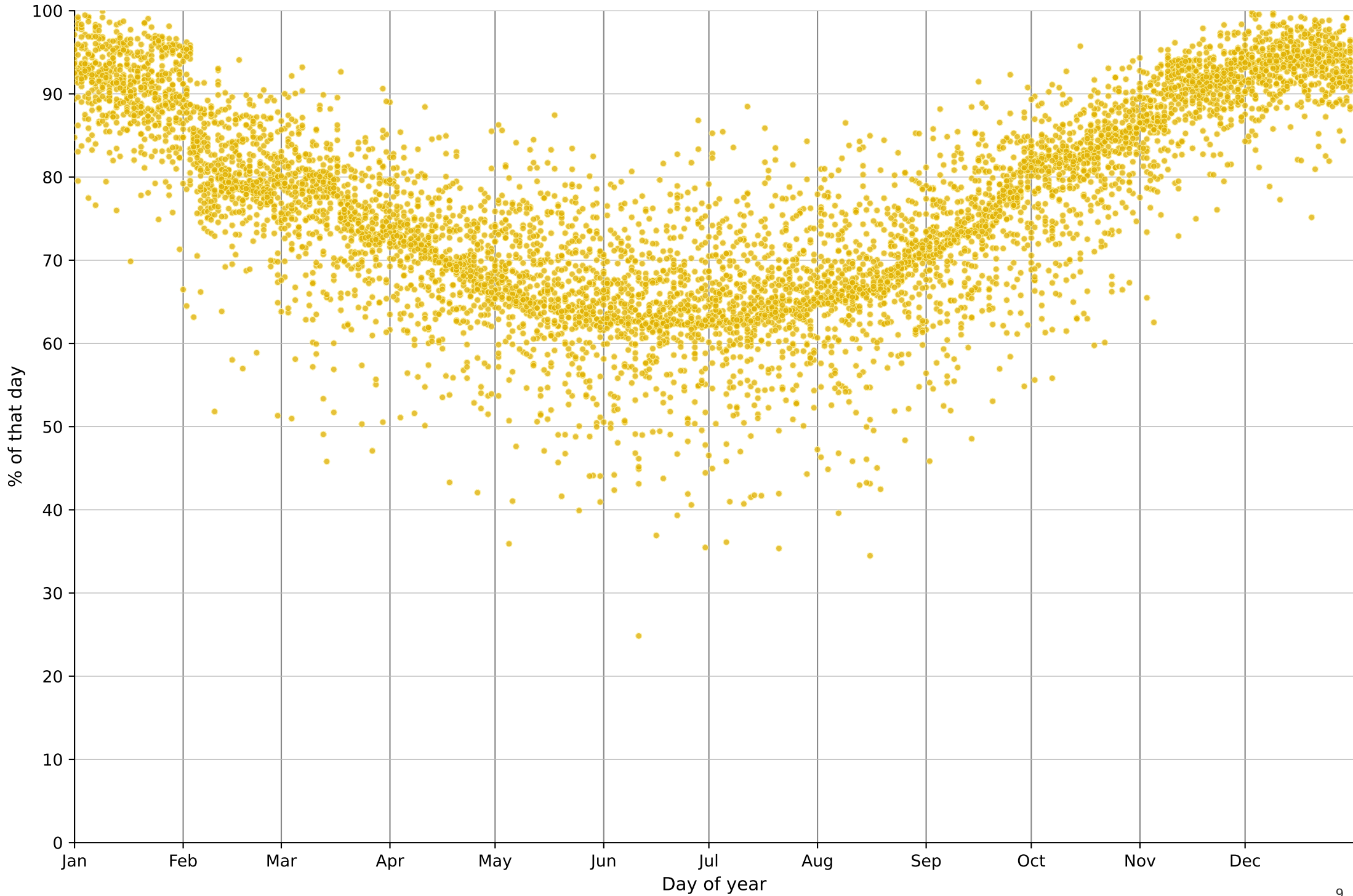
Yield distribution for each day — Wh / Wp of all PV together — 00:00–09:00
Austria - Fürstenbrunn 47.744, 12.993



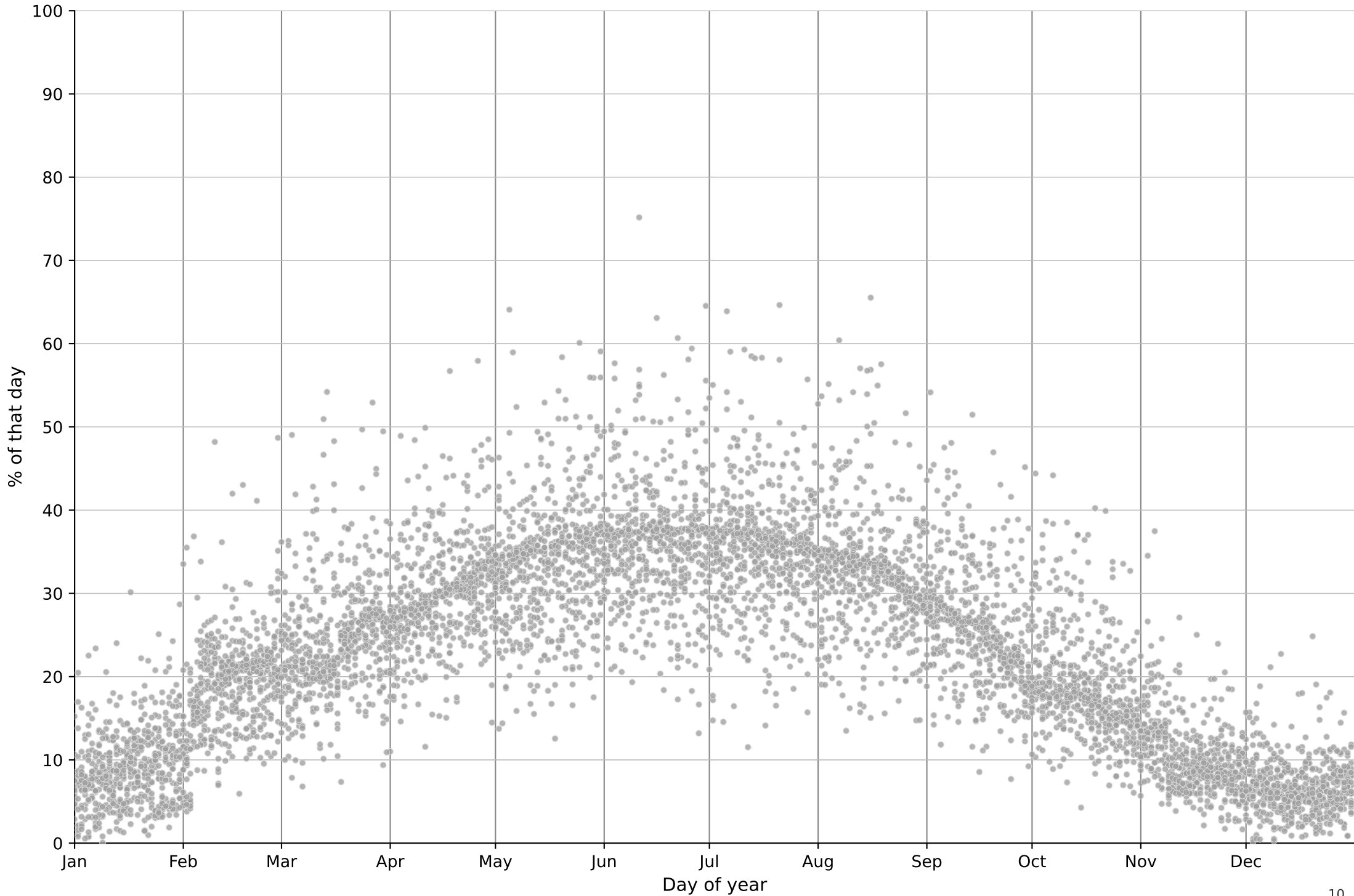
Yield distribution for each day — Wh / Wp of all PV together — 15:00-23:59
Austria - Fürstenbrunn 47.744, 12.993



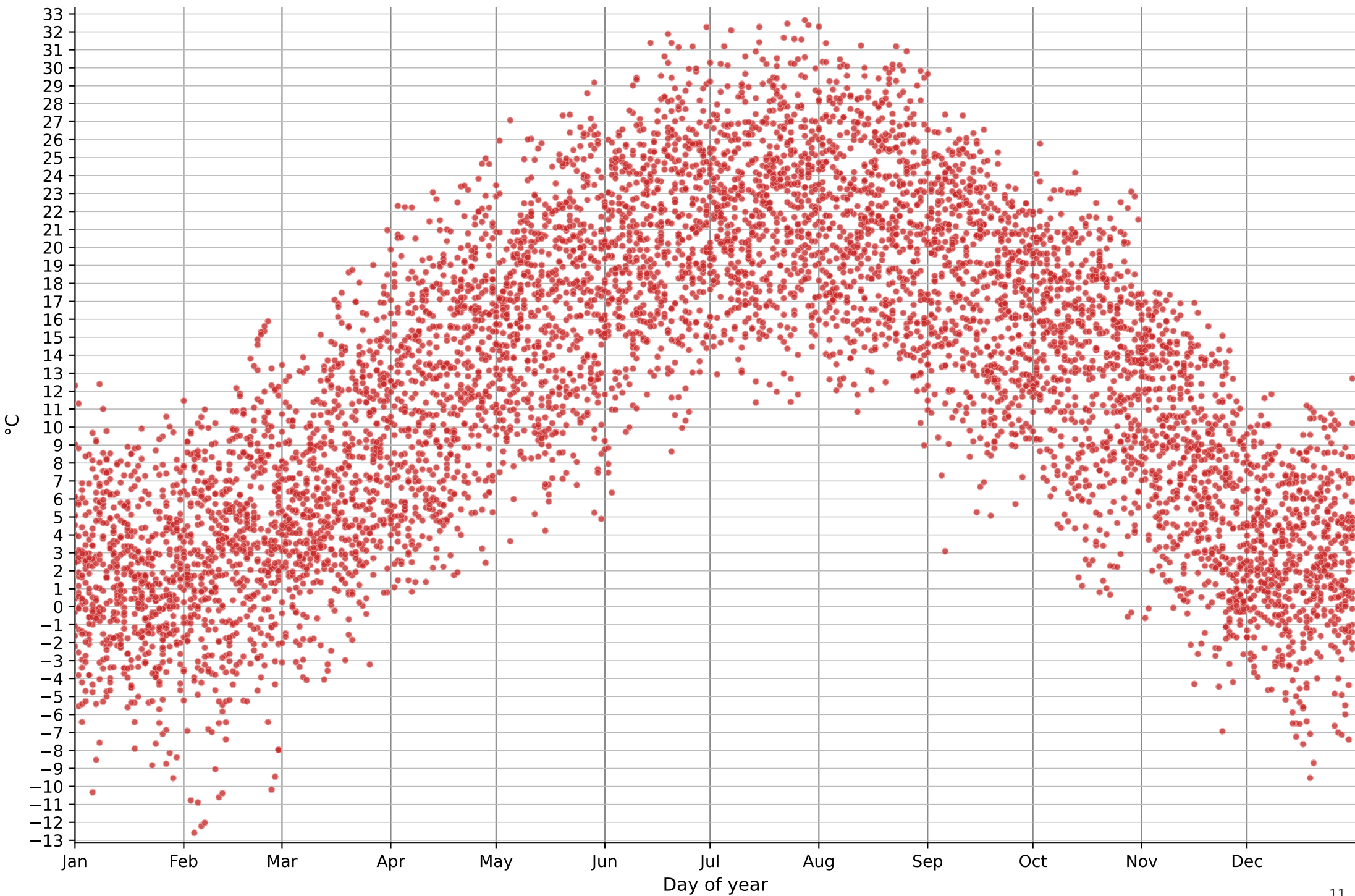
Share of the day's yield in 09:00-15:00 winter time
Austria - Fürstenbrunn 47.744, 12.993



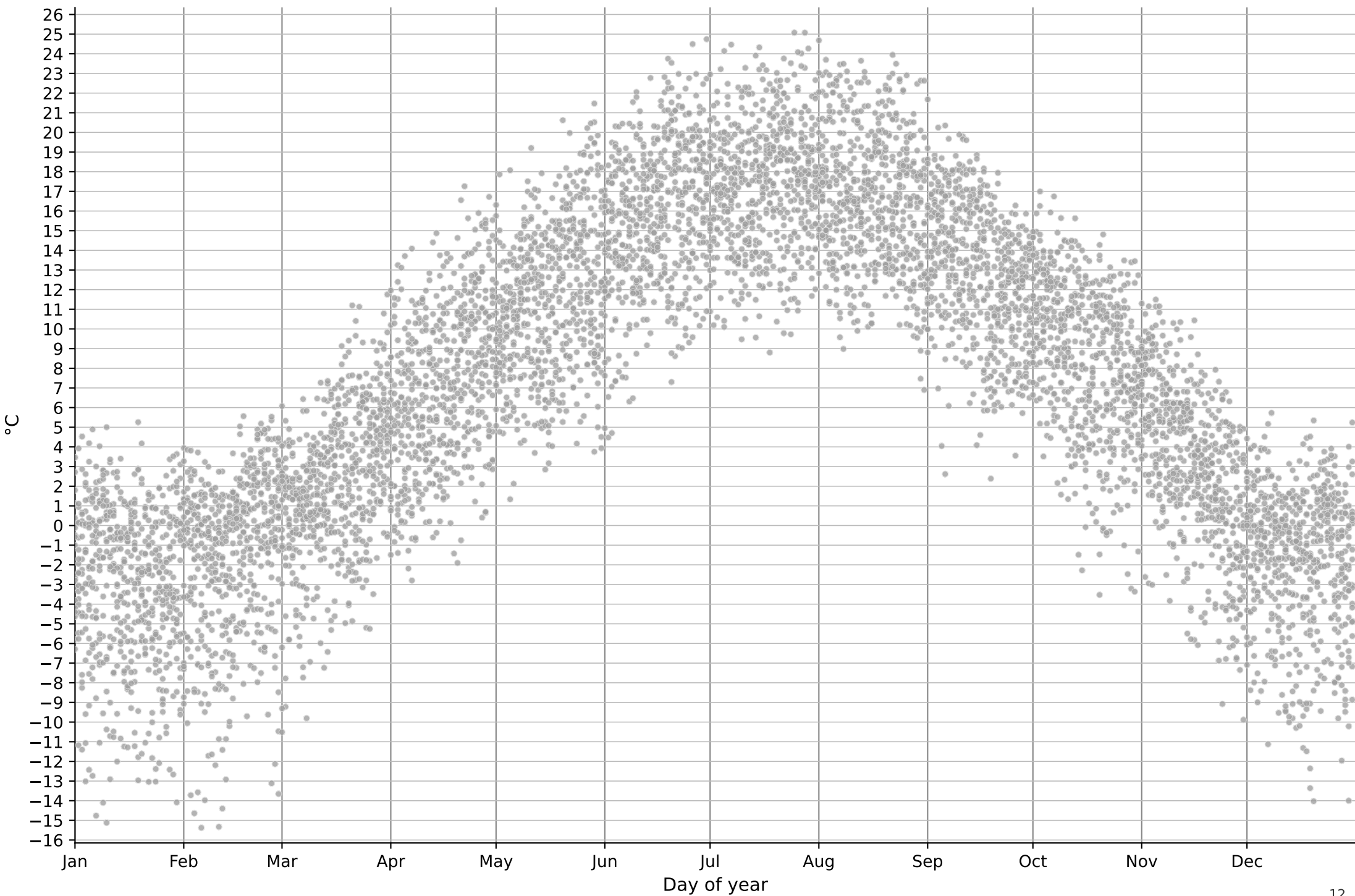
Share of the day's yield outside 09:00-15:00 winter time
Austria - Fürstenbrunn 47.744, 12.993



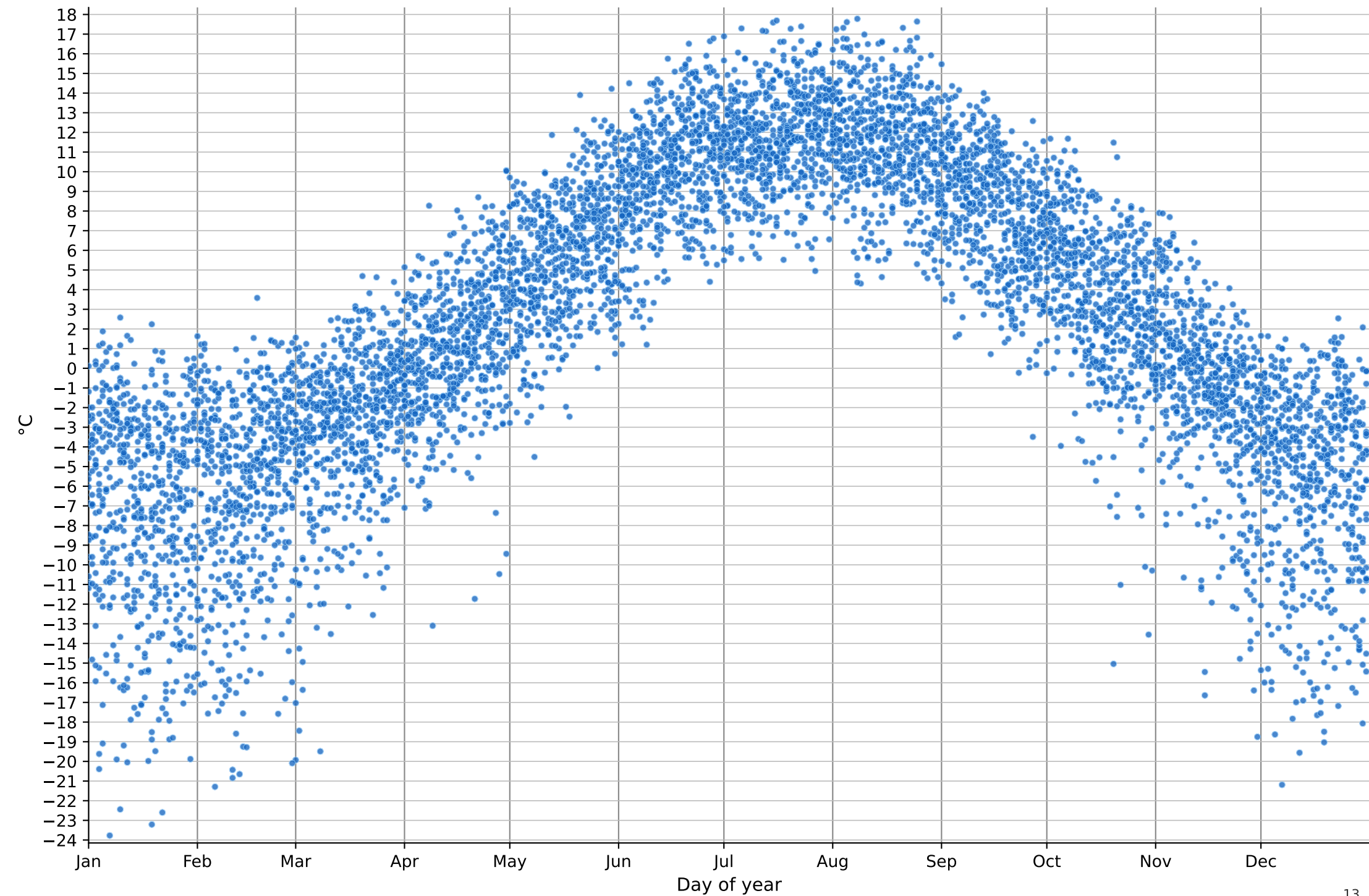
Highest temperature of each day
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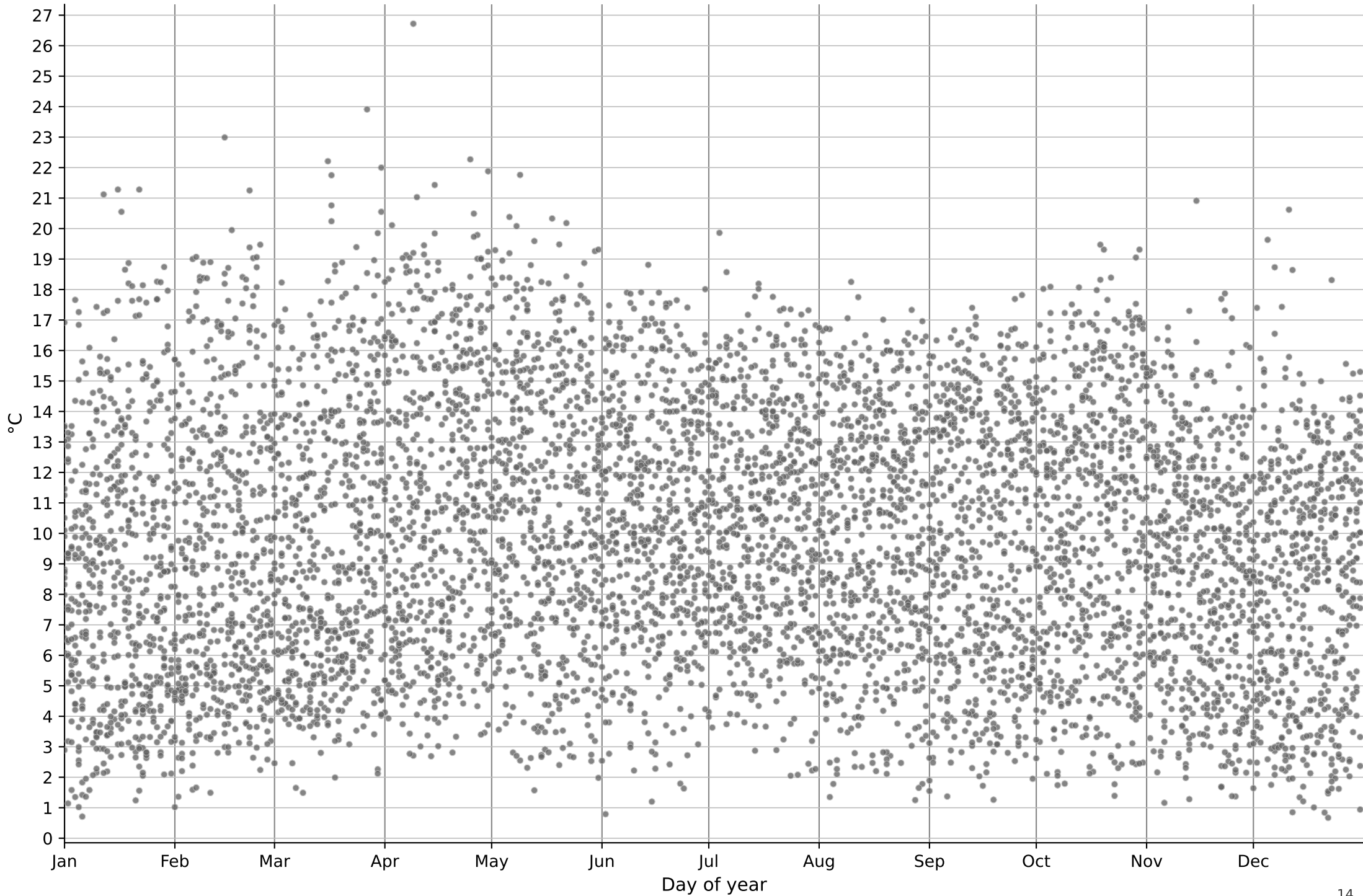
Average temperature of each day
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Lowest temperature of each day
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Difference between highest and lowest temperature of each day
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Monthly and yearly specific yield (kWh/kWp = Wh/Wp)
Austria - Fürstenbrunn 47.744, 12.993

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	18.03	19.49	6.89	6.89	20.06	6.89	15.40
	average	14.36	15.73	5.33	5.33	16.13	5.33	12.28
	minimum	10.57	10.81	3.97	3.97	11.41	3.97	8.79
February	Maximum	36.31	52.07	10.66	10.66	46.86	10.66	32.49
	average	32.21	43.41	8.08	8.08	40.05	8.08	28.89
	minimum	25.78	33.41	6.51	6.51	31.67	6.51	23.34
March	Maximum	95.77	100.98	37.61	16.24	105.21	37.61	74.67
	average	69.12	73.03	31.79	14.02	75.09	31.79	55.98
	minimum	53.89	57.55	25.70	11.57	58.41	25.70	45.12
April	Maximum	124.42	118.57	78.45	21.72	127.30	78.45	98.00
	average	96.88	95.27	61.13	19.28	100.34	61.13	78.91
	minimum	73.37	70.36	44.89	16.17	74.76	44.89	59.65
May	Maximum	128.48	122.50	68.89	27.16	131.31	68.89	101.87
	average	106.35	102.69	58.13	24.16	109.17	58.13	86.00
	minimum	68.79	66.94	37.37	20.29	70.65	37.37	56.66
June	Maximum	142.83	136.46	66.88	27.98	146.65	66.88	112.13
	average	112.78	109.75	54.50	24.64	116.58	54.50	90.44
	minimum	84.19	89.36	43.30	22.16	90.51	43.30	71.46
July	Maximum	142.35	136.38	71.10	26.14	146.41	71.10	112.70
	average	115.42	112.31	58.85	24.12	119.39	58.85	92.85
	minimum	99.54	97.33	50.65	20.00	103.21	50.65	80.55
August	Maximum	119.38	117.63	72.48	22.28	124.22	72.48	95.86
	average	101.50	99.45	61.73	19.57	104.98	61.73	82.39
	minimum	76.60	77.61	46.80	17.59	79.98	46.80	64.47
September	Maximum	94.36	92.79	56.44	15.36	98.60	56.44	74.40
	average	75.39	74.39	44.54	13.74	78.73	44.54	60.29
	minimum	63.75	58.53	34.81	12.09	65.14	34.81	49.89
October	Maximum	50.52	67.90	11.08	10.24	62.90	11.08	43.74
	average	43.80	53.61	9.82	9.27	51.82	9.82	36.94
	minimum	30.56	35.67	8.59	7.39	34.92	8.59	26.07
November	Maximum	20.77	28.65	6.56	6.56	26.75	6.56	18.87
	average	18.35	22.65	5.73	5.73	21.98	5.73	16.18
	minimum	15.73	18.34	4.80	4.80	18.15	4.80	13.63
December	Maximum	13.16	13.16	5.18	5.18	14.05	5.18	10.94
	average	11.26	11.26	4.36	4.36	12.03	4.36	9.33
	minimum	8.54	8.54	3.17	3.17	9.15	3.17	7.02
All years	Maximum	861.7	871.4	436.7	181.1	909.5	436.7	695.5
	average	797.4	813.5	404.0	172.3	846.3	404.0	650.5
	minimum	721.0	761.5	369.8	162.2	786.0	369.8	605.5

Highest combined yield hour: 2021-06-01 10:10 UTC 41931.1 W (0.553 W/Wp) of 75770 Wp installed. Use this hour to size battery charge power.

Monthly and yearly specific yield (kWh/kWp = Wh/Wp)
Austria - Fürstenbrunn 47.744, 12.993

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	6.89	6.89	6.92	12.43	15.40
	average	5.33	5.33	5.36	9.62	12.28
	minimum	3.97	3.97	3.98	7.16	8.79
February	Maximum	10.66	12.11	11.68	21.37	32.49
	average	8.08	9.63	9.12	16.82	28.89
	minimum	6.51	8.15	7.62	14.53	23.34
March	Maximum	16.24	19.08	19.26	34.52	74.67
	average	14.02	17.71	17.79	31.96	55.98
	minimum	11.57	15.90	16.16	28.88	45.12
April	Maximum	21.72	33.95	37.90	65.07	98.00
	average	19.28	30.78	32.39	57.02	78.91
	minimum	16.17	24.49	26.95	46.54	59.65
May	Maximum	27.16	43.79	46.27	79.18	101.87
	average	24.16	38.64	38.21	69.12	86.00
	minimum	20.29	27.09	27.09	48.77	56.66
June	Maximum	27.98	44.61	46.72	82.24	112.13
	average	24.64	39.21	39.58	70.95	90.44
	minimum	22.16	34.51	31.91	59.56	71.46
July	Maximum	26.14	44.47	49.85	85.43	112.70
	average	24.12	38.51	42.21	73.02	92.85
	minimum	20.00	32.03	37.42	63.05	80.55
August	Maximum	22.28	35.35	40.63	68.54	95.86
	average	19.57	32.88	34.81	61.12	82.39
	minimum	17.59	28.36	29.45	52.28	64.47
September	Maximum	15.36	23.35	23.13	41.81	74.40
	average	13.74	20.67	20.09	36.63	60.29
	minimum	12.09	16.48	16.92	30.25	49.89
October	Maximum	10.24	11.42	12.66	21.79	43.74
	average	9.27	10.59	11.79	20.26	36.94
	minimum	7.39	8.86	10.30	17.69	26.07
November	Maximum	6.56	7.19	6.69	12.45	18.87
	average	5.73	6.30	5.94	10.98	16.18
	minimum	4.80	5.43	4.94	9.28	13.63
December	Maximum	5.18	5.18	5.18	9.33	10.94
	average	4.36	4.36	4.36	7.84	9.33
	minimum	3.17	3.17	3.17	5.70	7.02
All years	Maximum	181.1	267.8	281.5	494.5	695.5
	average	172.3	254.6	261.7	465.3	650.5
	minimum	162.2	241.2	245.3	440.3	605.5

Highest combined yield hour: 2021-06-01 10:10 UTC 41931.1 W (0.553 W/Wp) of 75770 Wp installed. Use this hour to size battery charge power.

Monthly and yearly total yield (kWh) Austria - Fürstenbrunn 47.744, 12.993

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	356.9	385.9	31.8	31.8	215.4	23.9	1166.8
	average	284.4	311.4	24.6	24.6	173.2	18.5	930.4
	minimum	209.4	214.1	18.4	18.4	122.5	13.8	666.1
February	Maximum	719.0	1031.1	49.2	49.2	503.2	37.0	2462.0
	average	637.7	859.5	37.3	37.3	430.1	28.1	2188.9
	minimum	510.3	661.5	30.1	30.1	340.1	22.6	1768.6
March	Maximum	1896.2	1999.4	173.8	75.0	1129.9	130.7	5657.7
	average	1368.6	1446.0	146.8	64.8	806.5	110.5	4241.3
	minimum	1067.0	1139.5	118.7	53.4	627.3	89.3	3419.0
April	Maximum	2463.5	2347.7	362.5	100.4	1367.2	272.6	7425.2
	average	1918.1	1886.4	282.4	89.1	1077.6	212.4	5979.0
	minimum	1452.7	1393.2	207.4	74.7	802.9	156.0	4519.3
May	Maximum	2544.0	2425.4	318.3	125.5	1410.2	239.4	7718.4
	average	2105.7	2033.3	268.5	111.6	1172.5	202.0	6516.6
	minimum	1362.1	1325.4	172.6	93.8	758.8	129.9	4293.5
June	Maximum	2828.0	2701.9	309.0	129.3	1575.0	232.4	8495.8
	average	2233.1	2173.0	251.8	113.8	1252.1	189.4	6852.5
	minimum	1666.9	1769.3	200.1	102.4	972.1	150.5	5414.7
July	Maximum	2818.5	2700.4	328.5	120.8	1572.4	247.1	8539.3
	average	2285.3	2223.8	271.9	111.4	1282.3	204.5	7035.2
	minimum	1970.9	1927.2	234.0	92.4	1108.5	176.0	6103.3
August	Maximum	2363.7	2329.1	334.9	102.9	1334.1	251.9	7263.0
	average	2009.8	1969.2	285.2	90.4	1127.5	214.5	6242.7
	minimum	1516.7	1536.7	216.2	81.3	859.0	162.6	4884.6
September	Maximum	1868.3	1837.1	260.7	71.0	1058.9	196.1	5636.9
	average	1492.8	1472.9	205.8	63.5	845.5	154.8	4568.2
	minimum	1262.3	1158.9	160.8	55.9	699.6	121.0	3780.4
October	Maximum	1000.3	1344.4	51.2	47.3	675.6	38.5	3314.2
	average	867.3	1061.4	45.3	42.8	556.6	34.1	2798.7
	minimum	605.2	706.2	39.7	34.1	375.0	29.8	1975.0
November	Maximum	411.2	567.3	30.3	30.3	287.3	22.8	1429.5
	average	363.3	448.4	26.5	26.5	236.0	19.9	1226.0
	minimum	311.5	363.1	22.2	22.2	194.9	16.7	1032.5
December	Maximum	260.6	260.6	23.9	23.9	151.0	18.0	828.9
	average	222.9	222.9	20.1	20.1	129.2	15.1	706.6
	minimum	169.0	169.0	14.6	14.6	98.2	11.0	532.0
All years	Maximum	17061	17254	2018	837	9768	1518	52698
	average	15789	16108	1866	796	9089	1404	49286
	minimum	14275	15078	1708	749	8442	1285	45877

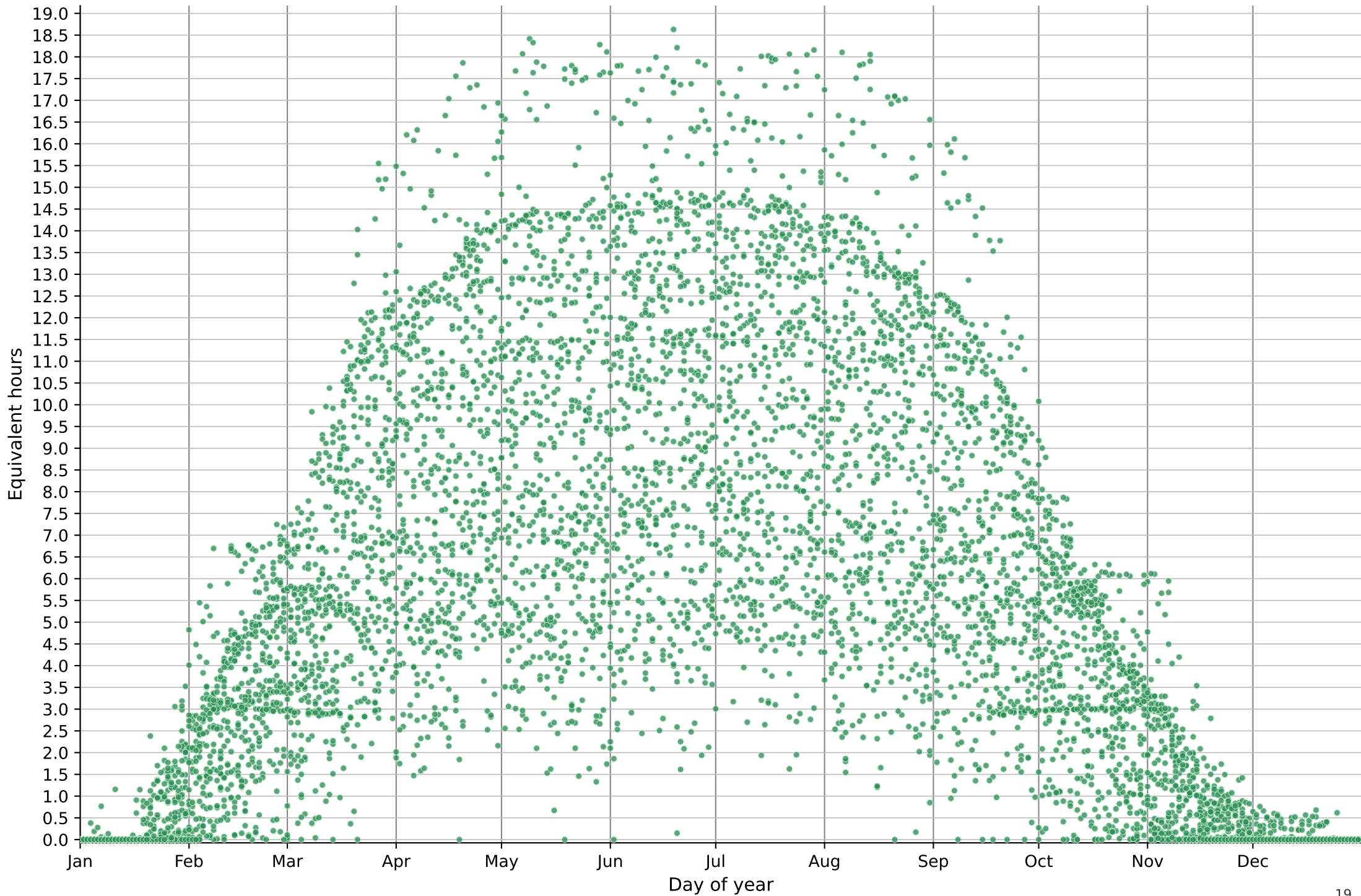
Highest combined yield hour: 2021-06-01 10:10 UTC 41931.1 W (0.553 W/Wp) of 75770 Wp installed. Use this hour to size battery charge power.

Monthly and yearly total yield (kWh)
Austria - Fürstenbrunn 47.744, 12.993

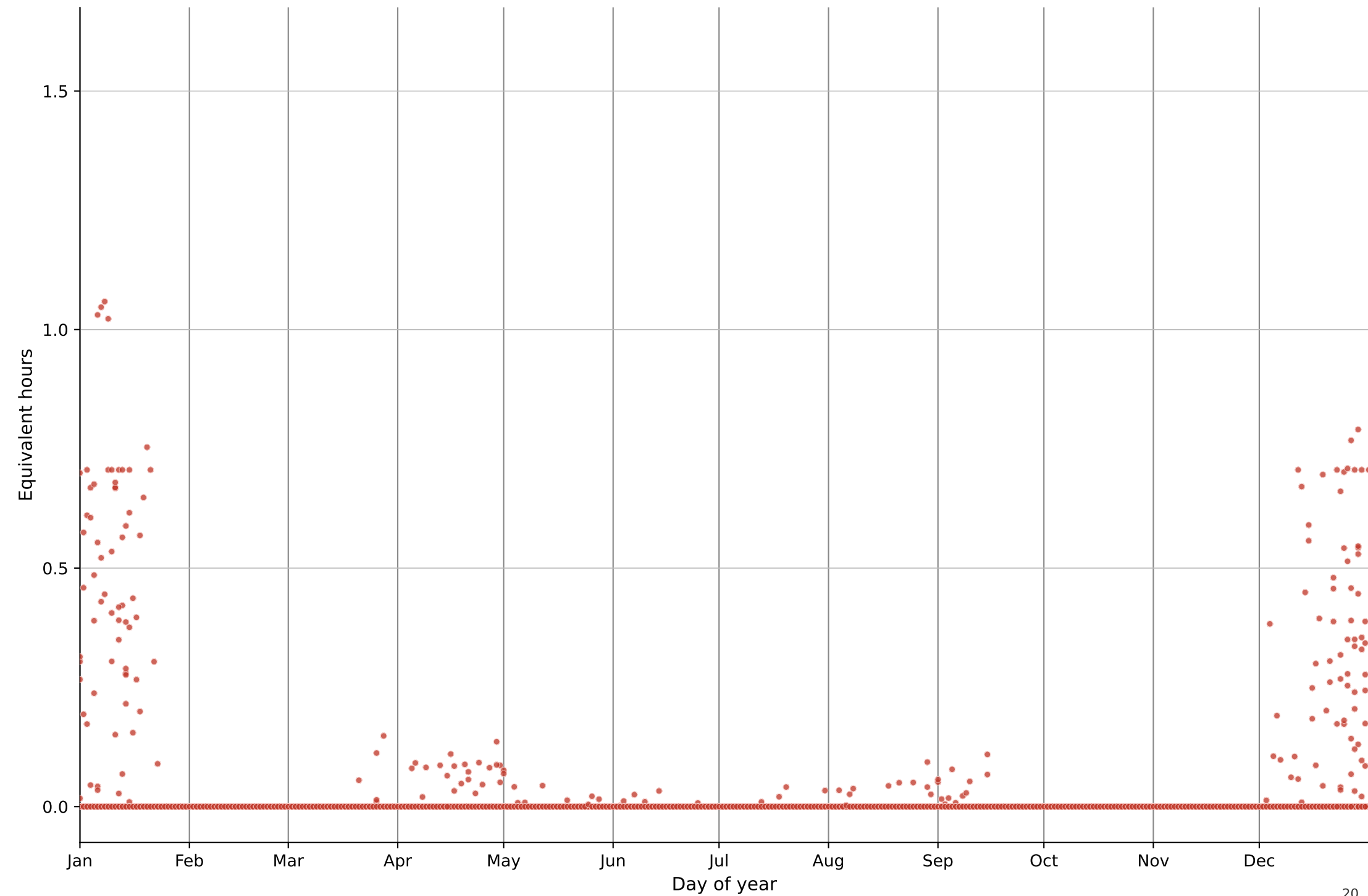
Month / year		Garage side wall north 90°/180° 3475 Wp	Garage door side west 90°/90° 700 Wp	Garage back side east 90°/90° 2540 Wp	Garden fence east 90°/-90° + 90°/90° 6000 Wp bifacial ×80%	All together
January	Maximum	23.9	4.8	17.6	74.6	1166.8
	average	18.5	3.7	13.6	57.7	930.4
	minimum	13.8	2.8	10.1	43.0	666.1
February	Maximum	37.0	8.5	29.7	128.2	2462.0
	average	28.1	6.7	23.2	100.9	2188.9
	minimum	22.6	5.7	19.4	87.2	1768.6
March	Maximum	56.4	13.4	48.9	207.1	5657.7
	average	48.7	12.4	45.2	191.8	4241.3
	minimum	40.2	11.1	41.0	173.3	3419.0
April	Maximum	75.5	23.8	96.3	390.4	7425.2
	average	67.0	21.5	82.3	342.1	5979.0
	minimum	56.2	17.1	68.5	279.3	4519.3
May	Maximum	94.4	30.7	117.5	475.1	7718.4
	average	84.0	27.0	97.1	414.7	6516.6
	minimum	70.5	19.0	68.8	292.6	4293.5
June	Maximum	97.2	31.2	118.7	493.4	8495.8
	average	85.6	27.4	100.5	425.7	6852.5
	minimum	77.0	24.2	81.1	357.4	5414.7
July	Maximum	90.8	31.1	126.6	512.6	8539.3
	average	83.8	27.0	107.2	438.1	7035.2
	minimum	69.5	22.4	95.1	378.3	6103.3
August	Maximum	77.4	24.7	103.2	411.3	7263.0
	average	68.0	23.0	88.4	366.7	6242.7
	minimum	61.1	19.9	74.8	313.7	4884.6
September	Maximum	53.4	16.3	58.7	250.9	5636.9
	average	47.8	14.5	51.0	219.8	4568.2
	minimum	42.0	11.5	43.0	181.5	3780.4
October	Maximum	35.6	8.0	32.2	130.8	3314.2
	average	32.2	7.4	29.9	121.6	2798.7
	minimum	25.7	6.2	26.2	106.2	1975.0
November	Maximum	22.8	5.0	17.0	74.7	1429.5
	average	19.9	4.4	15.1	65.9	1226.0
	minimum	16.7	3.8	12.5	55.7	1032.5
December	Maximum	18.0	3.6	13.2	56.0	828.9
	average	15.1	3.0	11.1	47.0	706.6
	minimum	11.0	2.2	8.0	34.2	532.0
All years	Maximum	629	187	715	2967	52698
	average	599	178	665	2792	49286
	minimum	564	169	623	2642	45877

Highest combined yield hour: 2021-06-01 10:10 UTC 41931.1 W (0.553 W/Wp) of 75770 Wp installed. Use this hour to size battery charge power.

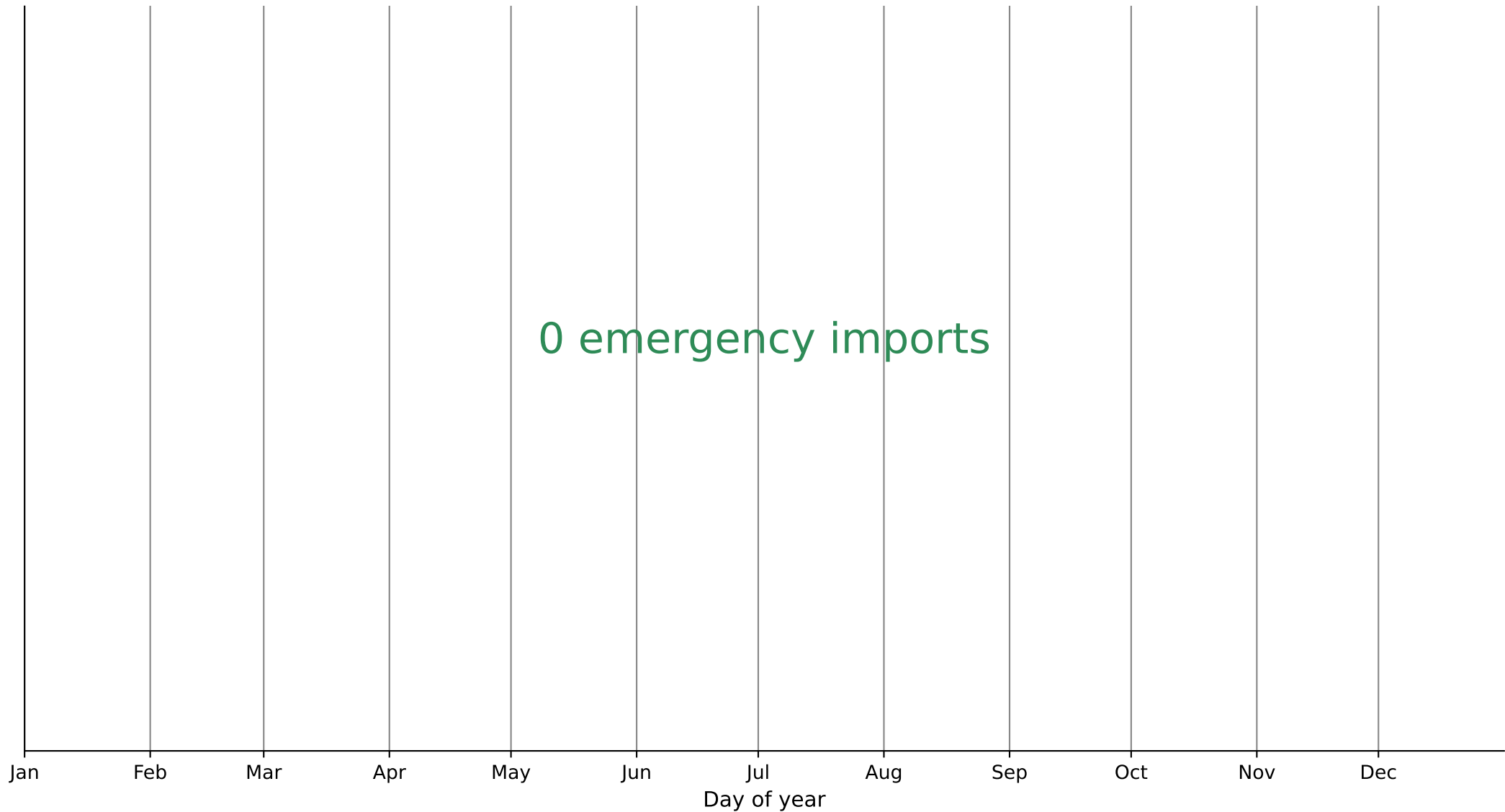
Export energy as equivalent hours (kWh / grid kW)
Austria - Fürstenbrunn 47.744, 12.993



Import energy as equivalent hours (kWh / grid kW)
Austria - Fürstenbrunn 47.744, 12.993



Emergency import hours: 0 days with an emergency: 0
Austria - Fürstenbrunn 47.744, 12.993



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 - Fürstenbrunn 47.744, 12.993

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	All
Export to grid													
month Maximum	293	1730	4543	5550	5565	6167	6375	5465	4486	2413	648	77	38128
month average	134	1432	3273	4432	4768	5055	5268	4757	3549	1951	473	19	35111
month minimum	0	1032	2537	3173	3267	4148	4415	3812	2852	1180	288	0	32682
day Maximum	59.9	123.2	264.3	303.7	313.1	316.7	308.7	307.8	273.9	171.3	104.0	12.9	316.7
day average	4.3	50.7	105.6	147.7	153.8	168.5	169.9	153.4	118.3	62.9	15.8	0.6	96.1
day minimum	0.0	0.0	0.0	0.0	0.0	0.0	27.6	0.0	0.0	0.0	0.0	0.0	0.0
Import from grid													
month Maximum	168	0	3	4	1	1	1	2	2	0	0	105	265
month average	27	0	0	1	0	0	0	0	0	0	0	22	52
month minimum	0	0	0	0	0	0	0	0	0	0	0	0	0
day Maximum	18.0	0.0	2.5	2.3	1.3	0.6	0.7	1.6	1.9	0.0	0.0	13.4	18.0
day average	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	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
Total energy used for house													
month Maximum	753	698	693	623	601	534	537	549	564	624	665	726	7350
month average	713	637	667	597	572	515	514	520	537	602	634	698	7205
month minimum	683	610	643	560	542	491	496	498	507	574	608	665	7081
day Maximum	26.9	26.9	25.3	23.2	22.4	22.2	20.8	21.1	21.2	23.1	25.0	26.3	26.9
day average	23.0	22.6	21.5	19.9	18.5	17.2	16.6	16.8	17.9	19.4	21.1	22.5	19.7
day minimum	15.9	20.5	18.4	15.4	15.3	15.3	15.2	15.2	15.2	16.7	18.5	20.4	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 - Fürstenbrunn 47.744, 12.993

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	All
Export													
month Maximum	60	308	645	575	587	600	619	594	543	443	132	15	4680
month average	27	264	506	510	529	534	560	540	480	364	96	4	4414
month minimum	0	192	410	419	431	467	495	483	401	225	60	0	4143
day Maximum	12.9	24.0	31.0	28.8	29.5	32.5	31.6	31.1	28.1	27.1	22.4	2.8	32.5
day average	0.9	9.3	16.3	17.0	17.1	17.8	18.1	17.4	16.0	11.7	3.2	0.1	12.1
day minimum	0.0	0.0	0.0	0.0	0.0	0.0	3.3	0.0	0.0	0.0	0.0	0.0	0.0
Import													
month Maximum	40	0	1	1	0	0	0	1	1	0	0	24	61
month average	6	0	0	0	0	0	0	0	0	0	0	5	12
month minimum	0	0	0	0	0	0	0	0	0	0	0	0	0
day Maximum	4.5	0.0	0.7	0.6	0.3	0.2	0.2	0.6	0.6	0.0	0.0	2.9	4.5
day average	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	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	13	0	10	10	8	3	4	7	7	0	0	13	56
month average	5	0	1	6	1	0	1	2	2	0	0	5	24
month minimum	0	0	0	0	0	0	0	0	0	0	0	0	2
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	52	0	11	11	9	3	4	8	7	0	0	37	90
month average	12	0	1	6	1	0	1	2	2	0	0	10	36
month minimum	0	0	0	0	0	0	0	0	0	0	0	0	2
day Maximum	4.5	0.0	0.7	0.6	0.3	0.2	0.2	0.6	0.6	0.0	0.0	2.9	4.5
day average	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	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	46	308	645	567	587	600	619	594	539	443	132	15	4649
month average	15	264	505	504	528	534	560	538	478	364	96	-7	4378
month minimum	-50	192	410	408	430	466	495	483	401	225	60	-37	4121
day Maximum	12.9	24.0	31.0	28.8	29.5	32.5	31.6	31.1	28.1	27.1	22.4	2.8	32.5
day average	0.7	9.3	16.3	17.0	17.1	17.8	18.1	17.4	16.0	11.7	3.2	-0.0	12.1
day minimum	-4.5	0.0	0.0	0.0	0.0	0.0	3.3	0.0	0.0	0.0	0.0	-2.9	-4.5

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 - Fürstenbrunn 47.744, 12.993

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	All
Export total													
month Maximum	293	1730	4543	5550	5565	6167	6375	5465	4486	2413	648	77	38128
month average	134	1432	3273	4432	4768	5055	5268	4757	3549	1951	473	19	35111
month minimum	0	1032	2537	3173	3267	4148	4415	3812	2852	1180	288	0	32682
day Maximum	59.9	123.2	264.3	303.7	313.1	316.7	308.7	307.8	273.9	171.3	104.0	12.9	316.7
day average	4.3	50.7	105.6	147.7	153.8	168.5	169.9	153.4	118.3	62.9	15.8	0.6	96.1
day minimum	0.0	0.0	0.0	0.0	0.0	0.0	27.6	0.0	0.0	0.0	0.0	0.0	0.0
Export during high price hours													
month Maximum	285	1478	2504	2015	2070	1870	1985	2051	2164	2191	630	77	17698
month average	128	1239	2151	1883	1869	1776	1889	1920	1982	1789	460	19	17106
month minimum	0	892	1903	1779	1694	1649	1814	1831	1795	1149	281	0	15940
day Maximum	57.6	101.3	99.2	91.7	94.3	94.3	92.8	96.2	100.3	100.0	100.6	12.9	101.3
day average	4.1	43.9	69.4	62.8	60.3	59.2	60.9	61.9	66.1	57.7	15.3	0.6	46.8
day minimum	0.0	0.0	0.0	0.0	0.0	0.0	26.2	0.0	0.0	0.0	0.0	0.0	0.0
Export during medium price hours													
month Maximum	15	253	1768	3020	3207	3493	3736	3045	2155	265	26	1	17517
month average	6	192	992	2162	2453	2774	2878	2439	1414	162	14	0	15485
month minimum	0	123	460	1215	1288	2111	2195	1660	837	30	6	0	13678
day Maximum	3.4	23.8	172.0	194.7	202.8	199.2	203.7	204.0	181.8	81.8	6.7	0.7	204.0
day average	0.2	6.8	32.0	72.1	79.1	92.5	92.9	78.7	47.1	5.2	0.5	0.0	42.4
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
Export during low price hours													
month Maximum	0	0	295	660	742	843	826	607	277	0	0	0	3146
month average	0	0	130	387	446	505	501	398	153	0	0	0	2520
month minimum	0	0	29	119	121	266	354	102	84	0	0	0	1825
day Maximum	0.0	0.0	34.0	51.0	60.4	64.7	51.7	51.0	34.0	0.0	0.0	0.0	64.7
day average	0.0	0.0	4.2	12.9	14.4	16.8	16.1	12.8	5.1	0.0	0.0	0.0	6.9
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

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 - Fürstenbrunn 47.744, 12.993

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	All
Heating													
month Maximum	261	238	201	151	115	67	59	70	98	137	192	237	1633
month average	220	188	175	127	89	50	38	44	73	117	161	209	1490
month minimum	190	165	152	92	61	29	23	23	46	91	136	176	1379
day Maximum	11.1	11.0	9.4	7.5	6.9	6.7	5.4	5.7	5.5	7.3	9.2	10.5	11.1
day average	7.1	6.7	5.6	4.2	2.9	1.7	1.2	1.4	2.4	3.8	5.4	6.7	4.1
day minimum	0.0	4.7	2.8	0.0	0.0	0.0	0.0	0.0	0.0	1.3	2.9	4.6	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	59	52	52	47	44	45	46	53	53	55	608
month average	59	53	58	51	49	45	42	43	44	52	52	55	602
month minimum	59	52	57	47	47	42	40	41	41	49	51	55	592
day Maximum	1.9	1.9	1.9	1.8	1.8	1.8	1.7	1.7	1.7	1.8	1.8	1.8	1.9
day average	1.9	1.9	1.9	1.7	1.6	1.5	1.3	1.4	1.5	1.7	1.7	1.8	1.6
day minimum	1.8	1.8	1.6	1.4	1.3	1.3	1.2	1.2	1.2	1.4	1.6	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

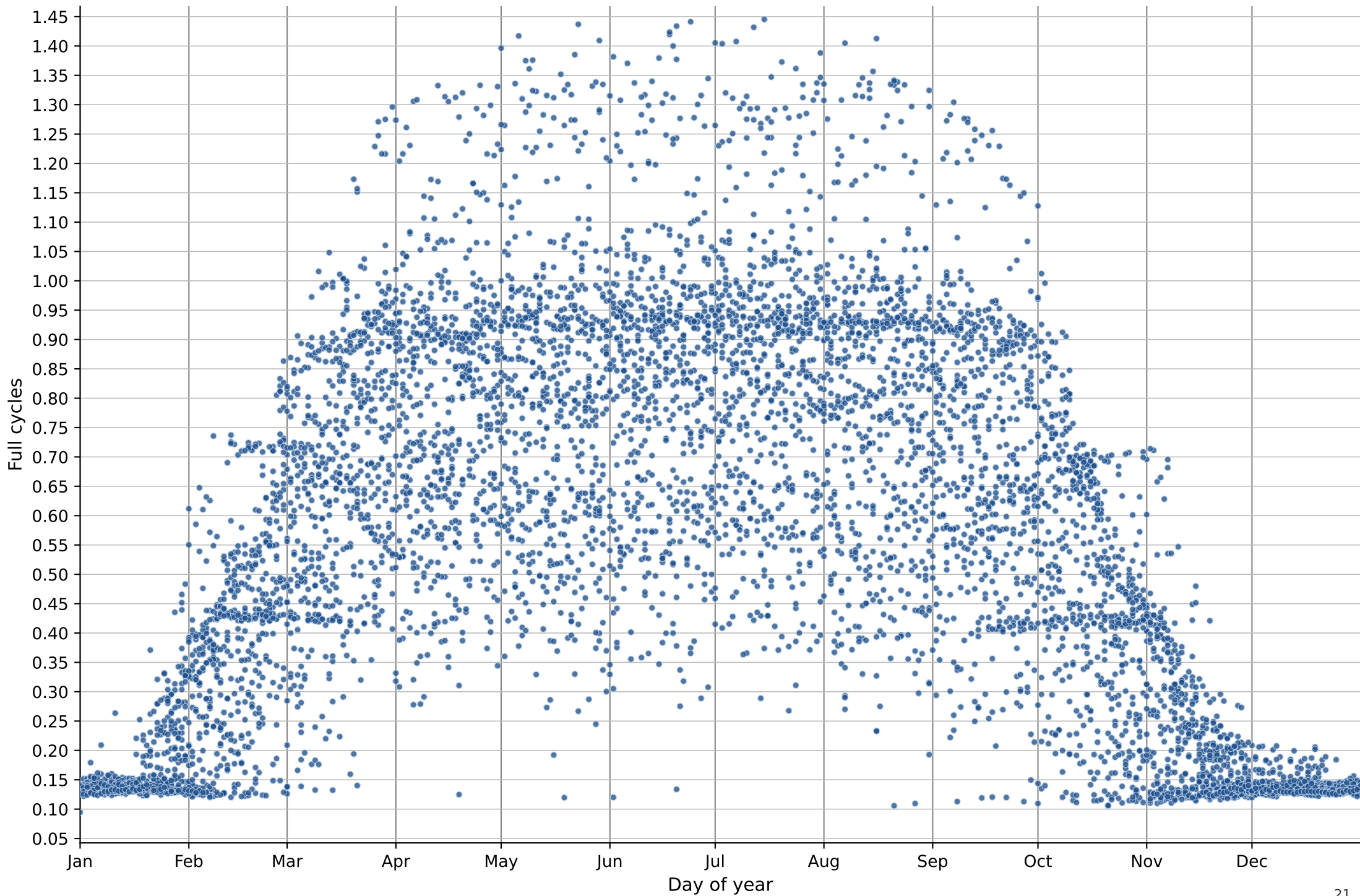
Heating, cooling and DHW are electricity. Direct electric is the part the heat pump could not cover.

Battery
Austria - Fürstenbrunn 47.744, 12.993

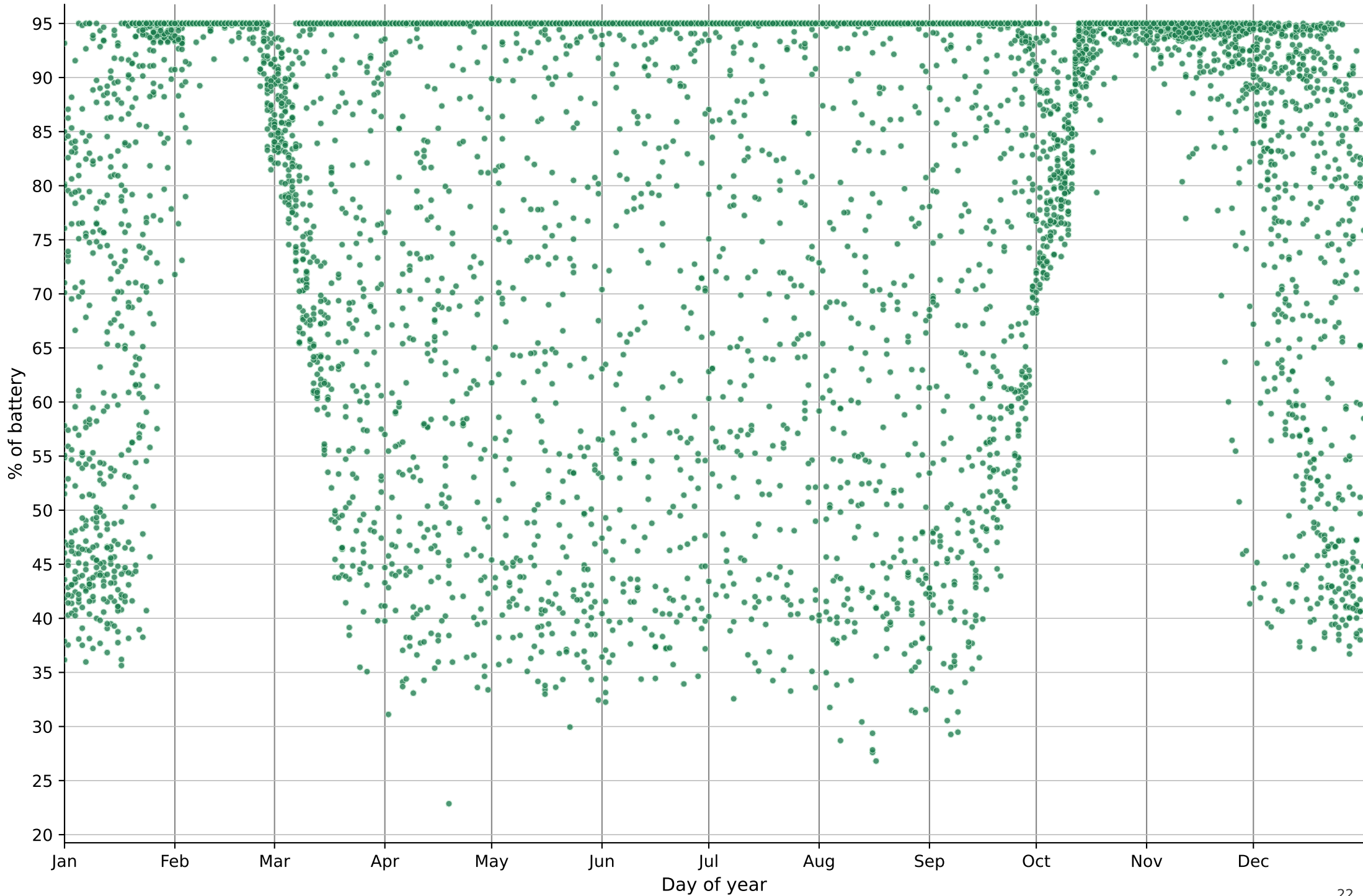
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	All
Wasted													
month Maximum	0	0	121	1141	1241	1461	1391	946	267	0	0	0	4821
month average	0	0	56	610	827	931	875	622	135	0	0	0	4055
month minimum	0	0	4	294	170	480	507	221	67	0	0	0	3151
day Maximum	0.0	0.0	33.0	130.0	136.8	134.7	132.1	107.4	55.8	0.0	0.0	0.0	136.8
day average	0.0	0.0	1.8	20.3	26.7	31.0	28.2	20.1	4.5	0.0	0.0	0.0	11.1
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
Full cycles													
month Maximum	5.90	12.47	25.79	26.53	27.88	27.27	28.73	26.49	24.07	17.15	7.42	4.67	219.61
month average	4.97	11.08	20.83	23.47	24.81	24.93	26.07	24.46	21.11	14.84	6.47	4.26	207.29
month minimum	4.25	8.98	17.90	19.21	20.31	21.86	23.25	21.02	18.32	10.47	5.47	3.96	199.67
day Maximum	0.48	0.86	1.30	1.33	1.44	1.44	1.45	1.41	1.30	1.13	0.71	0.21	1.45
day average	0.16	0.39	0.67	0.78	0.80	0.83	0.84	0.79	0.70	0.48	0.22	0.14	0.57
day minimum	0.09	0.12	0.13	0.12	0.12	0.12	0.27	0.11	0.11	0.11	0.11	0.12	0.09
Charge C													
month Maximum	0.10	0.14	0.22	0.23	0.22	0.22	0.22	0.21	0.20	0.18	0.11	0.05	2.01
month average	0.09	0.14	0.20	0.22	0.22	0.21	0.21	0.20	0.19	0.15	0.10	0.04	1.99
month minimum	0.08	0.13	0.20	0.21	0.21	0.21	0.21	0.20	0.18	0.13	0.09	0.04	1.94
day Maximum	0.10	0.14	0.22	0.23	0.22	0.22	0.22	0.21	0.20	0.18	0.11	0.05	0.23
day average	0.04	0.09	0.13	0.16	0.16	0.17	0.17	0.16	0.14	0.10	0.06	0.03	0.12
day minimum	0.01	0.01	0.02	0.02	0.03	0.03	0.03	0.02	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	0.08	1.28
month average	0.10	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.04	1.24
month minimum	0.01	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.10	0.01	1.12
day Maximum	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.08	0.11
day average	0.03	0.09	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.10	0.06	0.01	0.09
day minimum	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	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 - Fürstenbrunn 47.744, 12.993



Battery max charge state per day (176.8 kWh = 100 %)
Austria - Fürstenbrunn 47.744, 12.993



Battery min charge state per day (176.8 kWh = 100 %)
Austria - Fürstenbrunn 47.744, 12.993

