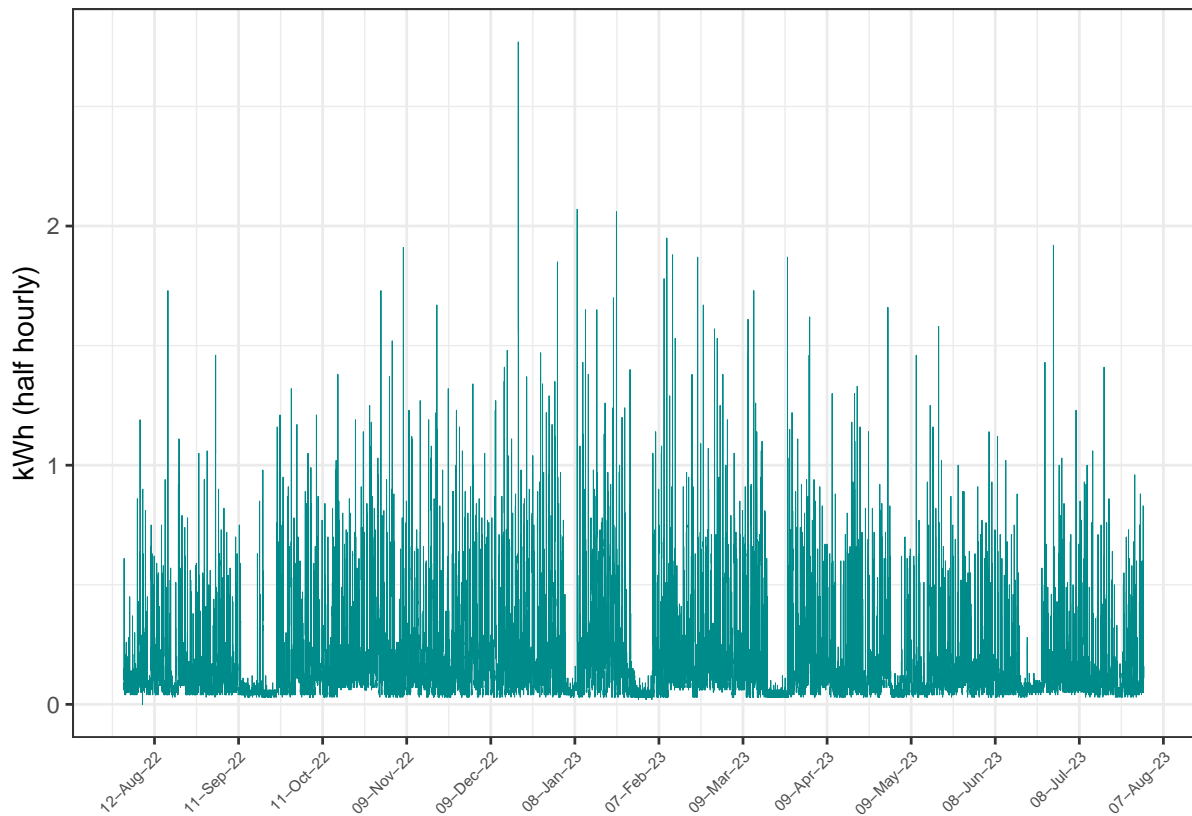


# Smart Metering Data - Energy Report

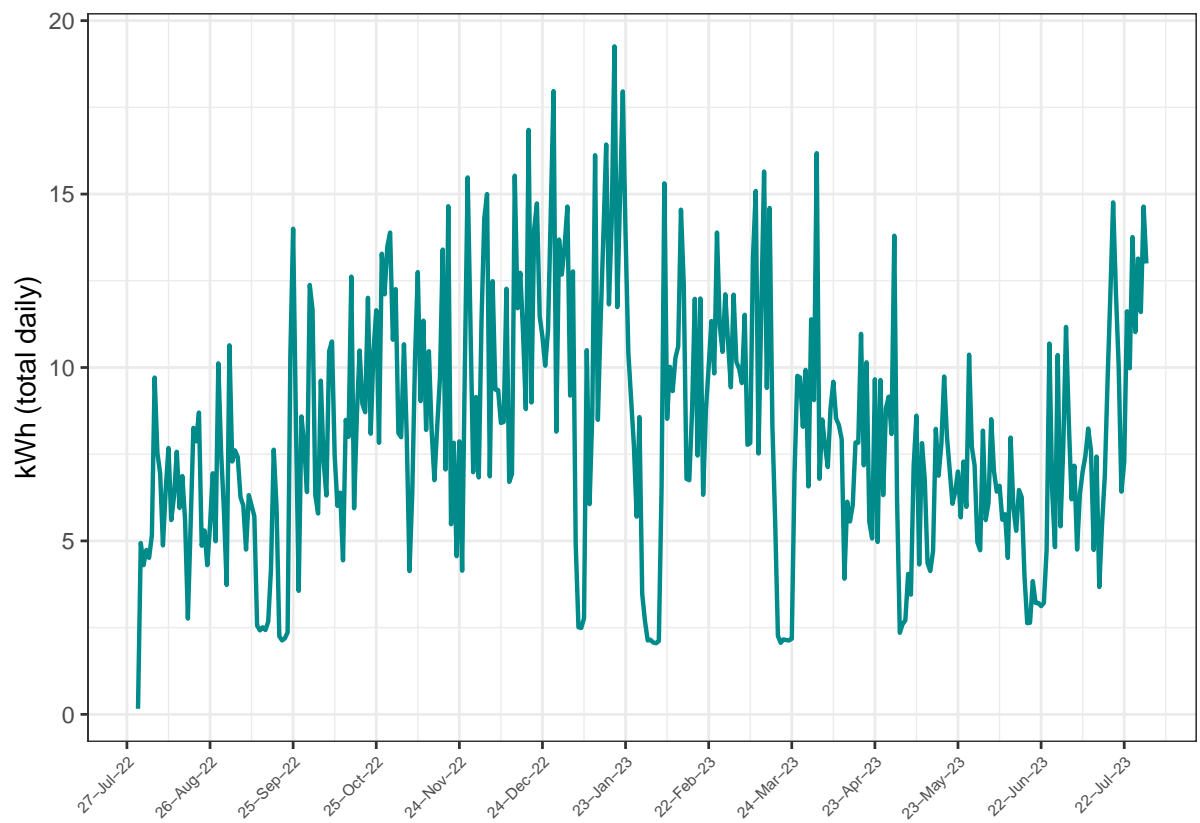
This report provides the findings of exploratory analysis undertaken using half-hourly consumption data from 31 July 2022 to 30 July 2023, 364 days.

Electricity demand varies significantly when measured each half hour. The pattern below shows peaks and troughs for daily and weekly patterns of usage. The lowest half hourly reading recorded during the period was 0 kWh. The average half hourly reading recorded during the period was 0.16 kWh. Total consumption during this time period was 2986 kWh, equating to a daily average of 8 kWh.

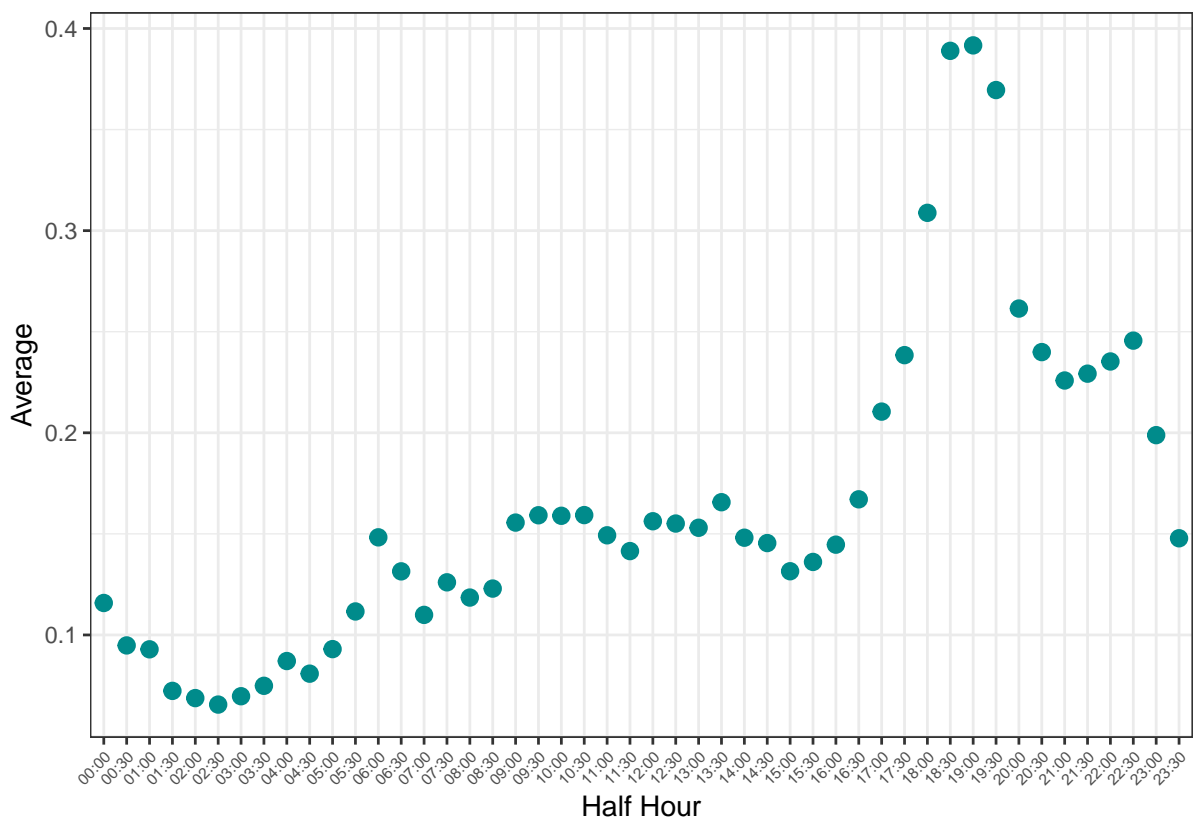
## Half Hourly Demand Profile



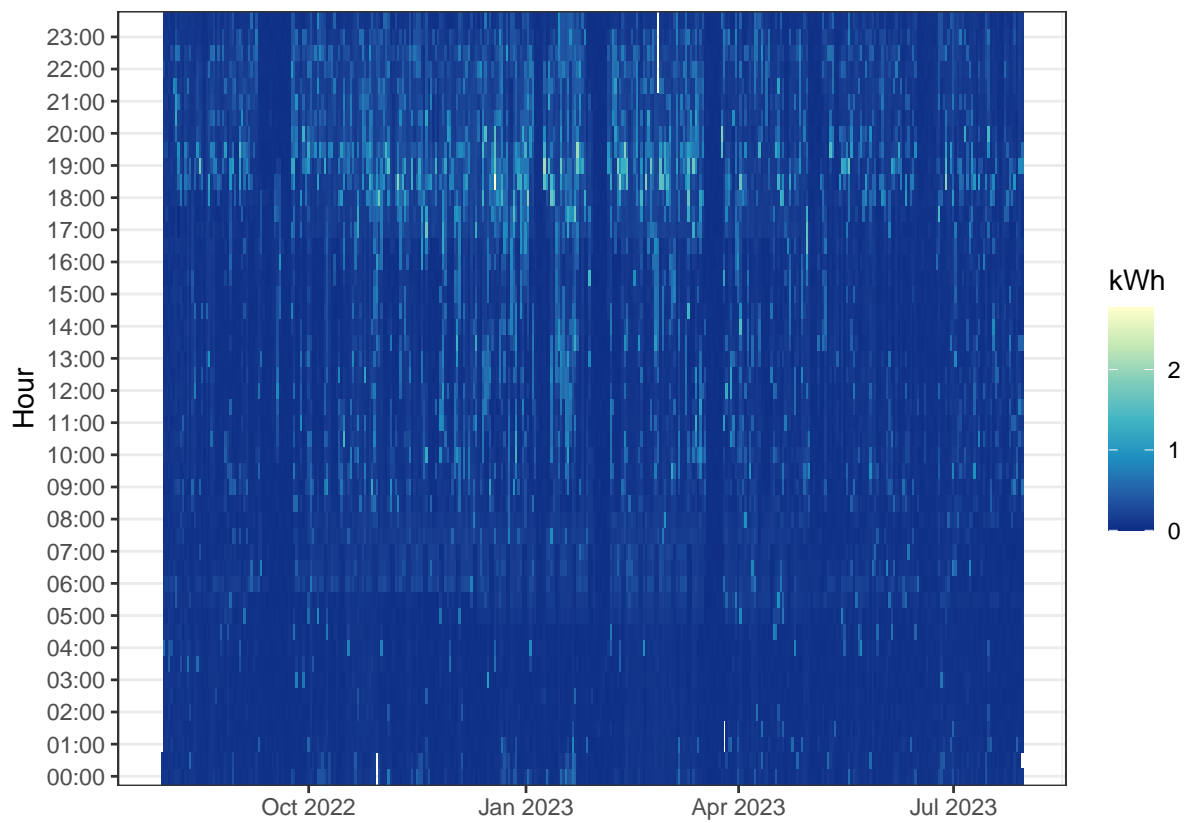
### Daily Electricity Usage



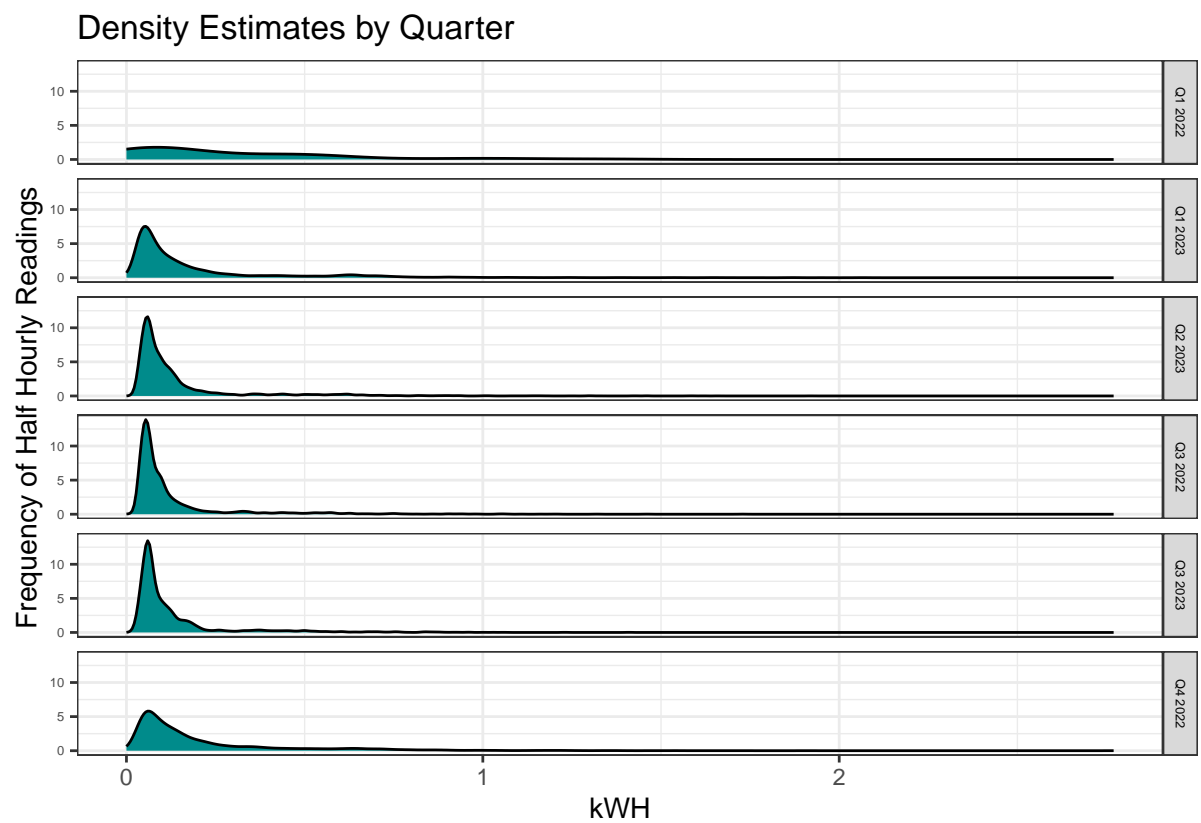
### Average Half-Hourly Demand Profile by Typical Day



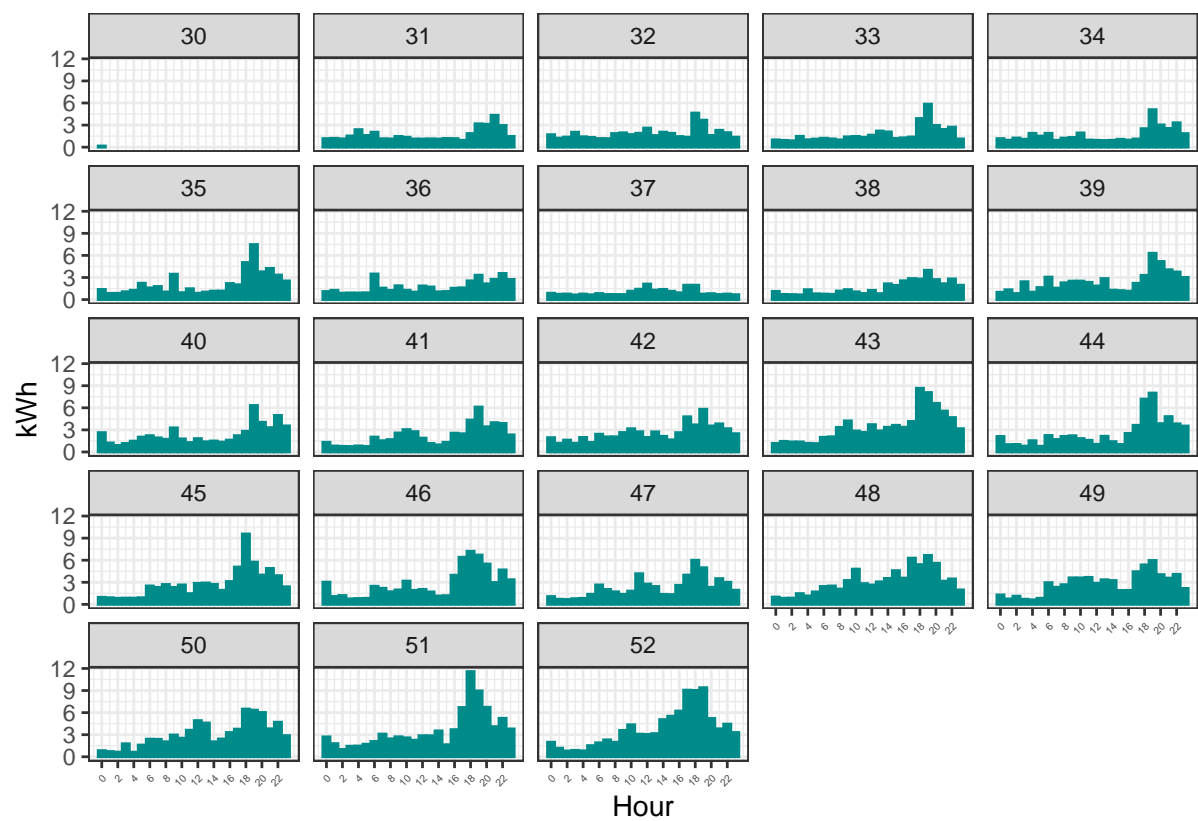
## Heatmap



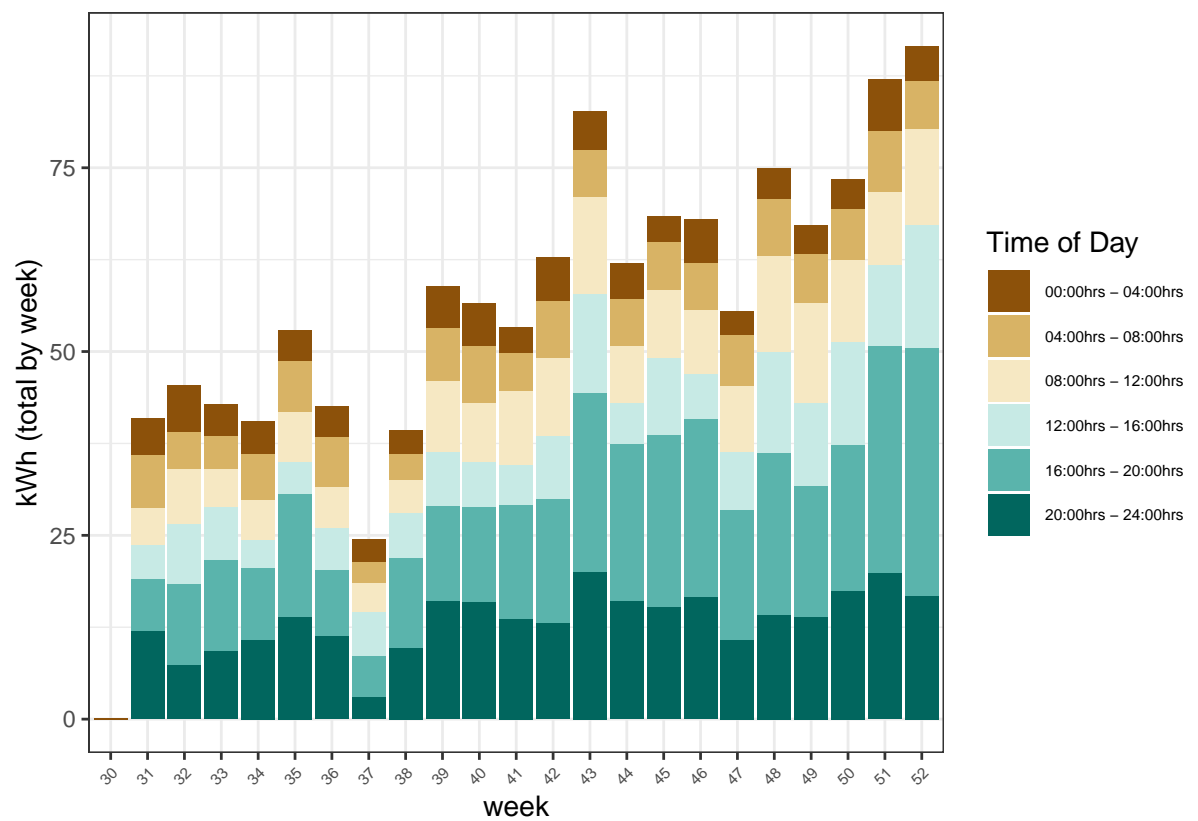
## Density Plot showing seasonal variation



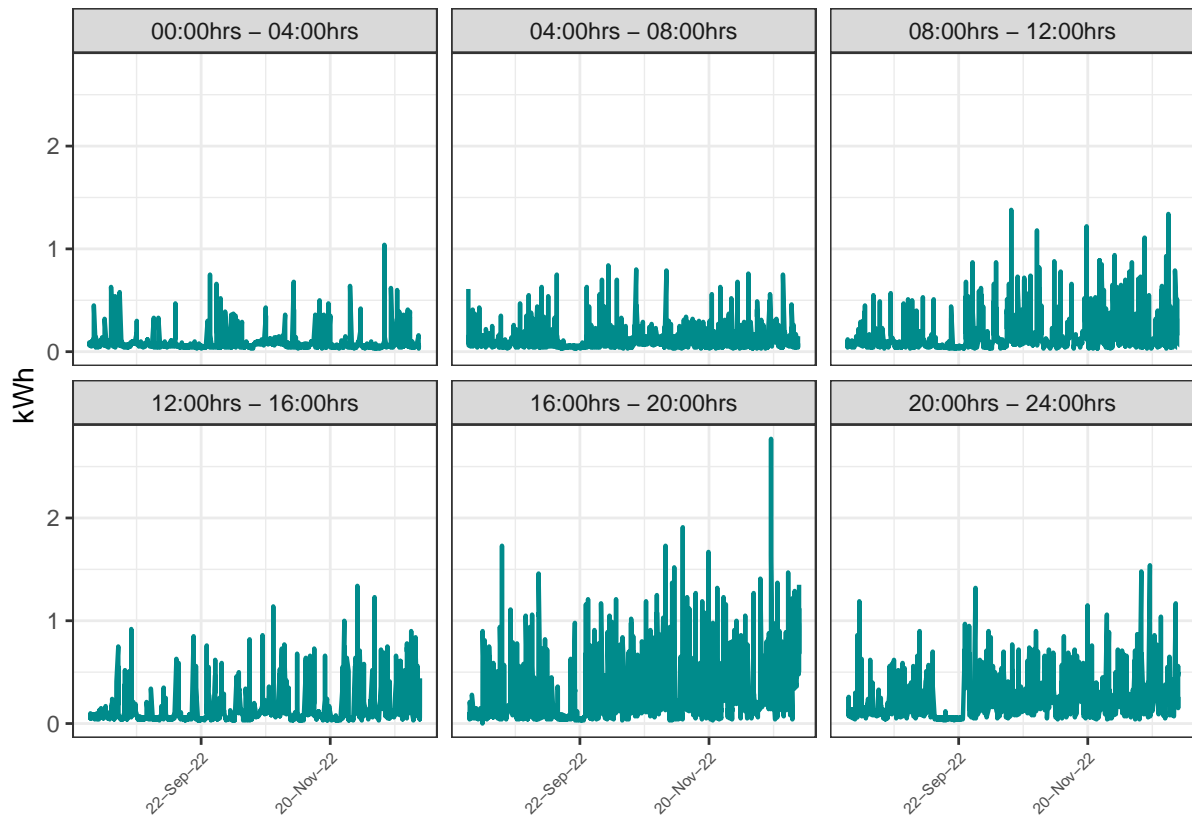
Hourly Demand Profile by Week - 2022



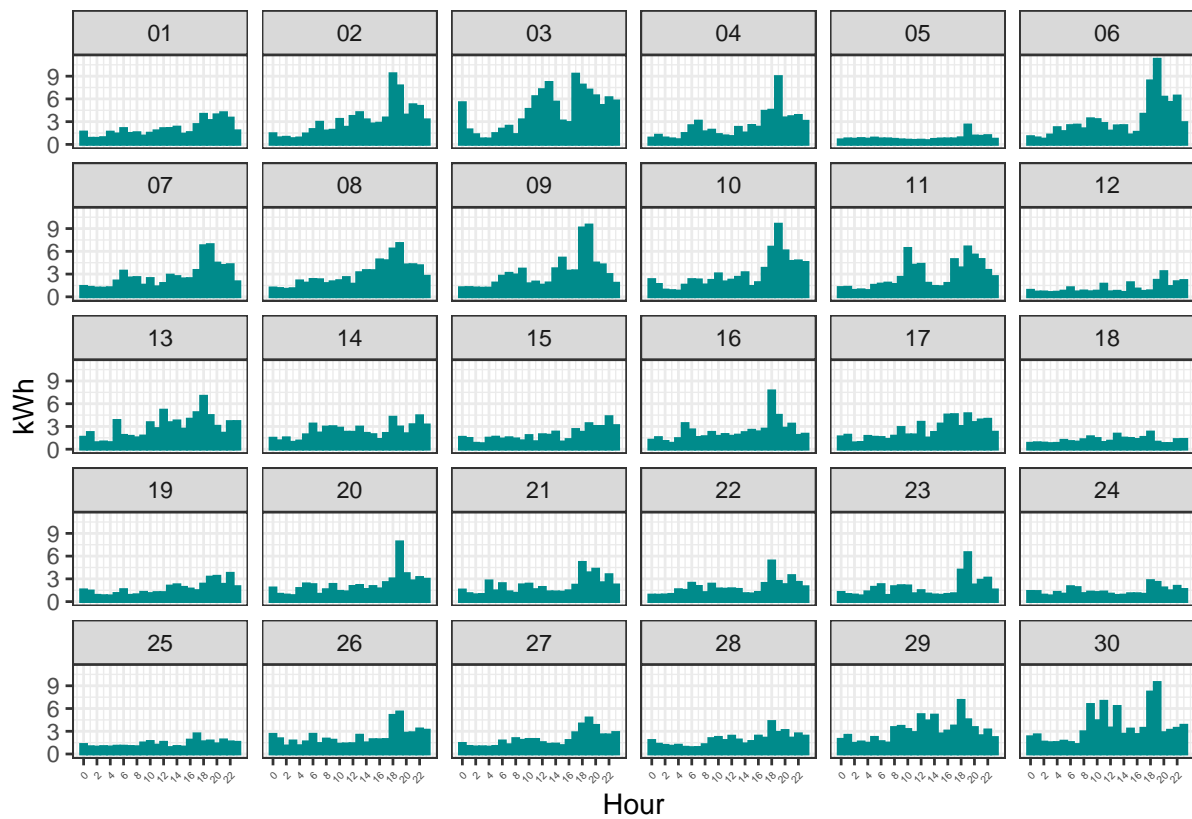
Weekly Electricity Consumption by Time of Day - 2022



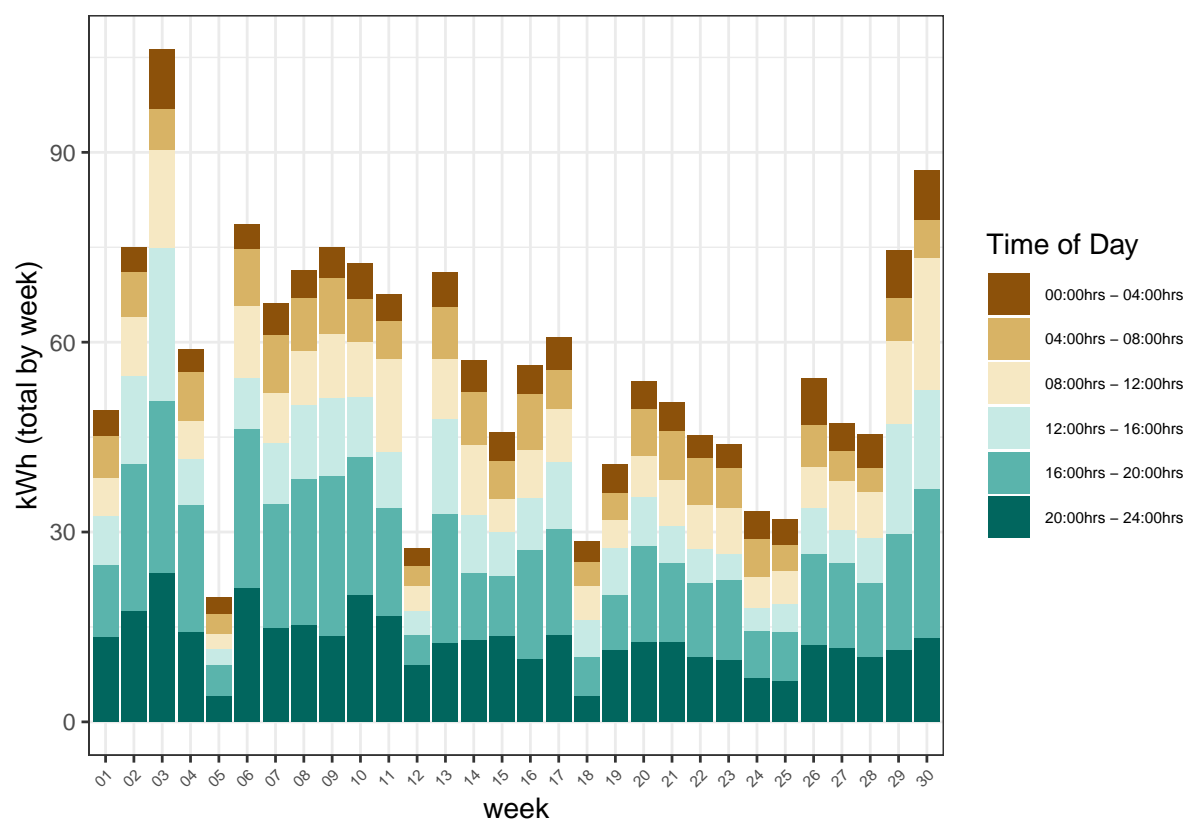
### Time of Day Electricity Usage (4 hour periods combined) - 2022



### Hourly Demand Profile by Week - 2023



Weekly Electricity Consumption by Time of Day - 2023



Time of Day Electricity Usage (4 hour periods combined) - 2023

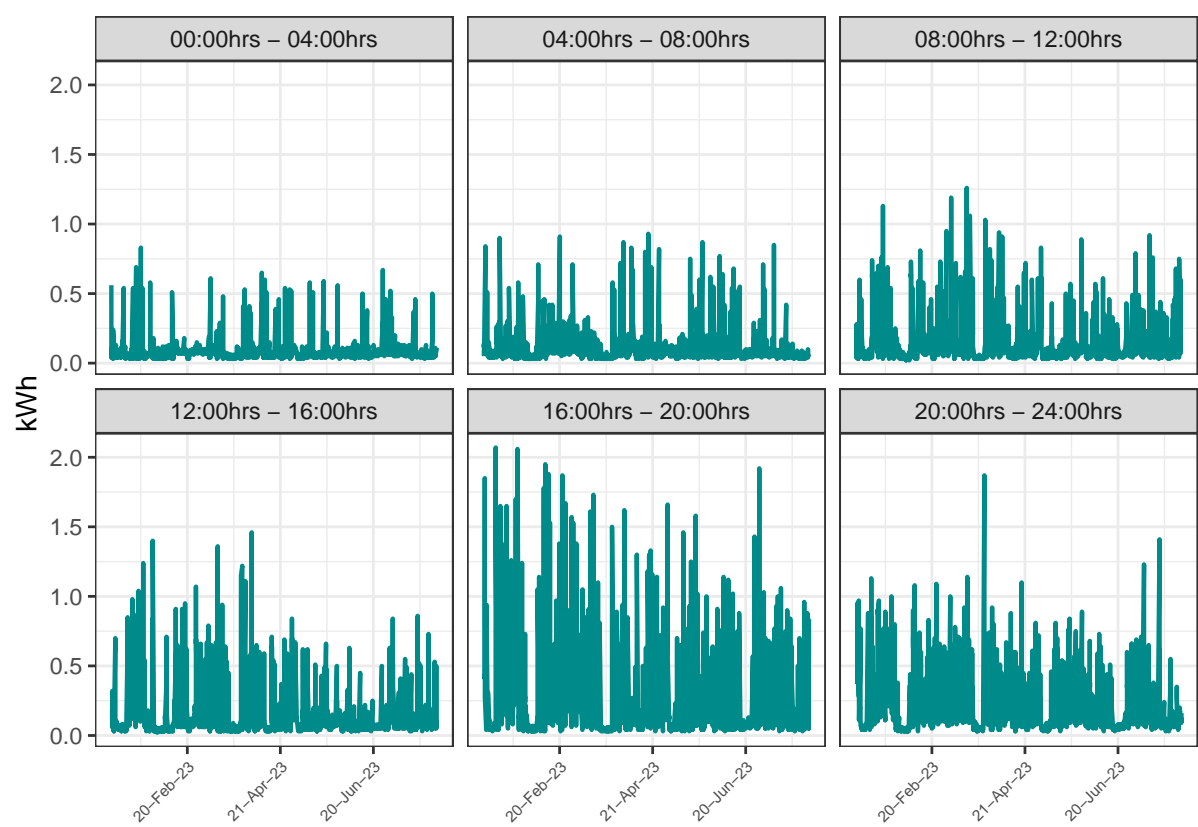


Table 1: Peak Four-Hourly Periods

Day	Week No.	Year	Time of Day	Min kWh	Max kWh	Ave kWh	kWh
Monday	51	2022	16:00hrs - 20:00hrs	0.14	2.77	1.05	8.44
Saturday	10	2023	16:00hrs - 20:00hrs	0.16	1.61	0.93	7.47
Monday	04	2023	16:00hrs - 20:00hrs	0.33	2.06	0.87	6.94
Sunday	17	2023	16:00hrs - 20:00hrs	0.12	1.66	0.86	6.86
Friday	52	2022	16:00hrs - 20:00hrs	0.34	1.29	0.83	6.63
Sunday	52	2022	16:00hrs - 20:00hrs	0.48	1.35	0.82	6.57
Monday	01	2023	16:00hrs - 20:00hrs	0.27	1.85	0.76	6.11
Friday	46	2022	16:00hrs - 20:00hrs	0.46	1.08	0.74	5.91
Sunday	47	2022	16:00hrs - 20:00hrs	0.22	1.23	0.74	5.89
Tuesday	52	2022	16:00hrs - 20:00hrs	0.28	1.47	0.73	5.87

Table 2: Peak Half-Hourly Periods

Timestamp	Day of the Week	Week No.	kWh
2022-12-19 18:30:00	Monday	51	2.77
2023-01-09 19:00:00	Monday	02	2.07
2023-01-23 19:30:00	Monday	04	2.06
2023-02-10 18:30:00	Friday	06	1.95
2023-06-28 18:30:00	Wednesday	26	1.92
2022-11-08 18:30:00	Tuesday	45	1.91
2023-02-12 19:30:00	Sunday	06	1.88
2023-03-25 20:00:00	Saturday	12	1.87
2023-02-21 18:30:00	Tuesday	08	1.87
2023-01-02 18:00:00	Monday	01	1.85

Table 3: Weekly Consumption - 2022

Year	Week No.	Average 30 mins kWh	Total kWh	Average Daily kWh
2022	30	0.08	0.16	0.02
2022	31	0.12	40.90	5.84
2022	32	0.14	45.43	6.49
2022	33	0.13	42.78	6.11
2022	34	0.12	40.55	5.79
2022	35	0.16	52.84	7.55
2022	36	0.13	42.50	6.07
2022	37	0.07	24.41	3.49
2022	38	0.12	39.27	5.61
2022	39	0.17	58.80	8.40
2022	40	0.17	56.55	8.08
2022	41	0.16	53.39	7.63
2022	42	0.19	62.81	8.97
2022	43	0.25	82.72	11.82
2022	44	0.18	62.00	8.86
2022	45	0.20	68.42	9.77
2022	46	0.20	68.05	9.72
2022	47	0.17	55.47	7.92
2022	48	0.22	74.91	10.70
2022	49	0.20	67.16	9.59
2022	50	0.22	73.39	10.48
2022	51	0.26	86.96	12.42
2022	52	0.27	91.55	13.08

Table 4: Weekly Consumption - 2023

Year	Week No.	Average 30 mins kWh	Total kWh	Average Daily kWh
2023	01	0.15	49.29	7.04
2023	02	0.22	75.04	10.72
2023	03	0.32	106.36	15.19
2023	04	0.18	58.86	8.41
2023	05	0.06	19.75	2.82
2023	06	0.23	78.61	11.23
2023	07	0.20	66.12	9.45
2023	08	0.22	71.40	10.20
2023	09	0.22	74.94	10.71
2023	10	0.22	72.47	10.35
2023	11	0.20	67.54	9.65
2023	12	0.08	27.38	3.91
2023	13	0.21	71.13	10.16
2023	14	0.17	57.12	8.16
2023	15	0.14	45.75	6.54
2023	16	0.17	56.40	8.06
2023	17	0.18	60.80	8.69
2023	18	0.08	28.54	4.08
2023	19	0.12	40.72	5.82
2023	20	0.16	53.78	7.68
2023	21	0.15	50.45	7.21
2023	22	0.13	45.24	6.46
2023	23	0.13	43.88	6.27
2023	24	0.10	33.24	4.75
2023	25	0.10	32.02	4.57
2023	26	0.16	54.32	7.76
2023	27	0.14	47.17	6.74
2023	28	0.13	45.45	6.49
2023	29	0.11	74.42	10.63
2023	30	0.13	87.14	12.45