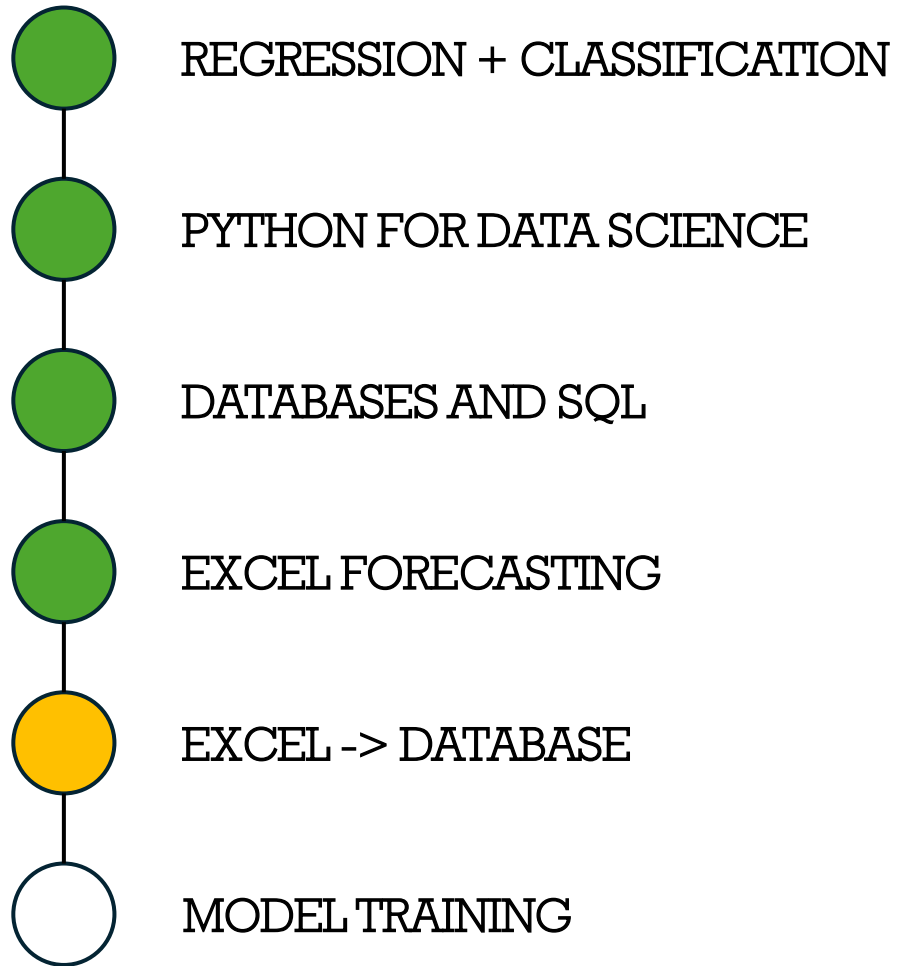
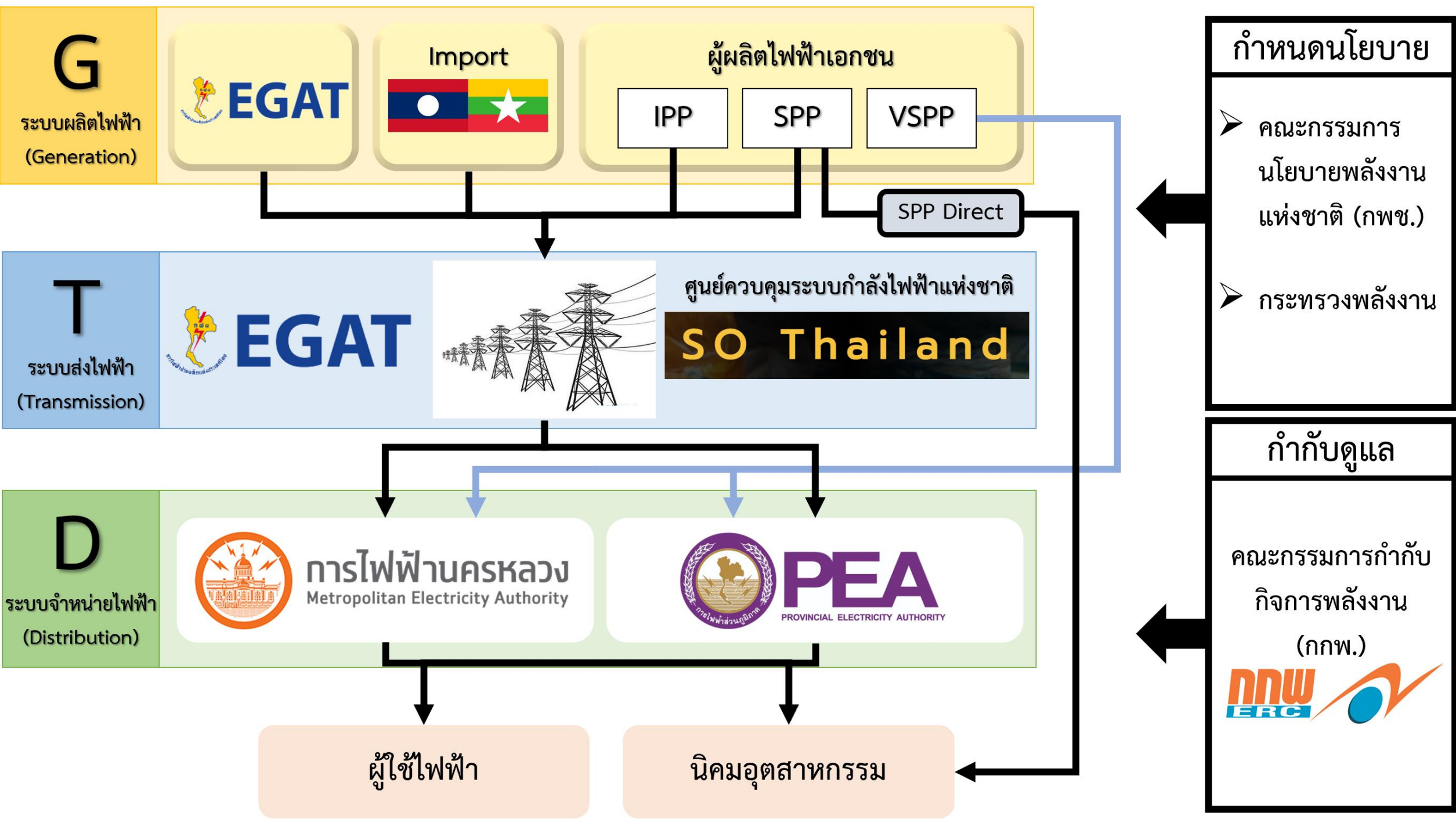


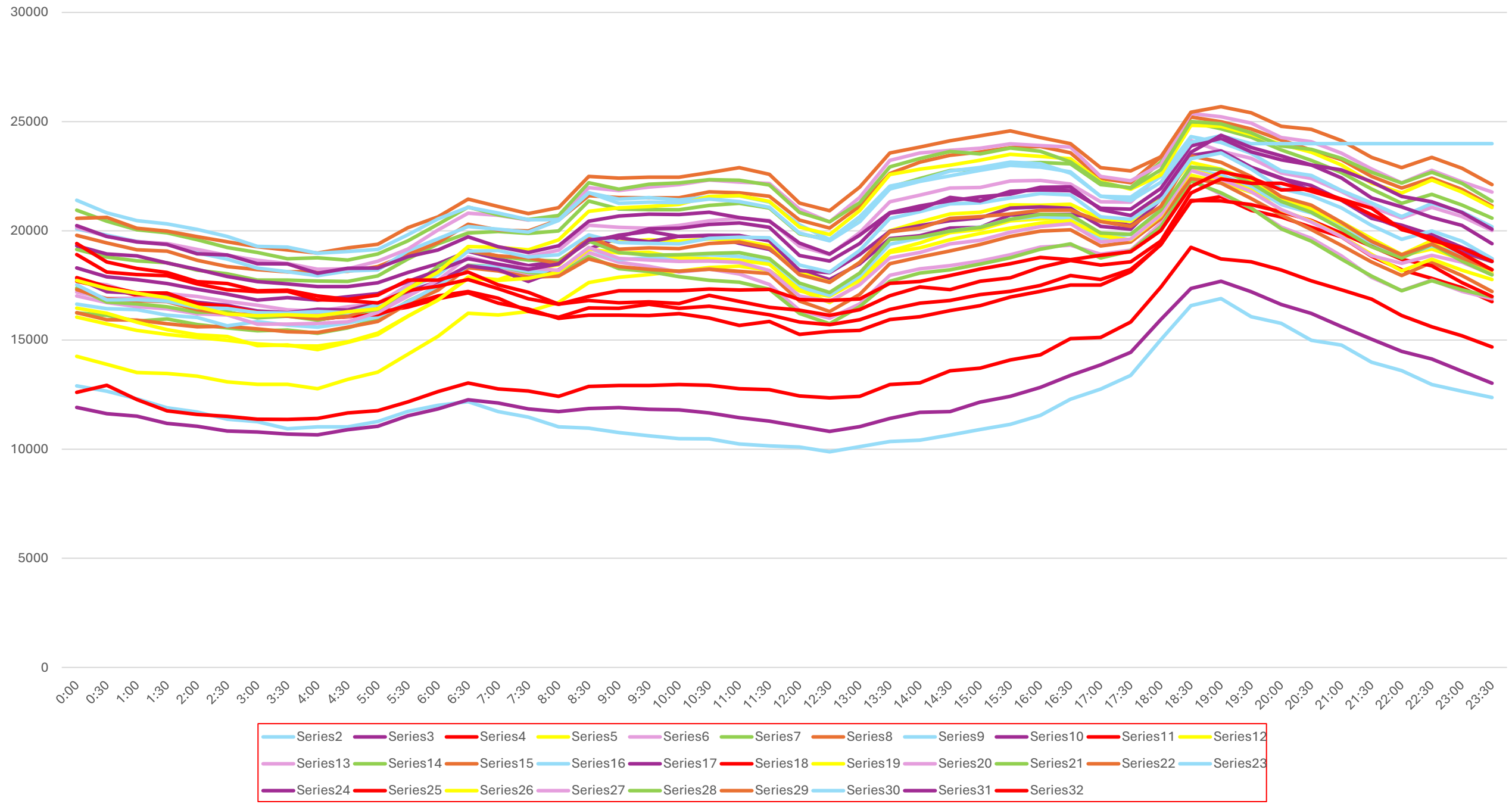
EXCEL FORECASTING



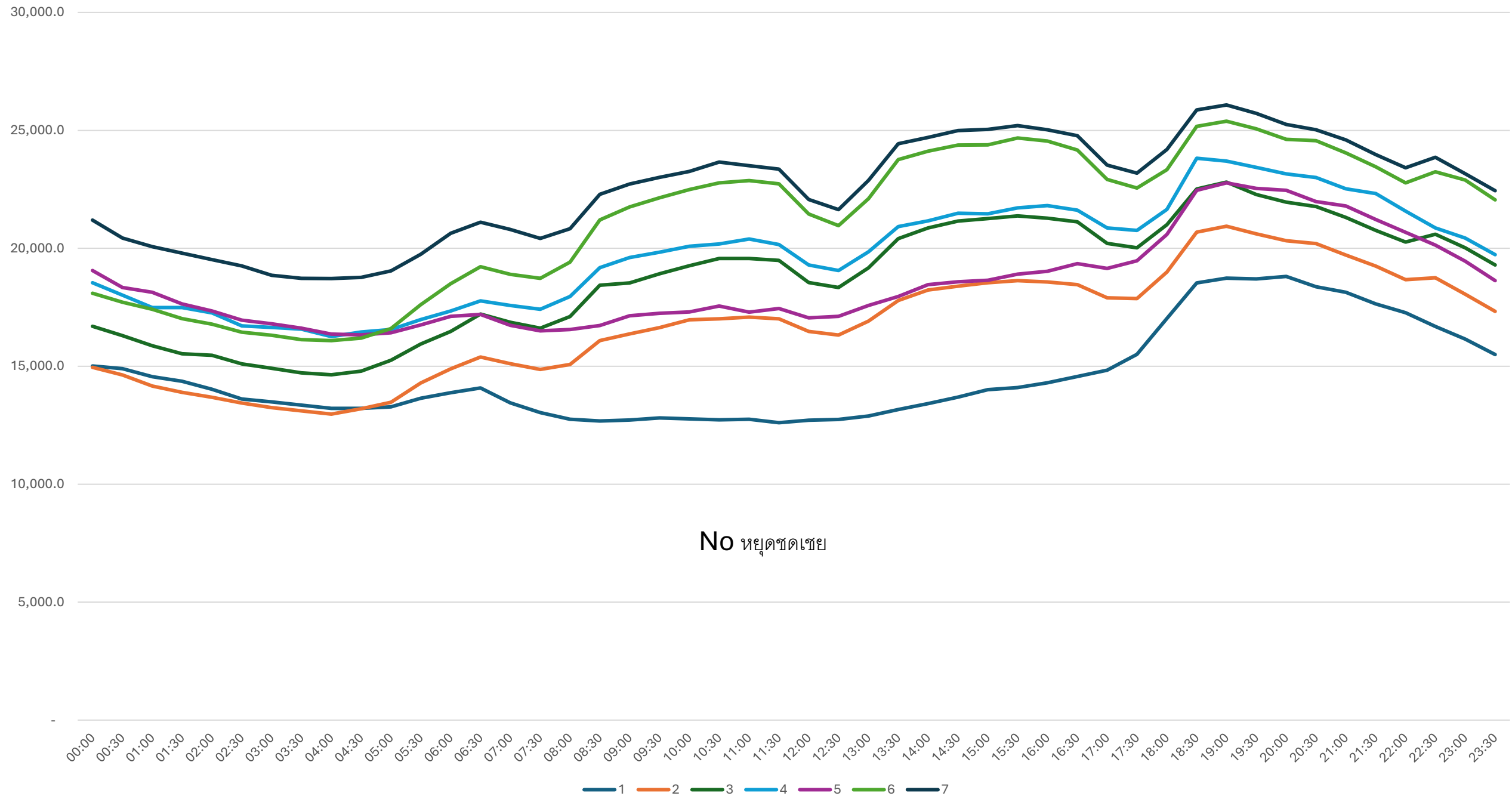


Pattern 1: Holidays

Jan 2021

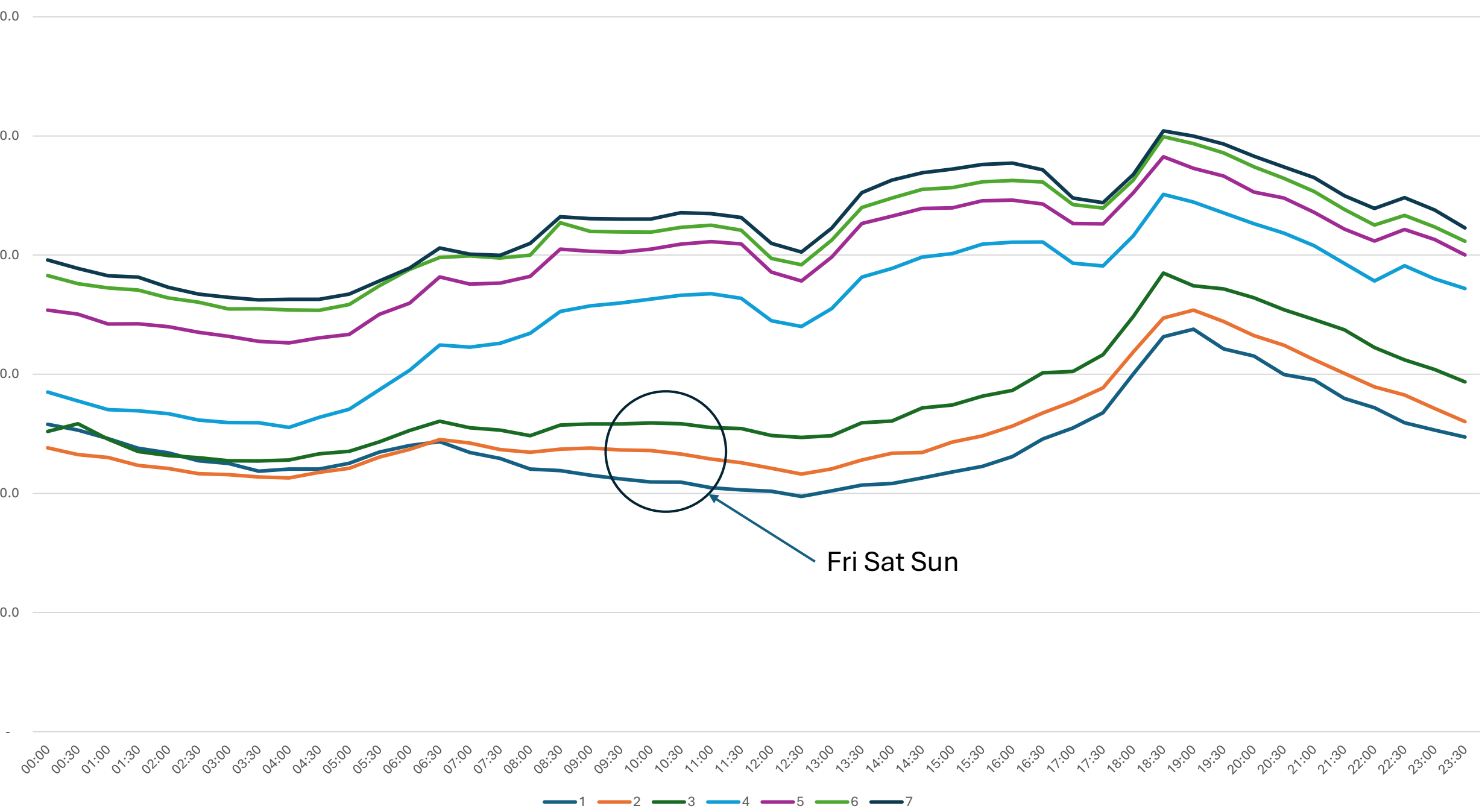


First Week of Jan 2020

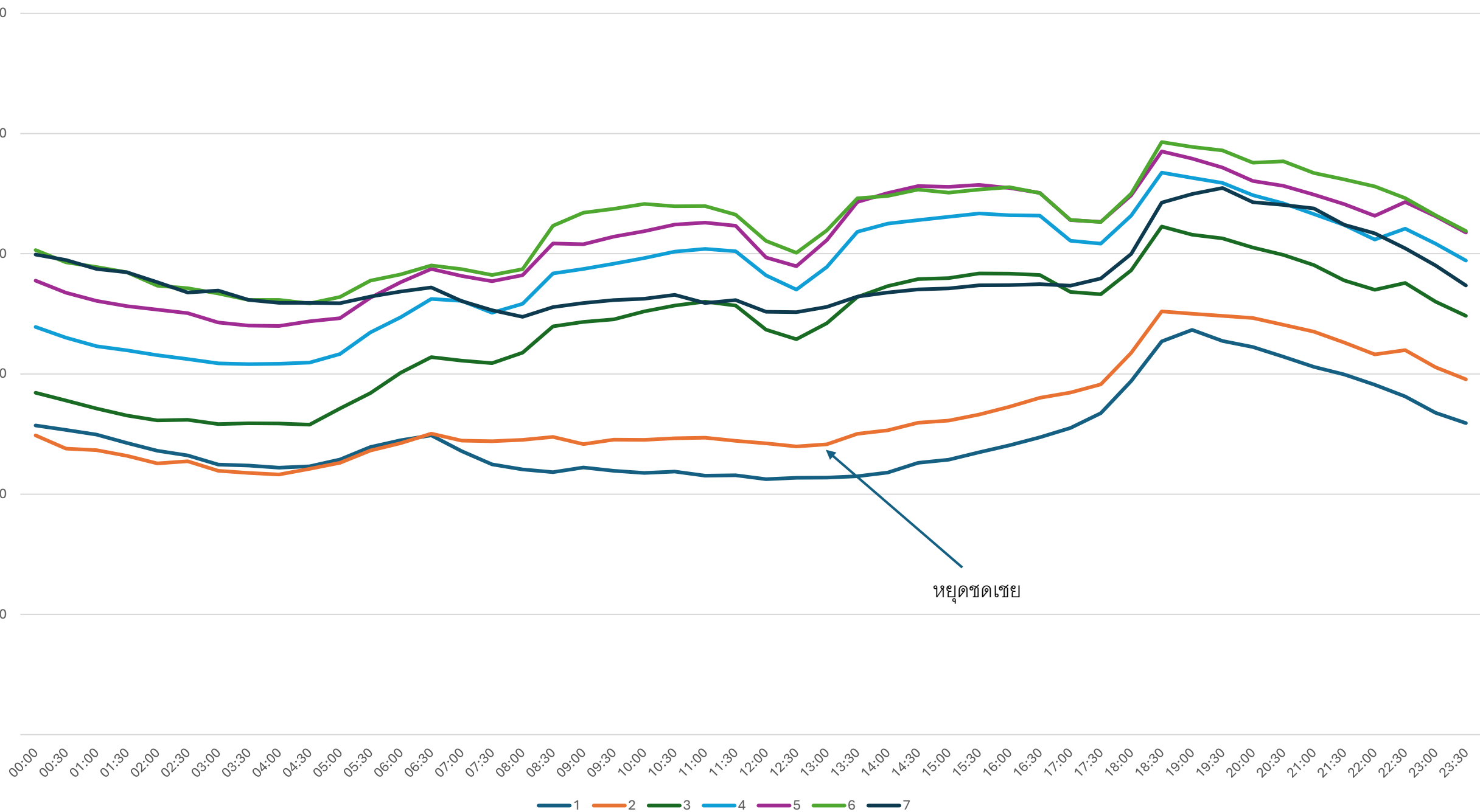


No หยุดชดเชย

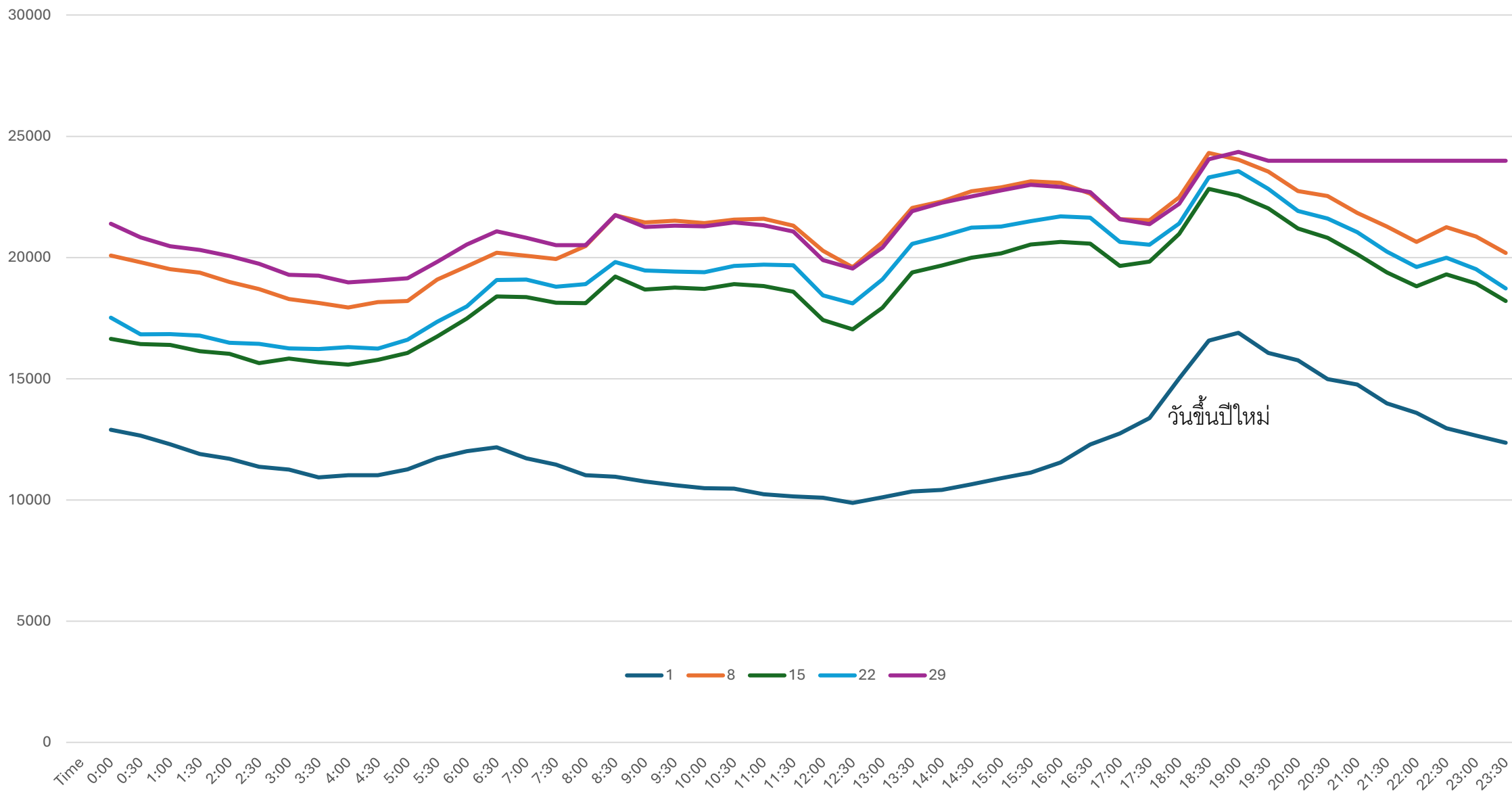
First week of 2021



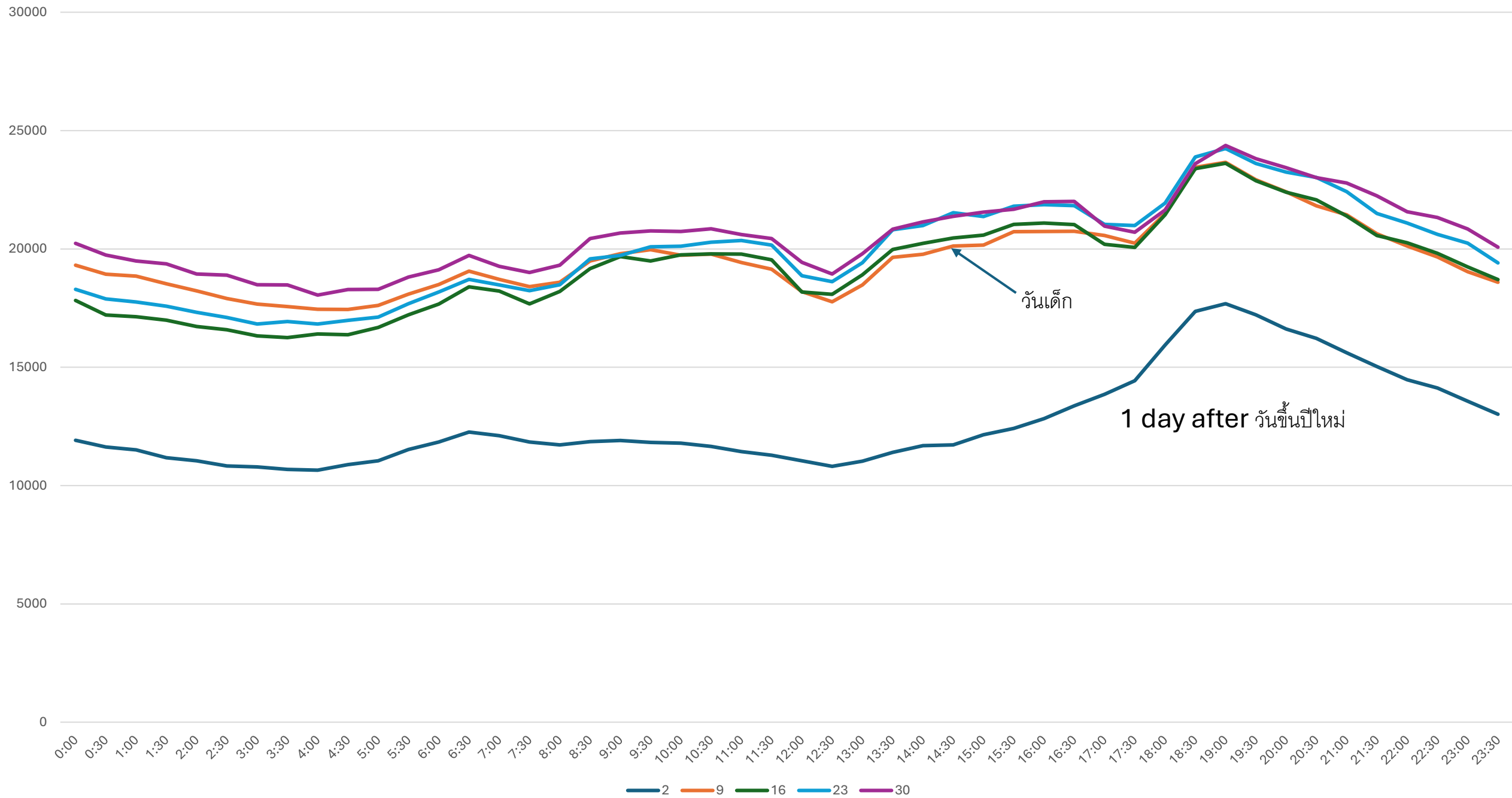
First Week of 2018



Friday (January 2021)

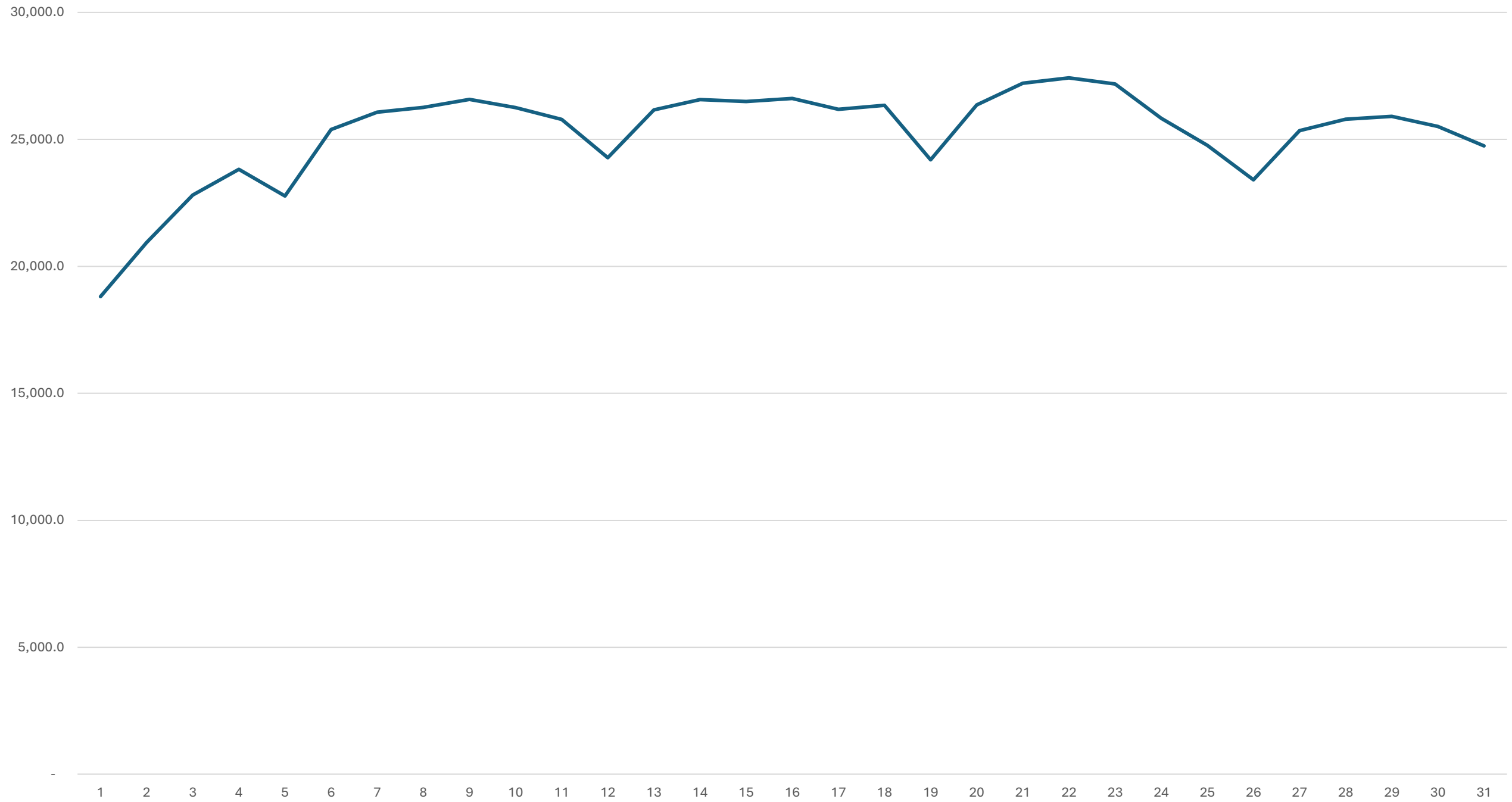


Saturday (January 2021)

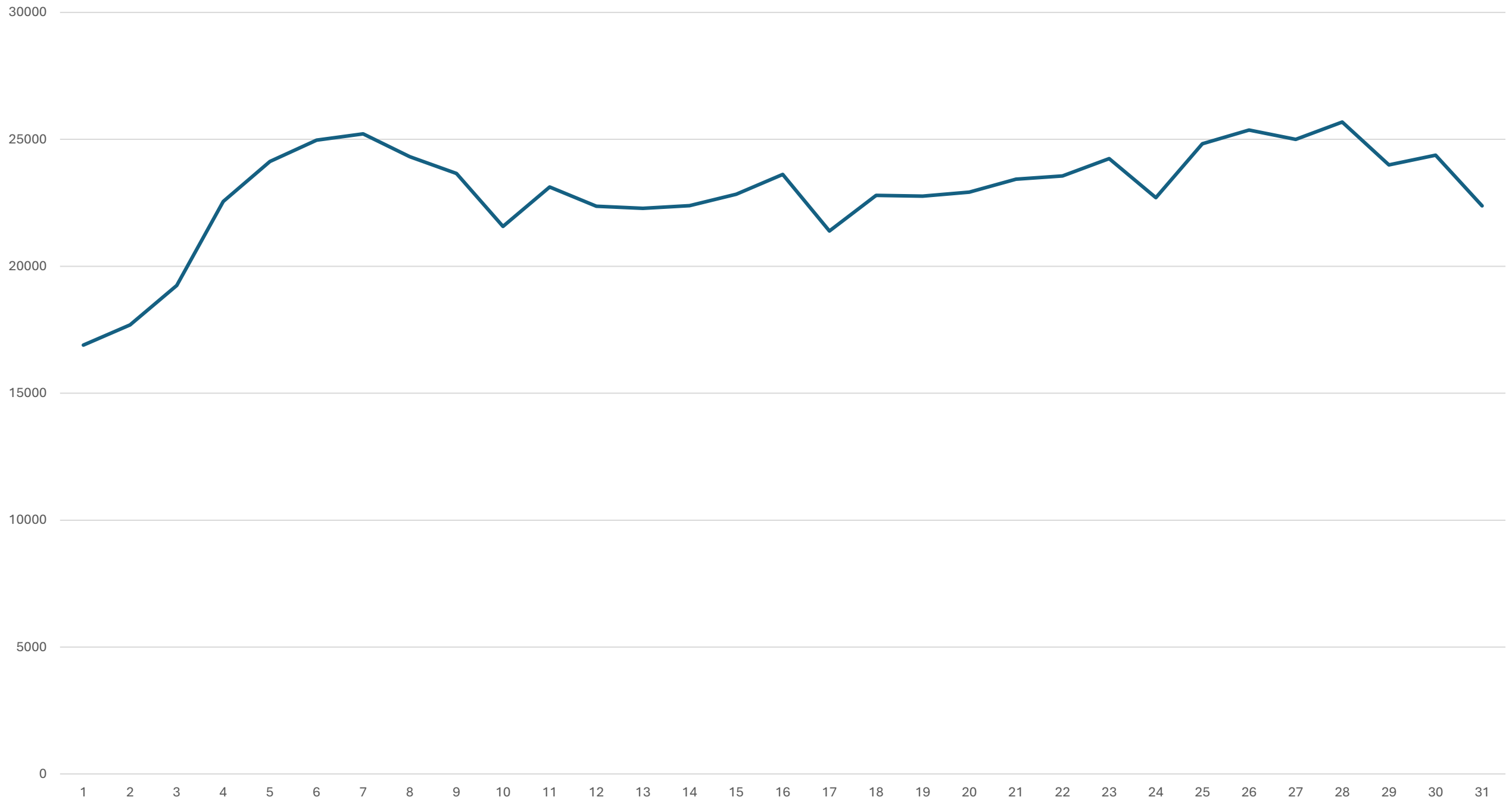


Pattern 2: Sundays

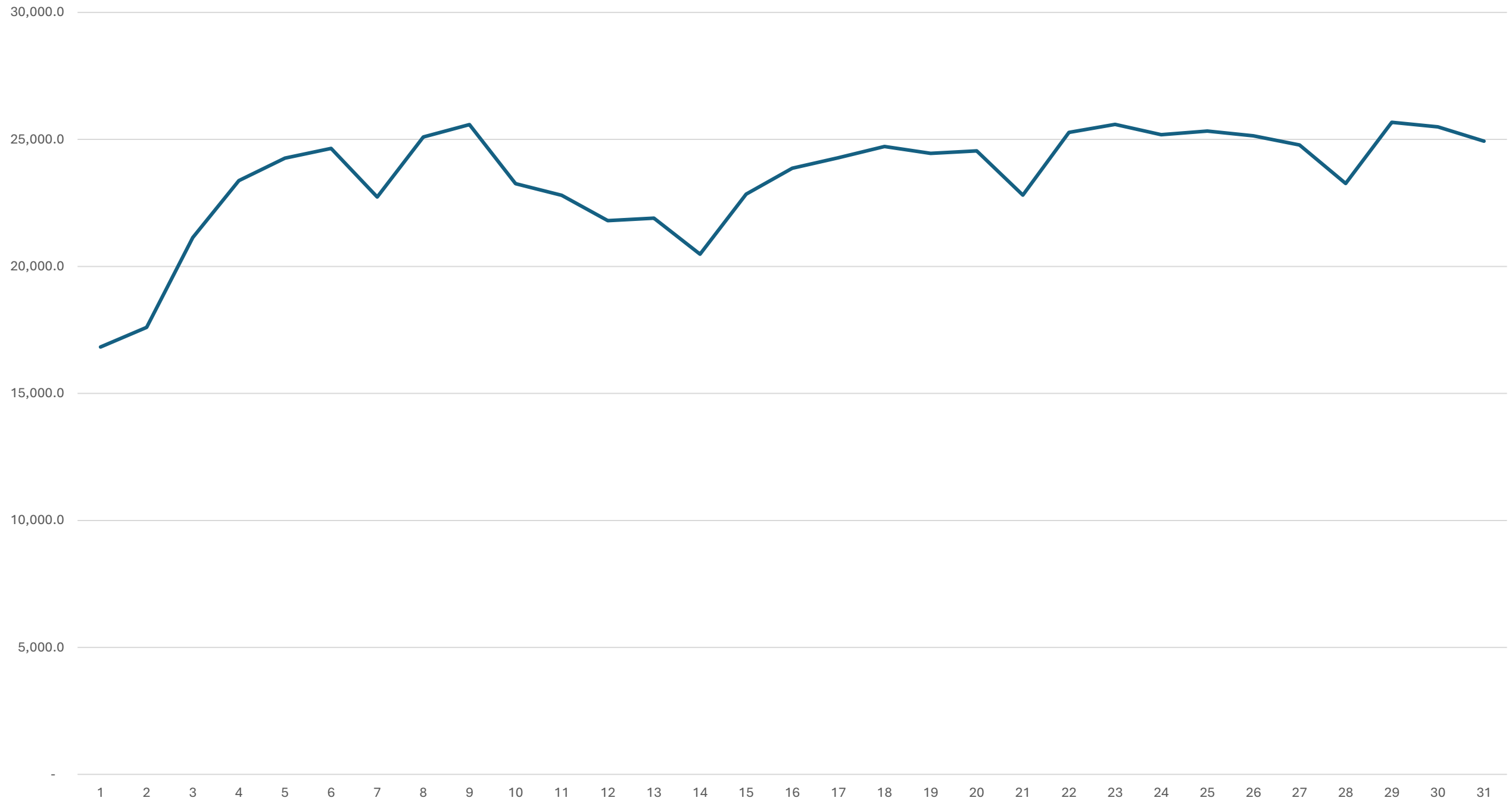
Jan 2020



Jan 2021

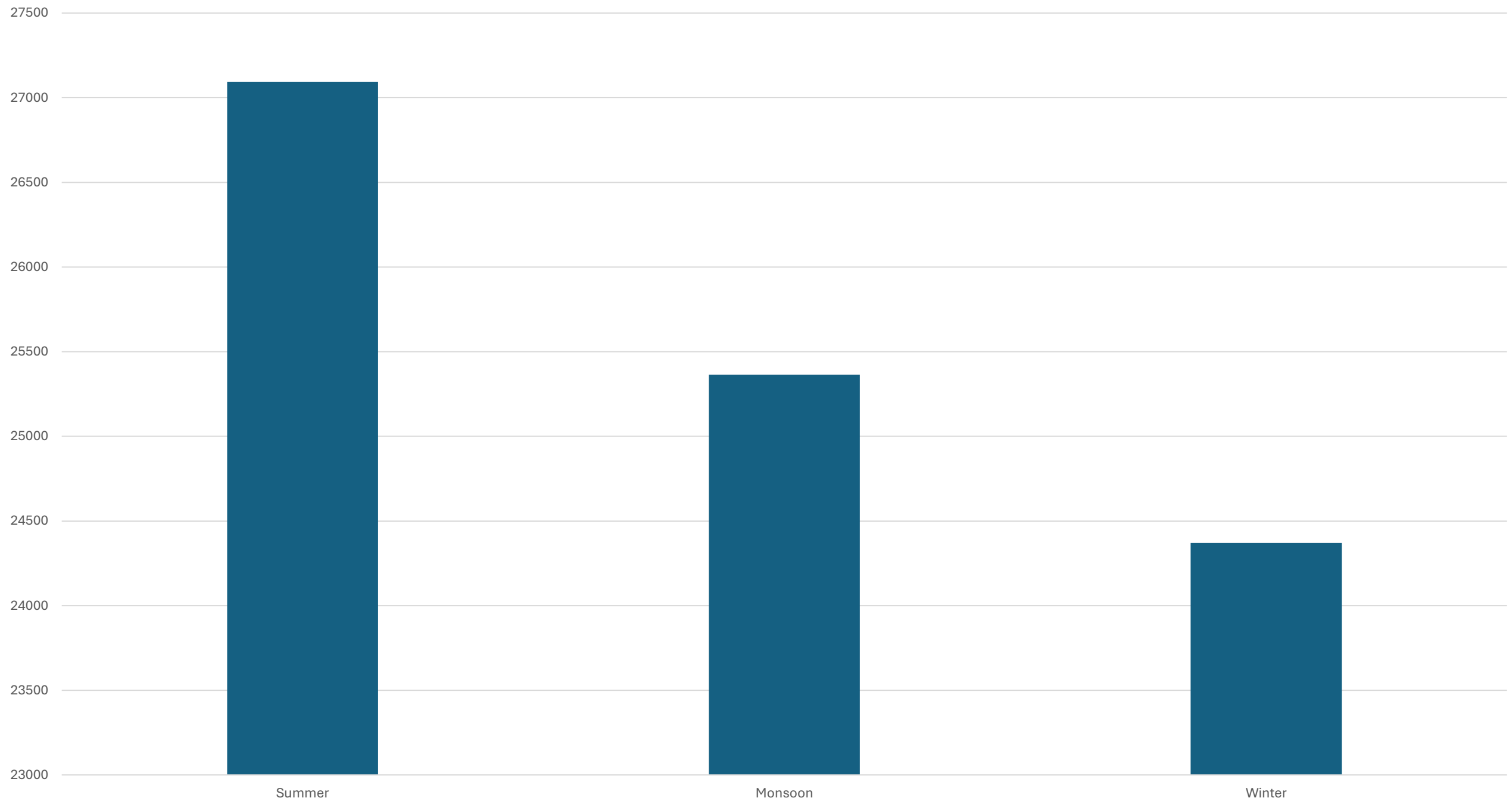


Jan 2018

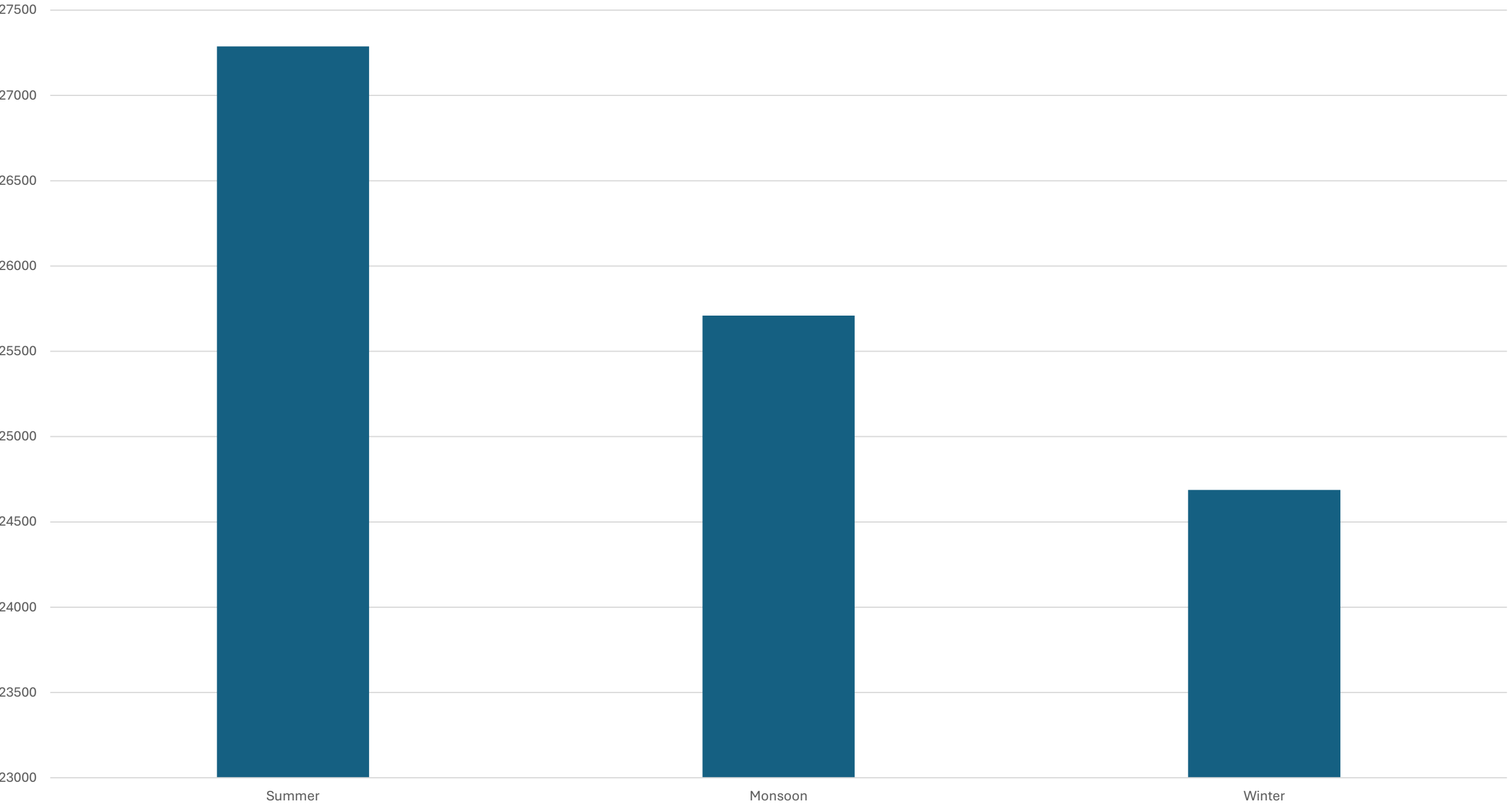


Pattern 3: Seasons

Average Seasonal Daily Peak 2021



Average Seasonal Daily Peak 2019



DATABASE

ต้องการพลังงานไฟฟ้าสูงสุดของระบบ		1	2	3	4	5	6	7	8	9
Filter		Filter	Filter	Filter	Filter	Filter	Filter	Filter	Filter	Filter
1	วันสำคัญ	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL
2	00:00	24054.9	24053	24771.2	25106.9	24283	25318.2	23289.8	23073.2	23188
3	00:30	23504.8	23195	24077	24522.3	23625.9	24972.7	22947.3	22789.2	22567.5
4	01:00	23142.8	23071.1	23651.1	24250.8	23086.6	24544.1	22703.8	22259.2	22228.1
5	01:30	22759.8	22748.4	23221.5	23886	22560.6	24199	22572.5	22147.9	22042.5
6	02:00	22410.4	22455.5	22674.9	23238.7	22164.6	23995.1	22100.7	21739.4	21572
7	02:30	21951	22020.2	22193.5	22843.2	21715.3	23417.1	21699.1	21604	21389.6
8	03:00	21521.3	21559.3	22069.8	22366.3	21213.2	23103	21355.5	21017.6	20979
9	03:30	21392.2	21303.2	21763.9	22031.7	20924	22580.6	21108.8	20845.5	20692.1
10	04:00	20977.3	21049	21290.6	21456.9	20562.2	22349.8	20896	20775.6	20464.7
11	04:30	21008.3	21079.3	21312.3	21315.8	20612.7	22032	20931.2	20813.2	20668.8
12	05:00	21297.5	21177.9	21031.8	21206	20597.9	22235	20960.5	20877.9	20717.9
13	05:30	21627.5	21611.2	21435	21244.5	21132.8	22374.7	21323.6	21260	21478.9
14	06:00	21531.8	21460.8	21218.8	20777.2	21017.2	22712.4	21341.7	21761.2	21254.3
15	06:30	20814.9	21167.9	20657.4	19897.9	20607.5	22224.7	21159.1	21104.3	21191.7
16	07:00	20807.5	20816.2	20361.7	19372.2	20665.3	22016.7	20769.3	20908.8	20874.8
17	07:30	21163	21144.8	20452.9	19180.3	21131.3	22044.3	21040.9	21418.5	21217.8
18	08:00	21837.1	22163.5	20938.3	18913.1	22552.8	23083.6	21972.7	22385.8	21845.7
19	08:30	23612.6	23858.2	22433.8	19450	24377	24674	23640.5	23967.2	23267.4
20	09:00	23403.2	23786.5	22981	19463.4	24592.7	24915.7	23620.6	23863.2	23236.9
21	09:30	23905.4	24127.1	22994.4	19718.8	25023.9	25193.4	23931.4	24067.4	23745.3
22	10:00	24093.8	24180.1	23422.7	20002.5	25253	25270.9	23912	24257.1	23643.7
23	10:30	24418.5	24554.6	23391.6	20277.2	25714	25540.7	24121.8	24501.4	24043.3
24	11:00	24542.2	24723.3	23585.6	20406.8	25989.6	25612.7	24450.3	24606.9	24027.4
25	11:30	24526.4	24618.8	23666.9	20561	25982	25432.7	24440	24389	23980.8
26	12:00	23724	23554	22931.7	20569.7	25096.6	24399.8	23288.4	23300.8	22943.7
27	12:30	23505.5	23421.1	22924.7	20851.6	24961.1	24036.6	23222.3	22819.2	22543.7
28	13:00	24428.8	24640.9	23598.5	21358.9	26173.7	25003.5	24114.7	23551.7	23334.3

	Time	Month	Day	Value	Day_Type	Holiday
	Filter	Filter	Filter	Filter	Filter	Filter
1	00:00	มค.64	Day_1	12899.3	Friday	1
2	00:30	มค.64	Day_1	12656.1	Friday	1
3	01:00	มค.64	Day_1	12302.1	Friday	1
4	01:30	มค.64	Day_1	11896.2	Friday	1
5	02:00	มค.64	Day_1	11702.2	Friday	1
6	02:30	มค.64	Day_1	11371.9	Friday	1
7	03:00	มค.64	Day_1	11256.4	Friday	1
8	03:30	มค.64	Day_1	10935.1	Friday	1
9	04:00	มค.64	Day_1	11018.8	Friday	1
10	04:30	มค.64	Day_1	11024.6	Friday	1
11	05:00	มค.64	Day_1	11266.1	Friday	1
12	05:30	มค.64	Day_1	11730.9	Friday	1
13	06:00	มค.64	Day_1	12011	Friday	1
14	06:30	มค.64	Day_1	12170.1	Friday	1
15	07:00	มค.64	Day_1	11720	Friday	1
16	07:30	มค.64	Day_1	11463	Friday	1
17	08:00	มค.64	Day_1	11018.4	Friday	1
18	08:30	มค.64	Day_1	10957.6	Friday	1
19	09:00	มค.64	Day_1	10762.7	Friday	1
20	09:30	มค.64	Day_1	10612.4	Friday	1
21	10:00	มค.64	Day_1	10483.3	Friday	1
22	10:30	มค.64	Day_1	10470.6	Friday	1
23	11:00	มค.64	Day_1	10239.5	Friday	1
24	11:30	มค.64	Day_1	10148.1	Friday	1
25	12:00	มค.64	Day_1	10094.5	Friday	1
26	12:30	มค.64	Day_1	9876	Friday	1
27	13:00	มค.64	Day_1	10110.4	Friday	1
28	13:30	มค.64	Day_1	10351	Friday	1
29	14:00	มค.64	Day_1	10412.5	Friday	1

```
[1] import os
    os.makedirs('data', exist_ok=True)

[2] %load_ext sql

> [3] %sql sqlite:///data/NetPeak2020.db
```

```
excel_file_path = r"C:\Users\tanto\Desktop\Forecast\Final_Updated_Net-PEAK19.xlsx"
database_path = r"C:\Users\tanto\Desktop\Forecast\data\NetPeak2019.db"
excel_data = pd.ExcelFile(excel_file_path)
sheet_names = excel_data.sheet_names
data = pd.DataFrame()
for sheet in sheet_names:
    sheet_data = pd.read_excel(excel_data, sheet_name=sheet)
    x = clean_data(sheet_data, sheet)
    data = pd.concat([data, x], ignore_index=True)

conn = sqlite3.connect(database_path)
cursor = conn.cursor()
query = """
CREATE TABLE IF NOT EXISTS Net_PEAK21 (
    Time TEXT,
    Month TEXT,
    Day TEXT,
    Value REAL,
    Day_Type TEXT,
    Holiday INTEGER
)
"""
cursor.execute(query)
conn.commit()
data.to_sql('Net_PEAK21', conn, if_exists='replace', index=False)
conn.close()
```

Code

Problems

		ประจำเดือน มิถุนายน 2564																					
2		วัน	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
3																							
4	เวลา	อังคาร	พุธ	พฤหัสบดี	ศุกร์	เสาร์	อาทิตย์	จันทร์	อังคาร	พุธ	พฤหัสบดี	ศุกร์	เสาร์	อาทิตย์	จันทร์	อังคาร	พุธ	พฤหัสบดี	ศุกร์	เสาร์	อาทิตย์	จันทร์	
5	วันสำคัญ			วันเฉลิมฯ																			
6	00:00	25,880.9	27,105.7	27,524.0	26,142.9	26,837.5	25,364.4	22,827.3	24,092.7	23,399.5	22,989.7	23,137.4	23,015.6	22,735.8	19,546.5	22,296.7	22,329.7	23,088.8	23,476.6	24,373.2	24,038.0	22,321.4	
8	01:00	24,786.8	25,827.1	26,394.0	24,819.3	25,932.9	24,317.2	21,865.9	23,389.8	22,557.7	22,197.9	22,329.8	22,368.9	21,874.6	18,942.1	21,308.7	21,565.9	22,245.3	22,734.5	23,520.6	22,947.8	21,353.8	
9	01:30	24,292.0	25,370.6	25,877.5	24,190.6	25,456.2	24,144.7	21,643.8	23,046.3	22,347.9	21,889.7	21,971.7	22,206.4	21,525.3	18,585.4	21,255.2	21,349.3	22,332.8	22,556.0	22,888.0	22,418.4	20,916.1	
10	02:00	24,002.3	24,786.6	25,253.9	23,887.1	25,058.7	23,590.1	21,121.4	22,678.7	21,875.5	21,578.8	21,639.1	21,664.2	21,146.2	18,235.1	20,999.6	21,107.6	21,766.9	22,162.6	22,538.2	22,044.4	20,472.7	
11	02:30	23,654.2	24,416.5	24,886.1	23,309.6	24,537.2	23,147.7	20,700.2	22,309.4	21,609.7	21,113.5	21,389.0	21,438.7	20,703.7	18,093.2	20,556.0	20,874.9	21,576.4	21,658.1	22,107.0	21,605.7	20,045.0	
12	03:00	23,162.6	23,980.5	24,419.3	22,877.7	24,000.9	22,738.2	20,220.5	21,989.7	21,314.5	20,856.5	21,119.2	21,012.4	20,380.5	17,706.5	20,341.0	20,616.3	21,175.1	21,243.7	21,904.8	21,163.9	20,001.6	
13	03:30	22,744.4	23,638.8	24,001.4	22,493.3	23,577.2	22,397.0	20,163.2	21,708.8	21,150.1	20,451.0	20,896.7	20,787.7	20,271.9	17,649.2	20,024.9	20,675.7	20,747.3	21,107.2	21,621.4	21,033.8	19,641.1	
14	04:00	22,314.3	23,366.2	23,571.8	22,221.9	23,120.0	21,899.6	20,021.9	21,513.6	20,874.4	20,590.7	20,637.3	20,762.4	19,726.9	17,569.8	19,923.8	20,534.8	20,865.1	20,861.2	21,327.4	20,674.8	19,425.5	
15	04:30	22,258.8	23,255.8	23,388.9	22,244.5	23,062.9	21,935.6	20,052.3	21,630.1	20,736.0	20,621.2	20,717.2	20,638.7	20,142.2	17,673.8	20,021.3	20,397.2	20,850.3	20,893.6	21,122.7	20,681.1	19,452.3	
16	05:00	22,383.4	23,183.0	23,238.7	22,205.6	22,846.6	21,687.3	20,074.1	21,605.0	20,906.4	20,682.6	20,666.9	20,528.6	19,913.7	17,914.1	20,084.5	20,547.4	21,115.8	20,894.4	21,014.4	20,367.6	19,495.3	
17	05:30	22,642.7	23,684.0	23,293.9	22,528.9	22,991.7	21,848.2	20,749.2	21,876.7	21,554.6	21,378.9	21,288.5	20,958.9	20,302.4	18,837.3	20,802.6	21,143.3	21,619.5	21,435.8	21,349.3	20,841.6	20,320.8	
18	06:00	22,166.3	23,125.5	22,836.0	22,122.6	22,528.7	21,252.2	20,712.1	21,827.3	21,610.1	21,457.1	21,296.2	20,908.1	20,053.8	19,425.2	20,766.9	21,270.3	21,676.0	21,378.9	20,896.4	20,223.9	20,042.7	
19	06:30	21,946.6	22,388.2	21,689.3	21,799.3	21,880.5	20,201.9	20,416.1	21,418.1	21,154.9	21,157.0	20,948.0	20,468.3	19,236.2	19,074.0	20,702.1	20,838.5	21,161.1	21,135.9	20,460.0	19,382.8	19,858.0	
20	07:00	21,642.0	22,310.7	21,240.0	21,684.0	21,490.6	19,635.0	20,478.4	21,245.0	20,969.3	20,694.1	21,031.5	20,071.8	18,570.2	19,063.0	20,578.1	20,578.7	20,826.8	20,788.0	20,114.8	18,942.8	19,727.7	
21	07:30	22,229.9	22,642.0	21,063.0	22,110.8	21,619.1	19,417.0	20,901.5	21,343.0	21,270.8	21,256.9	21,245.0	20,154.2	18,287.3	19,730.7	20,455.9	20,735.0	20,891.5	21,138.6	20,099.9	18,809.9	20,500.7	
22	08:00	23,342.2	23,687.1	20,919.1	23,416.6	22,286.0	19,128.5	22,126.9	22,636.4	22,272.4	21,724.5	22,013.4	20,784.8	18,179.6	20,971.9	21,641.1	21,675.9	21,834.7	22,249.0	20,584.1	18,613.3	21,697.2	
23	08:30	24,977.4	25,578.4	21,817.2	25,446.6	23,693.0	19,774.9	24,086.5	24,350.2	23,907.0	23,358.2	23,739.2	22,409.9	18,606.6	22,553.5	23,165.9	23,359.4	23,358.5	23,756.1	22,297.9	19,163.7	23,719.0	
24	09:00	25,112.6	25,739.7	22,157.3	25,610.8	24,228.4	19,892.8	24,652.8	24,549.6	23,696.2	23,204.7	23,735.3	22,911.9	18,774.8	23,098.6	23,313.3	23,432.1	23,433.1	23,874.7	22,746.4	19,275.0	24,017.0	
25	09:30	25,414.7	26,074.3	22,496.8	26,151.0	24,380.0	19,905.9	24,922.3	24,811.4	24,104.8	23,486.6	23,980.2	23,367.8	18,851.4	23,357.5	23,436.9	23,494.0	23,844.8	24,101.1	23,009.0	19,555.1	24,419.5	
26	10:00	25,800.6	26,206.2	22,679.2	26,352.6	24,775.0	19,988.5	25,201.9	25,014.2	24,219.9	23,409.1	24,211.4	23,245.9	18,945.7	23,441.2	23,691.4	23,650.0	23,956.7	24,055.6	23,198.8	19,523.5	24,671.0	
27	10:30	26,199.6	26,744.2	22,888.6	26,912.0	24,979.8	20,174.2	25,551.3	25,178.0	24,570.9	24,010.8	24,551.3	23,672.1	19,199.2	23,656.3	24,061.5	23,961.9	24,180.9	24,491.5	23,437.0	19,796.6	25,021.7	
28	11:00	26,497.3	26,949.7	22,969.2	27,109.4	25,328.5	20,283.6	25,678.8	25,298.8	24,664.8	24,229.3	24,833.2	23,029.1	19,408.2	23,719.2	24,247.4	24,101.3	24,268.2	24,708.7	23,684.3	20,005.3	25,204.0	
29	11:30	26,584.2	27,166.0	23,206.2	27,036.7	25,271.5	20,508.2	25,520.0	25,404.3	24,458.7	24,182.2	24,747.8	22,904.8	19,245.0	23,500.9	24,184.4	24,072.2	24,207.7	24,683.0	23,842.4	20,135.2	25,197.1	
30	12:00	25,459.9	26,122.1	22,728.6	26,157.8	24,403.3	20,500.7	24,386.7	24,421.8	23,529.0	22,846.4	23,169.4	21,915.2	18,739.1	22,415.0	22,902.4	22,789.2	23,069.1	23,589.6	22,745.1	19,981.3	24,142.7	

EMPTY

ID	1	2	3	4	5	6	7	8	9	10	11
Day	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
วันสำคัญ					วันพ่อ	หยุดชดเชย				วันรัฐธรรมนูญ	
00:00	20043.8	19554	18949.9	18780.3	17799.8	15660.3	16870.5	18317.6	18463.2	19687.7	20135.9
00:30	19861.9	19306.1	18374.2	18364.2	17278.8	15391.9	16794.3	18061.4	18095	19301.7	19686.9
01:00	19609.1	18810.6	18368.9	18516.5	16928	15085.6	16565.4	17894.6	17914.6	19026.3	19323.9
01:30	19487.1	18780.7	18248.6	18208.8	16905.1	14838.1	16318.8	17620.3	17984.8	18882.6	19300.3
02:00	19221	18444.7	18132.7	17920.1	16627.6	14745.6	16123.3	17376.6	17928.4	18749	19146
02:30	18998.6	18154.1	17950.7	17658.3	16521.6	14892.4	16015.6	17261.5	17718	18434.3	19129.1
03:00	18627.9	18030.6	17787.2	17654.6	16231.3	14549.7	15771.1	17139.4	17531.9	18103.1	18709.7
03:30	18526.6	17917.9	17757	17356.8	16220.2	14564.6	15701.2	17232	17520.7	17970.5	18502.5
04:00	18310.2	17949.9	17670.1	17626.8	16042.7	14477.3	15853.4	16926.2	17686.2	17902.5	18427.7
04:30	18536.4	17968.6	17891.7	17670.1	16143.2	14689	16052.5	17045.2	18016.9	17933.8	18290.4
05:00	18663.2	18552.2	18126.6	17987.9	16452.6	15042.3	16468	17415	18086.1	18202.1	18619.2
05:30	19494.8	19220.8	18953.3	18433.8	16657.3	15904.7	17281.2	18290.1	18941.6	18827.5	19171.6
06:00	20117.6	19883.1	19559.1	18903.6	16912.5	16427.3	18258.8	19191.7	19559.3	19288.7	19645.9
06:30	20551.4	20694.1	20234.4	19146.5	16955.6	16965.6	18914	19930.3	20259	19560.5	20050.4
07:00	20100.8	20225.4	19817.5	18909.1	16387.2	16436.4	18695	19398.5	19793.8	19349.6	19502
07:30	20057	19934	19672.3	18475.9	15918.8	16167.2	18534.8	18900.6	19494.4	19136.6	19284.8
08:00	20361.5	20212	19757.1	18436.7	15440.4	16274.3	18841.6	19107.4	19827.8	19532.4	19715
08:30	21440.2	21152.2	20655.4	19276.8	15439.1	16798.5	19913.7	19921.4	20746.6	20477.6	20719.4
09:00	21095.9	20797	20204.4	19348.2	15321.2	16638.8	19441.6	19537.9	20782.7	20407.9	21041
09:30	20970.1	20763.4	20355	19444.5	15175.1	16372.2	19572.2	19459	20766	20500.3	21081.1
10:00	20934.6	20707.4	20206.1	19456.5	14834.9	16395.9	19600.4	19389.7	20779.4	20522.2	20897.8
10:30	20949.4	20880.5	20403.6	19381	14850.5	16517.4	19649	19400.8	20832.7	20670	21033.8
11:00	20893.5	20912.6	20271.1	19348.7	14640.2	16571.4	19585.8	19447.6	20837.2	20565.8	20987.9
11:30	20666.2	20576.2	20131.6	18895	14750.1	16463.5	19447.4	19292.8	20634.3	20294.2	20728.9
12:00	19631.5	19380.6	19105.3	18061.6	14193	15746.3	18389.7	18269.2	19638.6	19490.5	19765.3
12:30	19236.8	18958	18621.9	17500.2	14146.1	15563.7	18038	17850.6	19342.6	19092	19644.5
13:00	19948.6	19773.3	19584	18420.8	14312.2	16094	18987.5	18731.4	20315.5	19747.4	20121.6
13:30	21364.9	21065.9	20635.8	19595.3	14822.7	17035	20476.1	20139.3	21630.4	21272.8	21611.5
14:00	21731.3	21384.7	21122.7	19620.9	15035.9	17250.3	20742.6	20592.5	22025	21856.2	21910.6

Data Querying

```
import sqlite3
import pandas as pd
from openpyxl import load_workbook
conn = sqlite3.connect(r"C:\Users\tanto\Desktop\Forecast\data\NetPeak2021.db")
query = "SELECT * FROM Net_PEAK21 WHERE Time = '12:00' AND Time != '24:00' AND Month IN ('ตค.64') LIMIT 16"
df = pd.read_sql(query, conn)
conn.close()
excel_file = r"C:\Users\tanto\Desktop\Forecast\ForecastWithDB.xlsx"
sheet_name = 'Sheet5'
```

Uploading to Excel

```
# Write the DataFrame to a specific sheets
try:
    # Try to load an existing workbook
    book = load_workbook(excel_file)
    with pd.ExcelWriter(excel_file, engine='openpyxl', mode='a', if_sheet_exists='replace') as writer:
        df.to_excel(writer, sheet_name=sheet_name, index=False)
except FileNotFoundError:
    # If the file does not exist, create a new one
    with pd.ExcelWriter(excel_file, engine='openpyxl') as writer:
        df.to_excel(writer, sheet_name=sheet_name, index=False)

# Ensure at least one sheet is visible
workbook = load_workbook(excel_file)
if not workbook.sheetnames:
    workbook.create_sheet(title='Sheet1')
    workbook['Sheet1'].append(['']) # Add an empty row to avoid the "no visible sheet" issue

# Save the changes
workbook.save(excel_file)
```


Features

No		Forecast Date	X1	X2	X3	Actual Load	Predicted Load	MAPE (%)
1	Train	21/6/2021	22827.3	19546.5	24038	22321.4	22744.7	1.9
2	Train	28/6/2021	19546.5	22321.4	24241.8	21607.3	22292.2	3.17
3	Train	5/7/2021	22321.4	21607.3	25106.9	24283	23480.1	3.31
4	Train	12/7/2021	21607.3	24283	21211	19840.5	19632.5	1.05
5	Train	19/7/2021	24283	19840.5	22043.2	20704.7	21089.7	1.86
6	Train	26/7/2021	19840.5	20704.7	19574.1	18230.7	18227.3	0.02
7	Train	2/8/2021	20704.7	18230.7	22193.3	21396.8	20917.9	2.24
8	Test	9/8/2021	18230.7	21396.8	23172.5	22820.1	21236.2	6.94

- X3 = Previous day load at the same time
- X2 = Past 7 days load at the same time
- X1 = Past 14 days load at the same time

No	Forecast Dat	X1	X2	X3	X4	X5	X6	X7	Actual Load	Predicted Load	MAPE(%)
1 Train	31/5/2021	24806.1	26713.5	24581.4	24260.8	23798.8	23325.2	23561.6	23084.3	23054.25	0.130182
2 Train	7/6/2021	23084.3	25880.9	27105.7	27524	26142.9	26837.5	25364.4	22827.3	23133.73	1.34238
3 Train	14/6/2021	22827.3	24092.7	23399.5	22989.7	23137.4	23015.6	22735.8	19546.5	20731.87	6.064378
4 Train	21/6/2021	19546.5	22296.7	22329.7	23088.8	23476.6	24373.2	24038	22321.4	22383.35	0.277548
5 Train	28/6/2021	22321.4	25184.6	25717.6	24659.6	24755.8	25321.4	24241.8	21607.3	21167.16	2.036987
6 Train	5/7/2021	21607.3	22612.3	23377.5	24054.9	24053	24771.2	25106.9	24283	23810.23	1.946934
7 Train	12/7/2021	24283	25318.2	23289.8	23073.2	23188	22054	21211	19840.5	19328.3	2.58161
8 Train	19/7/2021	19840.5	22605.4	23239.6	21929.4	21322.6	22267.2	22043.2	20704.7	20541.28	0.789283
9 Train	26/7/2021	20704.7	21670.3	22199.3	22911.4	22953.8	21772.9	19574.1	18230.7	18206.46	0.132948
10 Train	2/8/2021	18230.7	21271.3	21879.1	20169.4	22553.3	22498.8	22193.3	21396.8	21485.87	0.416269
11 Test	9/8/2021	21396.8	22974.4	22058	23072.9	23019.4	23443.8	23172.5	22820.1	21065.15	7.690366

- X1-X7 = Previous 7 Days load at the same time

Type	Time	Month	Day	Day_Type	Holiday	X1	X2	X3	X4	Actual Load	Predicted Load	MAPE (%)
Train	00:00	ม.ค. 64	Day_8	Friday	0	24	5	21893	0	20077.8	21447.14579	6.820198357
Train	01:00	ม.ค. 64	Day_8	Friday	0	1	5	20077.8	0	19516.7	20025.17398	2.605327655
Train	02:00	ม.ค. 64	Day_8	Friday	0	2	5	19516.7	0	18990.7	19502.95805	2.69741529
Train	03:00	ม.ค. 64	Day_8	Friday	0	3	5	18990.7	0	18289.9	19012.77201	3.952301588
Train	04:00	ม.ค. 64	Day_8	Friday	0	4	5	18289.9	0	17943.9	18363.07525	2.336031999
Train	05:00	ม.ค. 64	Day_8	Friday	0	5	5	17943.9	0	18208.1	18037.1451	0.938894758
Train	06:00	ม.ค. 64	Day_8	Friday	0	6	5	18208.1	0	19637.9	18268.04245	6.97558066
Train	07:00	ม.ค. 64	Day_8	Friday	0	7	5	19637.9	0	20071	19562.58796	2.533067802
Train	08:00	ม.ค. 64	Day_8	Friday	0	8	5	20071	0	20475.5	19947.61209	2.578144196
Train	09:00	ม.ค. 64	Day_8	Friday	0	9	5	20475.5	0	21448.3	20306.53777	5.323322725

.

.

.

Train	20:00	ม.ค. 64	Day_14	Thursday	0	20	4	22185.7	0	20730.9	21767.74485	5.001446377
Train	21:00	ม.ค. 64	Day_14	Thursday	0	21	4	20730.9	0	19334.5	20429.99839	5.666029072
Test	22:00	ม.ค. 64	Day_14	Thursday	0	22	4	19334.5	0	17949.7	19145.54385	6.662194062
Test	23:00	ม.ค. 64	Day_14	Thursday	0	23	4	17949.7	0	17952.4	17871.67468	0.449663087
Test	12:00	พ.ค. 64	Day_1	Friday	0	12	5	24242.9	0	23241.2	23713.83222	2.033596475

X1 = Hour

X2 = Day of the week

X3 = Previous Hour Load

X4 = Holiday

Type	Time	Month	Day	Day_Type	Holiday	X1	X2	X3	Actual Load	Predicted Load	MAPE (%)
Train	11:00	มค.64	Day_1	Friday	1	10612.4	10483.3	10470.6	10239.5	10263.53311	0.2347098
Train	11:00	มค.64	Day_8	Friday	0	21518.3	21416.9	21559.5	21600.3	21553.94899	0.214585
Train	11:00	มค.64	Day_15	Friday	0	18761.9	18711.2	18901	18824.4	18858.23522	0.1797413
Train	11:00	มค.64	Day_22	Friday	0	19425.5	19398.7	19655.2	19706.2	19632.18088	0.3756134
Train	11:00	มค.64	Day_29	Friday	0	21314.2	21284.9	21450.9	21335.9	21451.2615	0.540692
Train	11:00	กพ.64	Day_5	Friday	0	21025.6	21201.5	21413.3	21429.4	21433.52146	0.0192328
Train	11:00	กพ.64	Day_12	Friday	1	19002.2	19005.2	19027.2	19083.7	18978.45324	0.5515008
Train	11:00	กพ.64	Day_19	Friday	0	20714.9	20737.8	20774.5	20709.8	20758.06559	0.2330568
Test	11:00	กพ.64	Day_26	Friday	1	20418.2	20543.7	20732.1	20762.7	20734.85382	0.1341164
Test	16:00	กพ.64	Day_26	Friday	1	22624.3	22760.2	23145	23161.6	23204.15876	0.1837471
Test	16:00	สค.64	Day_9	Monday	1	26361.6	26415.4	26552	26230.2	26643.35154	1.5750987

- X1 = Load 1.5 hours ago
- X2 = Load 1 hour ago
- X3 = Load 0.5 hour ago

	Type	Time	Month	Day	Day_Type	Holiday	X1	X2	X3	Actual Load	Forecast Load	MAPE (%)
	Train	12:00	มค.64	Day_1	Friday	1	10470.6	10239.5	10148.1	10094.5	10073.67712	0.2062794
	Train	12:00	มค.64	Day_2	Saturday	0	11656.2	11439.9	11286.5	11050.6	11094.44575	0.3967725
	Train	12:00	มค.64	Day_3	Sunday	0	12922.4	12764.7	12724.6	12431.6	12408.22986	0.1879898
	Train	12:00	มค.64	Day_4	Monday	0	18317.6	18378.4	18188.8	17244.7	17256.20134	0.0666949
	Train	12:00	มค.64	Day_5	Tuesday	0	20457.7	20567.2	20471.6	19288.3	19346.74363	0.3030004
	Train	12:00	มค.64	Day_6	Wednesday	0	21163.5	21256.3	21040.6	19864.4	19848.99961	0.0775276
	Train	12:00	มค.64	Day_7	Thursday	0	21780.5	21739.5	21578.6	20493.2	20437.59894	0.2713147
	Train	12:00	กพ.64	Day_1	Monday	0	21134.9	21231.5	20985.1	19866.1	19787.99449	0.3931598
0	Train	12:00	กพ.64	Day_2	Tuesday	0	22274.2	22199	22122.3	20936.8	20978.74747	0.2003528
1	Train	12:00	กพ.64	Day_3	Wednesday	0	22175.6	22236.2	21942.6	20653.7	20677.04121	0.1130122
2	Train	12:00	กพ.64	Day_4	Thursday	0	21750.1	21787	21533	20224.6	20325.21843	0.4975051
3	Train	12:00	กพ.64	Day_5	Friday	0	21413.3	21429.4	21246.9	20179.5	20093.10216	0.4281466
4	Test	12:00	กพ.64	Day_6	Saturday	0	21347.6	21419.7	21185.9	20059.8	19990.34637	0.3462329
5	Test	12:00	ธค.64	Day_8	Wednesday	0	19400.8	19447.6	19292.8	18269.2	18287.19326	0.0984896
6	Test	11:00	ธค.64	Day_8	Wednesday	0	19459	19389.7	19400.8	19447.6	18498.29988	4.8813227

- X1 = Load 1.5 hours ago
- X2 = Load 1 hour ago
- X3 = Load 0.5 hour ago

Typical Daily Pattern

