576 Profile Creation Example

November 10th, 2022

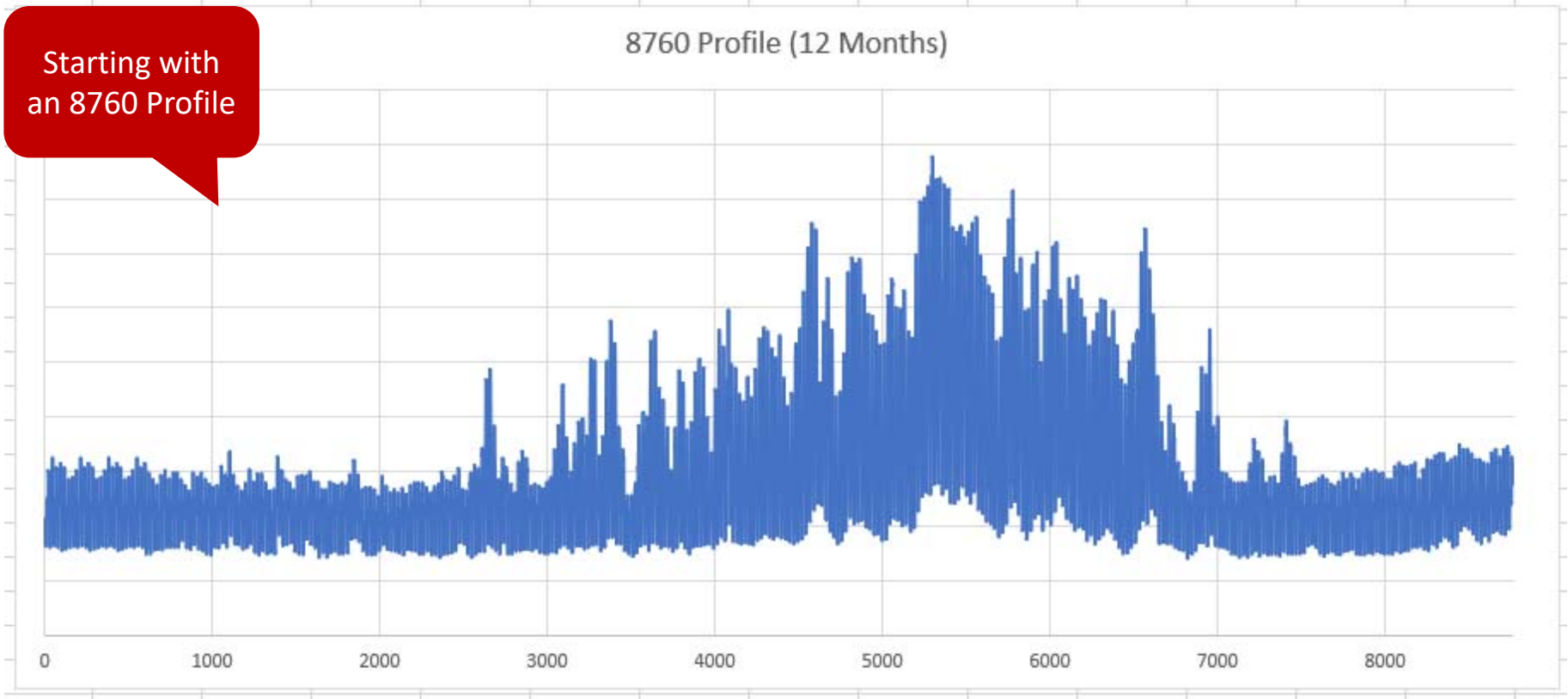
SCE Action Item from 11/10/2022 SIWG meeting

6 Step Process for Min and Max load profile development

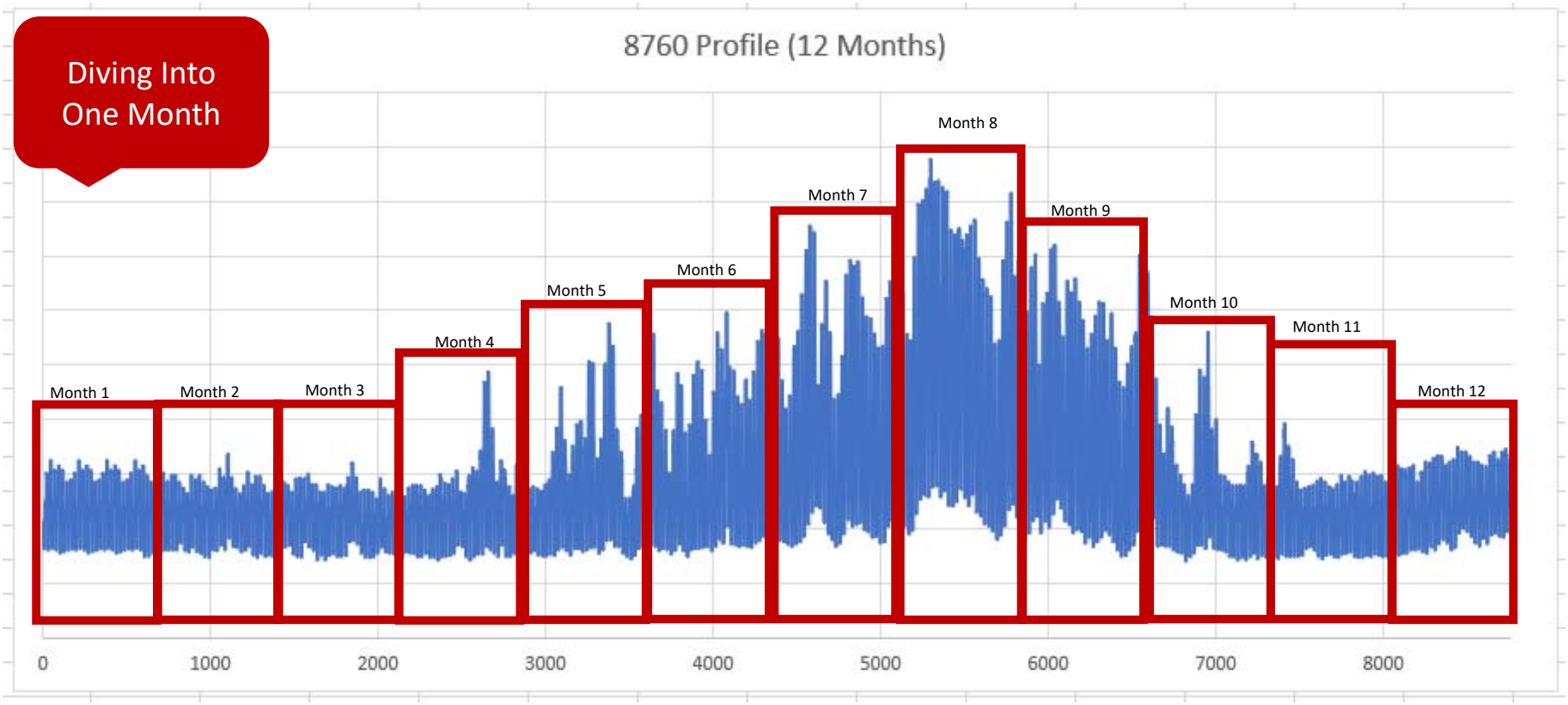
Step 1: Commence with the 8760(12 months) historic gross load profile
Step 2: Bucketize the 8760 historic load profile into each of the 12 months(12 buckets)
Step 3: Collect the hours for each month **(January** shown as example)
Step 4: Bucketize each hour of the month (January, **hour 1** used as example)
Step 5: Determine the Max and Min value for January **Hour 1**
Step 6. Repeat for each hour of each month to generate the 24-hours max and 24-hour min for each month(288 max profile and 288 min profile for the past 12 months)

1. Commence with the 8760(12 months) historic gross load profile

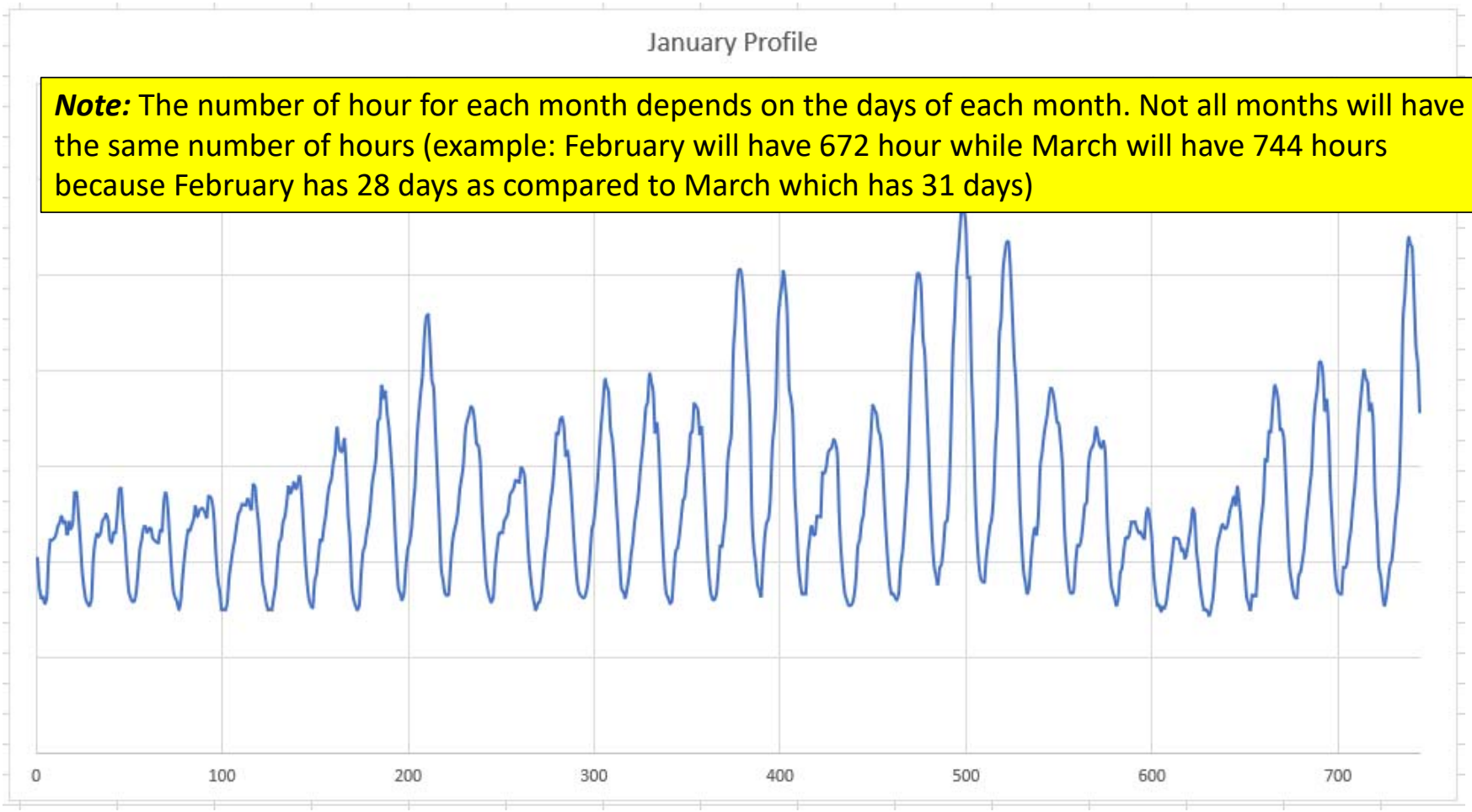
Starting with an 8760 Profile



2. Bucketize the 8760 historic load profile into each of the 12 months (buckets)

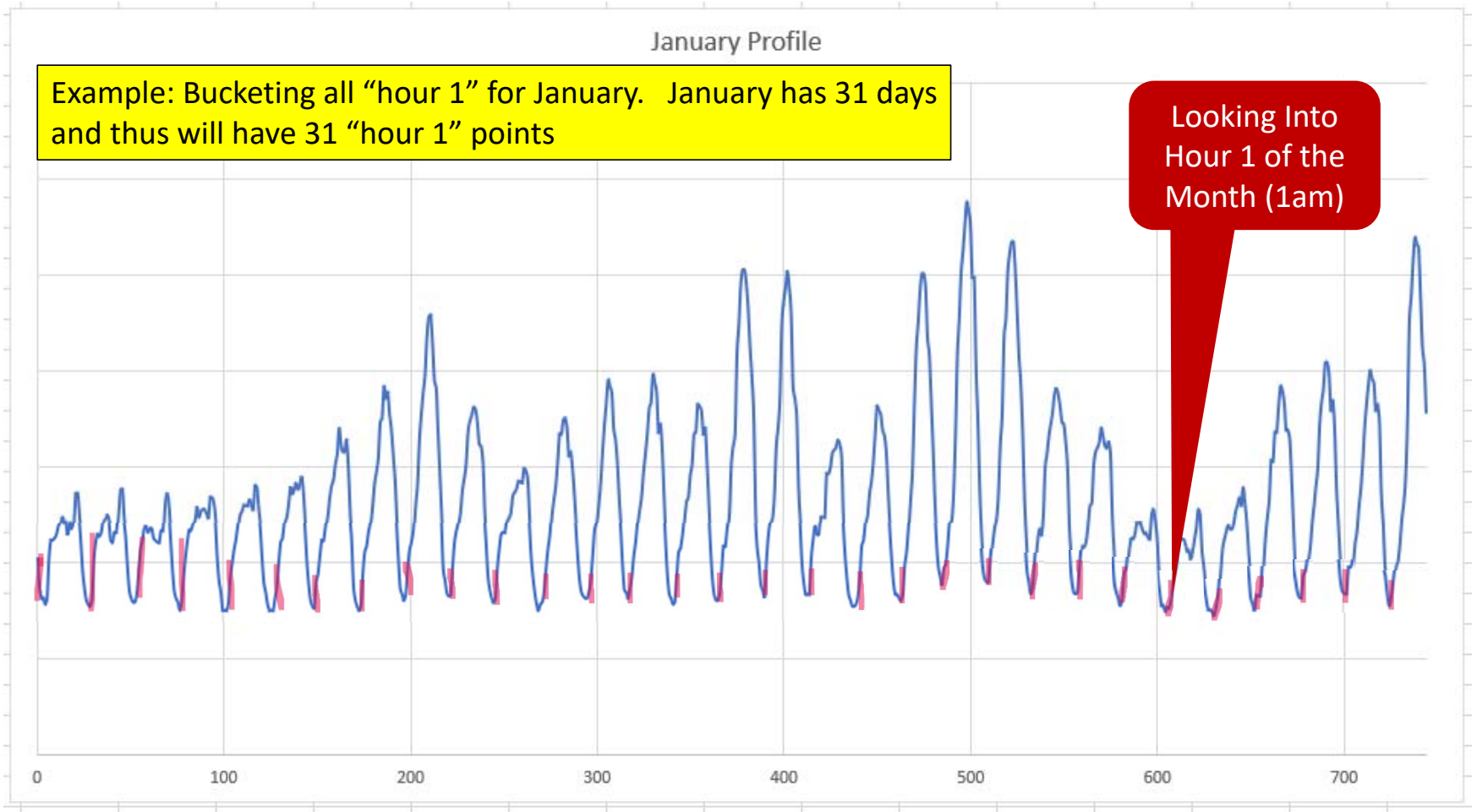


3. Collect the hours for each month **(January shown as example)**



Note: The number of hour for each month depends on the days of each month. Not all months will have the same number of hours (example: February will have 672 hour while March will have 744 hours because February has 28 days as compared to March which has 31 days)

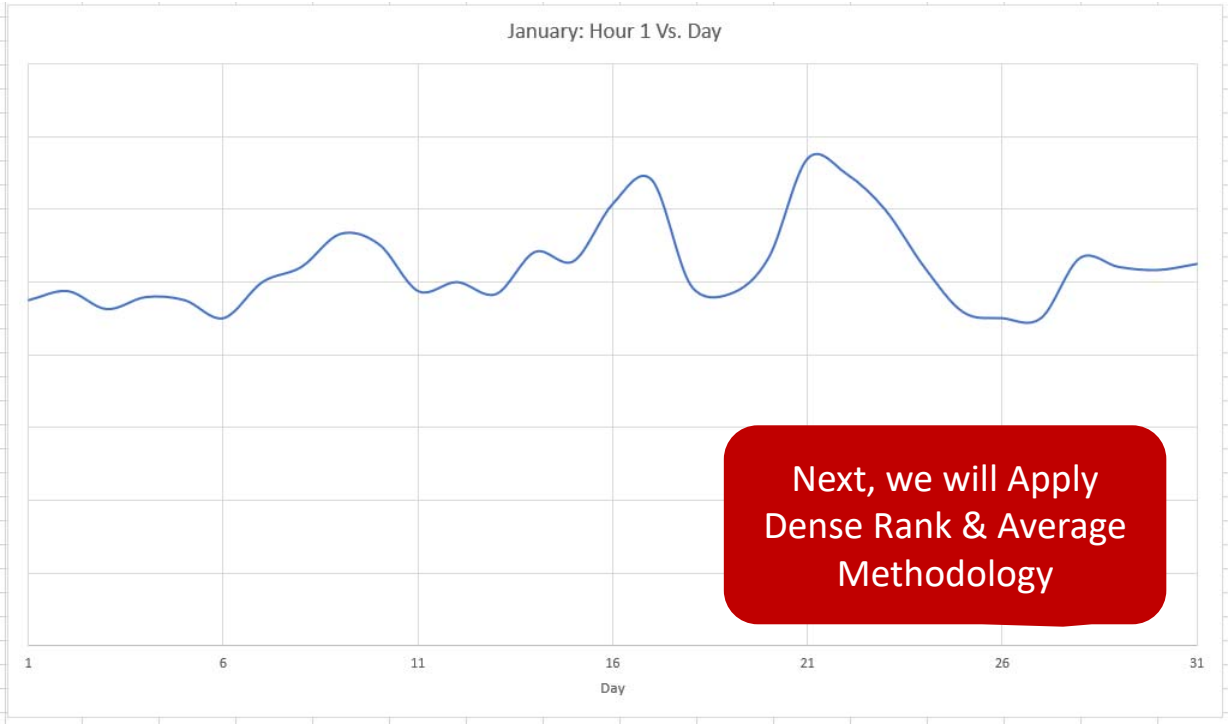
4. Bucketize each hour of the month (January, **hour 1** used as example)



January Hour 1 Bucket

Looking At Hour 1 From the Month of January

- January has 31 days
  - As shown, there are 31 loading values for hour 1 (1am)



Day	Loading
1	2.37
2	2.44
3	2.31
4	2.40
5	2.37
6	2.24
7	2.50
8	2.60
9	2.83
10	2.76
11	2.44
12	2.50
13	2.42
14	2.71
15	2.64
16	3.04
17	3.20
18	2.48
19	2.42
20	2.66
21	3.35
22	3.24
23	2.99
24	2.60
25	2.29
26	2.25
27	2.26
28	2.66
29	2.60
30	2.58
31	2.62

5. Determine the Max and Min value for **January Hour 1**

Apply Dense Rank & Average Methodology

Min Value

- Hourly data is sorted **ascending** and ranked
- ~10th Percentile (Values in the low 10% range) (31*10% =3.1). Use top 3 values in the rank (3 lowest values in the bucket)
- Top 3 ranks are averaged creating the MIN value (Average of 2.24, 2.25, 2.26 =2.26)

Max Value

- Hourly data is sorted **descending** and ranked
- ~90th percentile (Values in the high 10% range) (31*10% =3.1).Use the 3 top values in the rank (3 highest values in the bucket)
- Top 3 ranks are averaged creating the MAX value (Average of 3.35, 3.24,3.20 = 3.26)

Sorted Smallest to Largest Used for Min Value

Day	Loading	Rank
6	2.24	1
26	2.25	2
27	2.26	3
25	2.29	4
3	2.31	5
1	2.37	6
5	2.37	6
4	2.40	7
13	2.42	8
19	2.42	8
2	2.44	9
11	2.44	9
18	2.48	10
7	2.50	11
12	2.50	11
30	2.58	12
8	2.60	13
24	2.60	13
29	2.60	13

Sorted Largest to Smallest Used for Max Value

Day	Loading	Rank
21	3.35	1
22	3.24	2
17	3.20	3
16	3.04	4
23	2.99	5
9	2.83	6
10	2.76	7
14	2.71	8
20	2.66	9
28	2.66	9
15	2.64	10
31	2.62	11
8	2.60	12
24	2.60	12
29	2.60	12
30	2.58	13
7	2.50	14
12	2.50	14
18	2.48	15

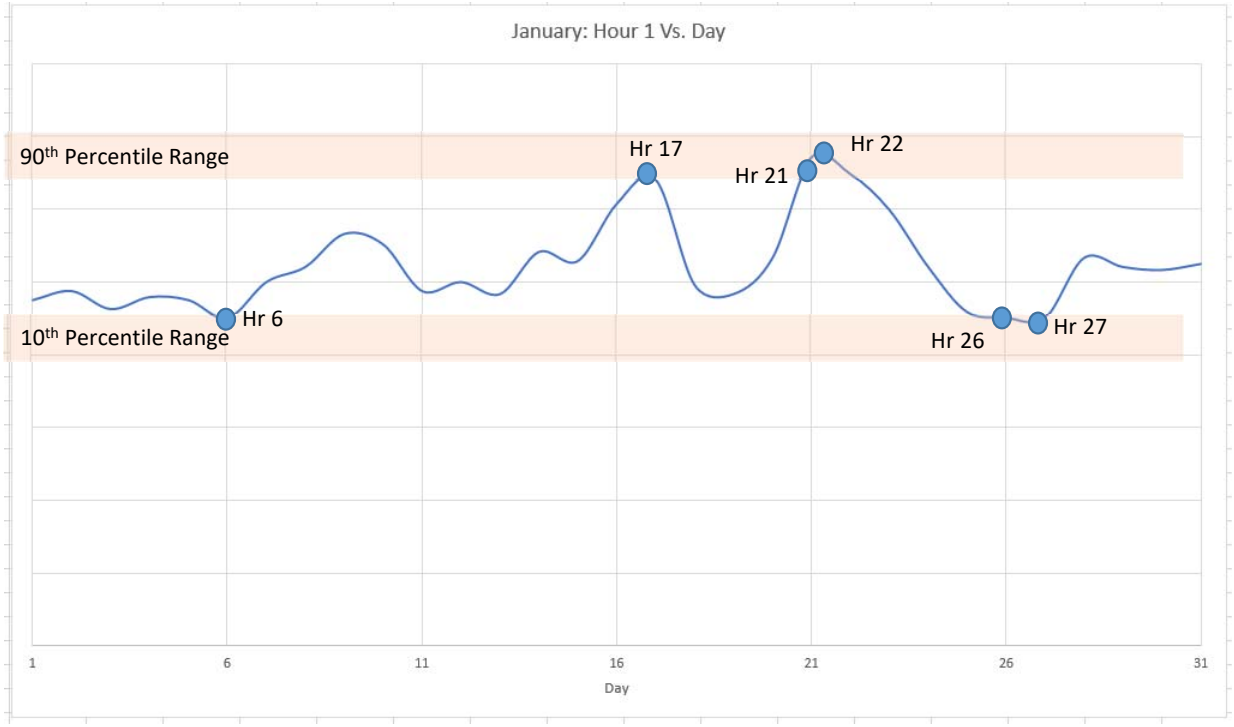
Min Value (Avg of 10th %tile): 2.26

Max Value (Avg of 90th %tile): 3.26

Percentage Vs Percentile

Percentage	Percentile
Percentage is a number or ratio expressed in terms of 100.	Percentile is a measure used in Statistics which indicates the relative value which helps in comparing the performance with others.
Example: 80 percent in a test shows that you got 8 out of 10 questions correct.	Example: 80th percentile shows that you performed better than 80% of the candidates.

~90th and ~10th Percentile Ranges Shown graphically



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6. Repeat for each hour of each month

- To generate the - 24 hours max and 24-hour min for each month
- To generate the 288 max profile and 288 min profile (576 profile) for the past 12 months)- Graphic shows below

Repeat for Each Hour of Each Month

576 Example from DRPEP