Estimated Impact of COVID19

Load Analysis Subcommittee

May 5, 2020

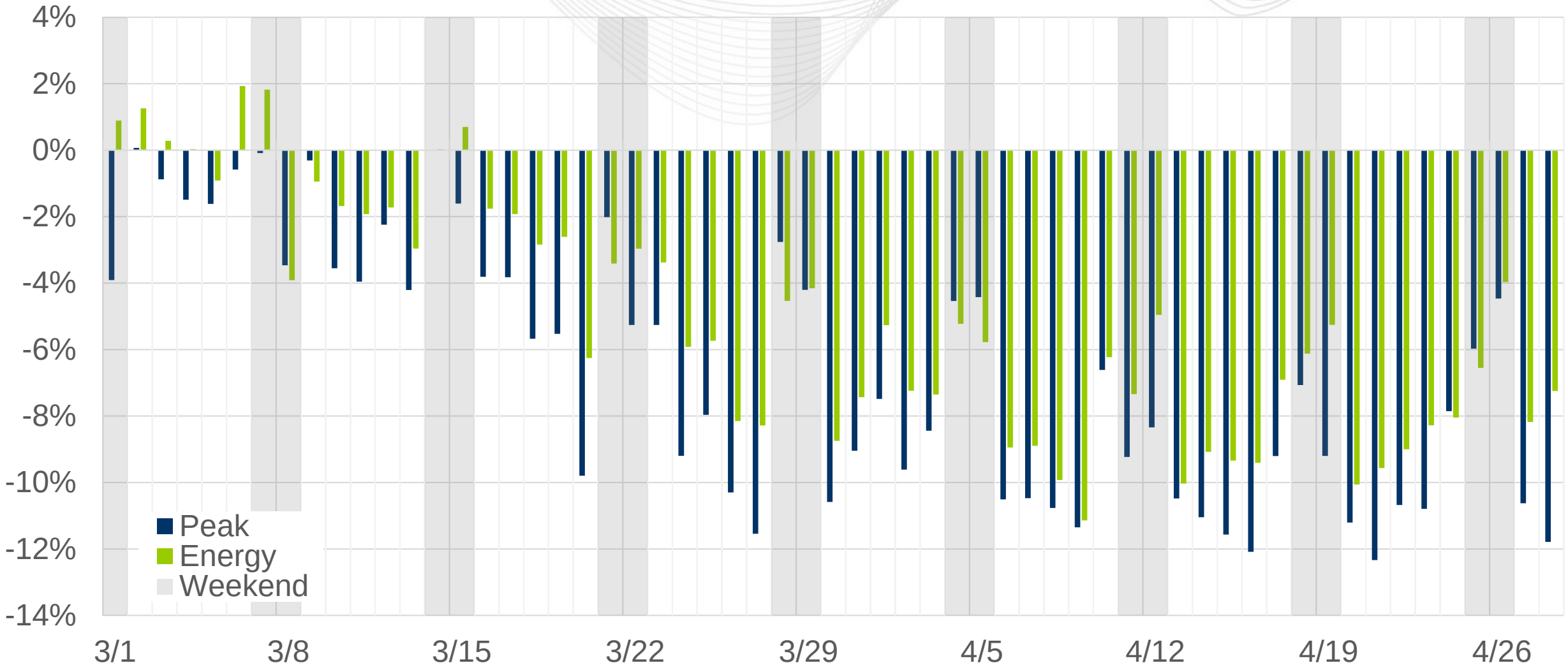
Approach to Isolate Impact of COVID-19

- For days with which there is complete data available (through 4/27), solve the long-term load forecast model with actual weather conditions

- For remaining days, impute a forecast value based on looking at daily forecast distributions and daily weather.

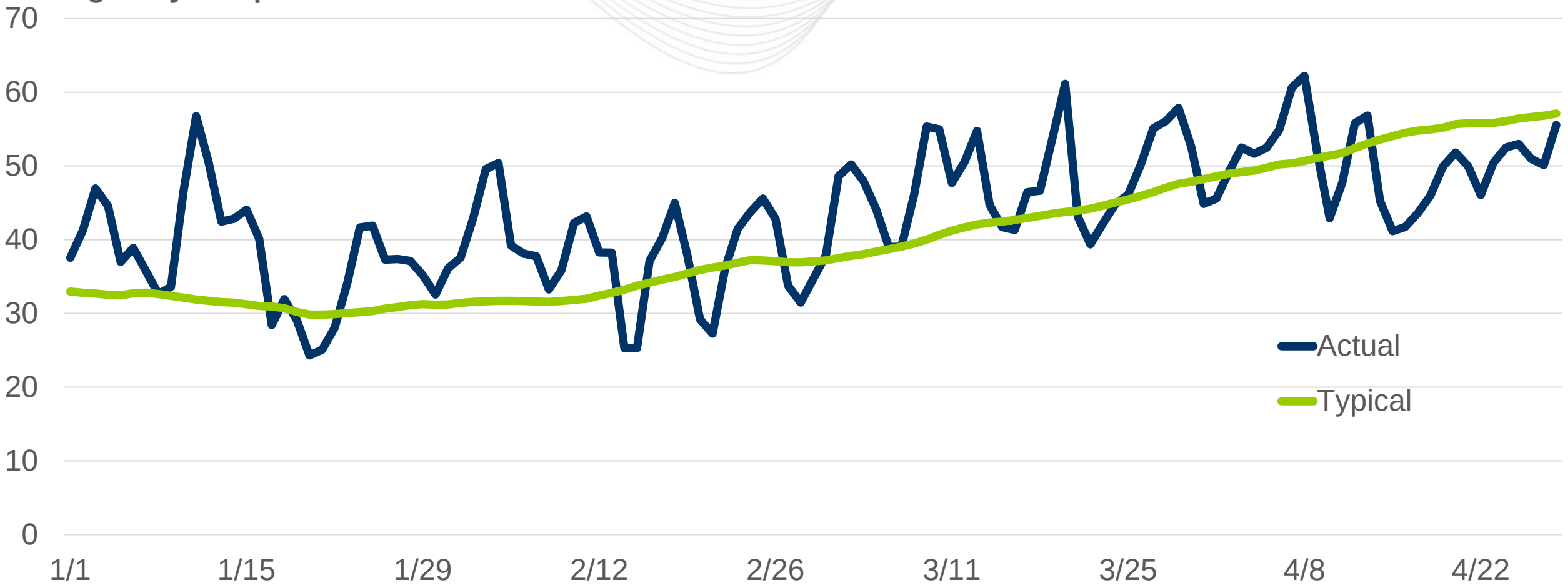
- See Appendix for more information on these methods.

Estimated Impact of COVID-19 on Daily Peak and Energy

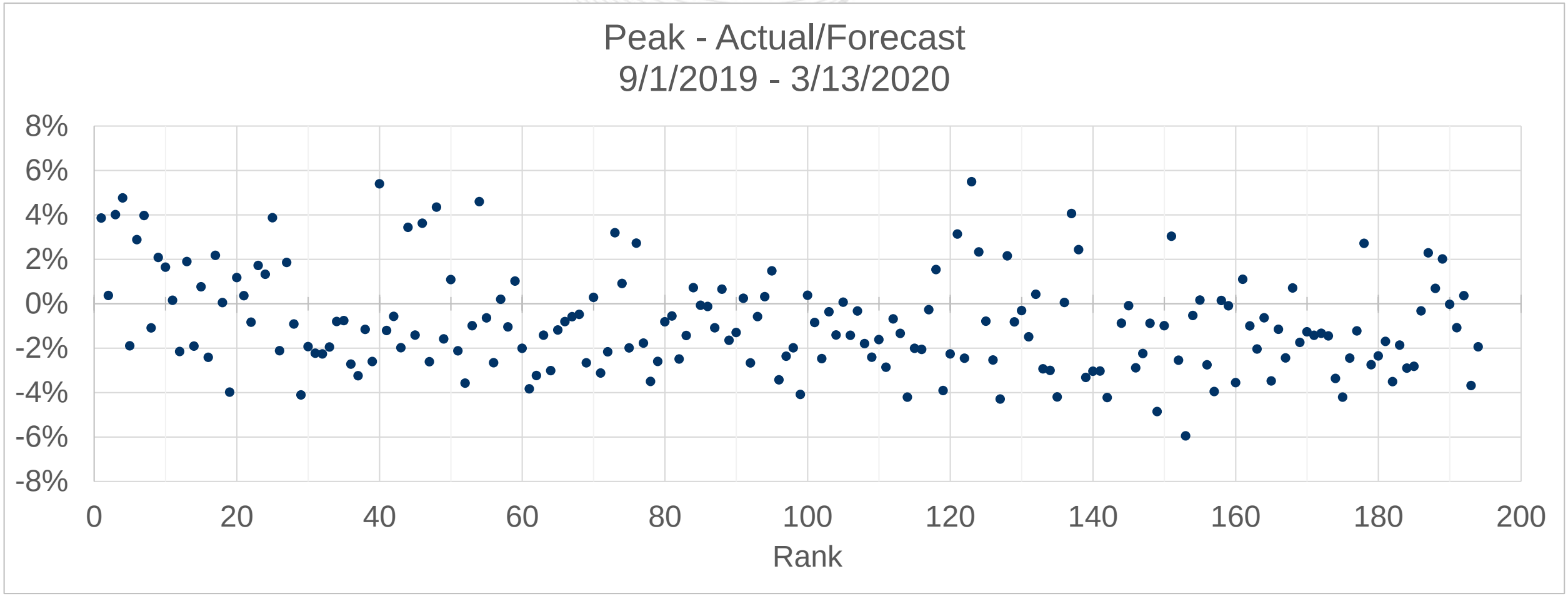


2020 Weather

RTO Zone-Weighted Avg Daily Temp



Trends Prior to COVID19 Impact

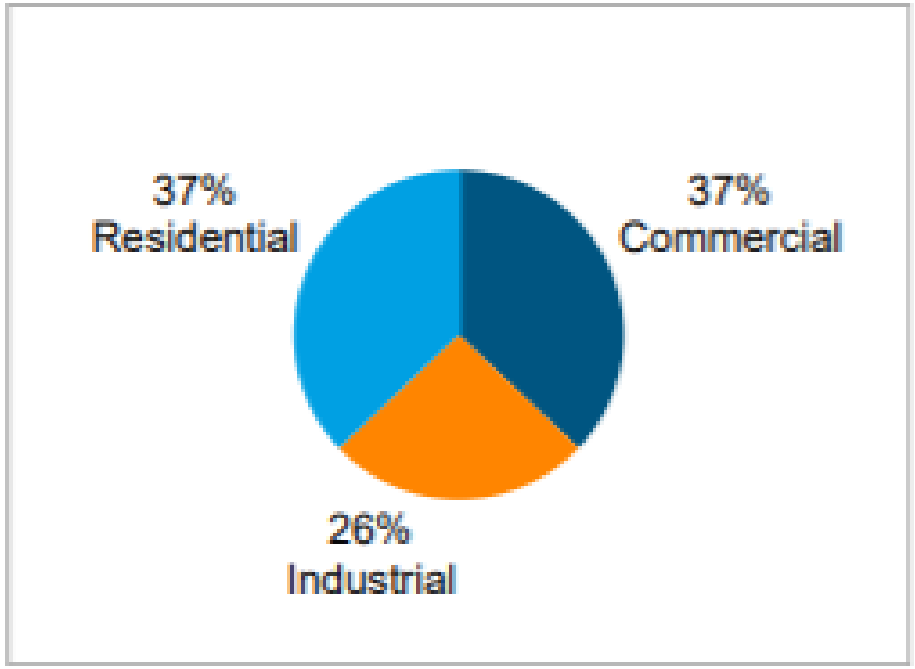


Observations

- Impact of COVID on load
  - Since March 24, weekday peaks have come in 10% less (~9,000 MW) than what we would have anticipated.
    - Weekday peak impacts have ranged from 6.6% to 12.3%
  - Energy has tended to be less affected, with the average reduction since March 24th being 7.5%.
  - Weekends seem to have been impacted by less.

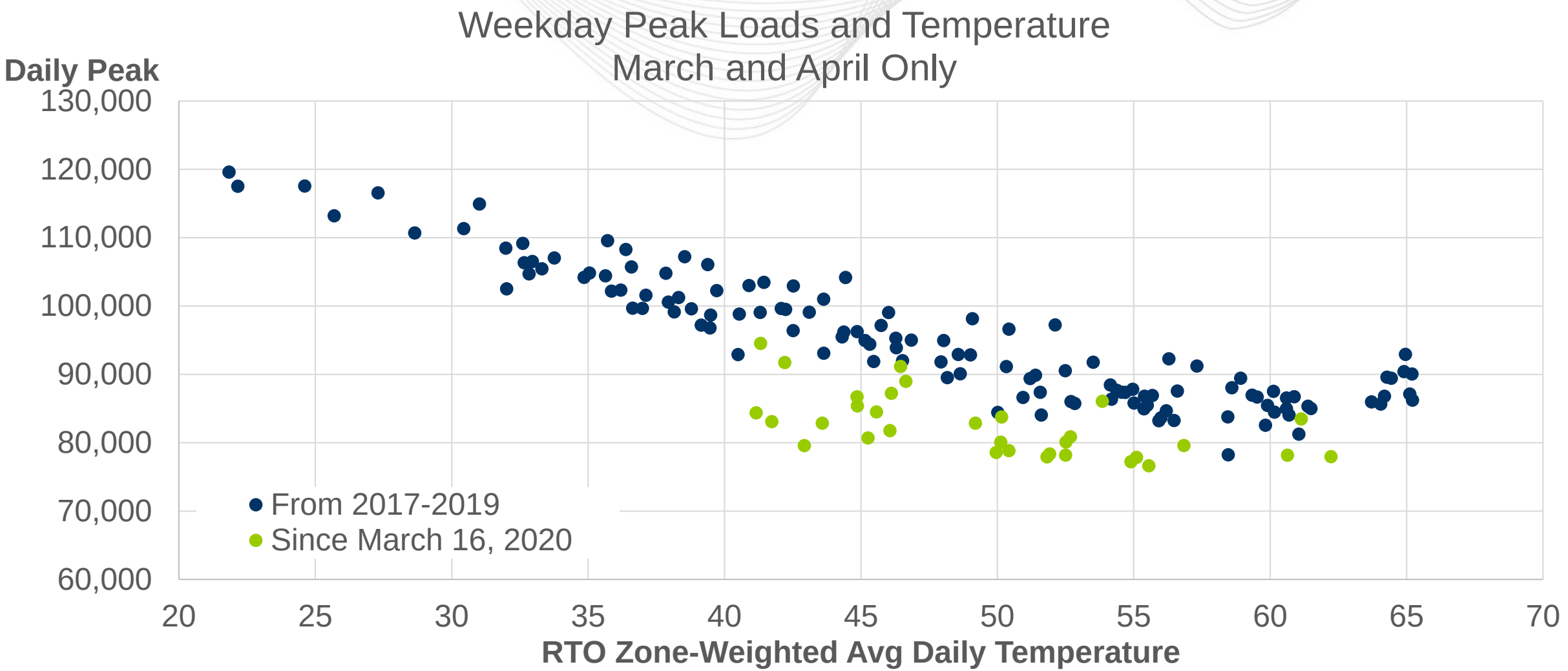
- Trends
  - Increased Residential demand
  - Reduced Commercial demand
  - Reduced Industrial demand

- Implications
  - Reduced base load
  - Heightened weather sensitivity?

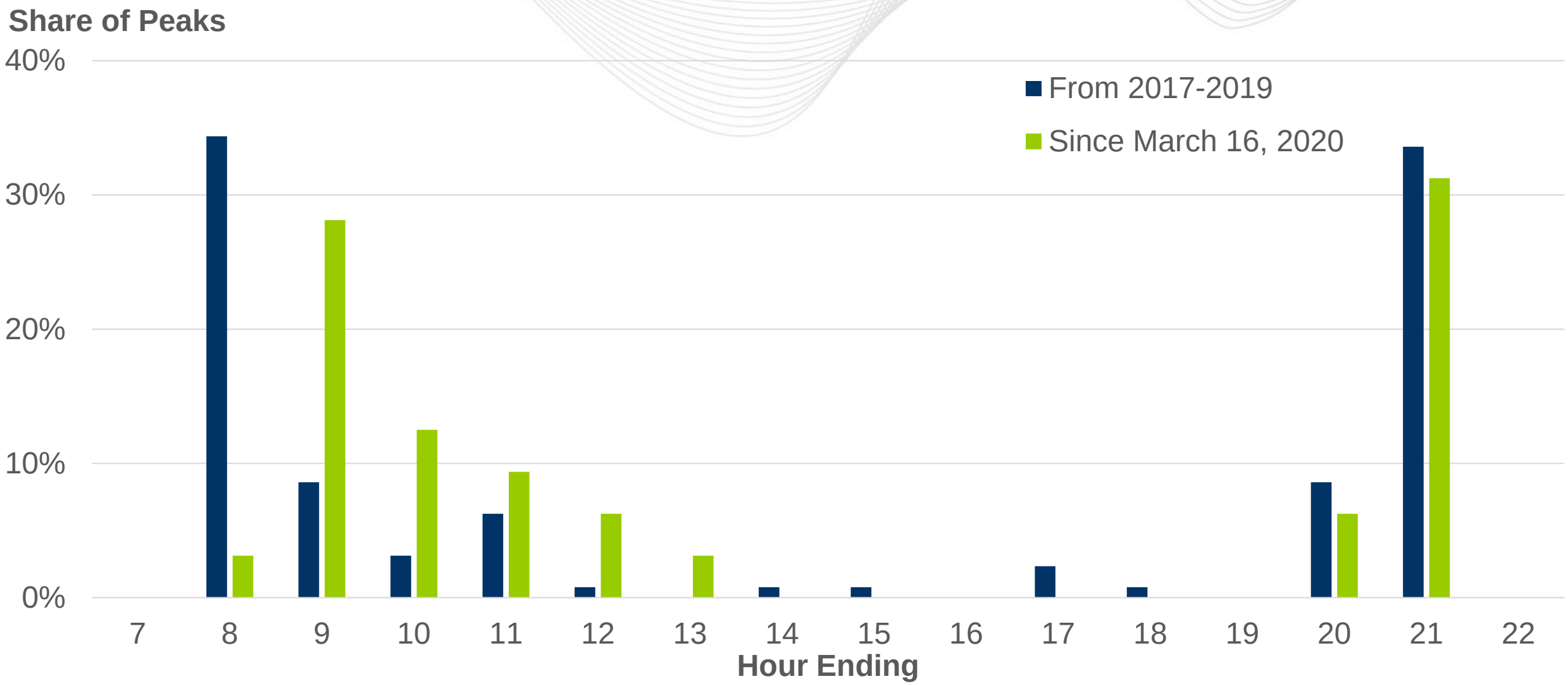


Based on 2014-2018 Average

Weather Sensitivity



Timing of March/April Weekday Peaks



Appendix

Approach to Isolate Impact of COVID-19 when there is complete data

1. Solve the long-term load forecast model for each day using actual weather conditions. This provides an estimate of what the load would have been for each day without any COVID-19 related actions.
2. Compute the MW difference between the actual load on each day and the estimated load under actual weather conditions computed in Step 1.
3. Divide the result from Step 2 by the result from Step 1 to compute the estimated impact of COVID-19 on load.

Example Calculation for April 2, 2020

1. Estimated load for April 2 from forecast model assuming actual weather conditions = 91,922 MW
2. Behind the meter solar at time of peak for April 2 = 242 MW
3. Actual load on April 2 = 82,867 MW
4. Estimated MW impact of COVID-19 measures = -8,813 MW
5. Estimated percent impact of COVID-19 measures = -8,813/90,873 = -9.6%

Approach to Isolate Impact of COVID-19
For remaining days

- Long-term forecast model produces a daily load distribution for each calendar day based on a range of historical weather patterns.
- For each calendar day, we computed a “best fit” curve that relates PJM load to an RTO-wide average daily temperature.
- The actual weather for each day was fitted to the curve to produce the expected load given knowledge of actual weather.
- The difference between the actual load and the estimated load given the actual weather provides an estimated percent impact of COVID-19 measures.