

# Estimated Impacts of COVID-19 on ISO New England Demand

Analysis through 7/19/2020



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*ISO New England Operations Forecast*



# Overview

- ISO is producing a weekly analysis of the impact that the response to COVID-19 is having on system demand
  - Impact on system demand was first observed in the third week of March when the pandemic response began
  - Loads were trending lower than would be expected through May. Percentages will fluctuate from week to week as shown in the following slides
  - Air conditioning load in June and July, combined with limited expansion of re-opening policies, are resulting in higher loads than would be expected absent COVID-19 response
- This report will be updated on a weekly basis on Tuesdays for data up to the prior Sunday
  - <https://www.iso-ne.com/markets-operations/system-forecast-status/estimated-impacts-of-covid-19-on-demand/>



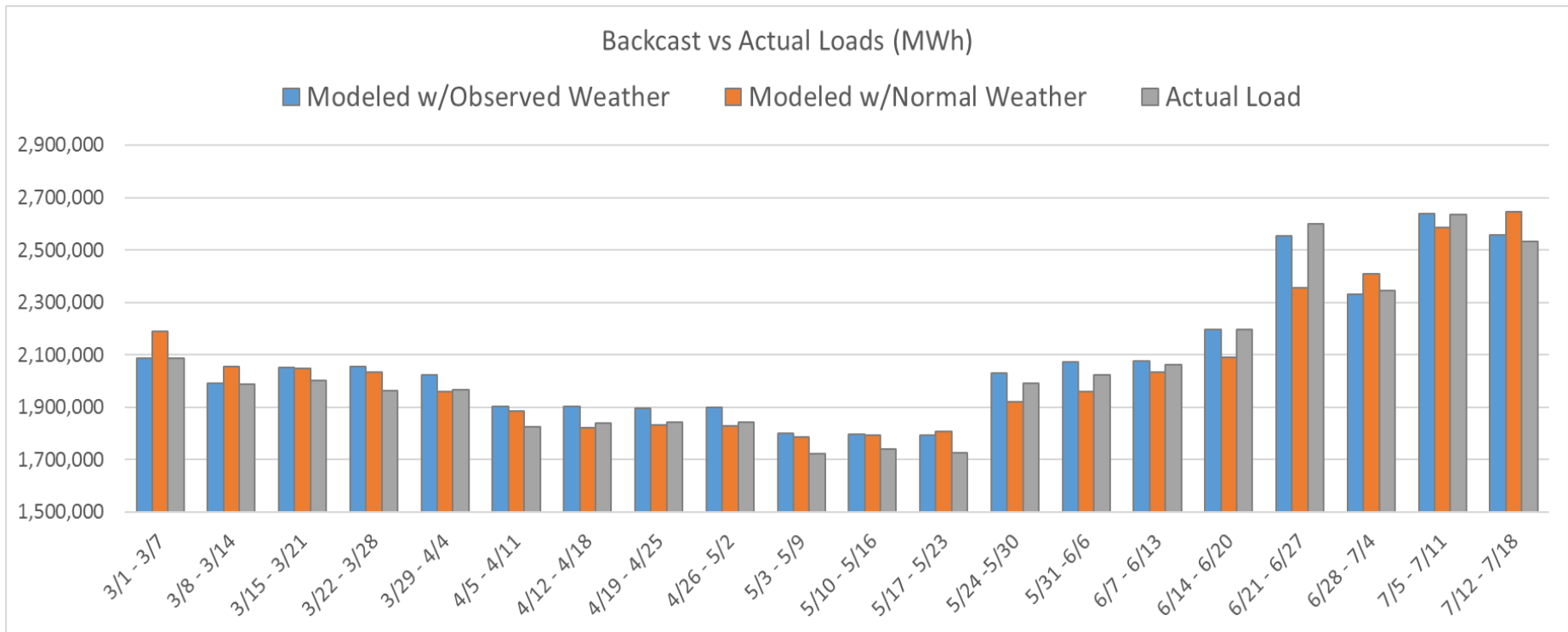
# Backcast Analysis

- Using load forecast models trained only with load and weather from prior to COVID-19 outbreak to produce 2 sets of modeled load data
  - Replaced forecasted weather with **observed weather** to produce a backcast of expected load, absent the impacts of COVID-19
  - Replaced forecasted weather with a **10-year average weather** to compute “Normal Weather” loads, absent the impacts of COVID-19
- Output from both models is compared to the actual hourly loads



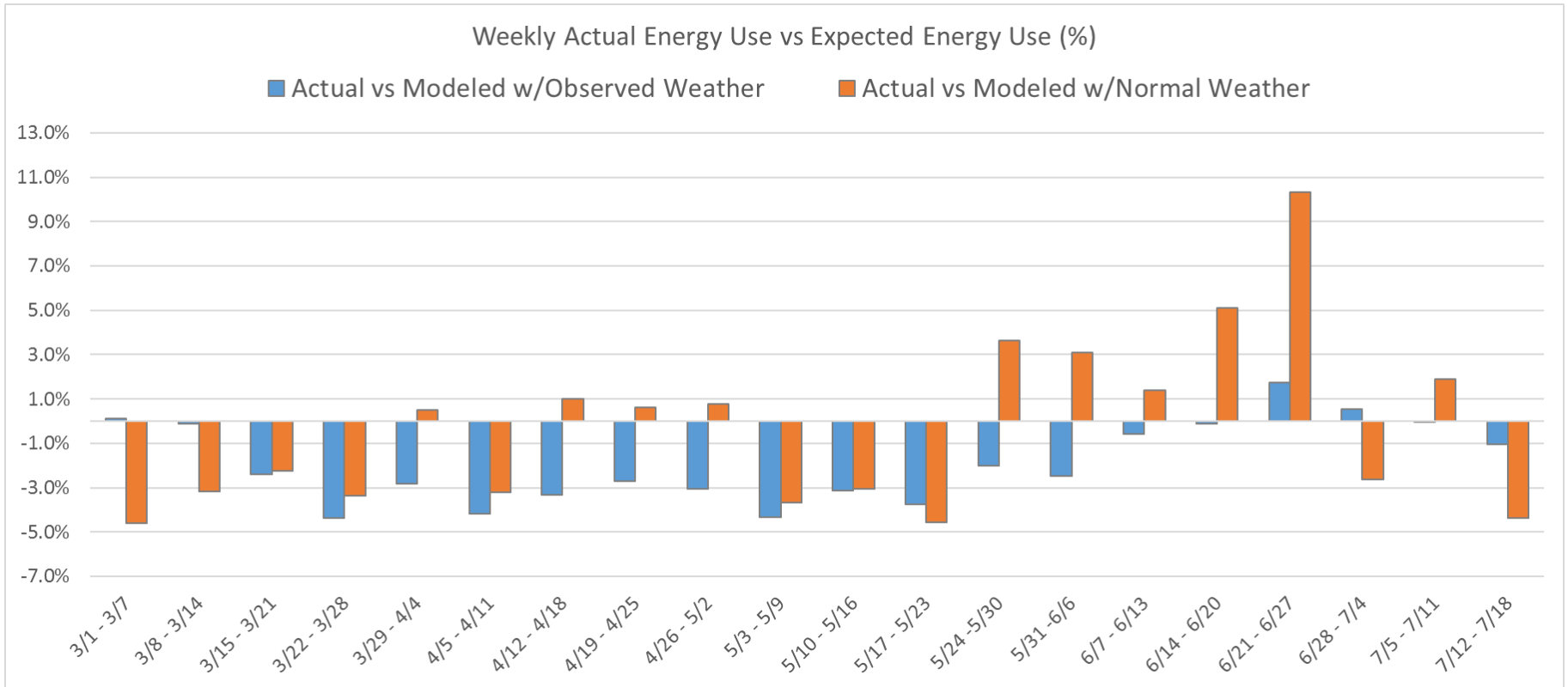
# Backcast Load Analysis

- ISO New England Backcast models showing Weekly Energy trends using Normal and Observed Weather.



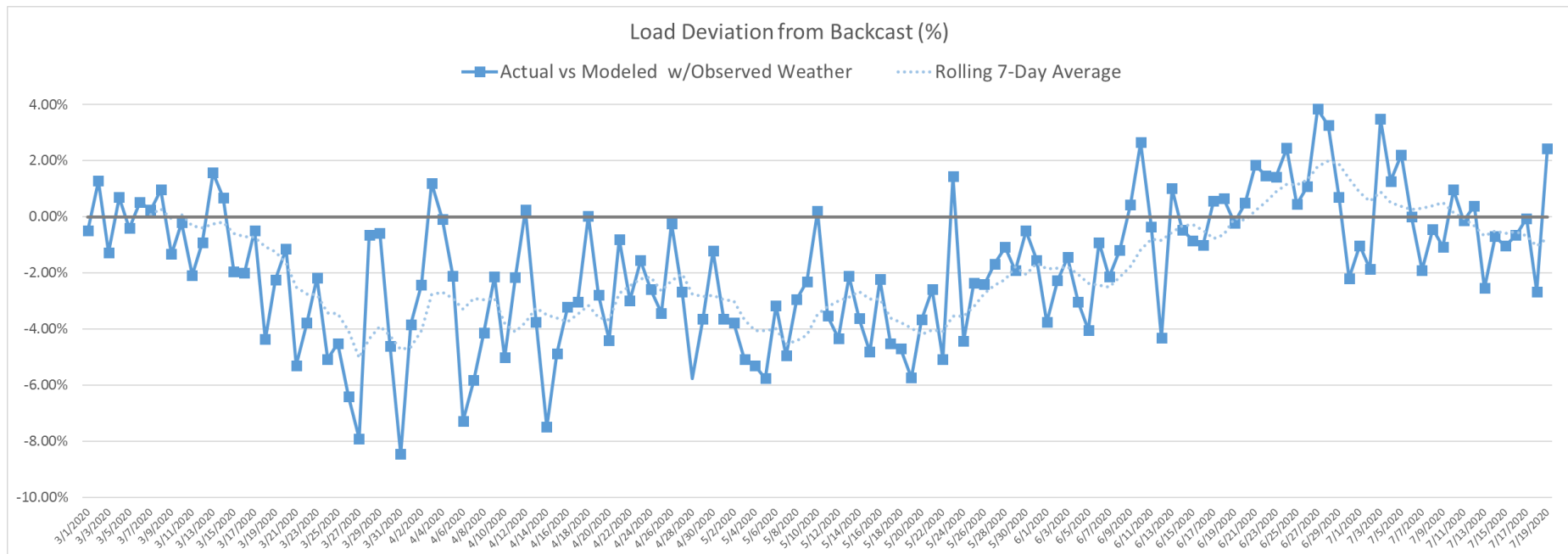
# Backcast Load Analysis

- ISO New England actual load trends as states enacted shutdowns and restrictions.



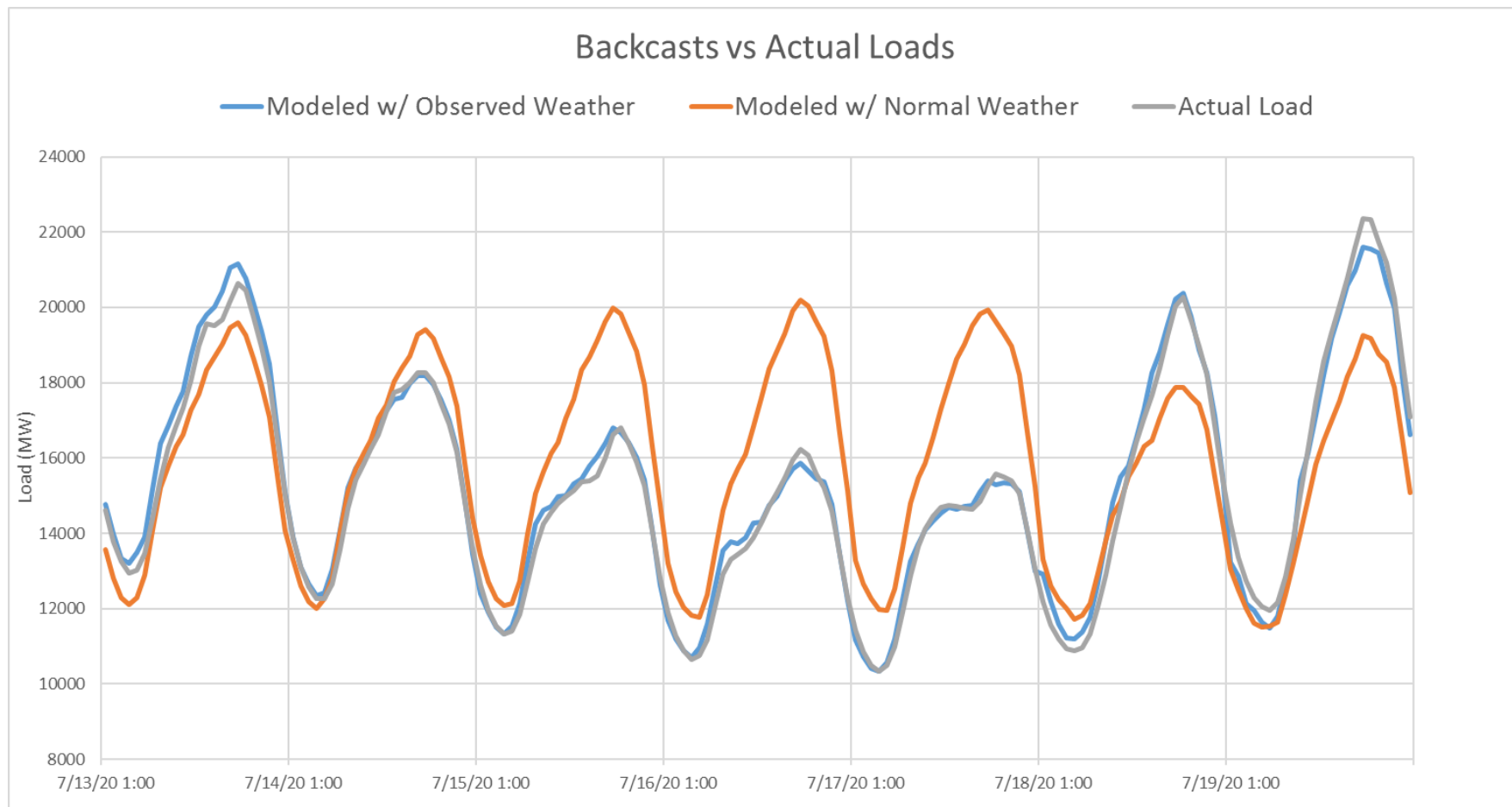
# System Load Deviation

- ISO New England daily and rolling seven-day forecast load deviation trends.



# Daily Backcast Model comparison

- Daily load variation showing volatility from BTM PV and Covid-19 impacts



# Backcast Load Analysis

- Demand reductions start in third week of March and continue through the current week

Backcast vs Actual Loads (MWh)	3/1 - 3/7	3/8 - 3/14	3/15 - 3/21	3/22 - 3/28	3/29 - 4/4	4/5 - 4/11	4/12 - 4/18	4/19 - 4/25	4/26 - 5/2	5/3 - 5/9	5/10 - 5/16	5/17 - 5/23	5/24 - 5/30	5/31 - 6/6	6/7 - 6/13	6/14 - 6/20	6/21 - 6/27	6/28 - 7/4	7/5 - 7/11	7/12 - 7/18
Modeled w/Observed Weather	2,085,829	1,990,206	2,051,625	2,054,137	2,024,895	1,904,321	1,902,755	1,894,423	1,899,232	1,800,585	1,796,038	1,792,771	2,031,820	2,073,500	2,075,276	2,198,167	2,555,121	2,331,177	2,637,735	2,557,541
Modeled w/Normal Weather	2,189,017	2,053,459	2,048,462	2,033,440	1,958,375	1,885,873	1,821,355	1,831,988	1,827,282	1,787,795	1,794,733	1,808,218	1,921,100	1,961,313	2,034,583	2,088,937	2,356,220	2,407,507	2,587,188	2,646,456
Actual Load	2,088,378	1,987,982	2,002,463	1,964,684	1,968,097	1,825,006	1,839,585	1,843,156	1,841,494	1,722,430	1,739,679	1,725,598	1,991,305	2,021,913	2,062,865	2,195,885	2,599,377	2,343,821	2,636,541	2,530,756

Percent Error in System Load	3/1 - 3/7	3/8 - 3/14	3/15 - 3/21	3/22 - 3/28	3/29 - 4/4	4/5 - 4/11	4/12 - 4/18	4/19 - 4/25	4/26 - 5/2	5/3 - 5/9	5/10 - 5/16	5/17 - 5/23	5/24 - 5/30	5/31 - 6/6	6/7 - 6/13	6/14 - 6/20	6/21 - 6/27	6/28 - 7/4	7/5 - 7/11	7/12 - 7/18
Modeled w/Observed Weather	0.1%	-0.1%	-2.4%	-4.4%	-2.8%	-4.2%	-3.3%	-2.7%	-3.0%	-4.3%	-3.1%	-3.7%	-2.0%	-2.5%	-0.6%	-0.1%	1.7%	0.5%	0.0%	-1.0%

Weely Use vs Expected %	3/1 - 3/7	3/8 - 3/14	3/15 - 3/21	3/22 - 3/28	3/29 - 4/4	4/5 - 4/11	4/12 - 4/18	4/19 - 4/25	4/26 - 5/2	5/3 - 5/9	5/10 - 5/16	5/17 - 5/23	5/24 - 5/30	5/31 - 6/6	6/7 - 6/13	6/14 - 6/20	6/21 - 6/27	6/28 - 7/4	7/5 - 7/11	7/12 - 7/18
Actual vs Modeled w/Observed Weather	0.1%	-0.1%	-2.4%	-4.4%	-2.8%	-4.2%	-3.3%	-2.7%	-3.0%	-4.3%	-3.1%	-3.7%	-2.0%	-2.5%	-0.6%	-0.1%	1.7%	0.5%	0.0%	-1.0%
Actual vs Modeled w/Normal Weather	-4.6%	-3.2%	-2.2%	-3.4%	0.5%	-3.2%	1.0%	0.6%	0.8%	-3.7%	-3.1%	-4.6%	3.7%	3.1%	1.4%	5.1%	10.3%	-2.6%	1.9%	-4.4%

