

# Estimated Impacts of COVID-19 on NYISO Load

Analysis through 10/31/2020

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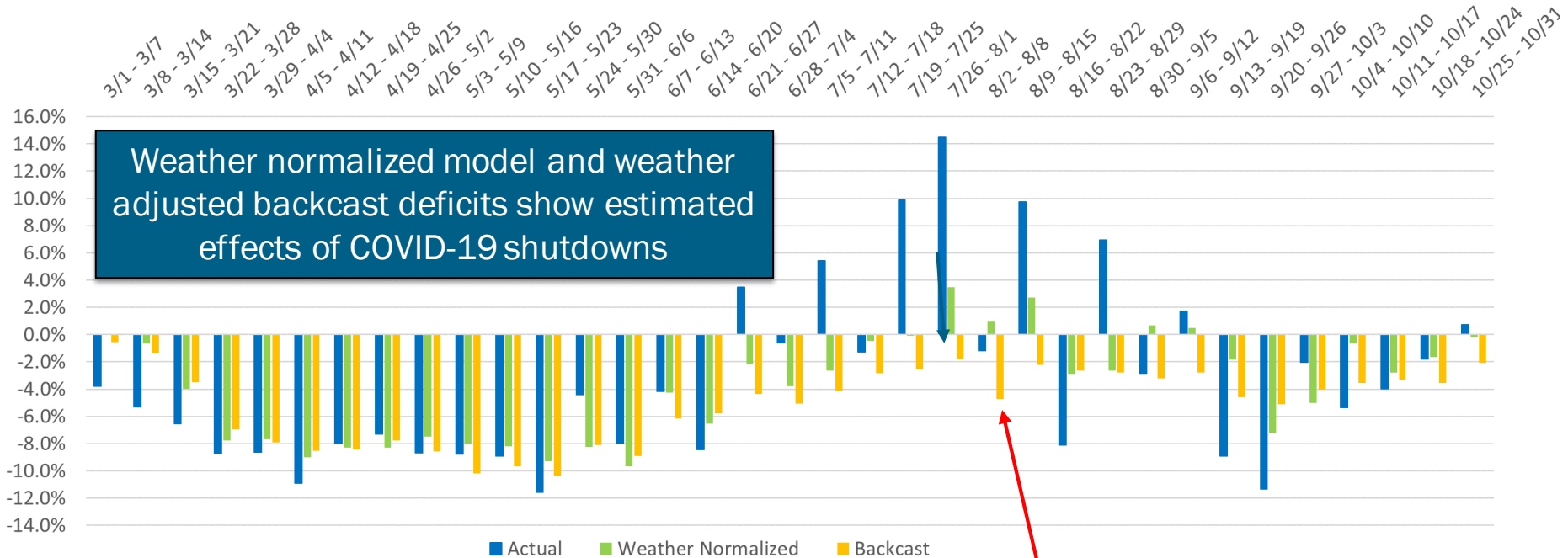
Demand Forecasting & Analysis Team  
System & Resource Planning

**COVID-19 Tracking Update**

November 11, 2020

# Recent Impacts on Daily Energy by Week

Weekly Energy Use - % Versus Expected (NYCA)



Weather normalized model and weather adjusted backcast deficits show estimated effects of COVID-19 shutdowns

Contains impacts from Tropical Storm Isaias

Includes Weekend Days



# Model Explanation - Recent Impacts on Daily Energy by Week

## Actual Difference

- Equals: Actual Load – Expected Load
- Expected Load is the 2020 pre-COVID baseline annual load forecast, shared out on a daily basis using the 10-year history of daily weather-normalized energy
- This difference reflects the total change in load relative to expected levels, including weather, economic, virus, and any other impacts

## Weather Normalized Difference

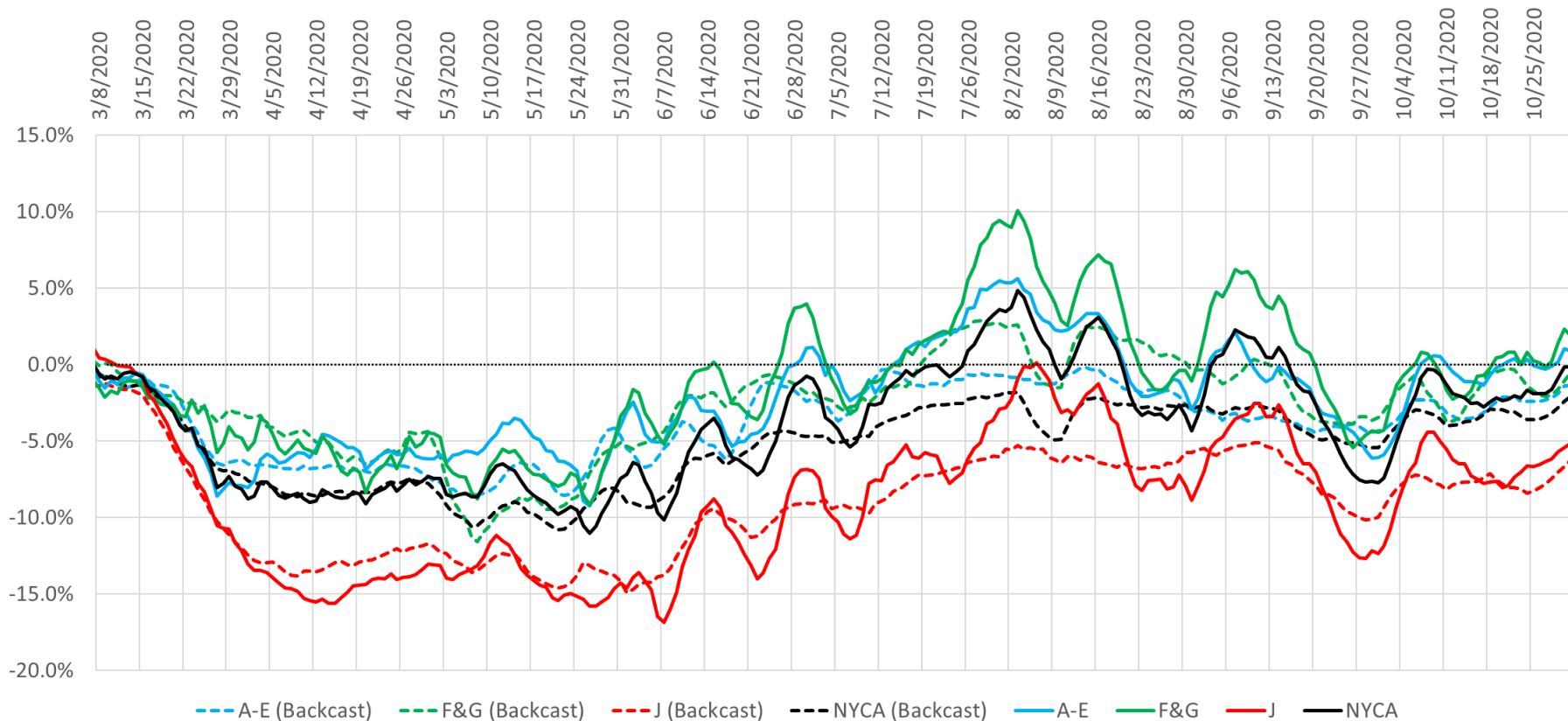
- Equals: Weather Normalized Load – Expected Load
- Weather Normalized Load is calculated via Zonal models regressing daily energy against daily weather variables and binaries. These models estimate what the load would have been on a given date under normal weather conditions
- These models are fit through the most recent 12 months of data, and have recent weather response signals.
- Expected Load is equivalent to that defined in the Actual Difference calculation
- This difference reflects non-weather driven changes in load levels, including economic, virus, and other impacts. The comparison is weather neutral as normal weather is used on both sides of the comparison

## Weather Adjusted Backcast Difference

- Equals: Actual Load - Backcast Load
- Backcast Load is the load generated by the Zonal hourly day-ahead models using actual weather, where the model estimation period ends in February. Thus, these backcasts estimate what the load would have been on a given day under pre-COVID conditions
- These models were fit through February, so they do not contain the most recent weather response signals
- This difference reflects non-weather driven changes in load levels, including economic, virus, and other impacts. The comparison is weather neutral as actual weather is used on both sides of the comparison

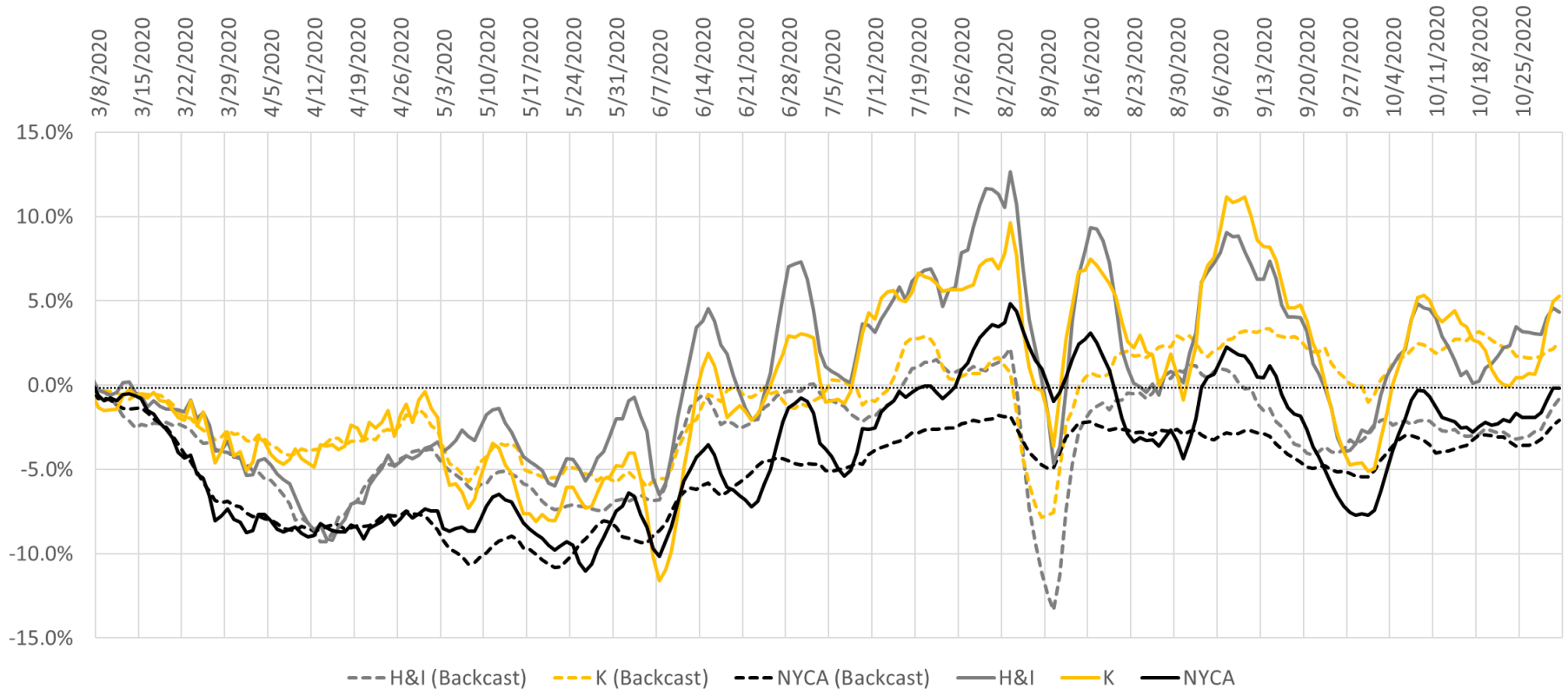
# Regional Impacts on Daily Energy Patterns

2020 WN (Backcast) Load to Expected (Actual) Load, 7-Day Moving Average (Daily Energy)



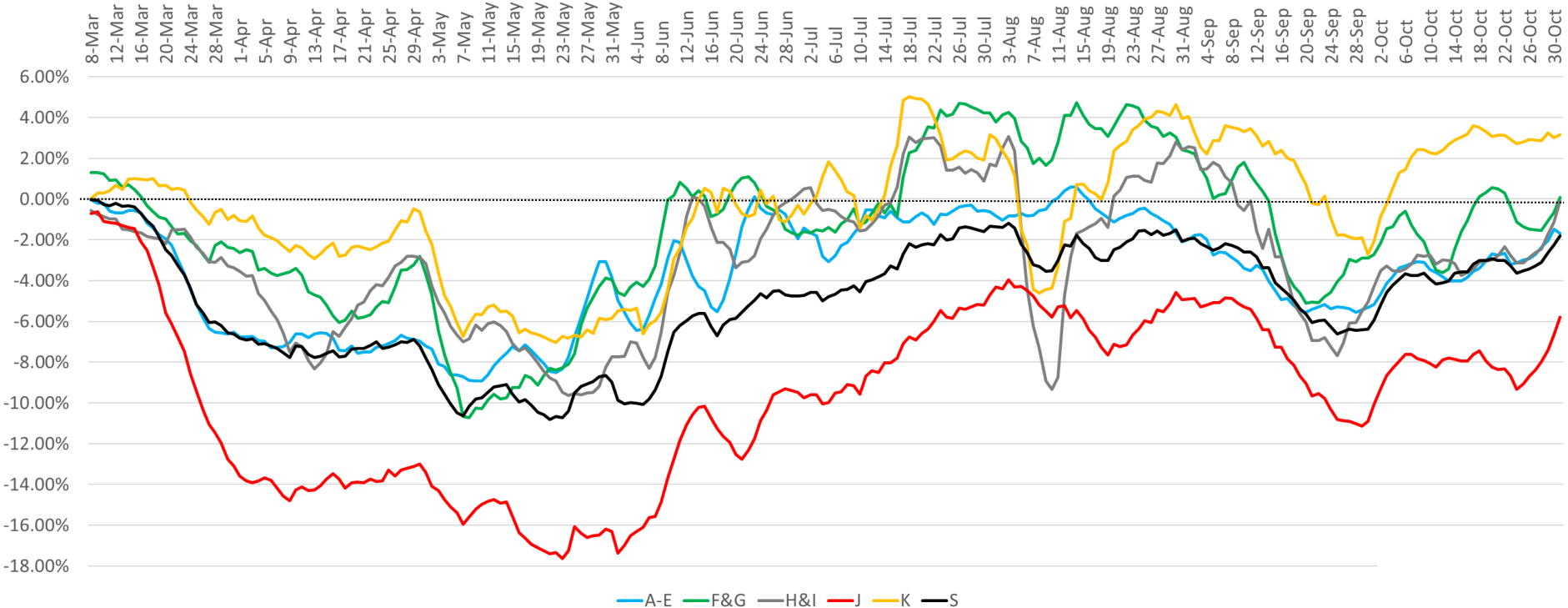
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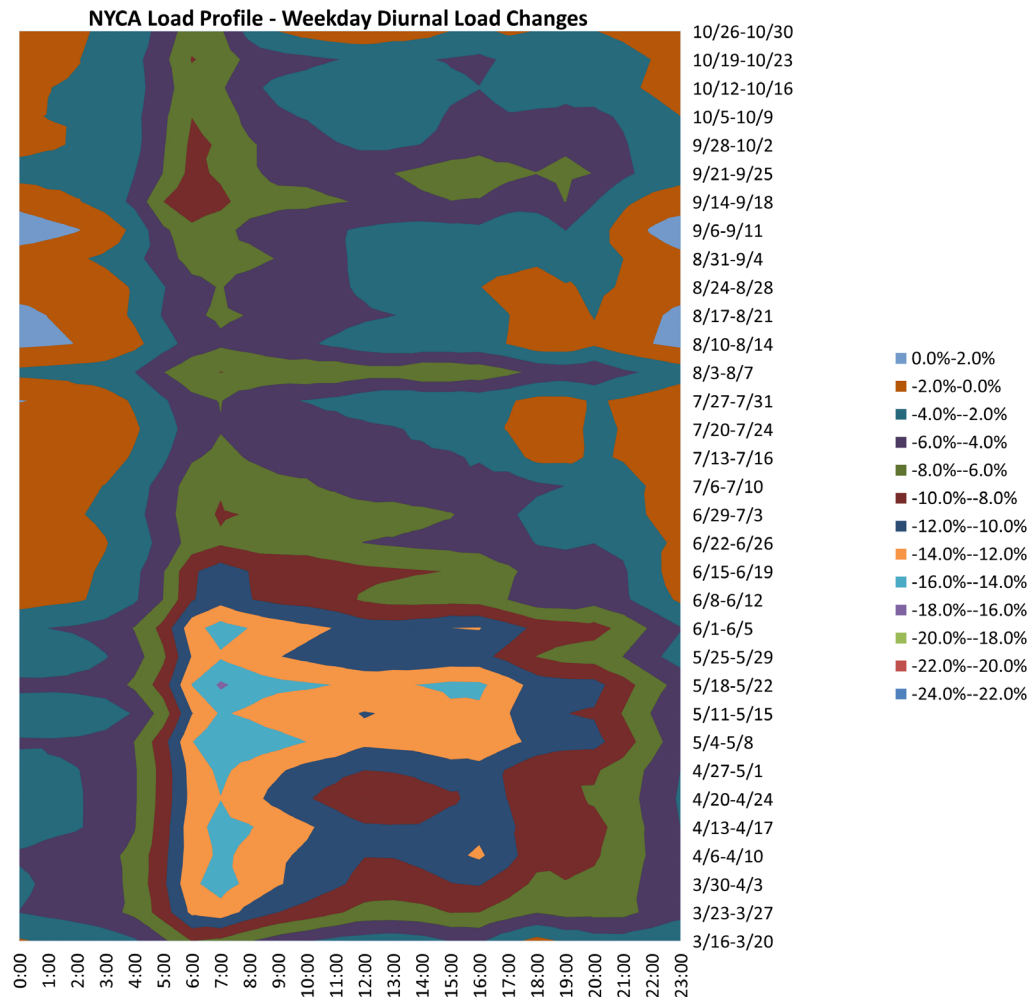


# Regional Impacts on Peak Demand

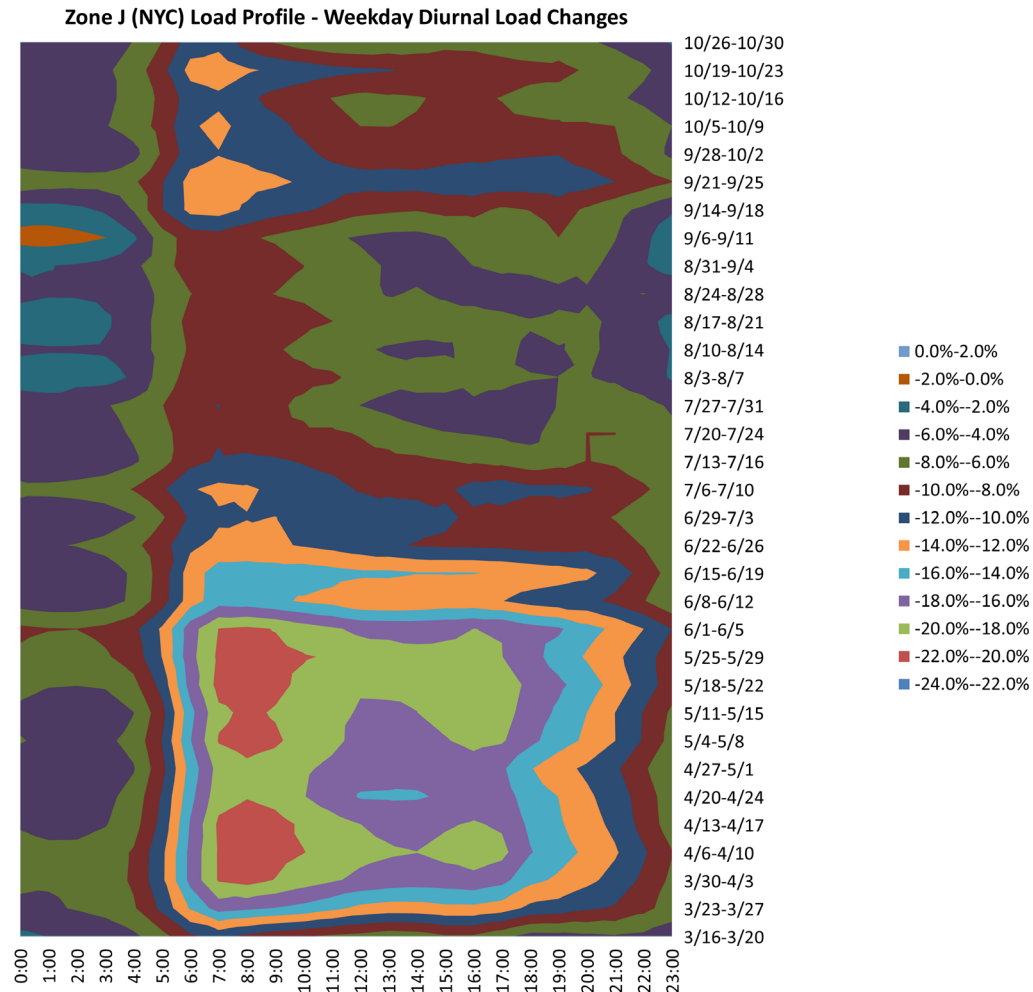
2020 Actual Load Relative to Backcast Load, 7-Day Moving Average (Daily Peak)



# Impacts on Hourly Load Patterns



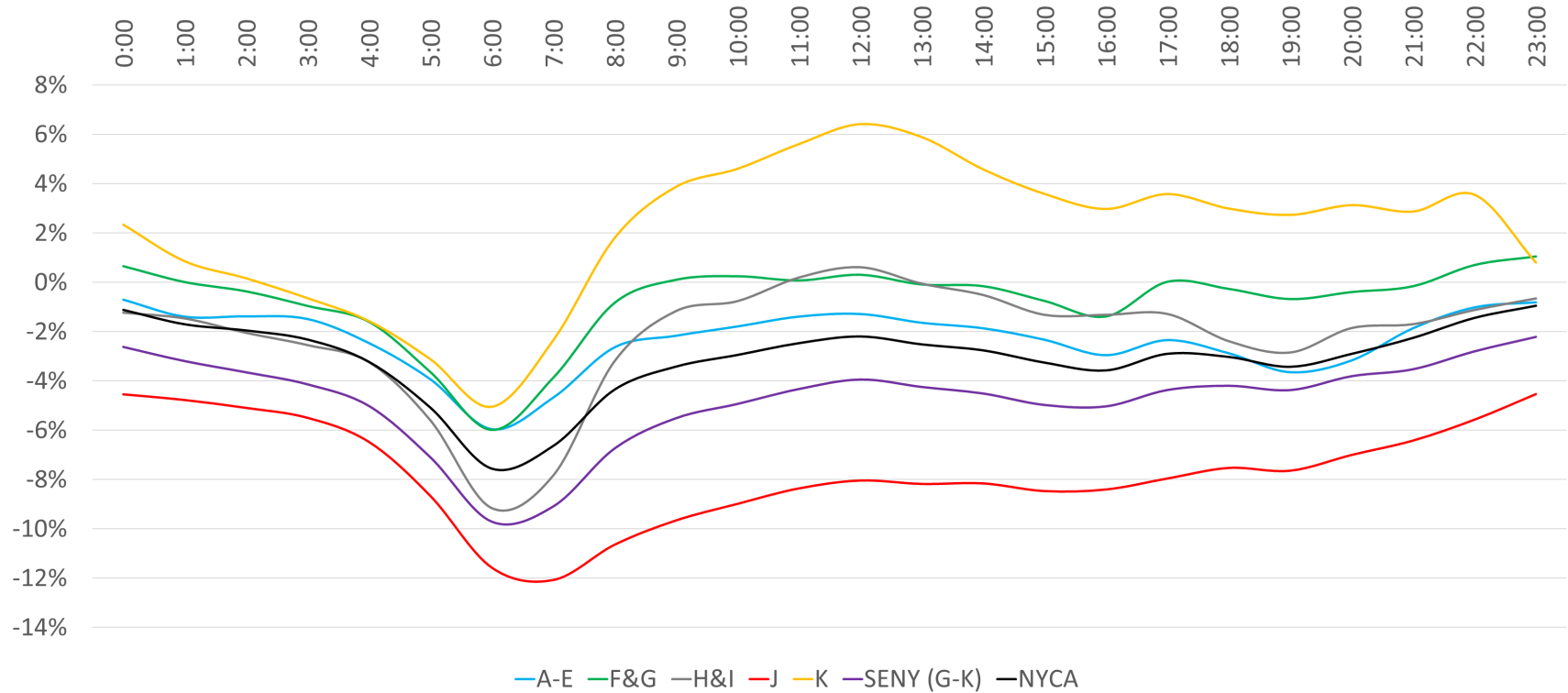
# Impacts on Hourly Load Patterns





# Impacts on Hourly Load Patterns (Area)

Average Hourly Deficit by Area, 10/12 through 10/30 (Weekdays)



# Impacts on Hourly Load Patterns (Area)

Hour	A-E	F&G	H&I	J	K	SENY (G-K)	NYCA
0:00	-1%	1%	-1%	-5%	2%	-3%	-1%
1:00	-1%	0%	-1%	-5%	1%	-3%	-2%
2:00	-1%	0%	-2%	-5%	0%	-4%	-2%
3:00	-1%	-1%	-3%	-5%	-1%	-4%	-2%
4:00	-2%	-2%	-3%	-6%	-2%	-5%	-3%
5:00	-4%	-4%	-6%	-9%	-3%	-7%	-5%
6:00	-6%	-6%	-9%	-12%	-5%	-10%	-8%
7:00	-5%	-4%	-8%	-12%	-2%	-9%	-7%
8:00	-3%	-1%	-3%	-11%	2%	-7%	-4%
9:00	-2%	0%	-1%	-10%	4%	-6%	-3%
10:00	-2%	0%	-1%	-9%	5%	-5%	-3%
11:00	-1%	0%	0%	-8%	6%	-4%	-2%
12:00	-1%	0%	1%	-8%	6%	-4%	-2%
13:00	-2%	0%	0%	-8%	6%	-4%	-3%
14:00	-2%	0%	-1%	-8%	5%	-5%	-3%
15:00	-2%	-1%	-1%	-8%	4%	-5%	-3%
16:00	-3%	-1%	-1%	-8%	3%	-5%	-4%
17:00	-2%	0%	-1%	-8%	4%	-4%	-3%
18:00	-3%	0%	-2%	-8%	3%	-4%	-3%
19:00	-4%	-1%	-3%	-8%	3%	-4%	-3%
20:00	-3%	0%	-2%	-7%	3%	-4%	-3%
21:00	-2%	0%	-2%	-6%	3%	-4%	-2%
22:00	-1%	1%	-1%	-6%	4%	-3%	-1%
23:00	-1%	1%	-1%	-5%	1%	-2%	-1%

Average Hourly  
Load Deficit  
By Area  
10/12 - 10/30  
(Weekdays)

# Impacts on Hourly Load Patterns (Zone)

Hour	A	B	C	D	E	F	G	H	I	J	K
0:00	1%	1%	0%	-11%	4%	4%	-3%	-5%	1%	-5%	2%
1:00	0%	1%	-1%	-14%	4%	3%	-4%	-7%	1%	-5%	1%
2:00	1%	1%	-1%	-14%	3%	3%	-5%	-8%	1%	-5%	0%
3:00	1%	1%	-1%	-14%	3%	2%	-5%	-9%	1%	-5%	-1%
4:00	0%	0%	-1%	-16%	1%	1%	-6%	-10%	0%	-6%	-2%
5:00	-2%	-3%	-3%	-15%	-2%	0%	-8%	-11%	-3%	-9%	-3%
6:00	-4%	-5%	-5%	-15%	-5%	-3%	-10%	-13%	-7%	-12%	-5%
7:00	-4%	-4%	-3%	-15%	-2%	-1%	-7%	-8%	-7%	-12%	-2%
8:00	-3%	-2%	-1%	-13%	2%	2%	-5%	-3%	-3%	-11%	2%
9:00	-3%	-1%	-1%	-11%	2%	3%	-4%	1%	-2%	-10%	4%
10:00	-3%	-1%	-1%	-9%	2%	4%	-4%	2%	-2%	-9%	5%
11:00	-2%	-1%	-1%	-7%	3%	4%	-4%	2%	-1%	-8%	6%
12:00	-2%	0%	-1%	-7%	3%	4%	-4%	3%	-1%	-8%	6%
13:00	-2%	-1%	-1%	-8%	2%	4%	-5%	2%	-1%	-8%	6%
14:00	-2%	-1%	-1%	-8%	2%	4%	-5%	1%	-1%	-8%	5%
15:00	-3%	-1%	-1%	-9%	1%	3%	-5%	0%	-2%	-8%	4%
16:00	-3%	-2%	-2%	-11%	1%	2%	-5%	0%	-2%	-8%	3%
17:00	-3%	0%	-2%	-12%	2%	3%	-3%	-1%	-1%	-8%	4%
18:00	-3%	-1%	-2%	-13%	2%	2%	-3%	-3%	-2%	-8%	3%
19:00	-4%	-2%	-3%	-15%	2%	1%	-3%	-3%	-2%	-8%	3%
20:00	-3%	-2%	-2%	-15%	2%	2%	-3%	-4%	-1%	-7%	3%
21:00	-1%	-1%	-2%	-9%	3%	2%	-3%	-4%	0%	-6%	3%
22:00	-1%	0%	-2%	-9%	5%	3%	-2%	-4%	0%	-6%	4%
23:00	0%	1%	-1%	-9%	4%	4%	-2%	-3%	1%	-5%	3%

Average Hourly Load Deficit by Zone, 10/12 - 10/30 (Weekdays)



# Our mission, in collaboration with our stakeholders, is to serve the public interest and provide benefit to consumers by:

- Maintaining and enhancing regional reliability
- Operating open, fair and competitive wholesale electricity markets
- Planning the power system for the future
- Providing factual information to policymakers, stakeholders and investors in the power system

