

# Estimated Impacts of COVID-19 on NYISO Load

Analysis through 8/8/2020

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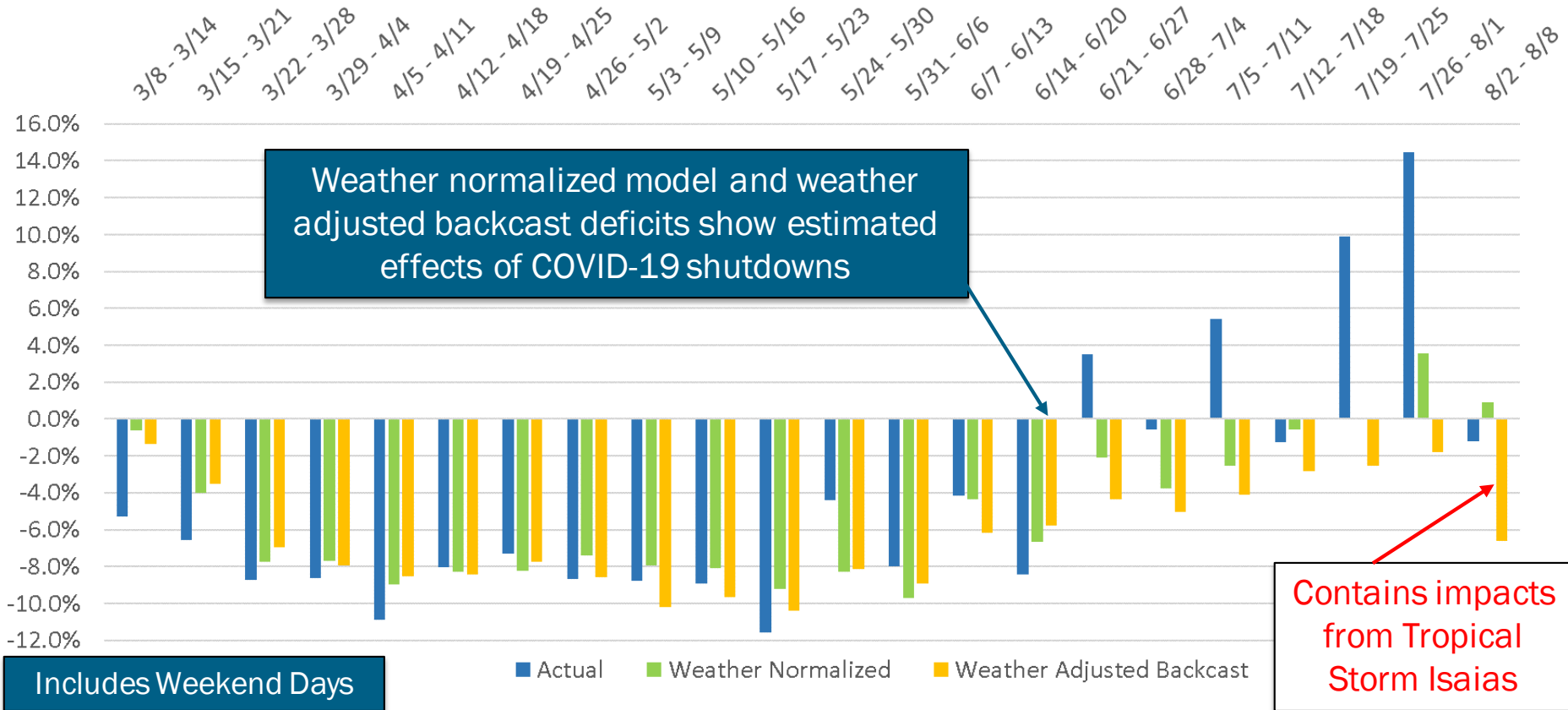
Demand Forecasting & Analysis Team  
System & Resource Planning

**COVID-19 Tracking Update**

August 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

Includes Weekend Days

Actual Weather Normalized Weather Adjusted Backcast

Contains impacts from Tropical Storm Isaias

# 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

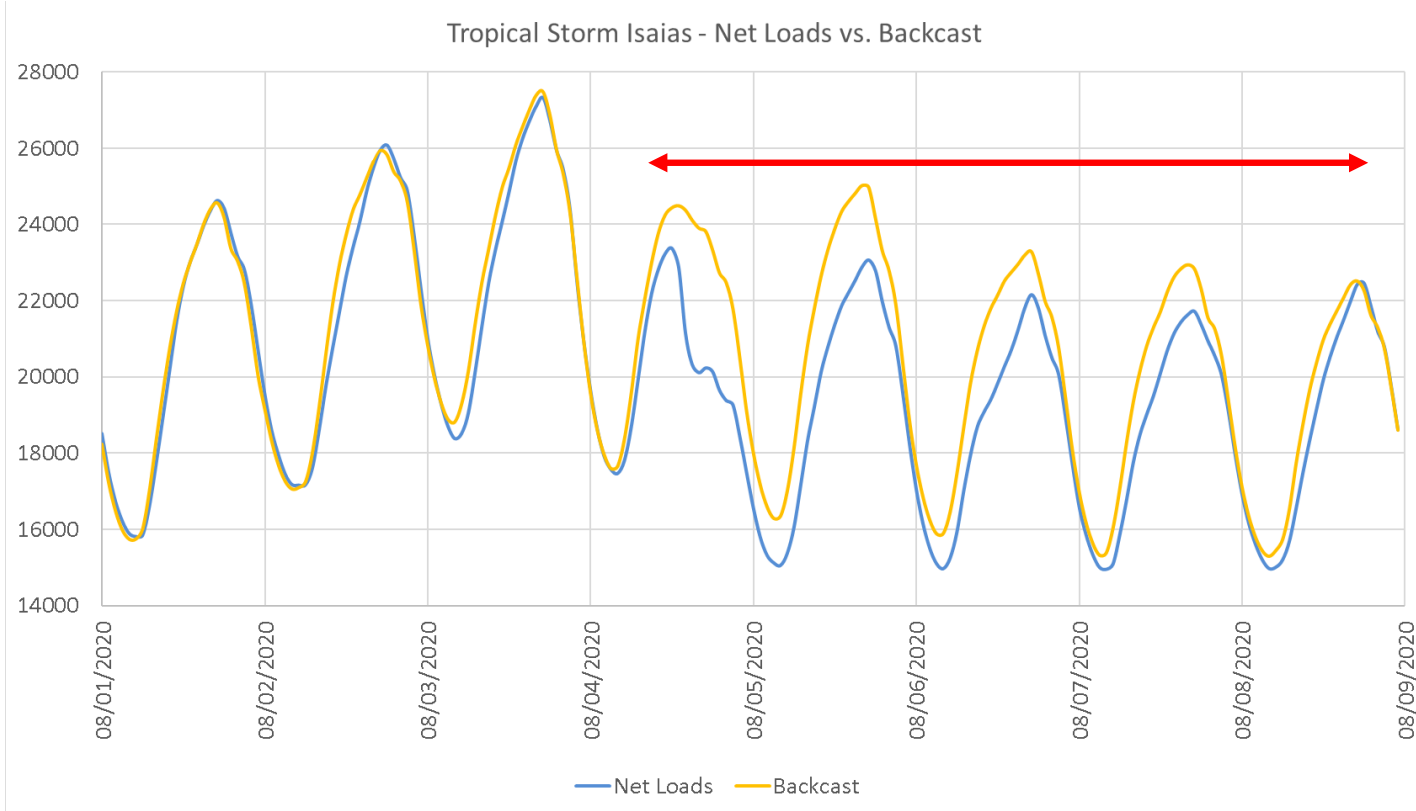
## Weather Normalized Difference

- 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

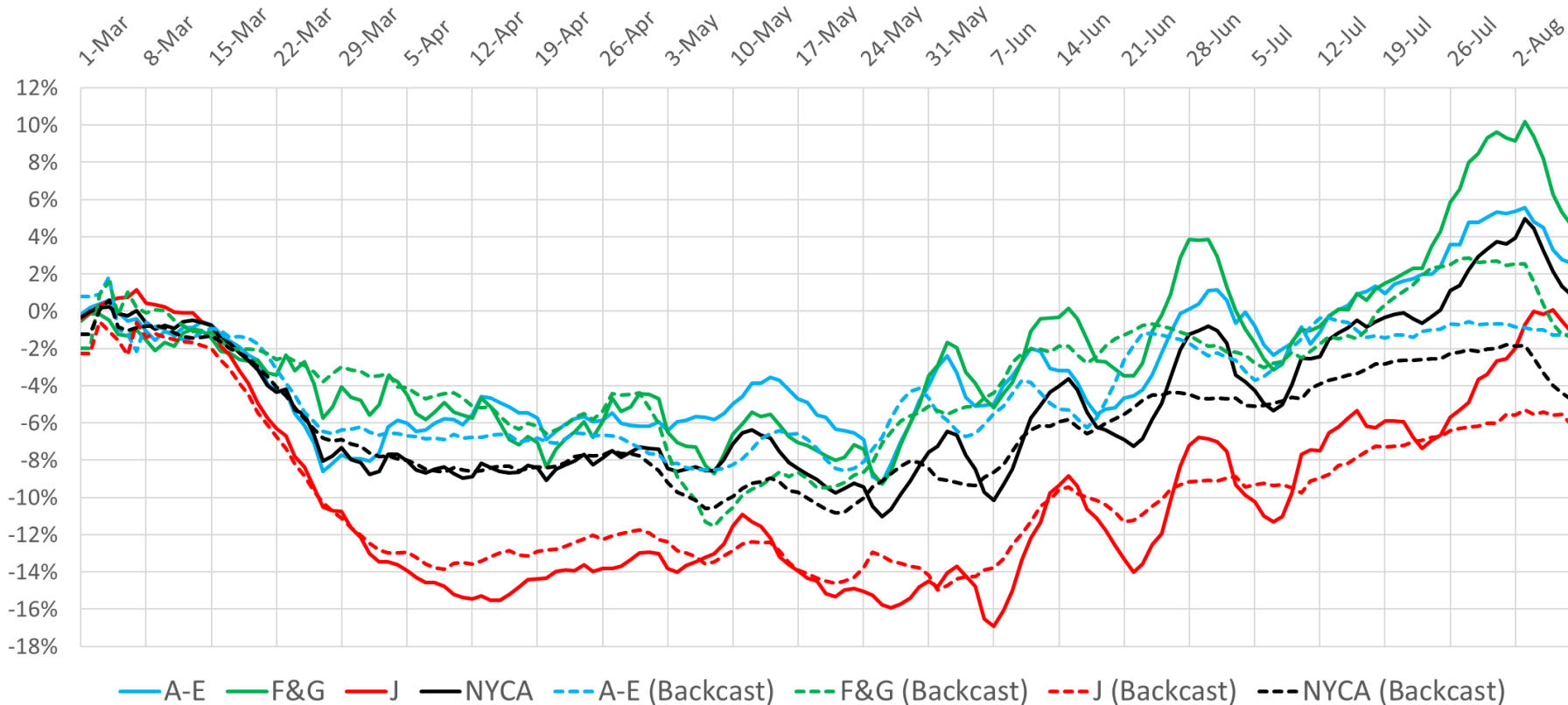
# Tropical Storm Isaias - Impacts on Load



Load impacts estimated at approximately 6% below expected from 8/4 - 8/8

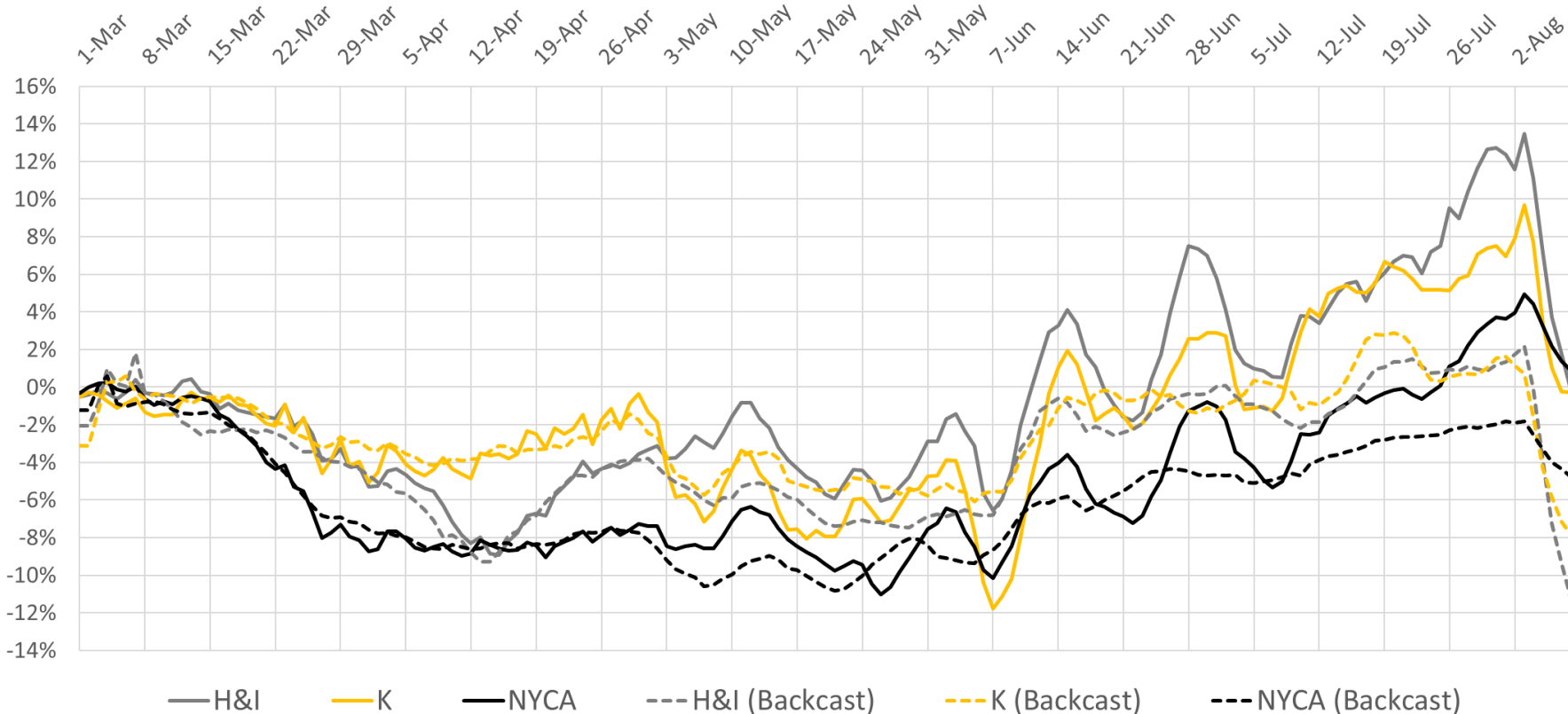
# Regional Impacts on Daily Energy Patterns

2020 Weather Normalized Load Relative to Expected Load, 7-Day Moving Average (Daily Energy)



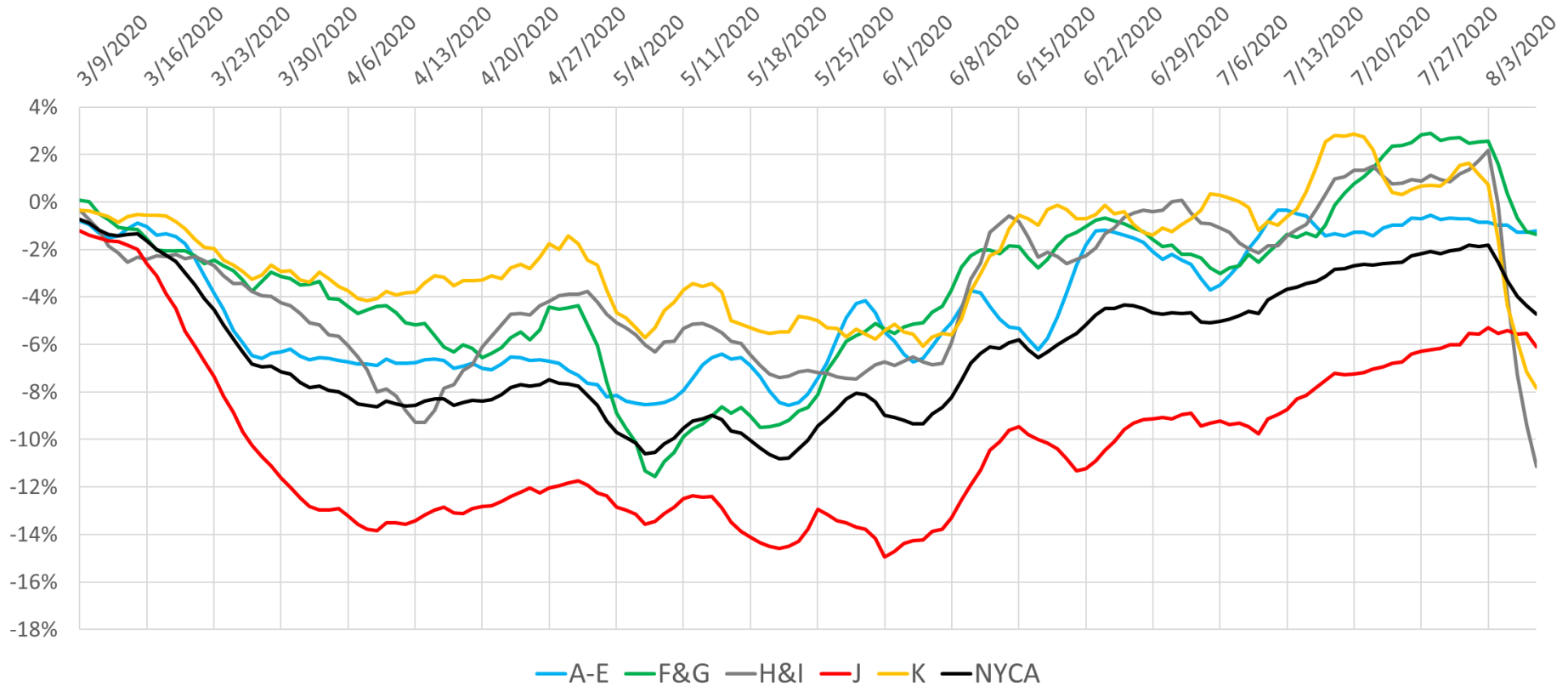
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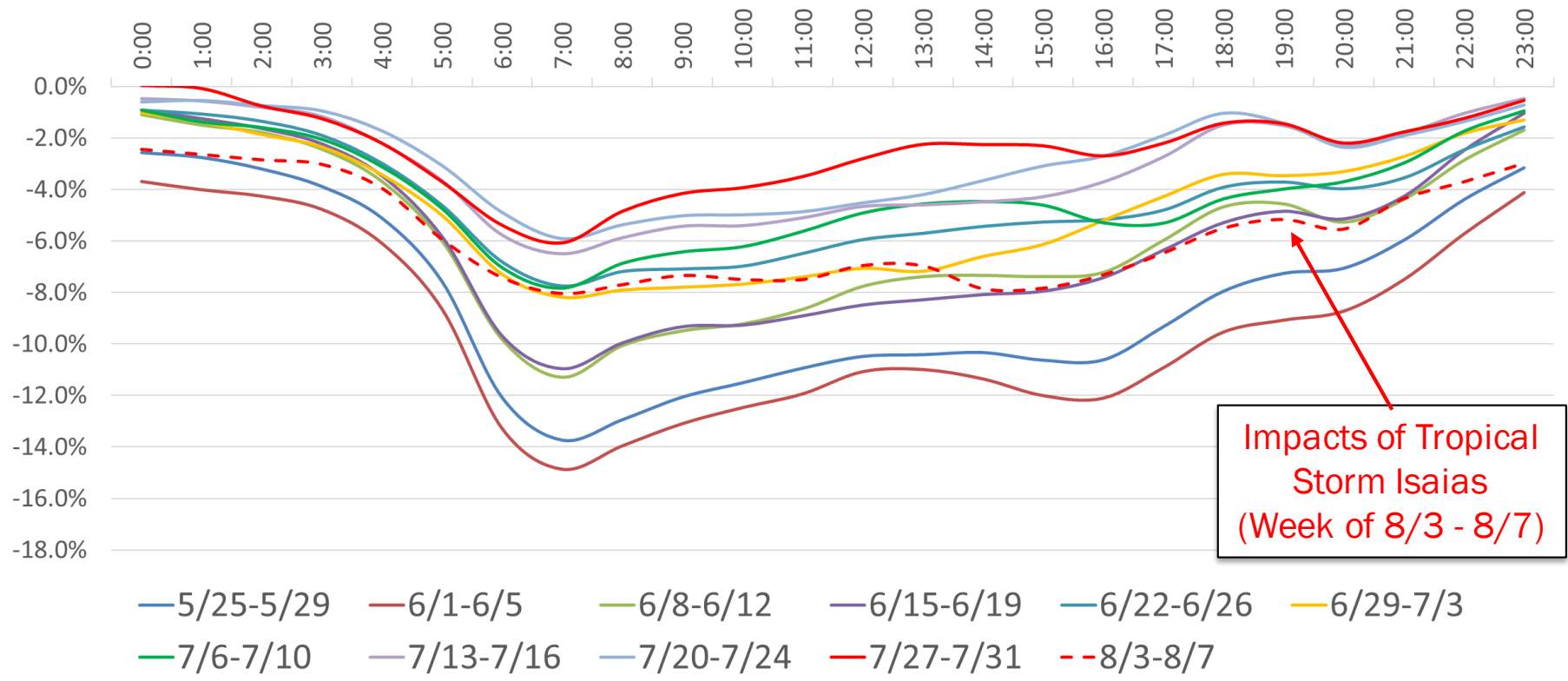
# Regional Impacts on Peak Demand

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



# Impacts on Hourly Load Patterns

NYCA Load Profile - Weekday Diurnal Load Changes

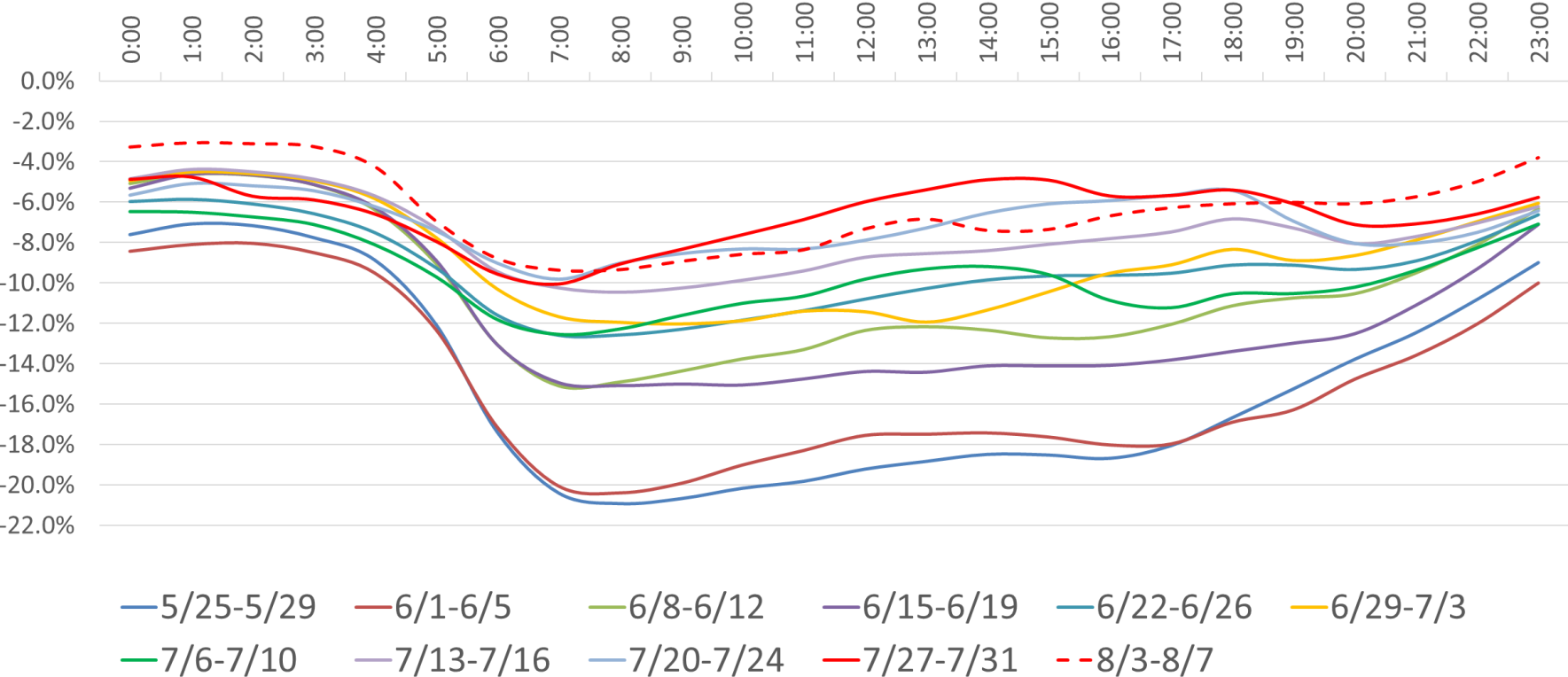


Impacts of Tropical Storm Isaias (Week of 8/3 - 8/7)



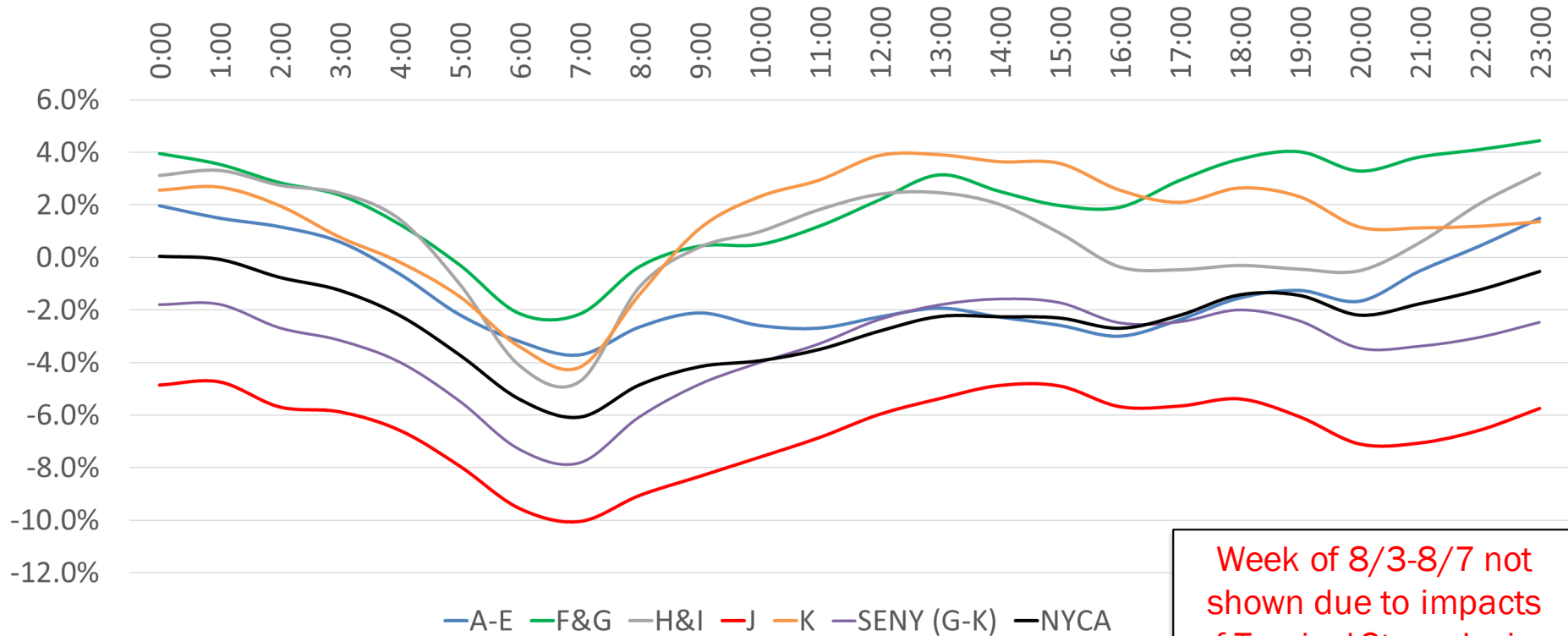
# Impacts on Hourly Load Patterns

Zone-J Load Profile - Weekday Diurnal Load Changes



# Impacts on Hourly Load Patterns (Area)

Average Hourly Deficit by Area - Week of 7/27- 7/31 (Weekdays)



Week of 8/3-8/7 not shown due to impacts of Tropical Storm Isaias

# Impacts on Hourly Load Patterns (Area)

Hour	A-E	F&G	H&I	J	K	SENY (G-K)	NYCA
0:00	2.0%	4.0%	3.1%	-4.9%	2.6%	-1.8%	0.0%
1:00	1.5%	3.5%	3.3%	-4.7%	2.7%	-1.8%	-0.1%
2:00	1.2%	2.8%	2.8%	-5.7%	2.0%	-2.7%	-0.8%
3:00	0.6%	2.4%	2.5%	-5.9%	0.8%	-3.1%	-1.3%
4:00	-0.6%	1.3%	1.5%	-6.6%	-0.2%	-4.0%	-2.2%
5:00	-2.2%	-0.3%	-1.0%	-7.9%	-1.5%	-5.5%	-3.7%
6:00	-3.2%	-2.1%	-4.1%	-9.6%	-3.4%	-7.3%	-5.4%
7:00	-3.7%	-2.2%	-4.7%	-10.0%	-4.2%	-7.8%	-6.1%
8:00	-2.6%	-0.3%	-1.1%	-9.1%	-1.4%	-6.1%	-4.9%
9:00	-2.1%	0.4%	0.4%	-8.3%	1.1%	-4.8%	-4.2%
10:00	-2.6%	0.5%	1.0%	-7.6%	2.3%	-4.0%	-3.9%
11:00	-2.7%	1.2%	1.8%	-6.9%	2.9%	-3.3%	-3.5%
12:00	-2.3%	2.2%	2.4%	-6.0%	3.9%	-2.4%	-2.8%
13:00	-1.9%	3.1%	2.5%	-5.4%	3.9%	-1.8%	-2.3%
14:00	-2.3%	2.5%	2.0%	-4.9%	3.6%	-1.6%	-2.3%
15:00	-2.6%	2.0%	0.9%	-4.9%	3.6%	-1.7%	-2.3%
16:00	-3.0%	1.9%	-0.4%	-5.7%	2.6%	-2.5%	-2.7%
17:00	-2.4%	2.9%	-0.5%	-5.7%	2.1%	-2.4%	-2.2%
18:00	-1.5%	3.7%	-0.3%	-5.4%	2.6%	-2.0%	-1.4%
19:00	-1.3%	4.0%	-0.4%	-6.1%	2.3%	-2.4%	-1.5%
20:00	-1.7%	3.3%	-0.5%	-7.1%	1.2%	-3.4%	-2.2%
21:00	-0.5%	3.8%	0.6%	-7.1%	1.1%	-3.4%	-1.8%
22:00	0.4%	4.1%	2.0%	-6.6%	1.2%	-3.0%	-1.2%
23:00	1.5%	4.4%	3.2%	-5.8%	1.4%	-2.5%	-0.5%

Average Hourly Load Deficit By Area Week of 7/27 - 7/31

Week of 8/3-8/7 not shown due to impacts of Tropical Storm Isaias

# Impacts on Hourly Load Patterns (Zone)

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

Average Hourly Load Deficit by Zone, Week of 7/27 - 7/31

# 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

