New York ISO
Independent System Operator

Impacts and Trends of COVID-19 on NYISO Load

Analysis through 9/30/2021

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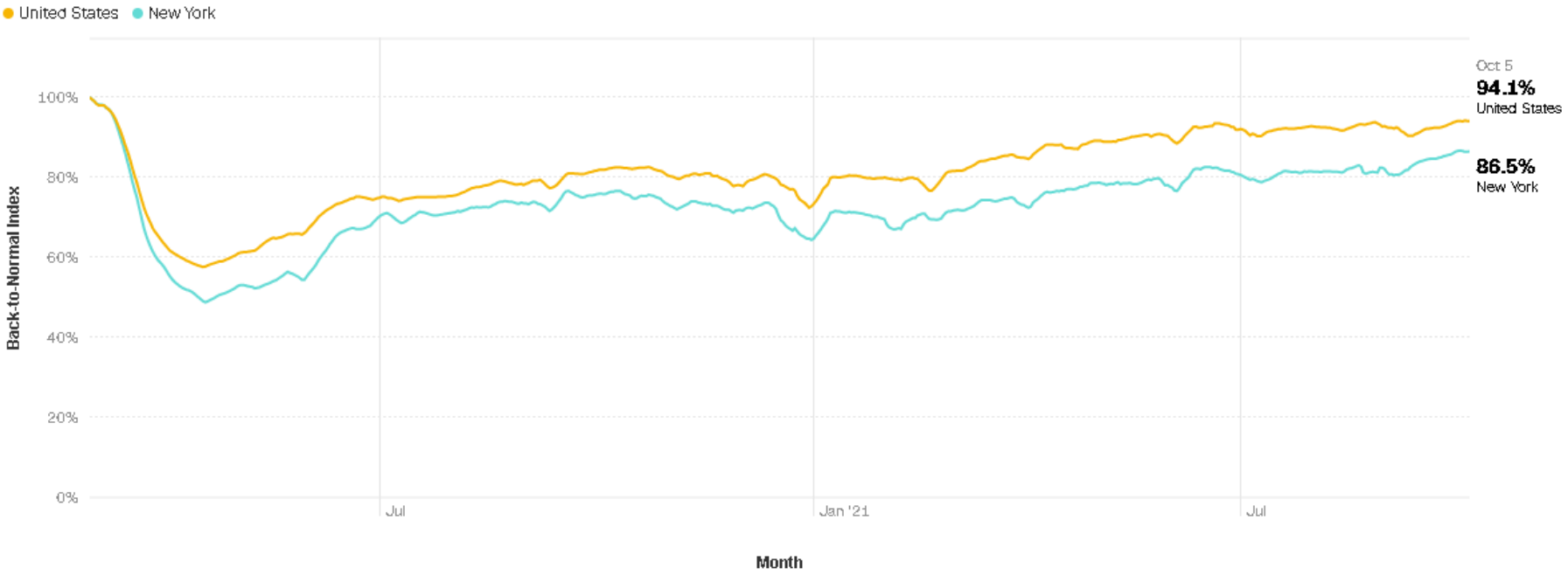
Demand Forecasting & Analysis

Load Forecasting Task Force

October 21, 2021; Teleconference

Back-to-Normal Index (Moody's Analytics)



Source: CNN/Moody's Analytics: https://www.cnn.com/business/us-economic-recovery-coronavirus

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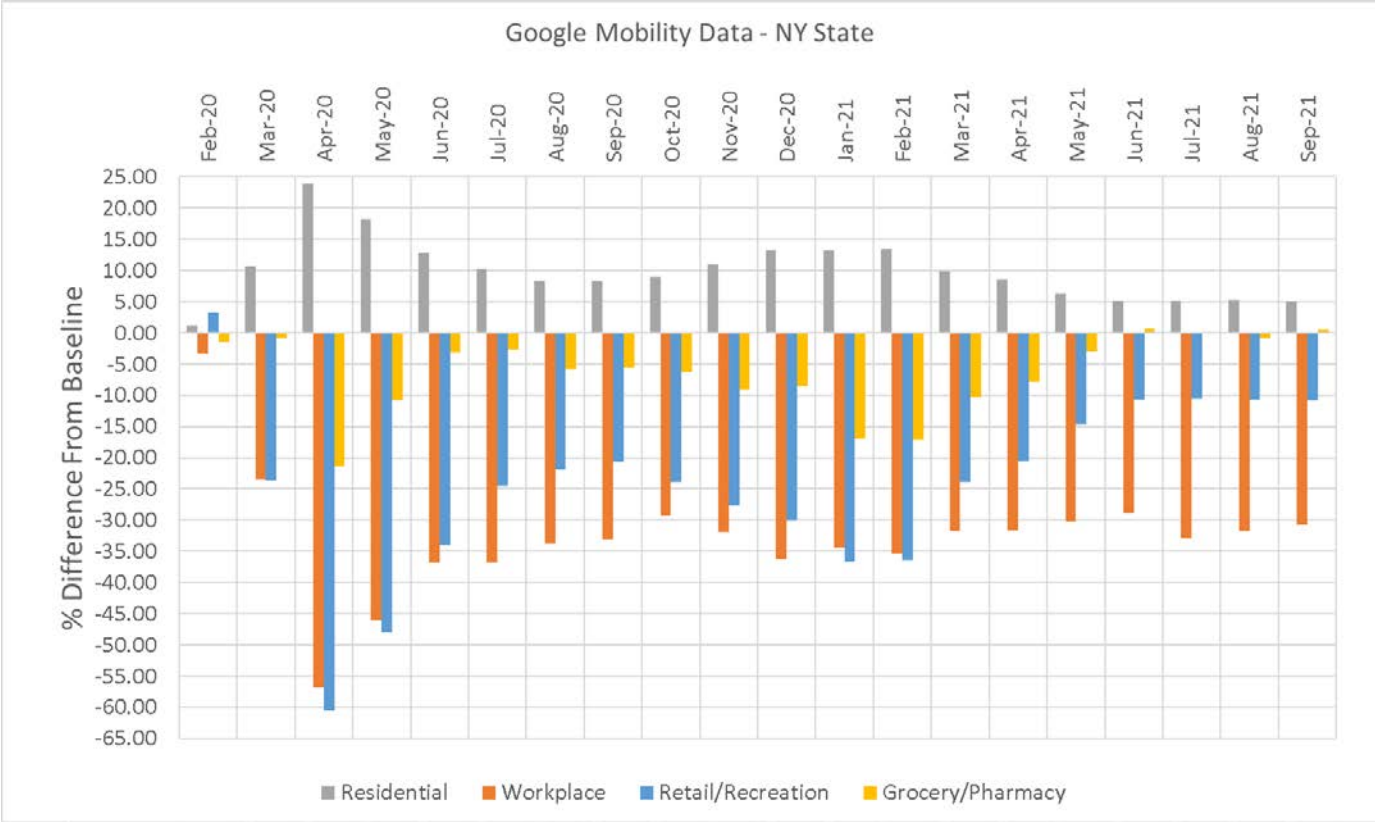
New York Insights – Google Mobility



Source: Google Mobility Data, https://www.google.com/covid19/mobility/

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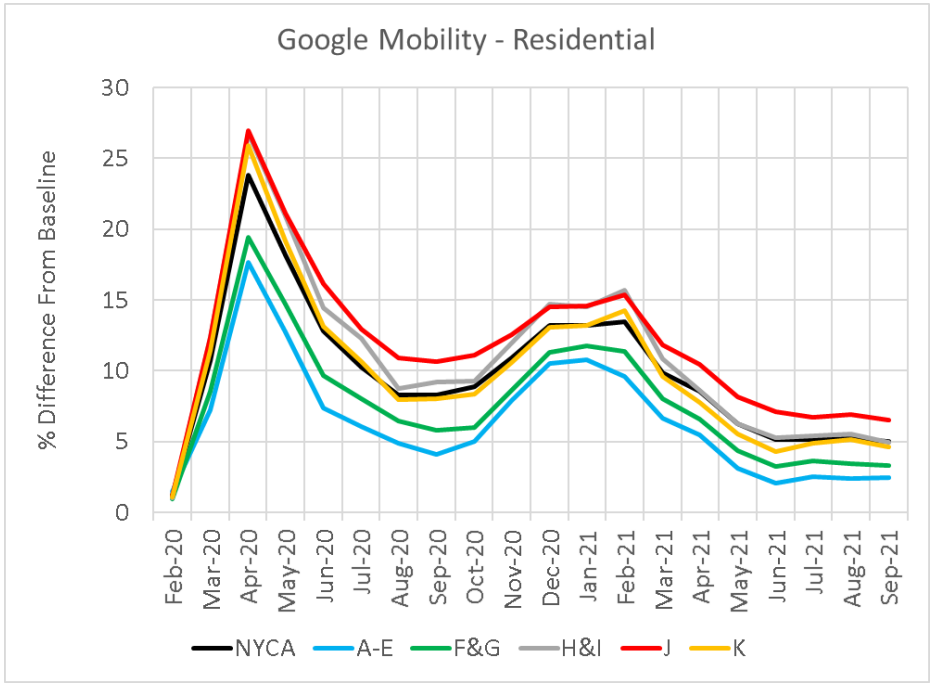
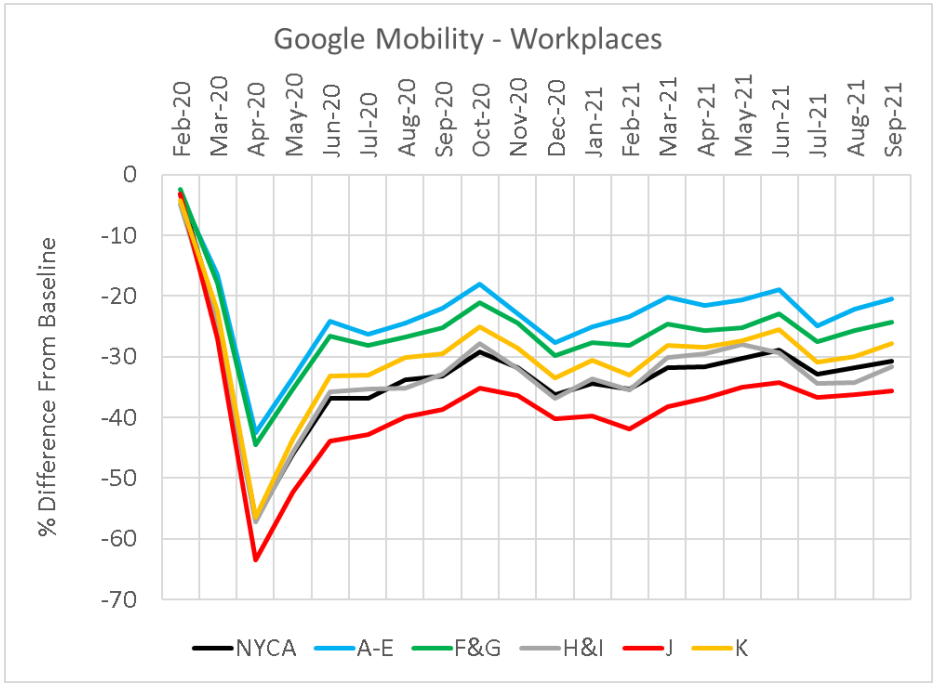
Regional Insights – Google Mobility





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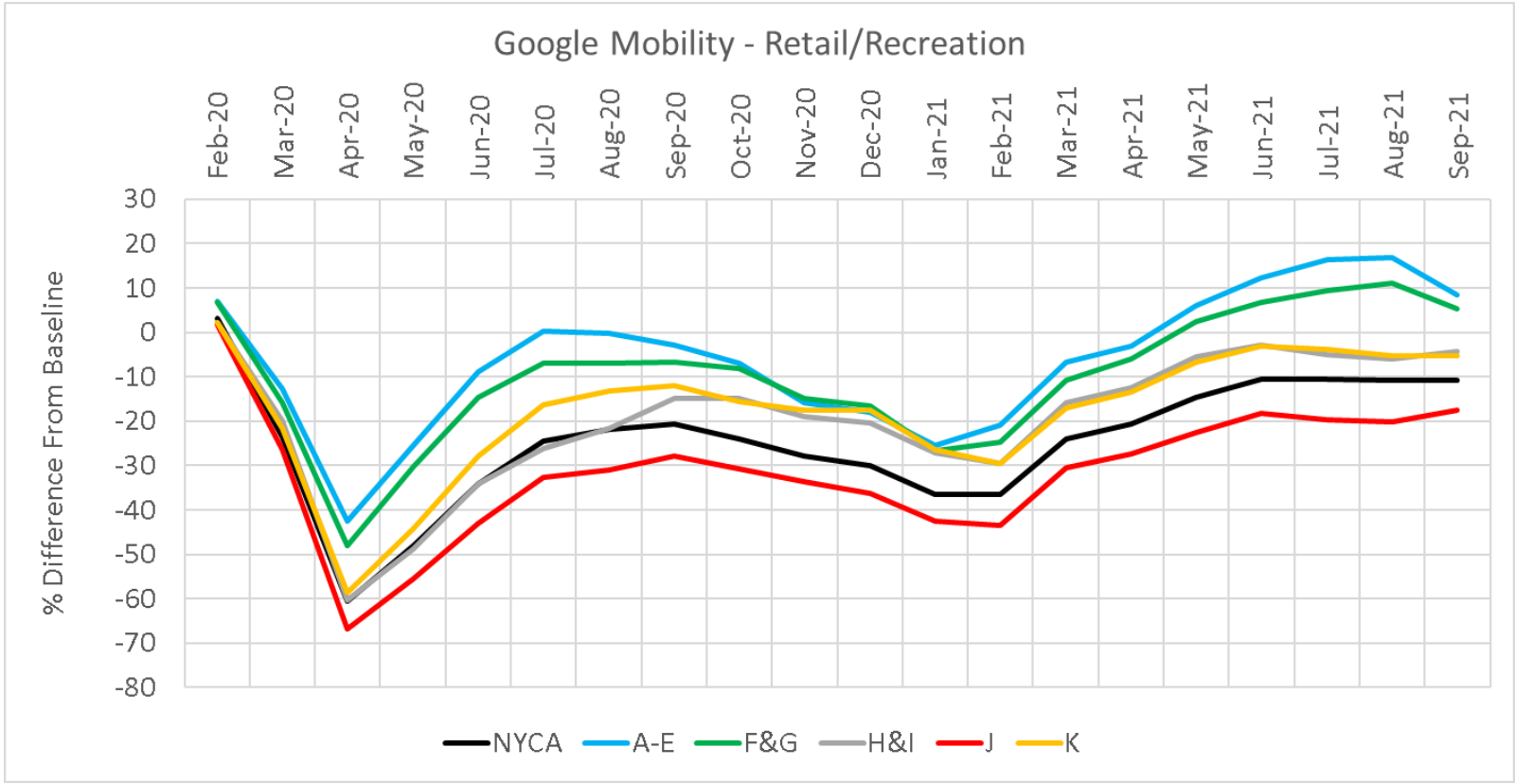
Regional Insights – Google Mobility



Source: Google Mobility Data, https://www.google.com/covid19/mobility/

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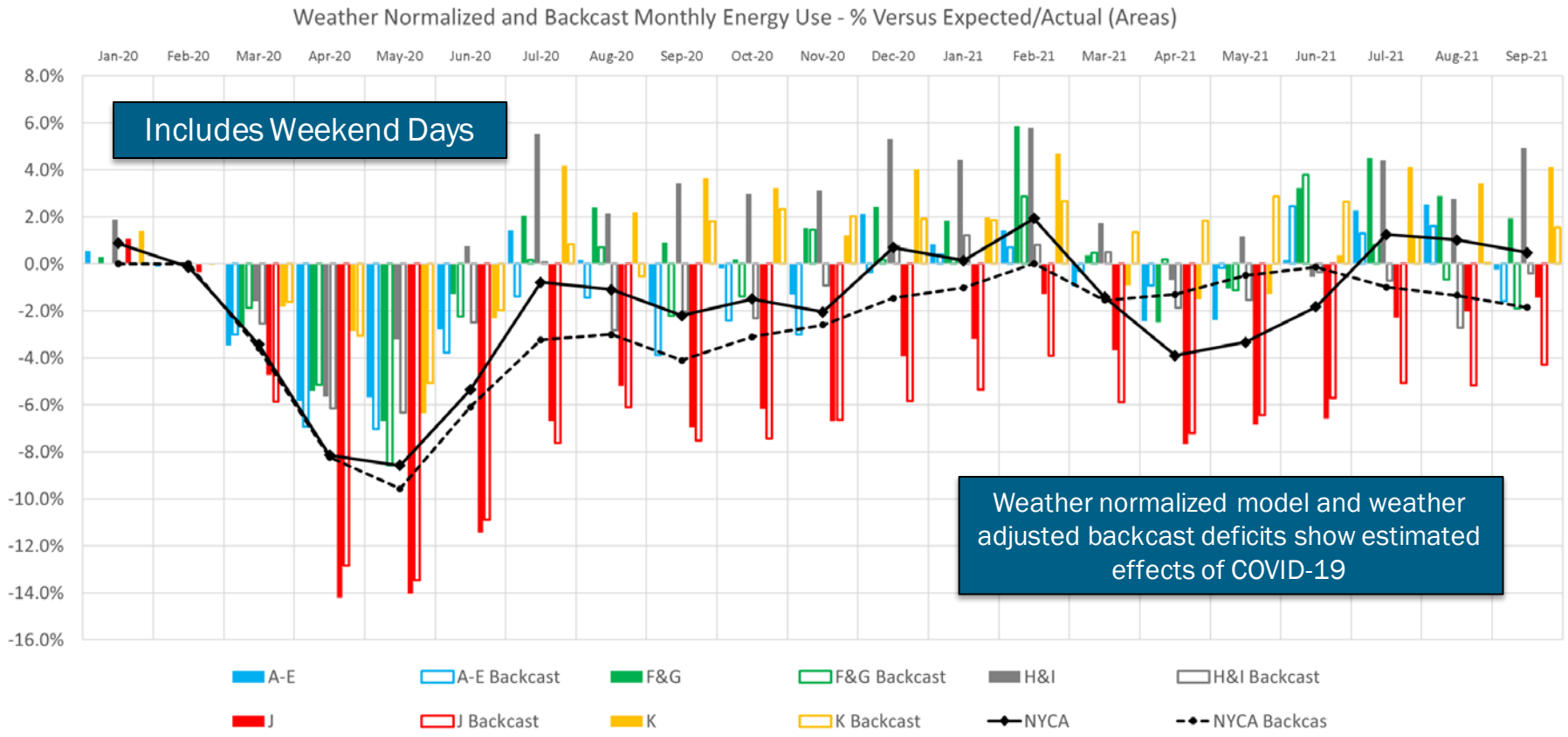
Impacts on Daily Energy by Month



Model Explanation - Impacts on Daily Energy by Month

Weather Normalized Difference
(Solid Bars in Previous Chart)

- 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 the 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 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

(Hollow bars in Previous Chart)

- 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 2020. Thus, these backcasts estimate what the load would have been on a given day under pre-COVID conditions
- These models were fit through February 2020, 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

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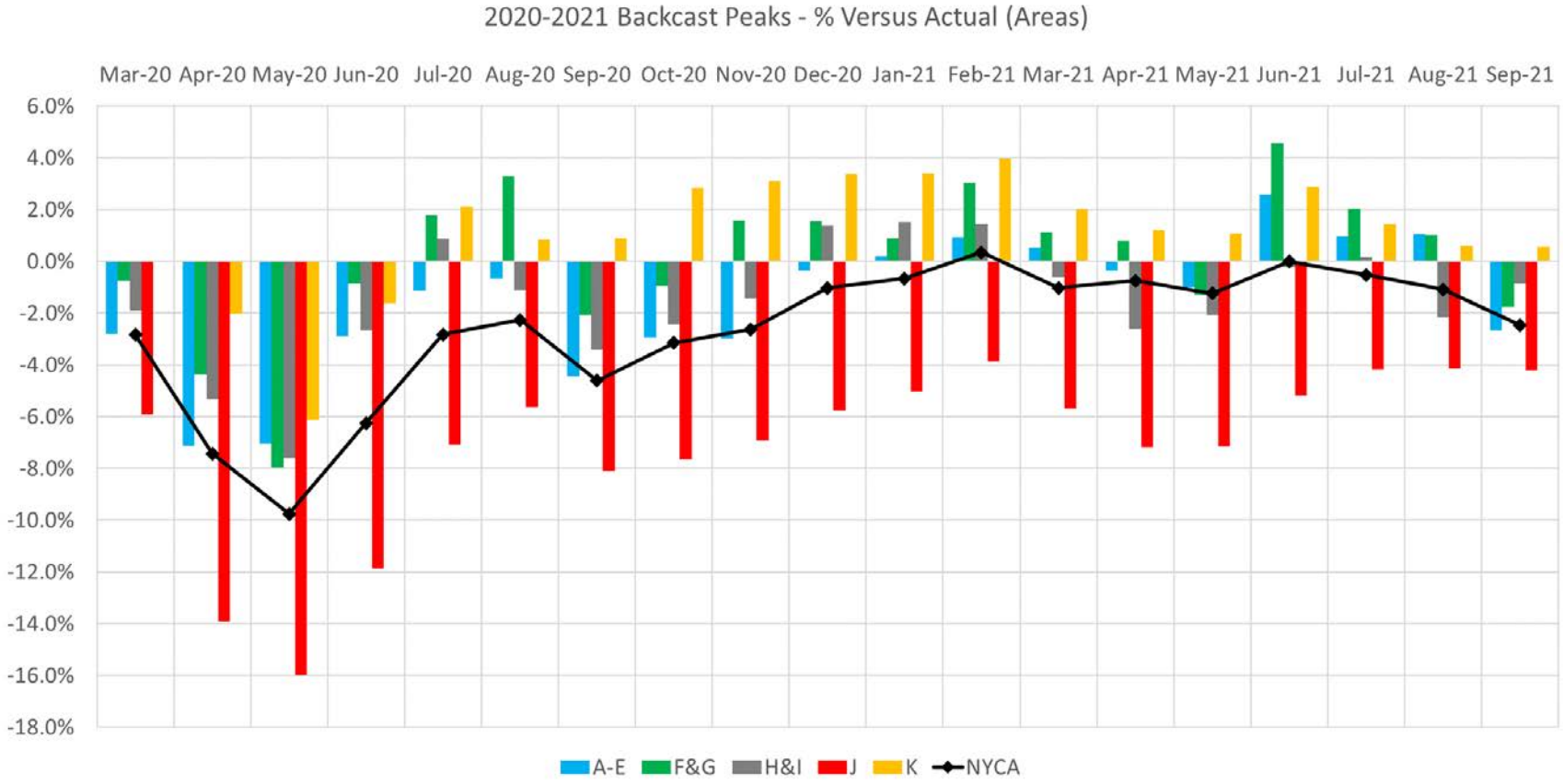
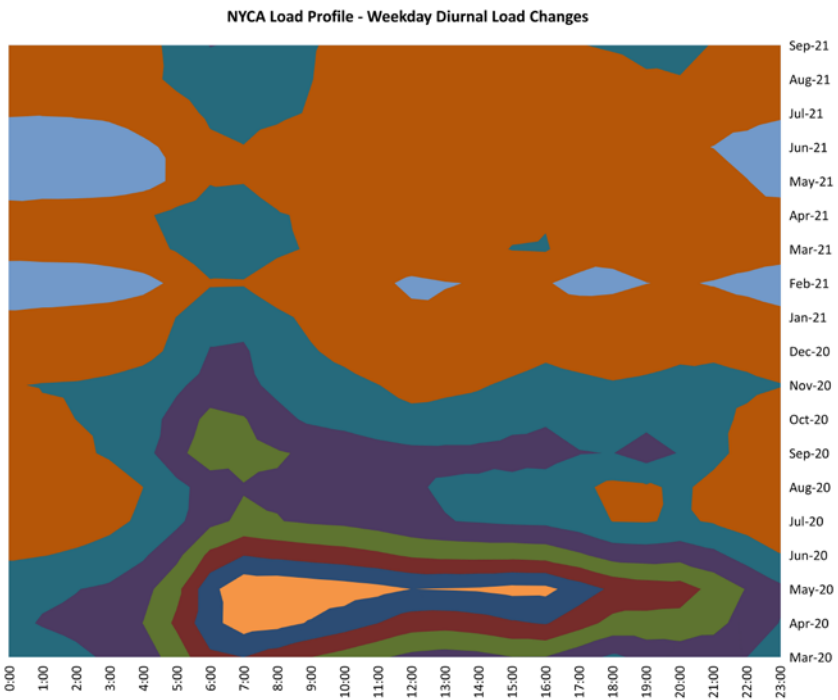
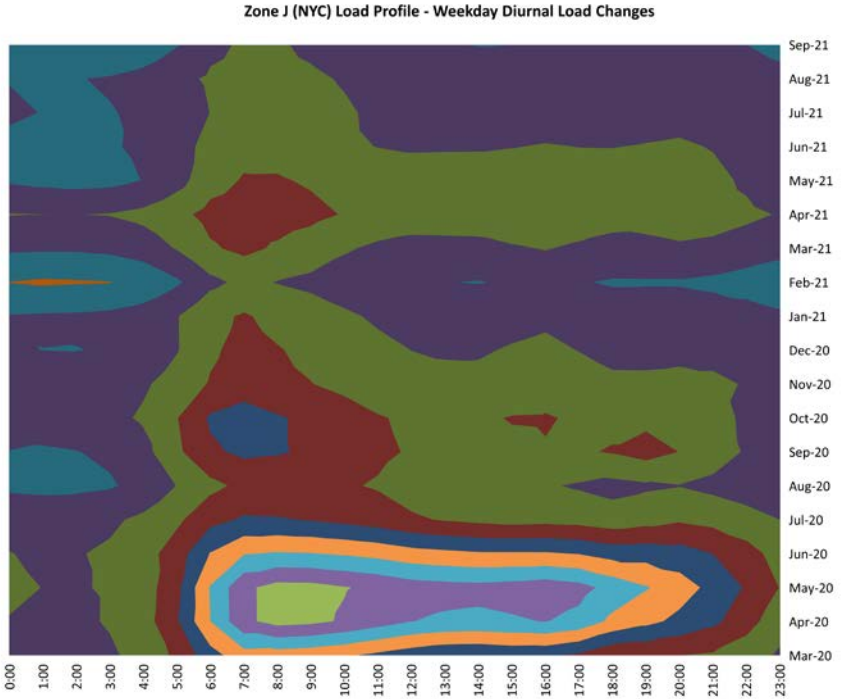
Regional Impacts on Peak Demand



Impacts on Hourly Load Patterns (Monthly)





% Difference from Expected

- 0.0%-2.0%
- -2.0%-0.0%
- -4.0%--2.0%
- -6.0%--4.0%
- -8.0%--6.0%
- -10.0%--8.0%
- -12.0%--10.0%
- -14.0%--12.0%
- -16.0%--14.0%
- -18.0%--16.0%
- -20.0%--18.0%
- -22.0%--20.0%
- -24.0%--22.0%

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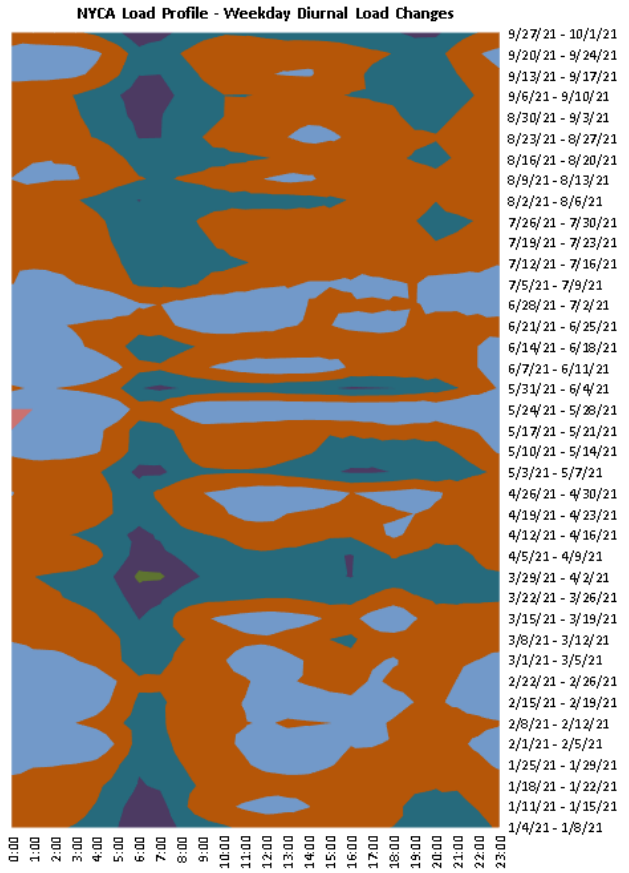
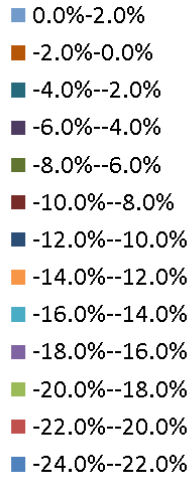
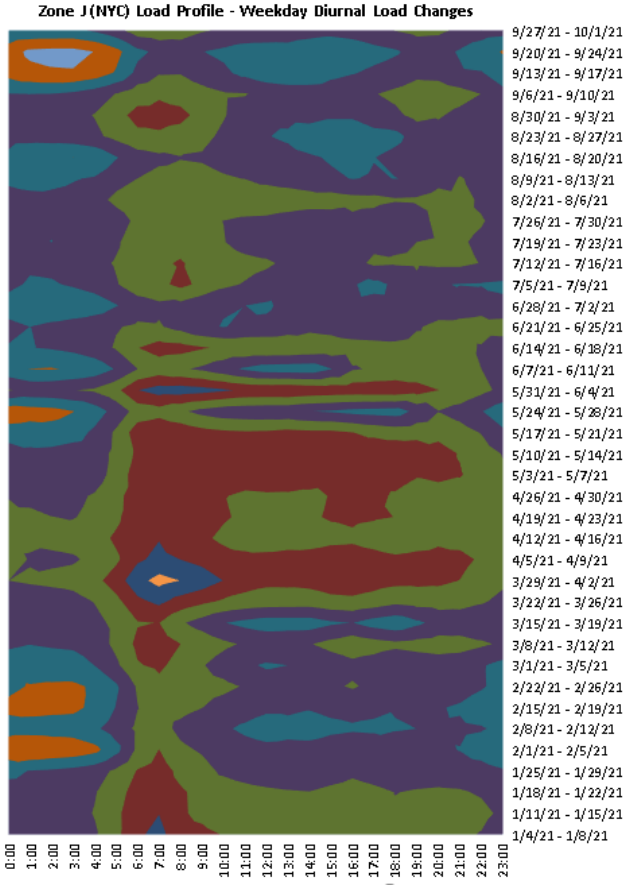
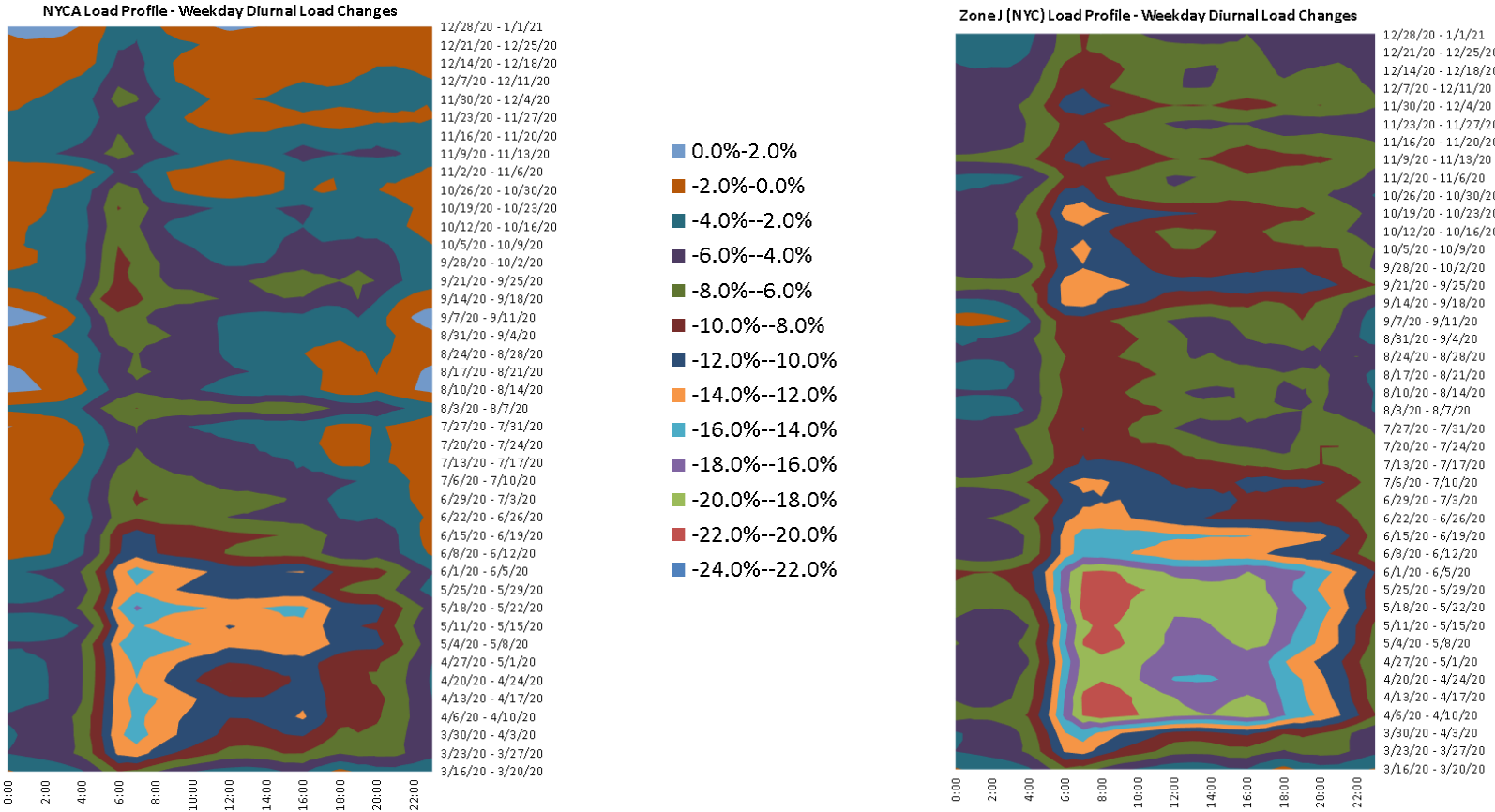
Impacts on Hourly Load Patterns by Week (2021)



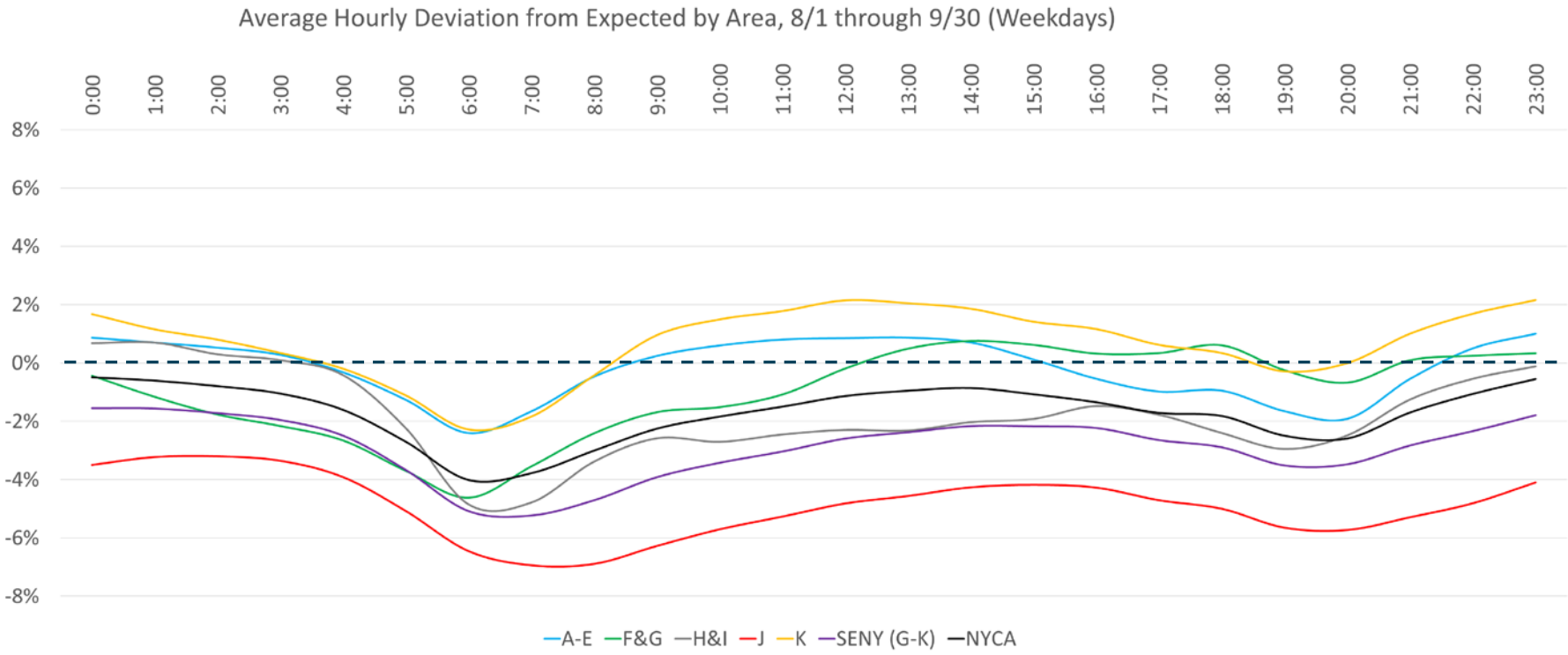




Impacts on Hourly Load Patterns by Week (2020)



Impacts on Hourly Load Patterns (Area)



Questions/Discussion

Impacts on Hourly Load Patterns (Area)

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

Average Hourly Load Deficit By Area 8/1 - 9/30 (Weekdays)

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Impacts on Hourly Load Patterns (Zone)

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

Average Hourly Load Deficit by Zone, 8/1 - 9/30 (Weekdays)

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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

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