

Estimated Impacts of COVID-19 on NYISO Load

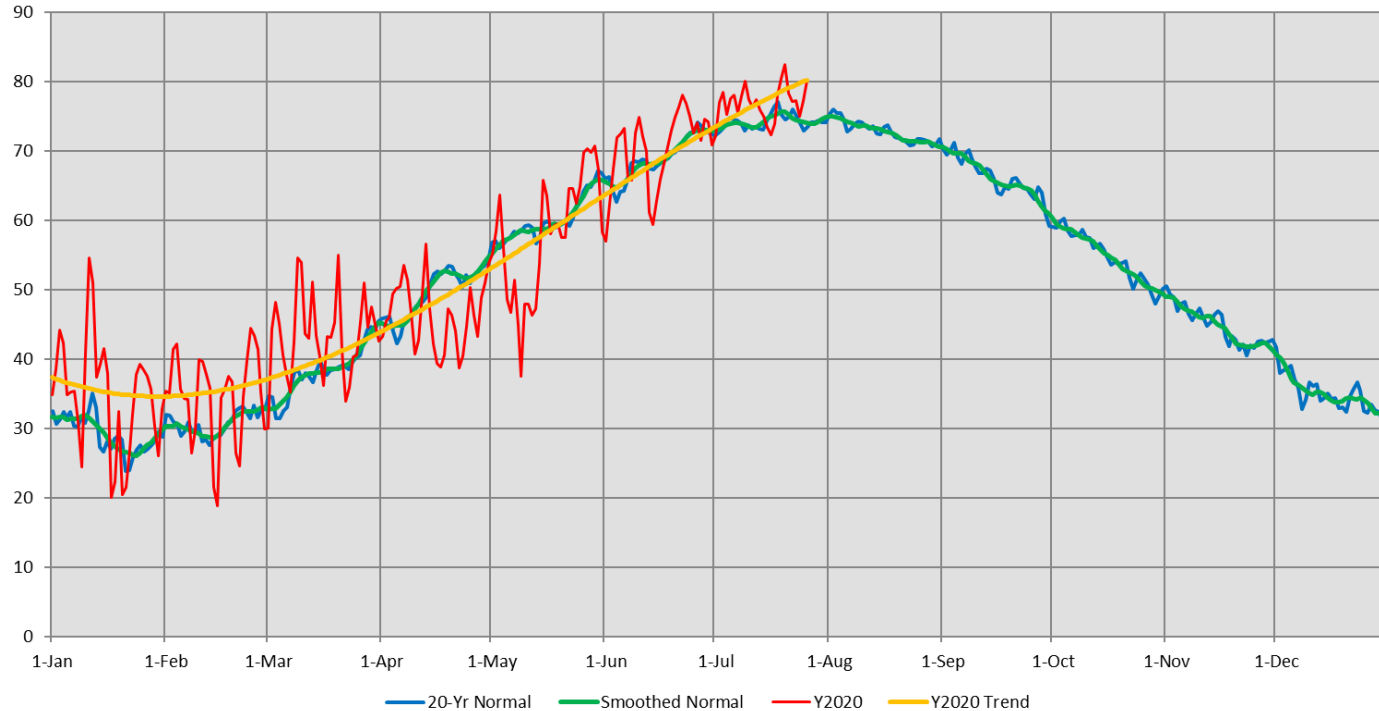
Analysis through 7/25/2020

Chuck Alonge & Maxim Schuler
System & Resource Planning

Load Forecasting Task Force Meeting

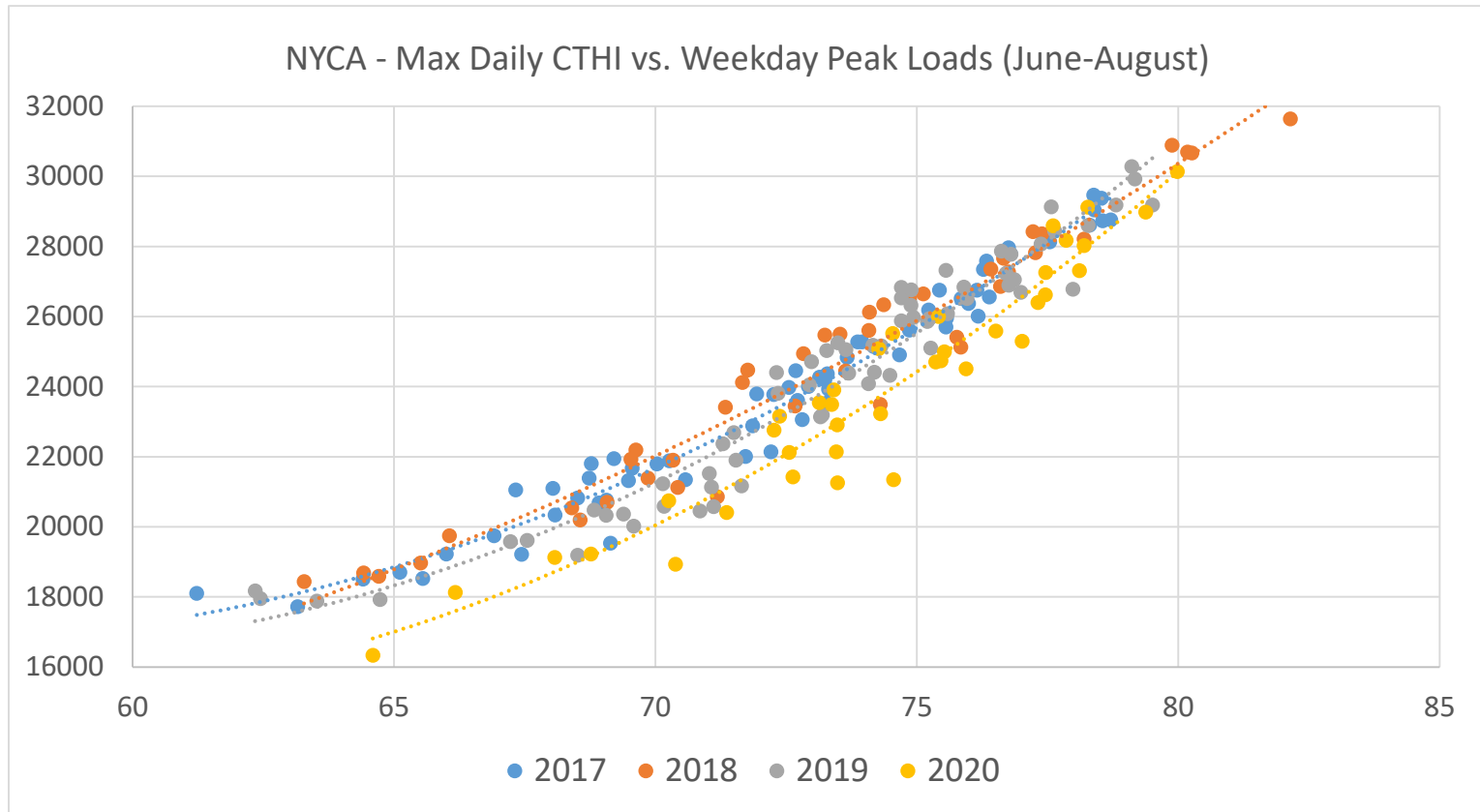
July 28, 2020, Teleconference

NYCA Composite Daily Average Temperature, 2020 and Normal



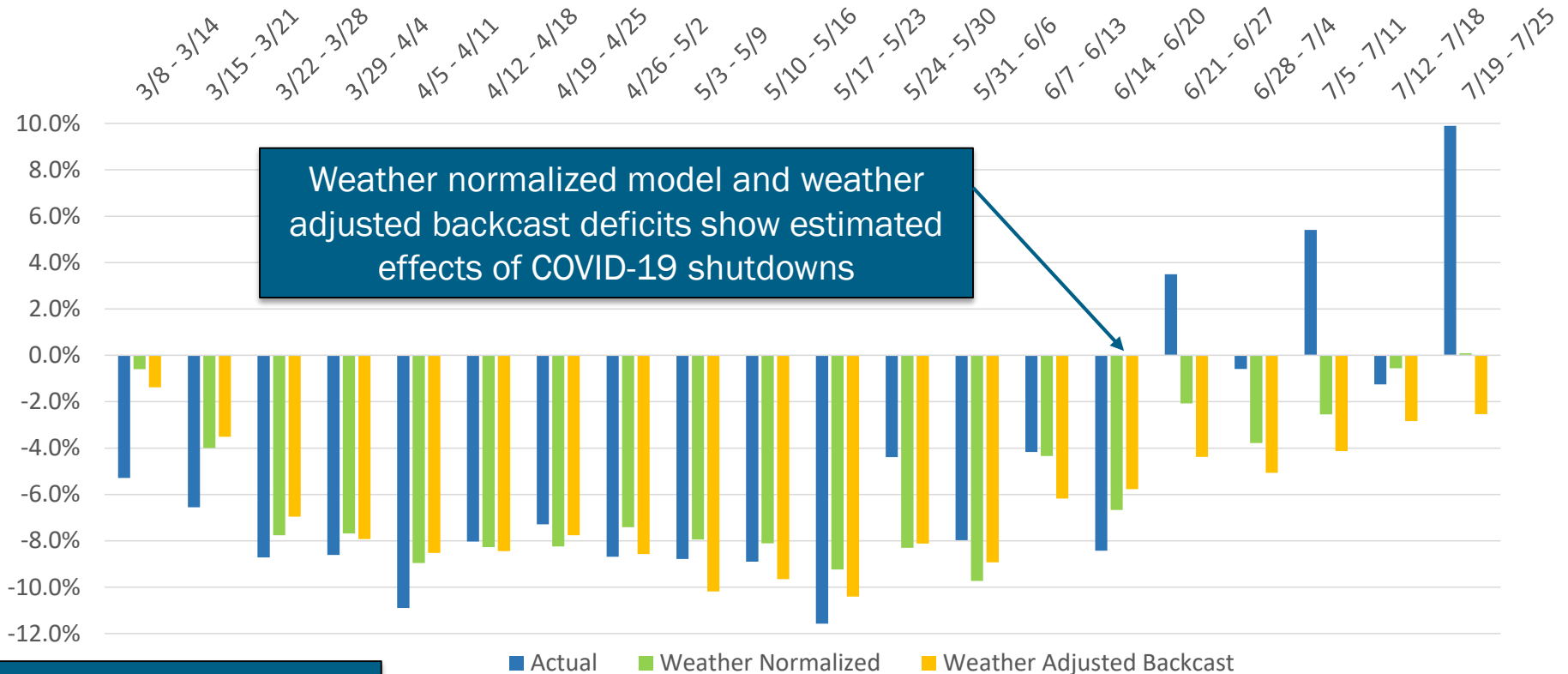
- **Warmer than average Q1 was followed by colder than average April/May**
- **Warmer than average June translated into a reduction in load deficits**
- **Through June, weather impacts on energy estimated at -900 GWh, COVID-19 Impacts: -3,000 GWh**

NYCA Weather Sensitivity



Recent Impacts on Daily Energy by Week

Weekly Energy Use - % Versus Expected (NYCA)



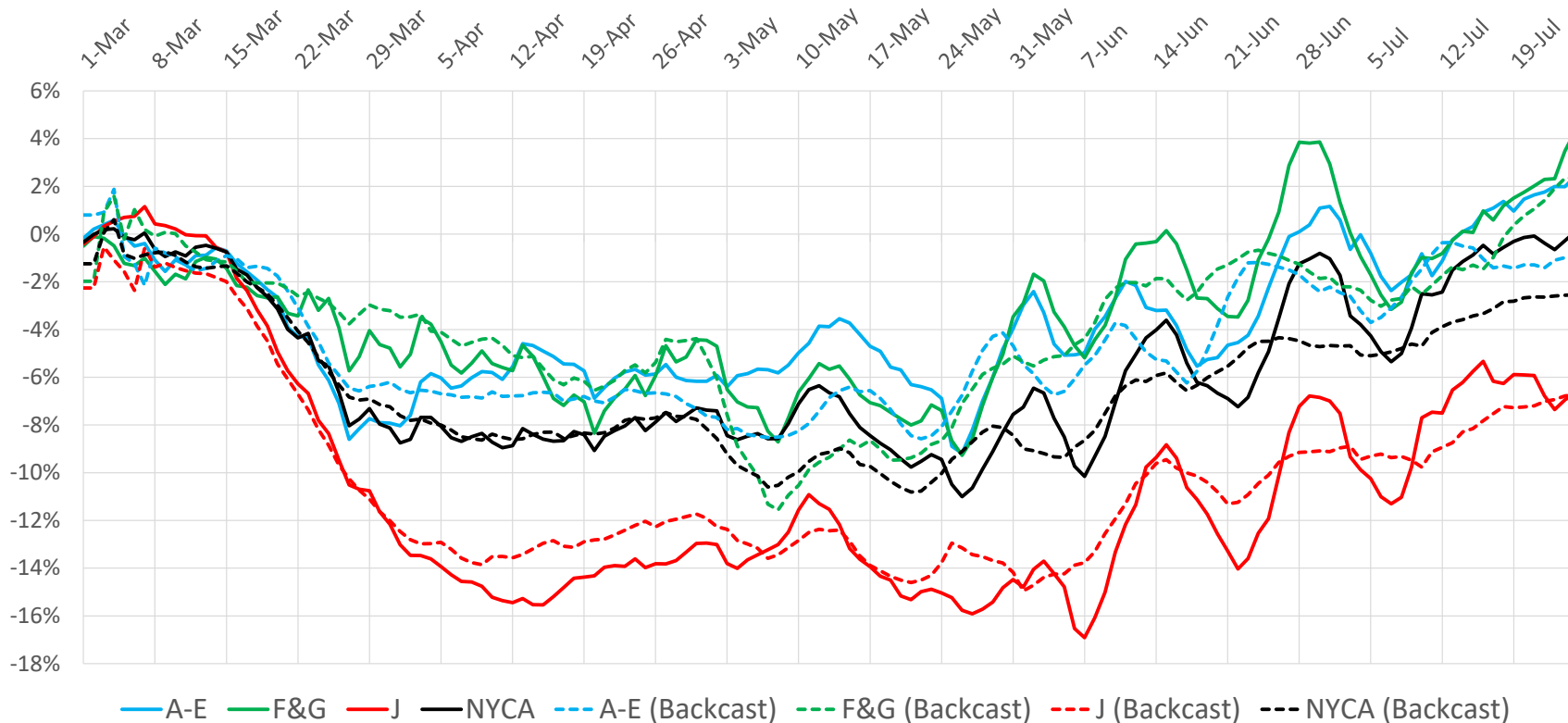
Weather normalized model and weather adjusted backcast deficits show estimated effects of COVID-19 shutdowns

Includes Weekend Days

Actual Weather Normalized Weather Adjusted Backcast

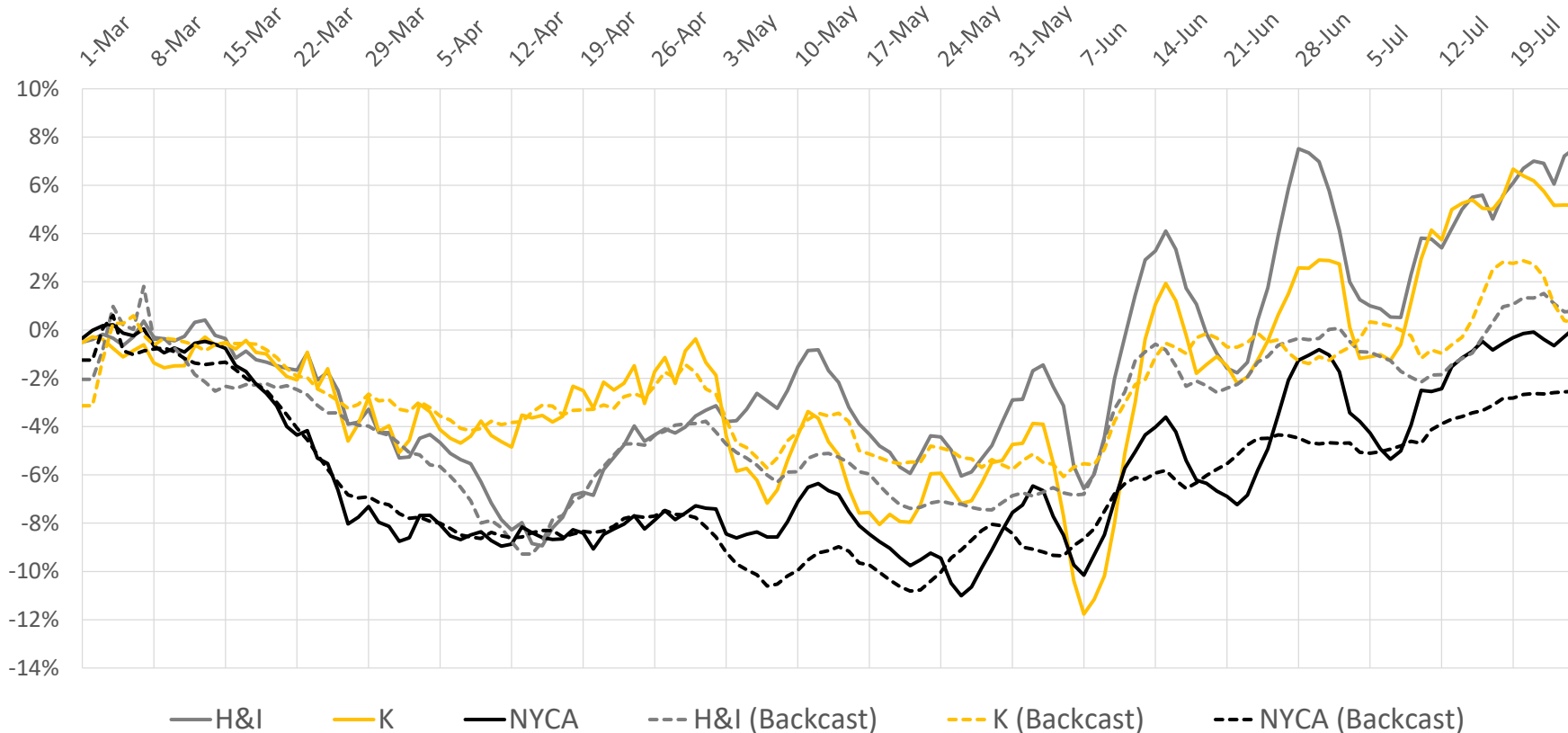
Regional Impacts on Daily Energy Patterns

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



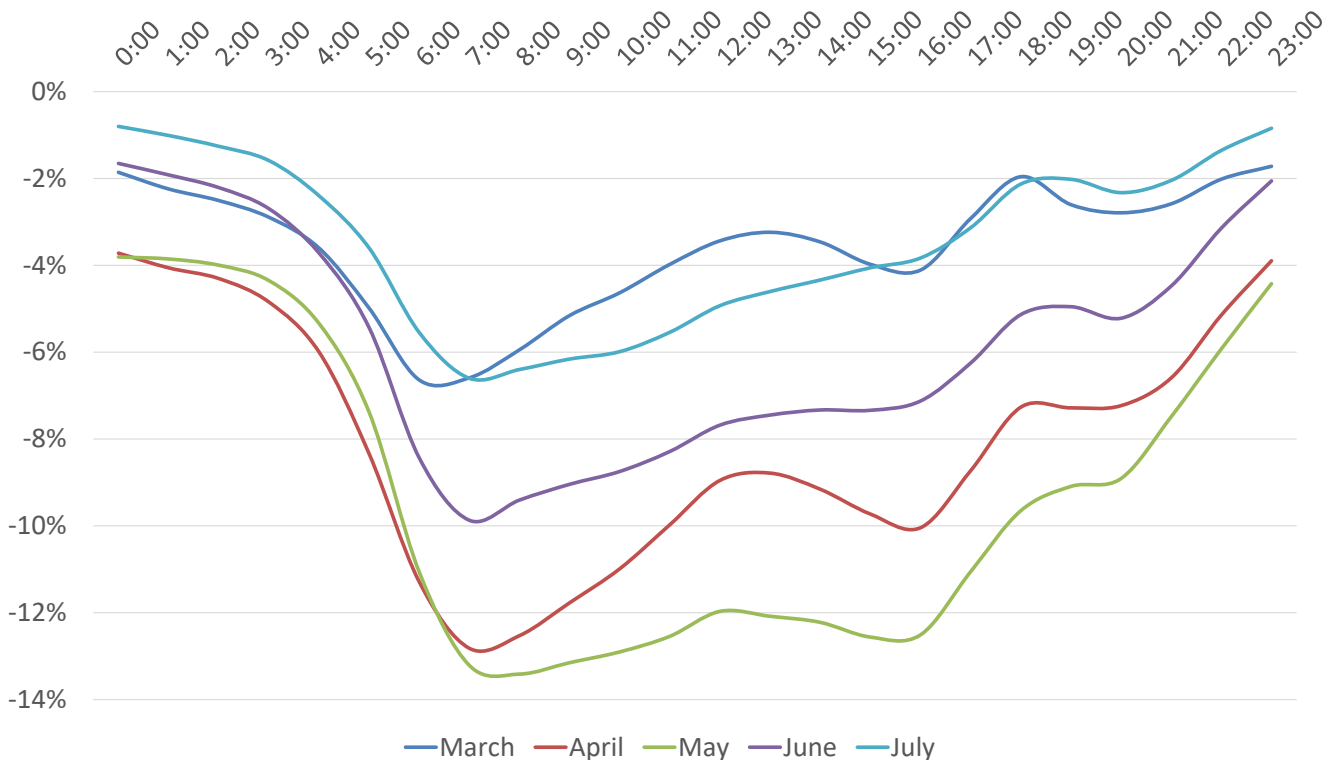
Regional Impacts on Daily Energy Patterns

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



Recent Impacts on Hourly Load Patterns

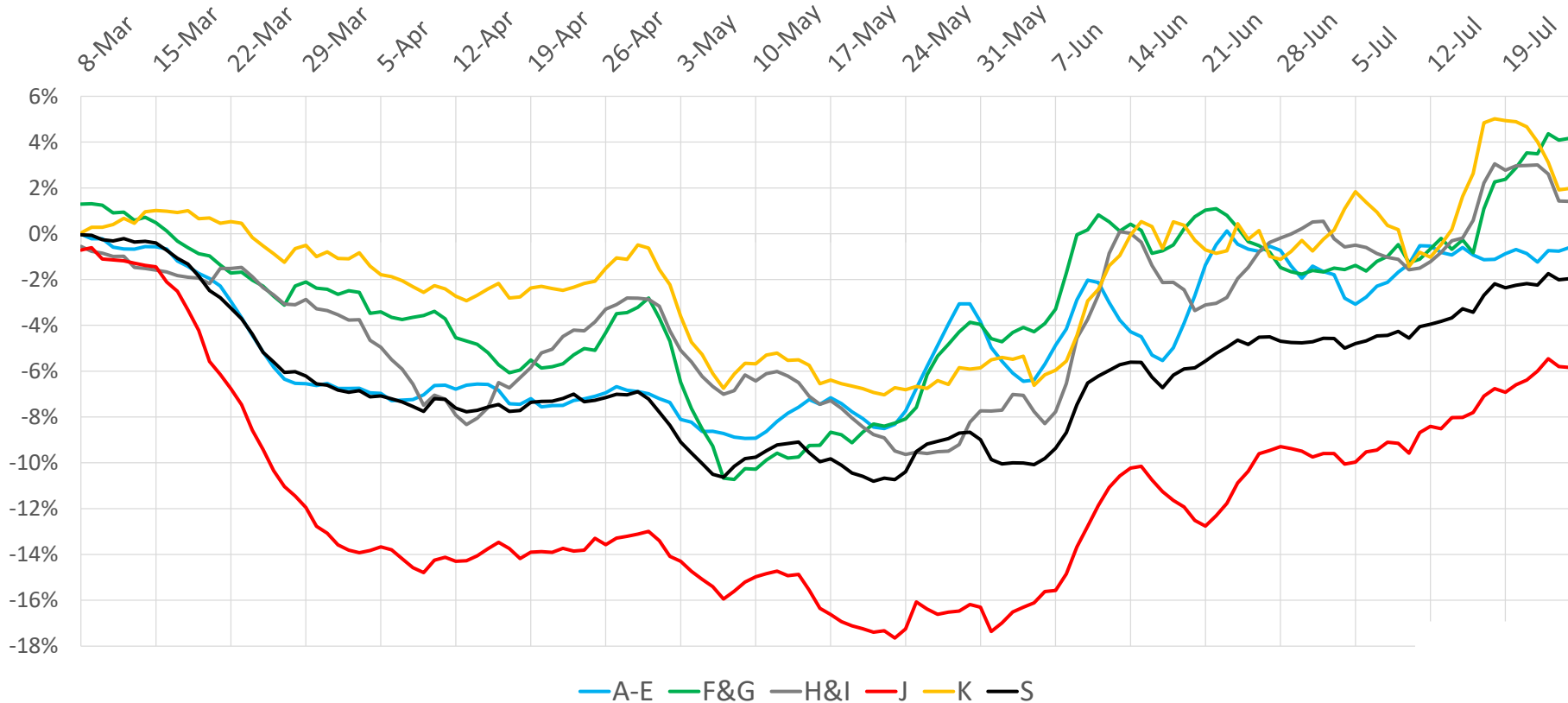
NYCA Load Profile - Diurnal Deviations



- Largest differences remain in the morning pick-up period
- Estimated peak deficits by month:
 - March: -2% to -4%
 - April: -7% to -9%
 - May: -8% to -10%
 - June: -5% to -7%
 - July: -2% to -5%

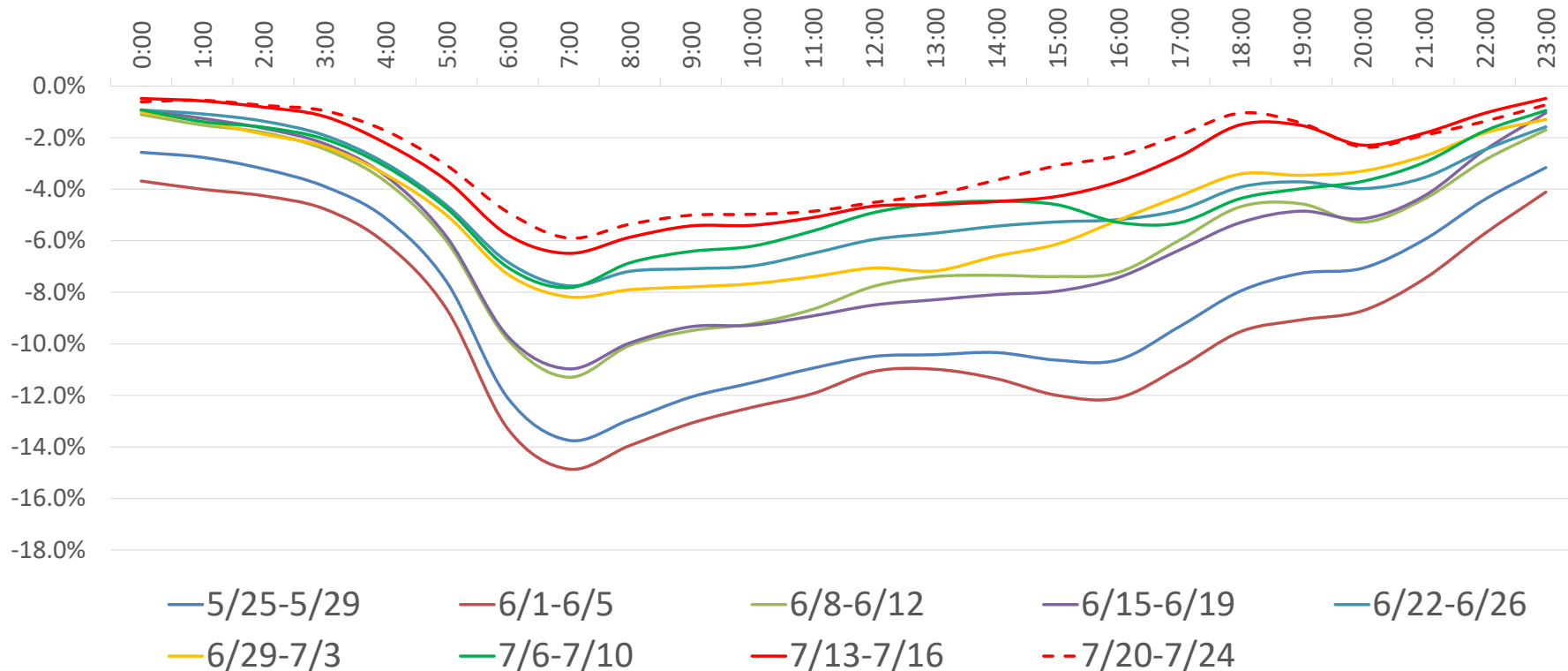
Regional Impacts on Peak Demand

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



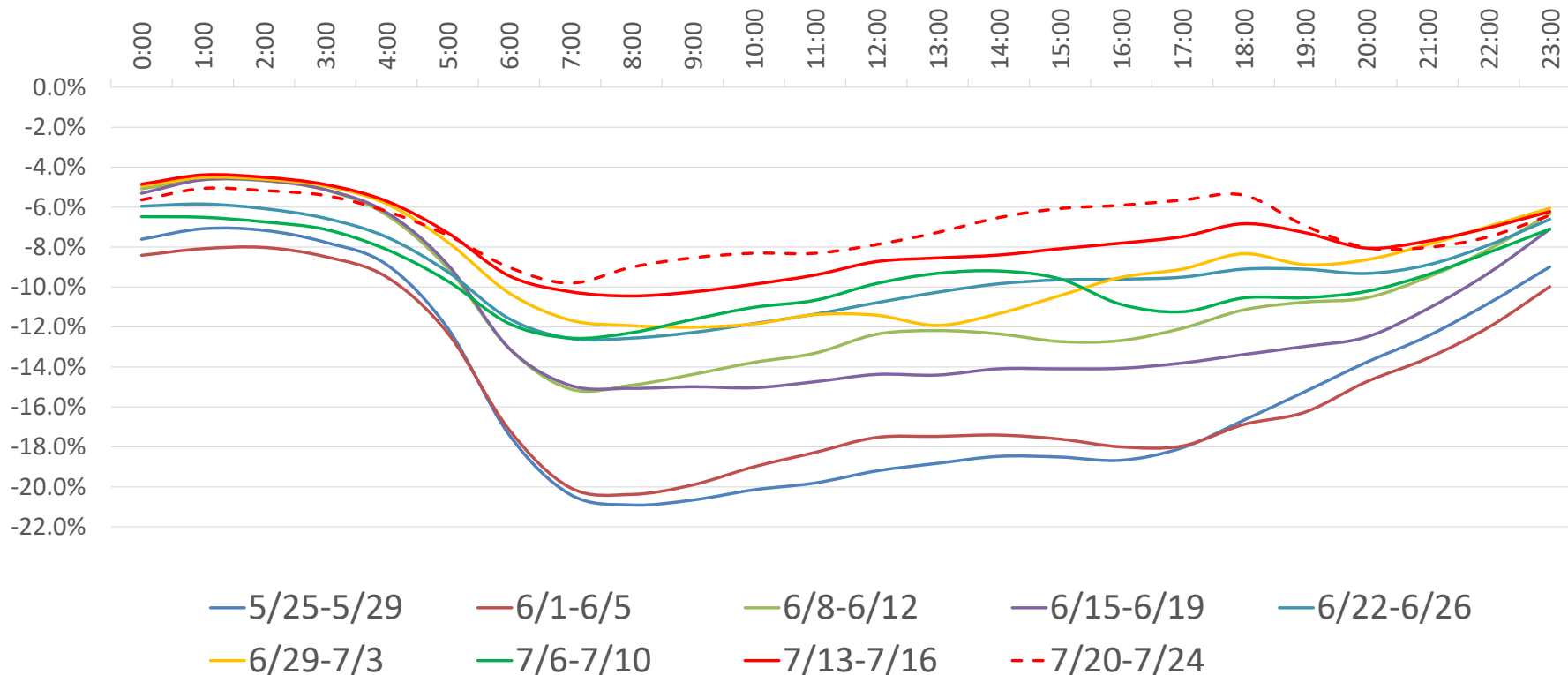
Impacts on Hourly Load Patterns

NYCA Load Profile - Weekday Diurnal Load Changes



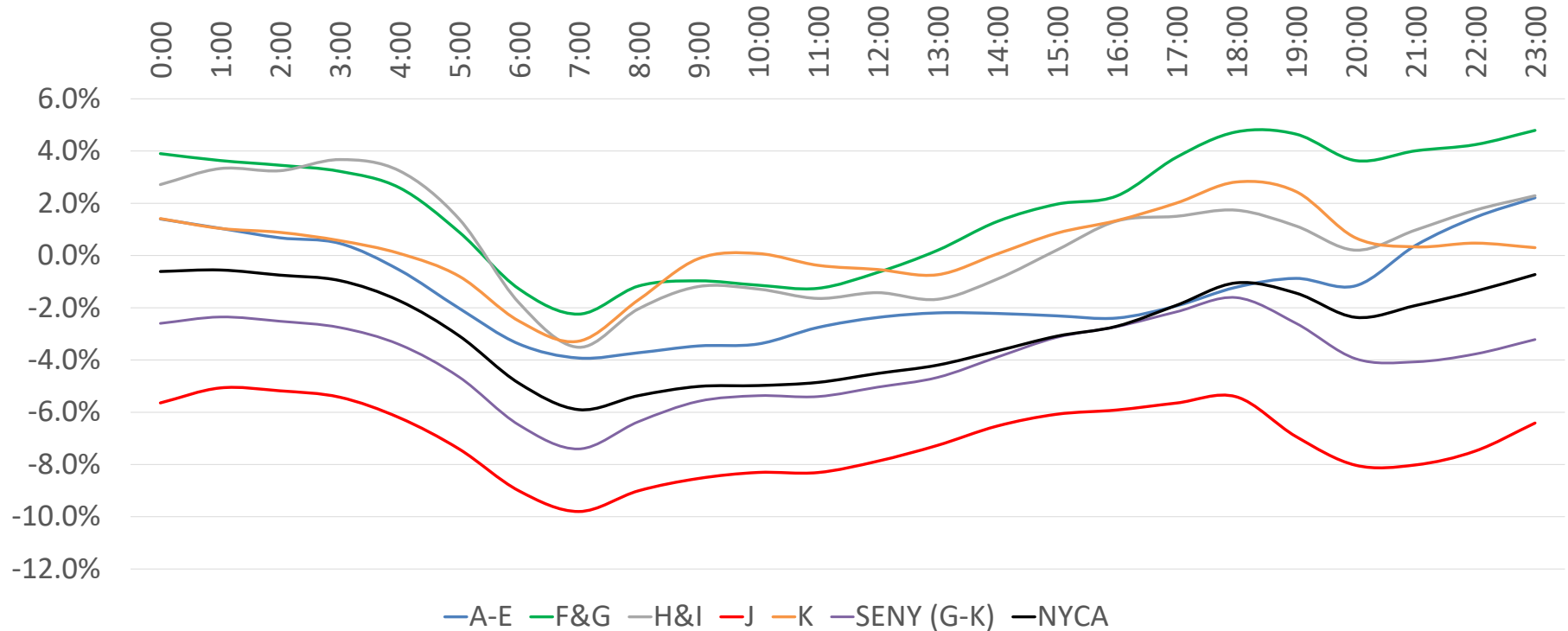
Impacts on Hourly Load Patterns

Zone-J Load Profile - Weekday Diurnal Load Changes



Impacts on Hourly Load Patterns (Area)

Average Hourly Deficit by Area - Week of 7/20- 7/24 (Weekdays)



Impacts on Hourly Load Patterns (Area)

Hour	A-E	F&G	H&I	J	K	SENY (G-K)	NYCA
0:00	1.4%	3.9%	2.7%	-5.6%	1.4%	-2.6%	-0.6%
1:00	1.0%	3.6%	3.3%	-5.1%	1.0%	-2.4%	-0.6%
2:00	0.7%	3.5%	3.2%	-5.2%	0.9%	-2.5%	-0.8%
3:00	0.5%	3.2%	3.7%	-5.4%	0.6%	-2.8%	-1.0%
4:00	-0.6%	2.6%	3.2%	-6.2%	0.1%	-3.4%	-1.7%
5:00	-2.0%	0.9%	1.4%	-7.4%	-0.8%	-4.7%	-3.1%
6:00	-3.4%	-1.3%	-1.8%	-9.0%	-2.5%	-6.5%	-4.9%
7:00	-3.9%	-2.2%	-3.5%	-9.8%	-3.3%	-7.4%	-5.9%
8:00	-3.7%	-1.2%	-2.0%	-9.0%	-1.7%	-6.4%	-5.4%
9:00	-3.5%	-1.0%	-1.2%	-8.5%	-0.1%	-5.6%	-5.0%
10:00	-3.4%	-1.1%	-1.3%	-8.3%	0.1%	-5.4%	-5.0%
11:00	-2.8%	-1.3%	-1.6%	-8.3%	-0.4%	-5.4%	-4.9%
12:00	-2.4%	-0.6%	-1.4%	-7.9%	-0.5%	-5.0%	-4.5%
13:00	-2.2%	0.2%	-1.7%	-7.3%	-0.7%	-4.7%	-4.2%
14:00	-2.2%	1.3%	-0.9%	-6.5%	0.1%	-3.9%	-3.7%
15:00	-2.3%	2.0%	0.2%	-6.1%	0.9%	-3.1%	-3.1%
16:00	-2.4%	2.3%	1.3%	-5.9%	1.3%	-2.7%	-2.7%
17:00	-1.9%	3.8%	1.5%	-5.6%	2.0%	-2.2%	-1.9%
18:00	-1.2%	4.7%	1.7%	-5.4%	2.8%	-1.6%	-1.0%
19:00	-0.9%	4.6%	1.1%	-6.9%	2.4%	-2.6%	-1.4%
20:00	-1.2%	3.6%	0.2%	-8.0%	0.7%	-4.0%	-2.4%
21:00	0.4%	4.0%	1.0%	-8.0%	0.3%	-4.1%	-1.9%
22:00	1.5%	4.2%	1.7%	-7.5%	0.5%	-3.8%	-1.4%
23:00	2.2%	4.8%	2.3%	-6.4%	0.3%	-3.2%	-0.7%

Average Hourly
Load Deficit
By Area
Week of
7/20 - 7/24

Impacts on Hourly Load Patterns (Zone)

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

Average Hourly Load Deficit by Zone, Week of 7/20 - 7/24

Current Activities and Next Steps

- **NYISO Operations and Demand Forecasting Team continue to monitor and assess the impacts of the COVID-19 shutdowns**
 - Track trends daily/hourly energy deficits vs. expected values
 - Track changes to load-weather sensitivity
 - Track available medium and long-term economic forecasts and continue to consult with Transmission Owners on sector impacts
- **Updates to energy forecasts are currently underway**
- **Backcast analysis uses observed weather conditions and type of day to compare actual load to expected loads if COVID-19 shutdowns were not in place**
- **NYISO continues to fine-tune its models to improve forecast accuracy in day-ahead and real-time markets as conditions evolve**

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

