Attachment #4.1.2 revised
Return to Agenda

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Independent System Operator

NYSRC Fall Forecast Update – 2020 Weather Normalization and 2021 IRM Forecast

Demand Forecasting & Analysis

NYSRC – Installed Capacity Subcommittee

October 2, 2020 - Revised

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Agenda

- Summary of 2020 Weather Normalized Peaks
- 2021 IRM Study Forecast
- Additional Forecast Tables

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Revisions Since September 29 ICS Meeting

- The Zonal shares used to calculate the Locality and Zonal forecasts have been updated. The Zonal forecasts provided on September 29th were calculated using the 2020 NYCA coincident peak shares. During the meeting, the ICS adopted the NYISO's recommendation to use the five-year historical Zonal load shares to calculate the Zonal forecasts. This methodology results in more representative Zonal forecast levels, and may account for a reversion in load shares towards typical levels next summer.

- There are resulting changes to the Zone J and Zones G-to-J Locality weather-normalized coincident peaks, weather-normalized Locality peaks, and 2021 Locality peak forecasts.

- There are resulting changes to the 2021 Zonal coincident peaks, non-coincident peaks, and G-to-J Locality peaks.

- There are no changes to the to 2021 NYCA coincident peak forecast, and there are no changes to the 2021 Transmission District coincident peak forecasts.

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Revisions Since September 29 ICS Meeting

Changes in 2020 Coincident Peak Weather Normalization by Transmission District, Updated Values less September 29th Values									
Transmission District	2020 Actual MW, 7/27/2020 HB 17	Demand Response Estimate MW	2020 Actual MW, with DR Estimate	Estimated Muni Self-Gen	Weather Adjustment MW	2020 Weather Normalized MW	2020 ICAP Forecast, Without Loss Adjustment	TO Forecast, Over /Under MW	TO Forecast Delta, Percent Over /Under
Con Edison	0	0	0	0	0	0	0	0	0.0%
Cen Hudson	0	0	0	0	0	0	0	0	0.0%
LIPA	0	0	0	0	0	0	0	0	0.0%
Nat. Grid	0	0	0	0	0	0	0	0	0.0%
NYPA	0	0	0	0	0	0	0	0	0.0%
NYSEG	0	0	0	0	0	0	0	0	0.0%
O&R	0	0	0	0	0	0	0	0	0.0%
RG&E	0	0	0	0	0	0	0	0	0.0%
NYCA Total	0	0	0	0	0	0	0	0	0.0%

Note: There have been no changes to the NYCA Weather Normalized Coincident Peak by Transmission District.

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Revisions Since September 29 ICS Meeting

Changes in 2020 Locality Peak Weather Normalization by Transmission District, Updated Values less September 29th Values												
	2020 Locality Peak Information					2020 Locality Weather Normalization Calculation						
Locality	Date and Time (Hr Beginning)	2020 Actual MW	Demand Response Estimate MW	Estimated Muni Self-Gen	2020 Actual Load including DR and Muni Self-Gen	2020 Weather Normalized Coincident Peak Demand	NCP to CP Ratio	2020 Locality Weather Normalized MW	Locality Weather Adjustment MW	2020 ICAP Market Forecast MW	Forecast Over/Under MW	Forecast Percent Over/Under
Zone J - NYC	7/28/2020 HB 15	0	0	0	0	121	0.0000	123	123	0	-123	-1.3%
Zone K - LI	7/28/2020 HB 15	0	0	0	0	0	0.0000	0	0	0	0	0.0%
Zones G-to-J	7/28/2020 HB 14	0	0	0	0	-8	0.0000	-8	-8	0	8	0.1%

Note: There have been changes to the Zone J and Zones G-to-J Locality Peak Weather Normalizations due to the updated Zonal load shares in Con Ed and other Transmission Districts.

There have been no changes to the Zone K Locality Peak Weather Normalization.

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Revisions Since September 29 ICS Meeting

2021 IRM Coincident Peak Forecast by Transmission District for NYSRC											
Changes in 2021 IRM Coincident Peak Forecast by Transmission District, Updated Values less September 29th Values											
Transmission District	2020 Actual MW	Demand Response Estimate MW	2020 Estimated Muni Self-Gen	Total Weather Adjustment MW	2020 Weather Normalized MW	Loss Reallocation MW	2020 WN MW, Adj for Losses	Regional Load Growth Factors	2021 Forecast, Before Adjustments	BTM:NG and Other Adjustments to Load	2021 IRM Final Forecast
Con Edison	0	0	0	0	0	0	0	0.0000	0	0.0	0.0
Cen Hudson	0	0	0	0	0	0	0	0.0000	0	0.0	0.0
LIPA	0	0	0	0	0	0	0	0.0000	0	0.0	0.0
NGrid	0	0	0	0	0	0	0	0.0000	0	0.0	0.0
NYPA	0	0	0	0	0	0	0	0.0000	0	0.0	0.0
NYSEG	0	0	0	0	0	0	0	0.0000	0	0.0	0.0
O&R	0	0	0	0	0	0	0	0.0000	0	0.0	0.0
RG&E	0	0	0	0	0	0	0	0.0000	0	0.0	0.0
Total	0	0	0	0	0	0	0	0.0000	0	0.0	0.0

Note: There have been no changes to the 2021 IRM Coincident Peak Forecast by Transmission District.

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Revisions Since September 29 ICS Meeting

2021 IRM Locality Peak Forecasts by Transmission District for NYSRC											
Changes in 2021 IRM Locality Peak Forecasts, Updated Values less September 29th Values											
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)=(8)+(11)
Locality	2020 Actual MW	Demand Response Estimate MW	2020 Estimated Muni Self-Gen	Locality Weather Adjustment MW	2020 Weather Normalized MW	Regional Load Growth Factors	2021 Forecast, Before Adjustments	2021 Forecast from 2020 Gold Book	Change from Gold Book Forecast	BTM:NG and Other Adjustments to Load	2021 IRM Final Forecast
Zone J - NYC	0	0	0	123	123	0.0000	129	0	129	0.0	129.0
Zone K - LI	0	0	0	0	0	0.0000	0	0	0	0.0	0.0
Zone GHIJ	0	0	0	-8	-8	0.0000	-8	0	-8	0.0	-8.0

Note: There have been changes to the Zone J and Zones G-to-J 2021 Locality Peak Forecasts due to the updated Zonal load shares in Con Ed and other Transmission Districts.

There have been no changes to the Zone K 2021 Locality Peak Forecast.

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Revisions Since September 29 ICS Meeting

2021 Peak Forecast for G-to-J Locality , With BTM:NG Adjustments					
Changes in 2021 G-to-J Locality Peak Forecast, Updated Values less September 29th Values					
Transmission District	G	H	I	J	G-to-J Total
Con Edison		-24.5	-103.8	128.0	-0.3
Cen Hudson	0.4				0.4
LIPA					
Nat. Grid					
NYPA					
NYSEG	2.0	-10.1			-8.1
O&R	0.0				0.0
RG&E					
Total	2.4	-34.6	-103.8	128.0	-8.0

Note: There have been changes to the Zonal allocation of the 2021 G-to-J Locality peak forecast due to the updated Zonal load shares in Con Ed and other Transmission Districts.

There have been slight changes to the total 2021 G-to-J Locality peak forecast and to the allocation among the Transmission Districts due to the updated Zonal load shares and rounding.

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Revisions Since September 29 ICS Meeting

2021 IRM Coincident Peak Forecast by Transmission District and Zone, Before BTM:NG Adjustments												
Changes in 2021 IRM Coincident Peak Forecast by Transmission District and Zone, Updated Values less September 29th Values												
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	A	B	C	D	E	F	G	H	I	J	K	NYCA
Con Edison								-24.2	-102.7	126.9		0.0
Cen Hudson					-0.4		0.4					0.0
LIPA											0.0	0.0
Nat. Grid	109.4	0.8	-2.5	-5.1	-21.4	-81.2						0.0
NYPA				0.0								0.0
NYSEG	0.0		22.9	-4.7	2.6	-12.9	2.0	-9.9				0.0
O&R							0.0					0.0
RG&E		0.0										0.0
Total	109.4	0.8	20.4	-9.8	-19.2	-94.1	2.4	-34.1	-102.7	126.9	0.0	0.0

Note: There have been no changes to the 2021 Coincident Peak forecast by Transmission District

There have been changes to the Zonal allocation of the 2021 Coincident Peak forecast due to updated Zonal load shares within Transmission Districts.

There are resulting changes to the 2021 Non-Coincident Peak forecasts by Zone.

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Summary of 2020 Weather Normalized Peaks

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Actual and 20-Year Normal Peak-Producing CTHI Statistics – 2001-2020

NYCA Coincident Peak-Producing CTHI									
Statistic	**CE**	**CH**	**LI**	**N Grid**	**NYPA**	**NYSEG**	**OR**	**RGE**	**NYCA**
Max	90.73	89.63	89.71	86.42	87.72	87.44	89.60	87.75	88.06
20 Yr Avg	85.71	85.65	85.03	82.57	82.30	82.78	84.85	83.21	84.02
Min	82.80	81.18	80.18	77.35	77.13	78.22	81.59	77.80	80.38
StDev	2.33	2.33	2.61	2.24	3.14	2.29	2.41	2.37	2.26
50th	85.71	85.65	85.03	82.57	82.30	82.78	84.85	83.21	84.02
57th	86.12	86.06	85.49	82.96	82.85	83.18	85.27	83.63	84.42
67th	86.72	86.66	86.16	83.54	83.66	83.77	85.89	84.23	85.00
90th	88.70	88.64	88.38	85.44	86.33	85.72	87.94	86.25	86.92
2020	84.59	85.21	85.02	82.11	84.19	83.02	83.96	81.35	83.56
Percentile	32%	43%	50%	42%	73%	54%	36%	22%	42%
z (2020)	-0.48	-0.19	0.00	-0.21	0.60	0.10	-0.37	-0.78	-0.20
CTHI Delta	-1.12	-0.44	-0.01	-0.46	1.89	0.24	-0.89	-1.86	-0.46

Notes: Cumulative Temperature & Humidity Index (CTHI) is a three-day weighted average of maximum temperature and humidity
The NYCA design condition of the 57th percentile is based upon a load-weighted average of the TD design conditions.
The 2020 NYCA peak occurred on July 27, Hour Beginning 17.

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CTHI Calculation

Step 1: Calculate hourly THI as a weighted average of the dry bulb temperature (DB) and the wet bulb temperature (WB). There are 24 values per day:

For any day $\mathbf{d}$,

$$(\boldsymbol{THI})_{\boldsymbol{di}} = \mathbf{0.6} \times (\boldsymbol{DB})_{\boldsymbol{di}} + \mathbf{0.4} \times (\boldsymbol{WB})_{\boldsymbol{di}}$$

Where $\boldsymbol{i = 0, 1, 2, \ldots, 23}$ indicate the hours of a day

Step 2: Calculate the THI_max for a day. This is the maximum hourly THI value for that day:

$$(\boldsymbol{THI\_max})_{\boldsymbol{d}} = \mathbf{max}\big((\boldsymbol{THI})_{\boldsymbol{di}}\big)$$

Step 3: Calculate the daily CTHI using a weighted average of three days (the day for which the CTHI is being calculated and the two preceding days):

$$(\boldsymbol{CTHI})_{\boldsymbol{d}} = \mathbf{0.7} \times (\boldsymbol{THI\_max})_{\boldsymbol{d}} + \mathbf{0.2} \times (\boldsymbol{THI\_max})_{\boldsymbol{d-1}} + \mathbf{0.1} \times (\boldsymbol{THI\_max})_{\boldsymbol{d-2}}$$

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2020 Transmission District Weather Normalization
NYCA Coincident Peak

(1)	(2)	(3a)	(3b)	(4)	(5)	(6) = (3b)+(4)+(5)	(7)	(8) = (7)-(6)	(9) = (8)/(7)
Transmission District	2020 Actual MW, 7/27/2020 HB 17	Demand Response Estimate MW	2020 Actual MW, with DR Estimate	Estimated Muni Self-Gen	Weather Adjustment MW	2020 Weather Normalized MW	2020 ICAP Forecast, Without Loss Adjustment	TO Forecast, Over /Under MW	TO Forecast Delta, Percent Over /Under
Con Edison	11,273	177	11,450	0	605	12,055	13,034	979	7.5%
Cen Hudson	1,093	0	1,093	0	15	1,108	1,087	-21	-1.9%
LIPA	5,344	20	5,364	7	-181	5,190	5,115	-75	-1.5%
Nat. Grid	6,702	186	6,888	48	36	6,972	6,921	-51	-0.7%
NYPA	405	0	405	0	-1	404	387	-17	-4.4%
NYSEG	3,178	54	3,232	0	-17	3,215	3,173	-42	-1.3%
O&R	1,038	11	1,049	0	36	1,085	1,059	-26	-2.5%
RG&E	1,417	8	1,425	0	137	1,562	1,520	-42	-2.8%
NYCA Total	30,450	456	30,906	55	631	31,592	32,296	704	2.2%

Notes: Peak load hours are defined by PI. Actual load data is from DSS.
The Demand Response impacts are estimates.

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2020 Weather Normalization - Locality Peaks

	2020 Locality Peak Information					2020 Locality Weather Normalization Calculation						
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9) = (7)*(8)	(10) = (9)-(6)	(11)	(12)	(13)
Locality	Date and Time (Hr Beginning)	2020 Actual MW	Demand Response Estimate MW	Estimated Muni Self-Gen	2020 Actual Load including DR and Muni Self-Gen	2020 Weather Normalized Coincident Peak Demand	NCP to CP Ratio	2020 Locality Weather Normalized MW	Locality Weather Adjustment MW	2020 ICAP Market Forecast MW	Forecast Over/Under MW	Forecast Percent Over/Under
Zone J - NYC	7/28/2020 HB 15	10,061	0	0	10,061	10,493	1.0183	10,685	624	11,477	792	7.4%
Zone K - LI	7/28/2020 HB 15	5,428	20	7	5,455	5,190	1.0152	5,268	-187	5,228	-40	-0.8%
Zones G-to-J	7/28/2020 HB 14	14,057	0	0	14,057	14,628	1.0106	14,783	726	15,695	912	6.2%

Notes: Peak load hours are defined by PI. Actual load data is from DSS.
The Demand Response impacts are estimates.
Demand Response calls on July 28th in the Zone J and Zones G-to-J Localities occurred after the hours of the Locality peaks.

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Calculation of G-to-J Locality NCP/CP Ratio

Coincident Peaks

Period	Zone G	Zone H+I	Zone J	G-to-J CP
3 Yr Avg	2,188	1,949	10,232	14,370
5 Yr Avg	2,129	1,948	10,390	14,467
10 Yr Avg	2,190	2,016	10,794	15,000

15,159/15,000 = 1.0106

G-to-J Locality Peak Statistics - 2011 to 2020

Period	Zone G	Zone H+I	Zone J	G-to-J NCP
3 Yr Avg	2,052	1,929	10,631	14,611
5 Yr Avg	2,054	1,943	10,724	14,721
10 Yr Avg	2,153	2,021	10,985	15,159

Period	Zone G	Zone H+I	Zone J	G-to-J NCP
3 Yr Avg	(137)	(20)	398	241
5 Yr Avg	(75)	(5)	334	254
10 Yr Avg	(37)	5	191	159

Period	Zone G	Zone H+I	Zone J	G-to-J NCP
3 Yr Avg	0.9375	0.9896	1.0389	1.0168
5 Yr Avg	0.9648	0.9976	1.0321	1.0176
10 Yr Avg	0.9831	1.0024	1.0177	1.0106

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Calculation of Zone J NCP/CP Ratio

Coincident Peaks

Period	Zone G	Zone H+I	Zone J	G-to-J CP
3 Yr Avg	2,188	1,949	10,232	14,370
5 Yr Avg	2,129	1,948	10,390	14,467
10 Yr Avg	2,190	2,016	10,794	15,000

10,992/10,794 = 1.0183

Zone J Locality Peak Statistics - 2011 to 2020

Period	Zone G	Zone H+I	Zone J	G-to-J NCP
3 Yr Avg	2,052	1,929	10,631	14,611
5 Yr Avg	2,054	1,943	10,724	14,721
10 Yr Avg	2,125	2,001	10,992	15,117

Period	Zone G	Zone H+I	Zone J	G-to-J NCP
3 Yr Avg	(137)	(20)	398	241
5 Yr Avg	(75)	(5)	334	254
10 Yr Avg	(65)	(15)	198	117

Period	Zone J
3 Yr Avg	1.0389
5 Yr Avg	1.0321
10 Yr Avg	1.0183

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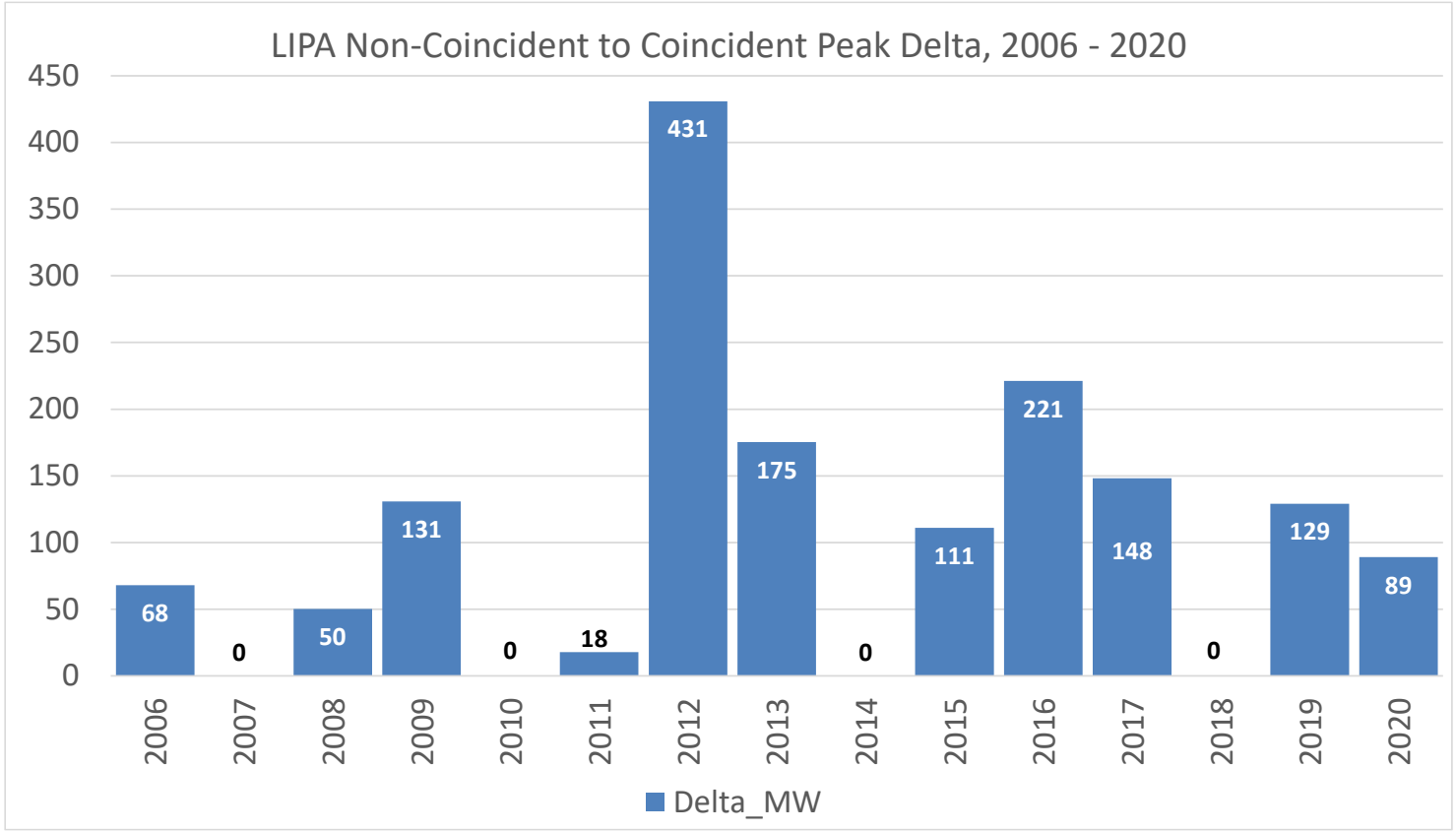
LIPA 15 -Year History of Non-Coincident to Coincident Peak Loads



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Calculation of Zone K NCP/CP Ratio

Zone K Peak Statistics - 2006 to 2020			
Period	**K CP**	**K NCP**	**Ratio**
3 Yr Avg	5,360	5,432	1.0136
5 Yr Avg	5,252	5,369	1.0224
10 Yr Avg	5,301	5,433	1.0249
15 Yr Avg*	**5,367**	**5,448**	**1.0152**

Period			**Diff.**
3 Yr Avg			73
5 Yr Avg			117
10 Yr Avg			132
15 Yr Avg*			81

5,448/5,367 = 1.0152

*Note: The 15-year average Zone K NCP to CP ratio was used in the Zone K Locality calculation to better reflect typical load diversity on LI. 2012, with an NCP to CP delta of 431 MW, was excluded from the 15-year ratio calculation as an outlier.

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G-to-J Locality Peak Weather Normalization Details

(1) 2020 Actual Coincident Peak in G to J Locality

7/27/2020 HB 17

Transmission District	G	H	I	J	G-to-J Total
Con Edison		264.0	1,318.0	9,690.8	11,272.8
Cen Hudson	1,088.9				1,088.9
LIPA					
Nat. Grid					
NYPA					
NYSEG	20.8	365.5			386.3
O&R	1,038.2				1,038.2
RG&E					
Total	**2,147.9**	**629.5**	**1,318.0**	**9,690.8**	**13,786.2**

(2) 2020 Weather-Adjusted Coincident Peak in G to J Locality

Transmission District	G	H	I	J	G-to-J Total
Con Edison		257.6	1,304.8	10,493.0	12,055.4
Cen Hudson	1,104.4				1,104.4
LIPA					
Nat. Grid					
NYPA					
NYSEG	23.1	359.7			382.8
O&R	1,085.4				1,085.4
RG&E					
Total	**2,212.9**	**617.3**	**1,304.8**	**10,493.0**	**14,628.0**

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G-to-J Locality Peak Weather Normalization Details

(3) 2020 Weather-Adjusted Locality Peak for G-to-J

Transmission District	G	H	I	J	G-to-J Total
Con Edison		260.4	1,318.6	10,604.2	12,183.2
Cen Hudson	1,116.1				1,116.1
LIPA					
Nat. Grid					
NYPA					
NYSEG	23.3	363.5			386.8
O&R	1,096.9				1,096.9
RG&E					
Total	**2,236.3**	**623.9**	**1,318.6**	**10,604.2**	**14,783.0**
NCP/CP ratio	**1.0106**	**1.0106**	**1.0106**	**1.0106**	

(4) 2021 Peak Forecast for G-to-J Locality , Before Adjustments

Transmission District	G	H	I	J	G-to-J Total	RLGF
Con Edison		273.2	1,383.5	11,125.8	12,782.5	**1.0492**
Cen Hudson	1,106.1				1,106.1	**0.9910**
LIPA						
Nat. Grid						
NYPA						
NYSEG	23.4	364.6			388.0	**1.0031**
O&R	1,087.4				1,087.4	**0.9914**
RG&E						
Total	**2,216.9**	**637.8**	**1,383.5**	**11,125.8**	**15,364.0**	**1.0393**

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2021 IRM Study Forecast

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2021 IRM Coincident Peak Forecast by Transmission District

2021 IRM Coincident Peak Forecast by Transmission District for NYSRC

(1)	(2)	(3)	(4)	(5)	(6a)	(6b)	(6c)	(7)	(8)=(6a)*(7)	(9)	(10)=(8)+(9)
Transmission District	**2020 Actual MW**	**Demand Response Estimate MW**	**2020 Estimated Muni Self-Gen**	**Total Weather Adjustment MW**	**2020 Weather Normalized MW**	**Loss Reallocation MW**	**2020 WN MW, Adj for Losses**	**Regional Load Growth Factors**	**2021 Forecast, Before Adjustments**	**BTM:NG and Other Adjustments to Load**	**2021 IRM Final Forecast**
Con Edison	**11,273**	177	0	605	**12,055**	0	**12,055**	**1.0492**	**12,649**	**21.3**	**12,670.3**
Cen Hudson	**1,093**	0	0	15	**1,108**	0	**1,108**	**0.9910**	**1,098**		**1,098.0**
LIPA	**5,344**	20	7	-181	**5,190**	0	**5,190**	**0.9948**	**5,162**	**42.0**	**5,204.0**
NGrid	**6,702**	186	48	36	**6,972**	0	**6,972**	**1.0026**	**6,991**	**2.7**	**6,993.7**
NYPA	**405**	0	0	-1	**404**	0	**404**	**1.0262**	**415**		**415.0**
NYSEG	**3,178**	54	0	-17	**3,215**	0	**3,215**	**1.0031**	**3,225**	**32.0**	**3,257.0**
O&R	**1,038**	11	0	36	**1,085**	0	**1,085**	**0.9914**	**1,076**		**1,076.0**
RG&E	**1,417**	8	0	137	**1,562**	0	**1,562**	**0.9785**	**1,529**		**1,529.0**
Total	**30,450**	**456**	**55**	**631**	**31,592**	0	**31,592**	**1.0175**	**32,145**	**98.0**	**32,243.0**
				2021 Forecast from 2020 Gold Book					**32,129**		
				Change from 2020 Gold Book					**16**		

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2021 IRM Locality Peak Forecasts

2021 IRM Locality Peak Forecasts by Transmission District for NYSRC

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)=(8)+(11)
Locality	2020 Actual MW	Demand Response Estimate MW	2020 Estimated Muni Self-Gen	Locality Weather Adjustment MW	2020 Weather Normalized MW	Regional Load Growth Factors	2021 Forecast, Before Adjustments	2021 Forecast from 2020 Gold Book	Change from Gold Book Forecast	BTM:NG and Other Adjustments to Load	2021 IRM Final Forecast
Zone J - NYC	10,061	0	0	624	10,685	1.0492	11,211	11,460	-249	21.3	11,232.3
Zone K - LI	5,428	20	7	-187	5,268	0.9948	5,240	5,139	101	42.0	5,282.0
Zone GHIJ	14,057	0	0	726	14,783	1.0393	15,364	15,660	-296	21.3	15,385.3

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Additional Forecast Tables

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2020 Actual Coincident Peak Load

7/27/2020 HB 17

	A	B	C	D	E	F	G	H	I	J	K	Total
Con Edison								264.0	1,318.0	9,690.8		11,272.8
Cen Hudson					4.0		1,088.9					1,092.9
LIPA											5,343.8	5,343.8
Nat. Grid	1,717.8	410.7	1,318.1	92.2	946.9	2,216.4						6,702.1
NYPA				405.0								405.0
NYSEG	676.4		1,411.7	115.4	424.7	163.8	20.8	365.5				3,178.3
O&R							1,038.2					1,038.2
RG&E		1,417.2										1,417.2
Total	2,394.2	1,827.9	2,729.8	612.6	1,375.6	2,380.2	2,147.9	629.5	1,318.0	9,690.8	5,343.8	30,450.3

Note: Con Edison Zone G losses moved to Zone J

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Average Subzonal Load - Top Five Summer NYCA Daily Peak Hours over Five Years (2016-2020)

	A	B	C	D	E	F	G	H	I	J	K	Total
Con Edison								253.1	1,281.6	10,305.8		11,840.5
Cen Hudson					3.4		1,027.2					1,030.6
LIPA											5,042.5	5,042.5
Nat. Grid	1,778.9	400.7	1,281.0	84.8	901.1	2,079.3						6,525.8
NYPA				350.7								350.7
NYSEG	631.9		1,340.3	103.5	399.2	141.0	21.3	332.2				2,969.5
O&R							989.0					989.0
RG&E		1,421.9										1,421.9
Total	2,410.8	1,822.6	2,621.2	539.0	1,303.8	2,220.3	2,037.4	585.3	1,281.6	10,305.8	5,042.5	30,170.4

Note: Con Edison Zone G losses moved to Zone J

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5-year Zonal Energy Fractions for each TD

	A	B	C	D	E	F	G	H	I	J	K	Total
Con Edison								0.0214	0.1082	0.8704		1.0000
Cen Hudson					0.0033		0.9967					1.0000
LIPA											1.0000	1.0000
Nat. Grid	0.2726	0.0614	0.1963	0.0130	0.1381	0.3186						1.0000
NYPA				1.0000								1.0000
NYSEG	0.2128		0.4513	0.0349	0.1344	0.0475	0.0072	0.1119				1.0000
O&R							1.0000					1.0000
RG&E		1.0000										1.0000

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2020 Actual Coincident Peak Load - Adjusted using 5-year Zonal Energy Fractions

	A	B	C	D	E	F	G	H	I	J	K	Total
Con Edison								240.9	1,220.1	9,811.8		11,272.8
Cen Hudson					3.6		1,089.3					1,092.9
LIPA											5,343.8	5,343.8
Nat. Grid	1,826.9	411.5	1,315.6	87.1	925.5	2,135.5						6,702.1
NYPA				405.0								405.0
NYSEG	676.4		1,434.5	110.8	427.3	150.9	22.8	355.6				3,178.3
O&R							1,038.2					1,038.2
RG&E		1,417.2										1,417.2
Total	2,503.3	1,828.7	2,750.1	602.9	1,356.4	2,286.4	2,150.3	596.5	1,220.1	9,811.8	5,343.8	30,450.3

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Zonal Share Adjustment MW based on 5-year Zonal Energy Fractions

	A	B	C	D	E	F	G	H	I	J	K	Total
Con Edison								-23.1	-97.9	121.0		0.0
Cen Hudson					-0.4		0.4					0.0
LIPA											0.0	0.0
Nat. Grid	109.1	0.8	-2.5	-5.1	-21.4	-80.9						0.0
NYPA				0.0								0.0
NYSEG	0.0		22.8	-4.6	2.6	-12.9	2.0	-9.9				0.0
O&R							0.0					0.0
RG&E		0.0										0.0
Total	109.1	0.8	20.3	-9.7	-19.2	-93.8	2.4	-33.0	-97.9	121.0	0.0	0.0

Note: The Zonal Share Adjustment MW represent the changes in Zonal load resulting from using the 5-year zonal energy fractions rather than the 2020 NYCA coincident peak load shares.

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Demand Response & Municipal Generation - NYCA Coincident Peak Hour

7/27/2020 HB 17

	A	B	C	D	E	F	G	H	I	J	K	Total
Con Edison								3.8	19.2	154.0		177.0
Cen Hudson					0.0		0.0					0.0
LIPA											27.0	27.0
Nat. Grid	98.7	11.4	36.5	2.4	25.7	59.3						234.0
NYPA				0.0								0.0
NYSEG	11.5		24.3	1.9	7.3	2.6	0.4	6.0				54.0
O&R							11.0					11.0
RG&E		8.0										8.0
Total	110.2	19.4	60.8	4.3	33.0	61.9	11.4	9.8	19.2	154.0	27.0	511.0

Note: Demand Response & Municipal Generation values are estimates.

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2020 Weather-Adjusted Coincident Peak

	A	B	C	D	E	F	G	H	I	J	K	Total
Con Edison								280.7	1,402.7	10,372.0		12,055.4
Cen Hudson					4.0		1,104.0					1,108.0
LIPA											5,189.6	5,189.6
Nat. Grid	1,826.4	424.3	1,361.7	95.1	977.6	2,287.3						6,972.4
NYPA				404.0								404.0
NYSEG	684.2		1,428.1	116.7	429.7	165.6	21.1	369.6				3,215.0
O&R							1,085.4					1,085.4
RG&E		1,562.3										1,562.3
Total	2,510.6	1,986.6	2,789.8	615.8	1,411.3	2,452.9	2,210.5	650.3	1,402.7	10,372.0	5,189.6	31,592.1

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2020 Weather-Adjusted Coincident Peak - Adjusted using 5-year Zonal Energy Fractions

	A	B	C	D	E	F	G	H	I	J	K	Total
Con Edison								257.6	1,304.8	10,493.0		12,055.4
Cen Hudson					3.6		1,104.4					1,108.0
LIPA											5,189.6	5,189.6
Nat. Grid	1,935.5	425.1	1,359.2	90.0	956.2	2,206.4						6,972.4
NYPA				404.0								404.0
NYSEG	684.2		1,450.9	112.1	432.3	152.7	23.1	359.7				3,215.0
O&R							1,085.4					1,085.4
RG&E		1,562.3										1,562.3
Total	2,619.7	1,987.4	2,810.1	606.1	1,392.1	2,359.1	2,212.9	617.3	1,304.8	10,493.0	5,189.6	31,592.1

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2021 IRM Coincident Peak Forecast by Transmission District and Zone, Before BTM:NG Adjustments

	A	B	C	D	E	F	G	H	I	J	K	NYCA
Con Edison								270.3	1,369.0	11,009.7		12,649.0
Cen Hudson					3.6		1,094.4					1,098.0
LIPA											5,162.0	5,162.0
Nat. Grid	1,940.5	426.2	1,362.7	90.2	958.7	2,212.7						6,991.0
NYPA				415.0								415.0
NYSEG	686.3		1,455.5	112.4	433.6	153.2	23.2	360.8				3,225.0
O&R							1,076.0					1,076.0
RG&E		1,529.0										1,529.0
Total	2,626.8	1,955.2	2,818.2	617.6	1,395.9	2,365.9	2,193.6	631.1	1,369.0	11,009.7	5,162.0	32,145.0

Note: The 2021 IRM Zonal forecasts are calculated using the 5-year Zonal energy fractions.

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2021 IRM BTM:NG Adjustments to Load

	A	B	C	D	E	F	G	H	I	J	K	NYCA
Con Edison										21.3		21.3
Cen Hudson												
LIPA											42.0	42.0
Nat. Grid					2.7							2.7
NYPA												
NYSEG			32.0									32.0
O&R												
RG&E												
Total			32.0		2.7					21.3	42.0	98.0

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2021 IRM Coincident Peak Forecast by Transmission District and Zone, With BTM:NG Adjustments

	A	B	C	D	E	F	G	H	I	J	K	NYCA
Con Edison								270.3	1,369.0	11,031.0		12,670.3
Cen Hudson					3.6		1,094.4					1,098.0
LIPA											5,204.0	5,204.0
Nat. Grid	1,940.5	426.2	1,362.7	90.2	961.4	2,212.7						6,993.7
NYPA				415.0								415.0
NYSEG	686.3		1,487.5	112.4	433.6	153.2	23.2	360.8				3,257.0
O&R							1,076.0					1,076.0
RG&E		1,529.0										1,529.0
Total	2,626.8	1,955.2	2,850.2	617.6	1,398.6	2,365.9	2,193.6	631.1	1,369.0	11,031.0	5,204.0	32,243.0

Note: The 2021 IRM Zonal forecasts are calculated using the 5-year Zonal energy fractions.

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2021 IRM Non-Coincident Peak Forecast by Transmission District and Zone, Before BTM:NG Adjustments

	A	B	C	D	E	F	G	H	I	J	K
Con Edison								275.2	1,394.1	11,211.0	
Cen Hudson					3.8		1,113.5				
LIPA											5,240.0
Nat. Grid	2,073.1	443.3	1,421.8	95.4	1,004.8	2,284.6					
NYPA				439.1							
NYSEG	733.2		1,518.6	118.9	454.4	158.2	23.6	367.4			
O&R							1,094.8				
RG&E		1,590.5									
Total	2,806.3	2,033.8	2,940.4	653.4	1,463.0	2,442.8	2,231.9	642.6	1,394.1	11,211.0	5,240.0
NCP/CP Ratio	1.0683	1.0402	1.0434	1.0581	1.0481	1.0325	1.0175	**1.0183**	**1.0183**	**1.0183**	**1.0152**

Note: The 2021 IRM Zonal forecasts are calculated using the 5-year Zonal energy fractions.

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2021 IRM Non-Coincident Peak Forecast by Transmission District and Zone, With BTM:NG Adjustments

	A	B	C	D	E	F	G	H	I	J	K
Con Edison								275.2	1,394.1	11,232.3	
Cen Hudson					3.8		1,113.5				
LIPA											5,282.0
Nat. Grid	2,073.1	443.3	1,421.8	95.4	1,007.5	2,284.6					
NYPA				439.1							
NYSEG	733.2		1,550.6	118.9	454.4	158.2	23.6	367.4			
O&R							1,094.8				
RG&E		1,590.5									
Total	2,806.3	2,033.8	2,972.4	653.4	1,465.7	2,442.8	2,231.9	642.6	1,394.1	11,232.3	5,282.0

BTM:NG Adjustments		32.0		2.7					21.3	42.0

Note: The 2021 IRM Zonal forecasts are calculated using the 5-year Zonal energy fractions.

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(4) 2021 Peak Forecast for G-to-J Locality , Before Adjustments

Transmission District	G	H	I	J	G-to-J Total
Con Edison		273.2	1,383.5	11,125.8	12,782.5
Cen Hudson	1,106.1				1,106.1
LIPA					
Nat. Grid					
NYPA					
NYSEG	23.4	364.6			388.0
O&R	1,087.4				1,087.4
RG&E					
Total	**2,216.9**	**637.8**	**1,383.5**	**11,125.8**	**15,364.0**

2021 Peak Forecast for G-to-J Locality , With BTM:NG Adjustments

Transmission District	G	H	I	J	G-to-J Total
Con Edison		273.2	1,383.5	11,147.1	12,803.8
Cen Hudson	1,106.1				1,106.1
LIPA					
Nat. Grid					
NYPA					
NYSEG	23.4	364.6			388.0
O&R	1,087.4				1,087.4
RG&E					
Total	**2,216.9**	**637.8**	**1,383.5**	**11,147.1**	**15,385.3**
BTM:NG Adjustments				21.3	**21.3**

Note: The 2021 IRM Zonal forecasts are calculated using the 5-year Zonal energy fractions.

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- 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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