

NYSRC Fall Forecast Update – Preliminary 2023 Weather Normalization

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Load Forecasting Task Force

September 11, 2023

Agenda

- **2023 Preliminary Weather Normalization Summary and Methodology**
 - All preliminary weather normalization results are for the NYCA coincident peak hour
- **Weather Normalization Models**
- **Additional IRM Forecast Information**
 - Locality and Zonal Non-Coincident to Coincident Peak Ratios
 - Sub-zonal Load Shares
 - Preliminary Regional Load Growth Factors
 - Preliminary Large Load Forecast
- **Next Steps**
- **Reference: CTHI Calculation**

Peak-Producing CTHI

Actual and 20-Year Normal Peak-Producing CTHI Statistics (Range: 2004 – 2023)

NYCA Coincident Peak-Producing CTHI Stats (20 years)									
Statistic	CE	CH	LI	N Grid	NYPA	NYSEG	OR	RGE	NYCA
Max	90.73	89.42	89.21	85.52	85.87	85.91	89.60	86.53	87.74
Average	85.35	85.37	84.67	82.32	81.99	82.48	84.55	82.82	83.72
Min	82.80	81.18	80.18	77.35	77.13	78.22	81.59	77.80	80.38
Std Dev	2.23	2.17	2.40	2.07	2.83	2.05	2.33	2.15	2.09
Percentile									
50th	85.35	85.37	84.67	82.32	81.99	82.48	84.55	82.82	83.72
57th	85.74	85.75	85.08	82.69	82.48	82.84	84.96	83.19	84.08
67th	86.31	86.31	85.70	83.22	83.20	83.36	85.55	83.74	84.62
90th	88.20	88.15	87.74	84.98	85.61	85.11	87.53	85.58	86.39
2023 CP									
CTHI	83.73	83.56	83.22	81.10	79.84	81.11	82.66	81.15	82.32
Percentile	23%	20%	27%	28%	22%	25%	21%	22%	25%
z-score	-0.73	-0.84	-0.60	-0.59	-0.76	-0.67	-0.81	-0.77	-0.67
CTHI Delta (wrt 50)	-1.62	-1.81	-1.45	-1.22	-2.15	-1.37	-1.89	-1.67	-1.40

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 2023 NYCA peak occurred on July 28, Hour Beginning 17.

Note: The CTHI formula is shown on the reference slide

Weather Normalization Models

- Regression models were developed using pooled data from 2019, 2022, and 2023^[1]
- June through August weekdays were included
- Daily Transmission District Peak MW was regressed against the Cumulative Temperature and Humidity Index (CTHI), and binary variables as appropriate
- Models with years comprising 2022 and 2023 were developed for comparative purposes, and showed similar results

			Included?	
Year	Peak Producing CTHI (NYCA)	Peak Producing CTHI (NYCA) Percentile	IRM 2023	IRM 2024
2018	84.59	65%	Yes	No
2019	84.96	71%	Yes	Yes ^[2]
2020	83.56	45%	No	No
2021	83.00	35%	No	No
2022	83.55	45%	Yes	Yes
2023	82.32	24%	--	Yes

[1] 2023 data through August 26th

[2] All TOs except National Grid

Weather Normalization Method

■ Weather Normalization Method Summary

1. Develop the load-weather relationship through the regression.
2. From the regression equation, evaluate load at the peak producing design condition.
3. From the regression equation, evaluate the load at the CTHI observed on 7/28/2023 (coincident peak day).
4. Calculate the difference between the load evaluated at peak producing design condition (step 2) and at the CTHI observed on 7/28/2023 (step 3).
5. The delta (in step 4) is the weather adjustment. Dividing it by the difference of design CTHI and 2023 peak producing CTHI gives average slope (expected increase in MW per degree CTHI) between design CTHI and 2023 peak producing CTHI.
6. Add the calculated weather adjustment to the actual Coincident Peak MW value to calculate the Weather Normalized Coincident Peak.

Summary of 2023 Preliminary Weather Normalization

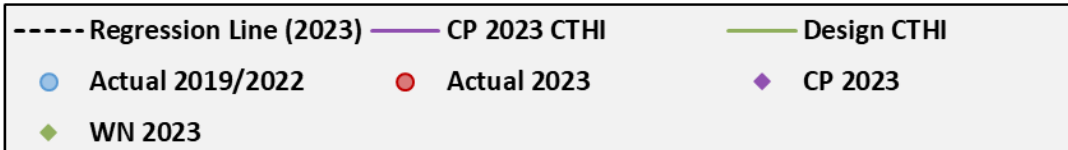
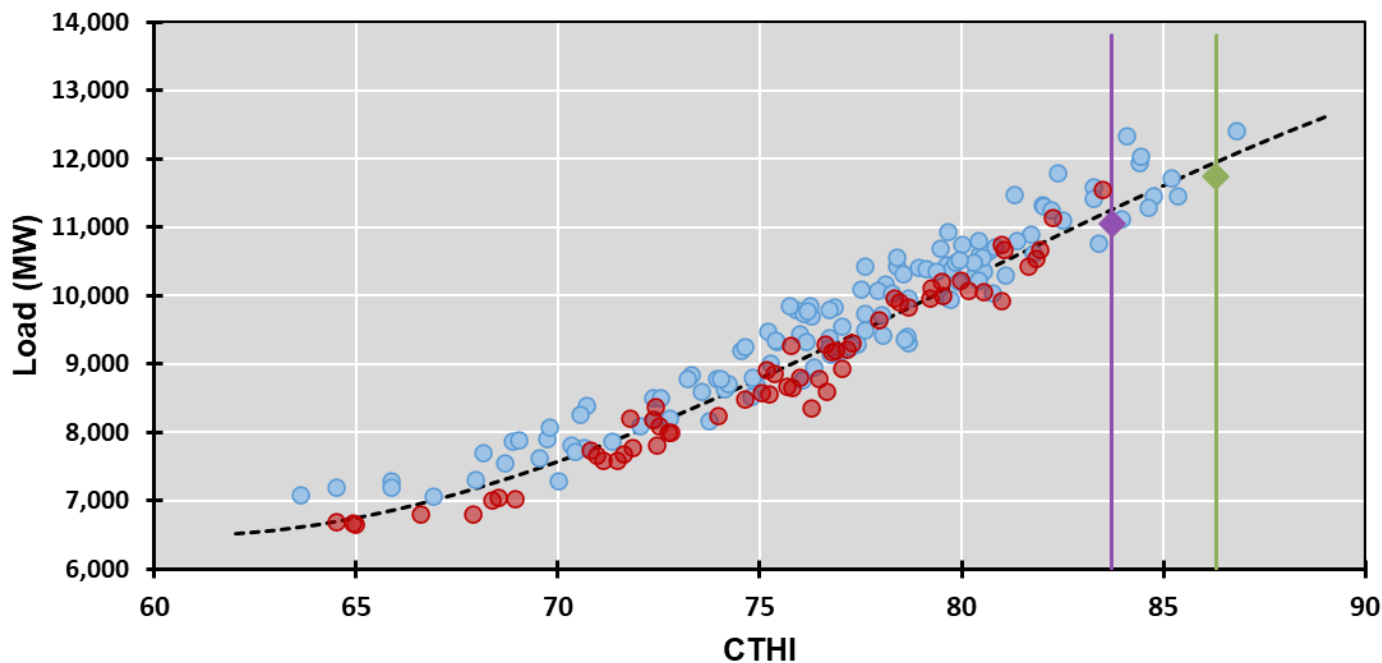
2023 Weather Normalized Coincident Peak Load							
(1)	(2)	(3)	(4)	(5) = (4) - (3)	(6)	(7)	(8) = (6) + (7)
TD	2023 Actual CP MW, 7/28/2023 HB 17	CTHI at 2023 CP	Design CTHI	Delta CTHI	Weather Adjustment MW	Friday Adjustment MW	Weather + Friday Adjustment MW
Con Edison	11,054.4	83.73	86.31	2.58	693.1	212.3	905.4
Cen Hudson	1,081.2	83.56	85.37	1.81	48.4		48.4
LIPA	4,955.6	83.22	84.67	1.45	179.6		179.6
Nat. Grid	6,016.9	81.10	82.32	1.22	155.3	106.8	262.0
NYPA	482.5	79.84	81.99	2.15	1.2	2.2	3.5
NYSEG	2,887.8	81.11	82.48	1.37	97.8	22.4	120.2
O&R	880.4	82.66	85.55	2.89	76.1		76.1
RG&E	1,352.5	81.15	82.82	1.67	73.7	33.6	107.3
NYCA	28,711.3				1,325.3	377.3	1,702.6

Notes:

- DSS/TO Load Data still under review and reconciliation
- Con-Edison & O&R are at 67th percentile design conditions
- For Central Hudson, LIPA and O&R, the coefficient of the Friday variable was not statistically significant
- Demand response impacts are not yet accounted for

Weather Normalization Models

Con Ed Pooled Model



Design condition is 67th percentile.

Purple dot shows 2023 coincident peak.

Green dot shows 2023 weather normalized coincident peak.

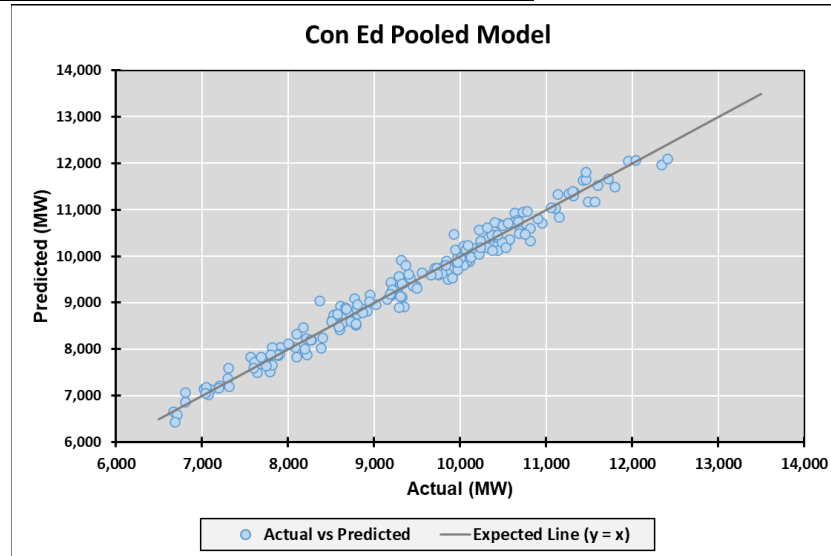
Dotted black line shows model fit during 2023 July-Aug design conditions.

2023 CP	11,054.4
2023 CTHI	83.73
Design CTHI	86.31
Avg MW / CTHI	268.7
Weather Adj	693.1
2023 WN CP	11,747.5

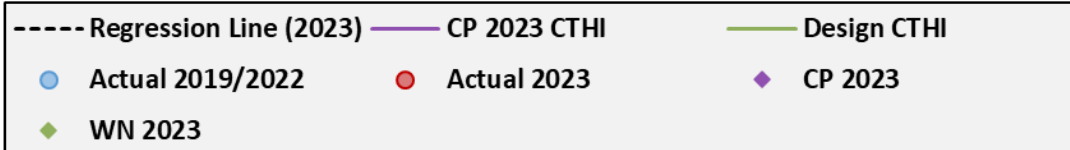
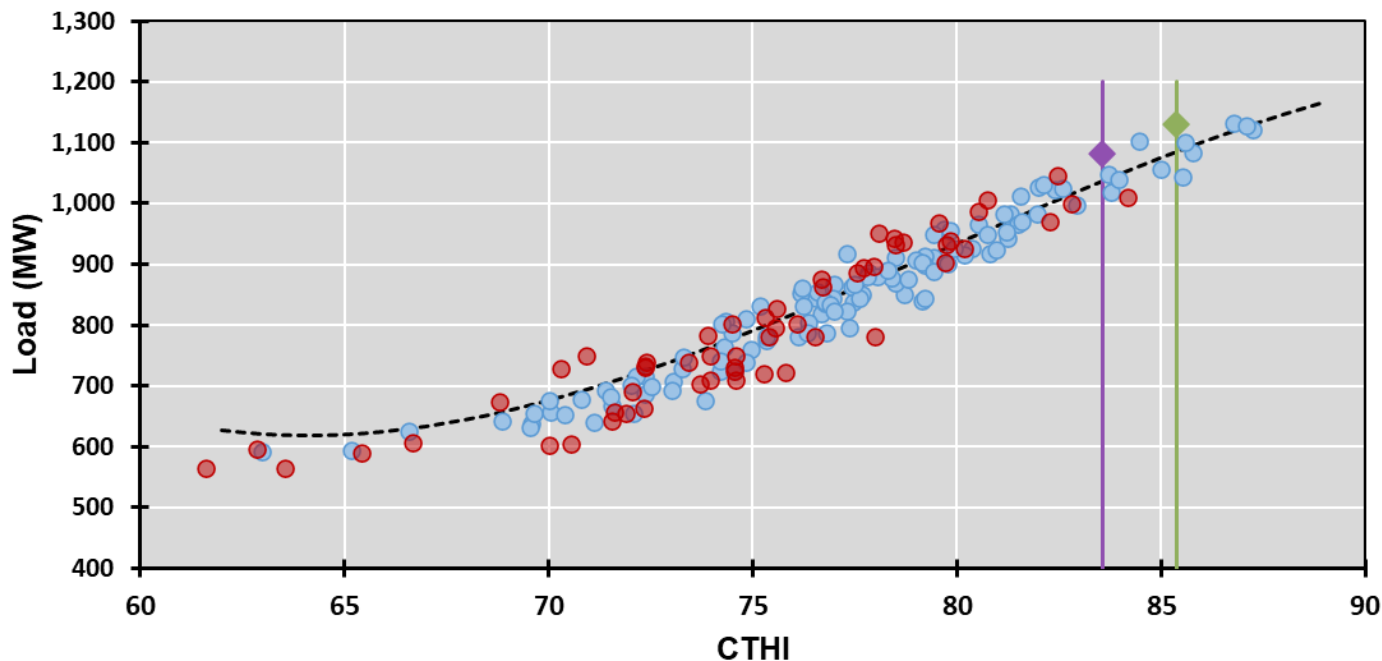
Con Ed Pooled Model

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	118526.2	37145.8	3.2	0.2%
CTHI_CE	-4634.5	1491.3	-3.1	0.2%
CTHI_2_CE	61.5	19.9	3.1	0.2%
CTHI_3_CE	-0.26	0.09	-2.90	0.4%
Y2019	614.8	37.7	16.3	0.0%
Y2022	115.4	38.6	3.0	0.3%
Fri	-212.3	38.2	-5.6	0.0%
Jun_Aug	-94.4	39.5	-2.4	1.8%

<i>Regression Statistics</i>	
Multiple R	98.8%
R Square	97.7%
Adjusted R Square	97.6%
Standard Error	207
Observations	183



Central Hudson Pooled Model



Design condition is 50th percentile.

Purple dot shows 2023 coincident peak.

Green dot shows 2023 weather normalized coincident peak.

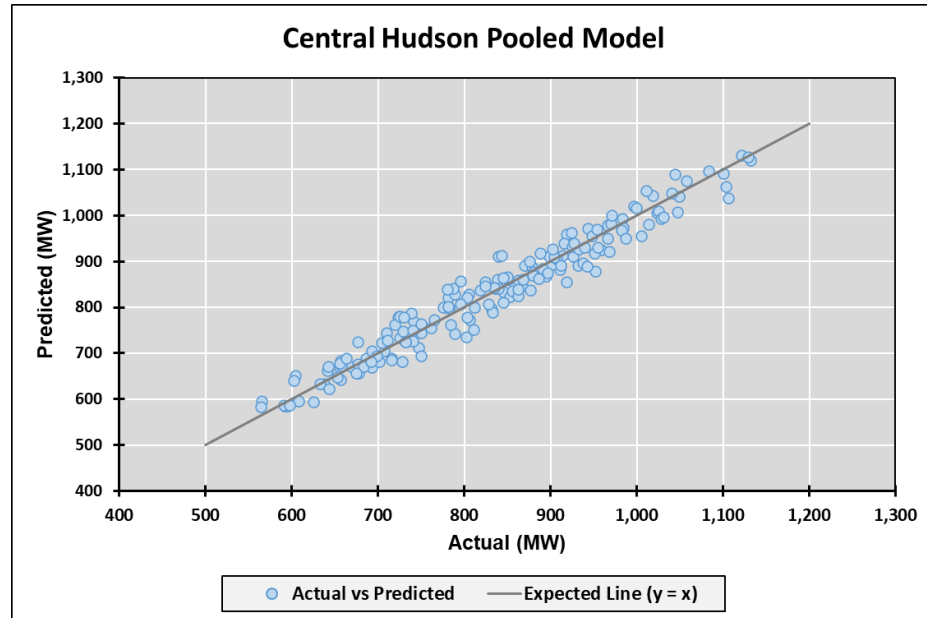
Dotted black line shows model fit during 2023 July-Aug design conditions.

2023 CP	1,081.2
2023 CTHI	83.56
Design CTHI	85.37
Avg MW / CTHI	26.7
Weather Adj	48.4
2023 WN CP	1,129.6

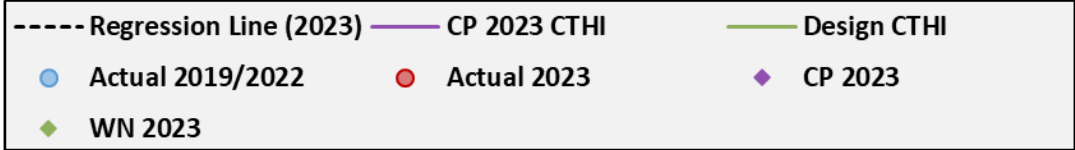
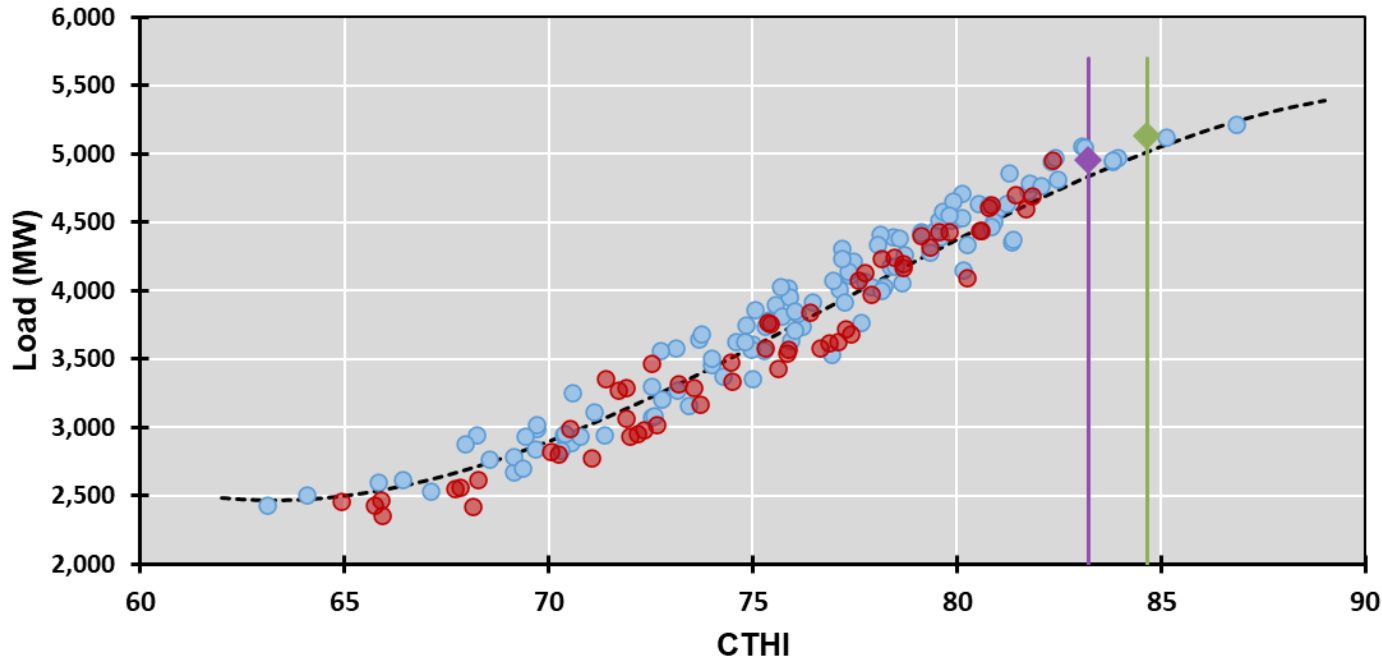
Central Hudson Pooled Model

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	19064.40	3803.74	5.0	0.0%
CTHI_CH	-741.98	153.75	-4.8	0.0%
CTHI_2_CH	9.683	2.063	4.7	0.0%
CTHI_3_CH	-0.04	0.01	-4.4	0.0%
Jun	-35.53	6.34	-5.6	0.0%

<i>Regression Statistics</i>	
Multiple R	97.6%
R Square	95.2%
Adjusted R Square	95.1%
Standard Error	30
Observations	173



LIPA Pooled Model



Design condition is 50th percentile.

Purple dot shows 2023 coincident peak.

Green dot shows 2023 weather normalized coincident peak.

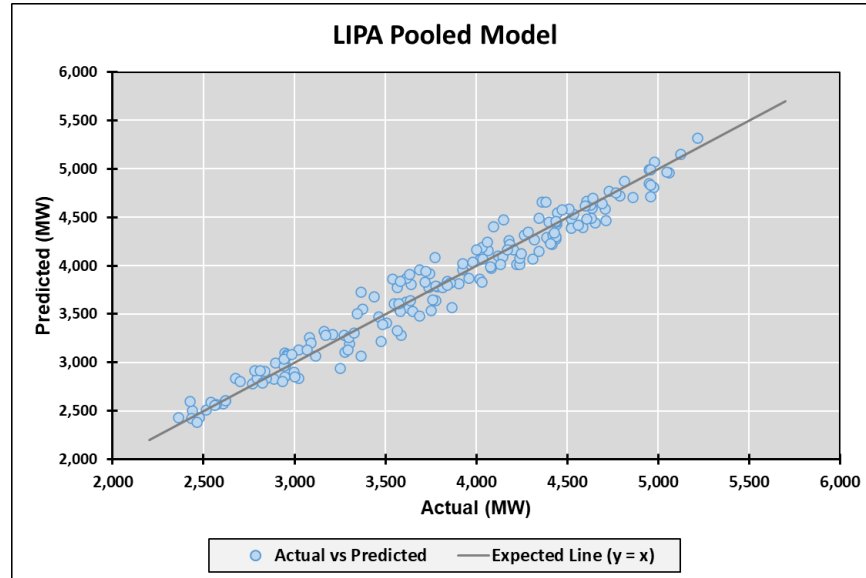
Dotted black line shows model fit during 2023 July-Aug design conditions.

2023 CP	4,955.6
2023 CTHI	83.22
Design CTHI	84.67
Avg MW / CTHI	124.3
Weather Adj	179.6
2023 WN CP	5,135.2

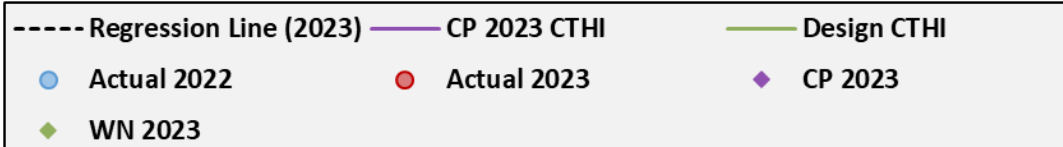
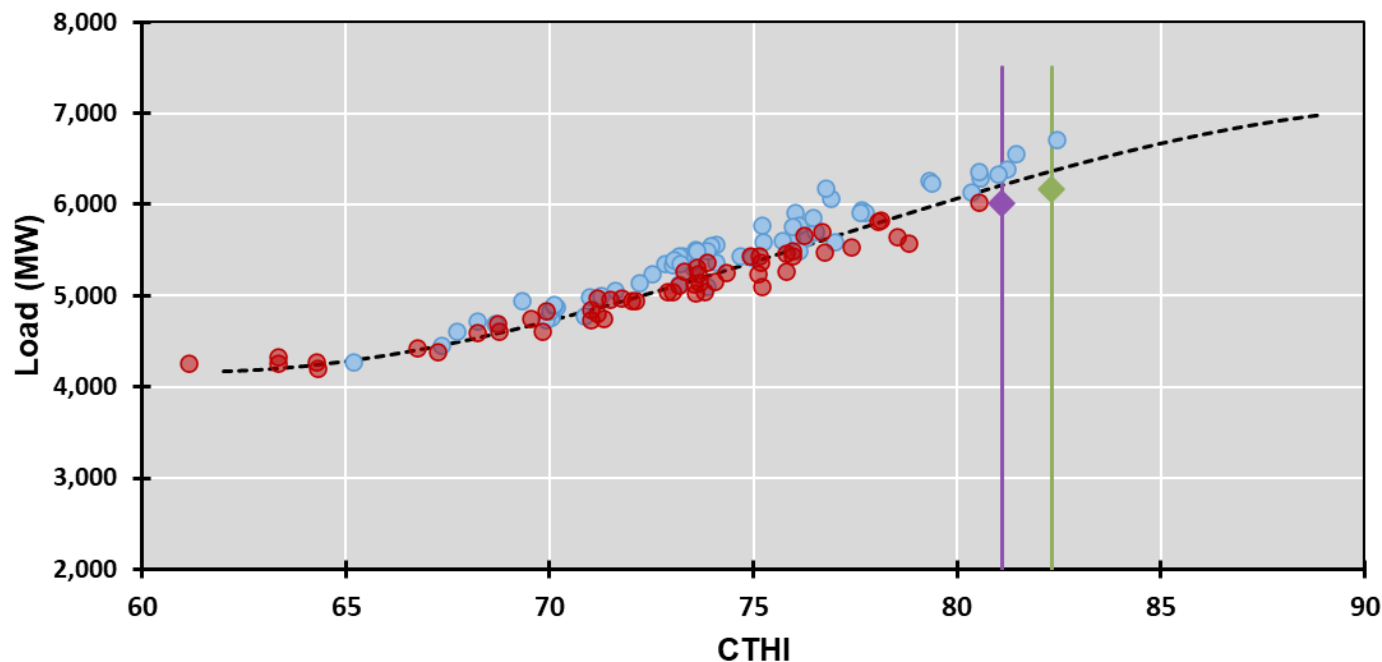
LIPA Pooled Model

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	114731.04	26764.24	4.3	0.0%
CTHI_LIPA	-4613.17	1079.78	-4.3	0.0%
CTHI_2_LIPA	61.68	14.48	4.3	0.0%
CTHI_3_LIPA	-0.266	0.065	-4.1	0.0%
Y2019	145.01	26.41	5.5	0.0%
Y2022	84.07	27.33	3.1	0.2%
Jun	-103.78	31.73	-3.3	0.1%

<i>Regression Statistics</i>	
Multiple R	98.1%
R Square	96.2%
Adjusted R Square	96.0%
Standard Error	144
Observations	177



Nat Grid 2022-2023 Model



Design condition is 50th percentile.

Purple dot shows 2023 coincident peak.

Green dot shows 2023 weather normalized coincident peak.

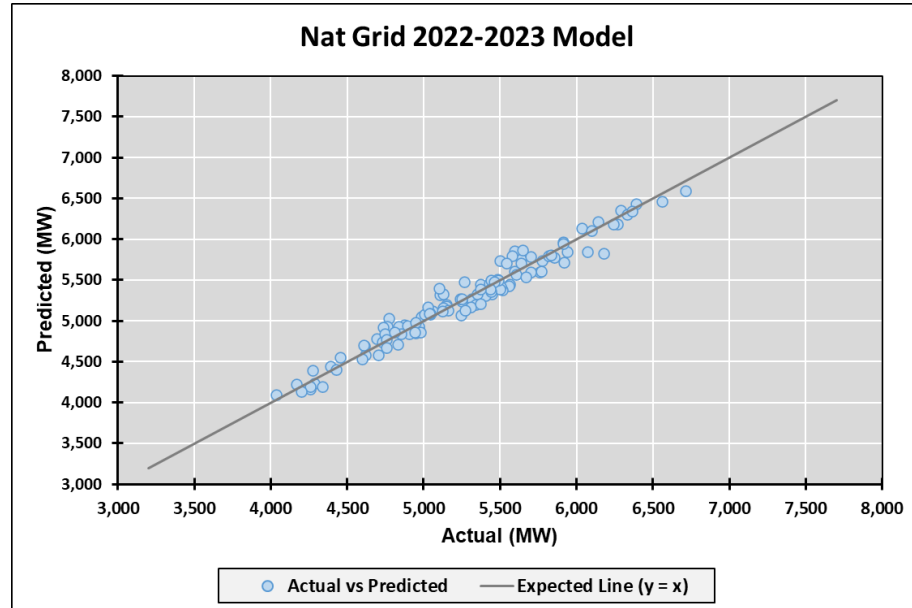
Dotted black line shows model fit during 2023 July-Aug design conditions.

2023 CP	6,016.9
2023 CTHI	81.10
Design CTHI	82.32
Avg MW / CTHI	126.9
Weather Adj	155.3
2023 WN CP	6,172.2

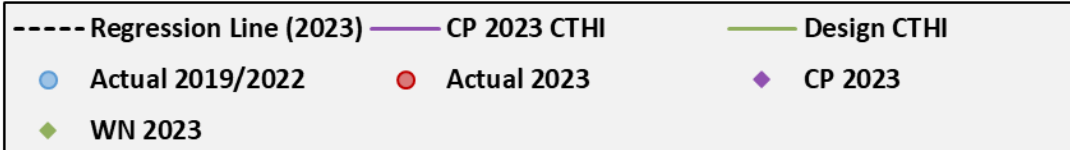
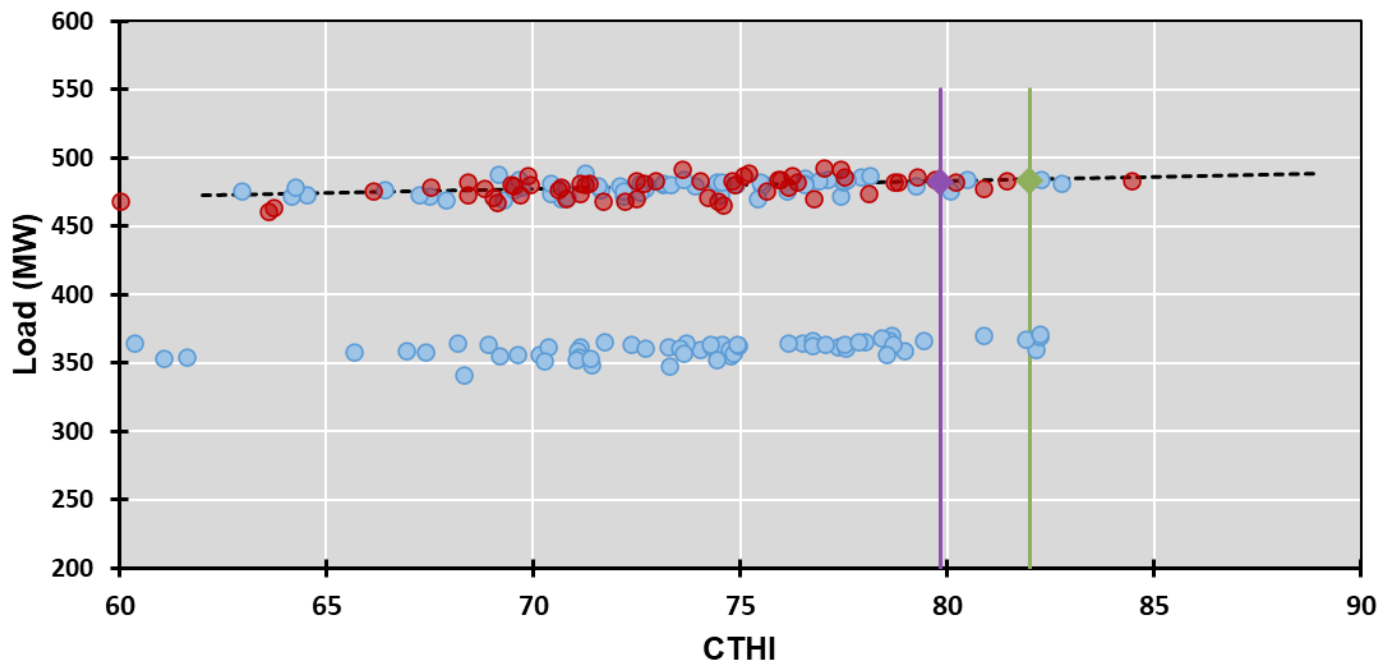
National Grid 2022-2023 Model

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	83567.92	18862.63	4.4	0.0%
CTHI_NG	-3327.09	801.39	-4.2	0.0%
CTHI_2_NG	45.16	11.30	4.0	0.0%
CTHI_3_NG	-0.20	0.05	-3.7	0.0%
Y2022	210.23	22.02	9.5	0.0%
Fri	-106.76	26.57	-4.0	0.0%

<i>Regression Statistics</i>	
Multiple R	98.0%
R Square	96.0%
Adjusted R Square	95.8%
Standard Error	115
Observations	118



NYPA Pooled Model



Design condition is 50th percentile.

Purple dot shows 2023 coincident peak.

Green dot shows 2023 weather normalized coincident peak.

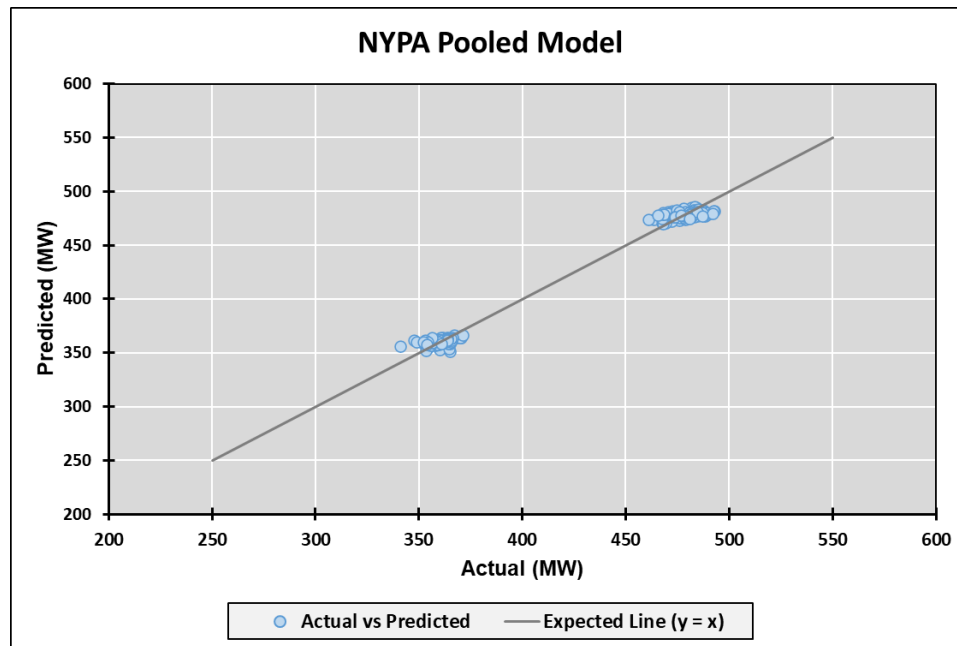
Dotted black line shows model fit during 2023 July-Aug design conditions.

2023 CP	482.5
2023 CTHI	79.84
Design CTHI	81.99
Avg MW / CTHI	0.6
Weather Adj	1.2
2023 WN CP	483.7

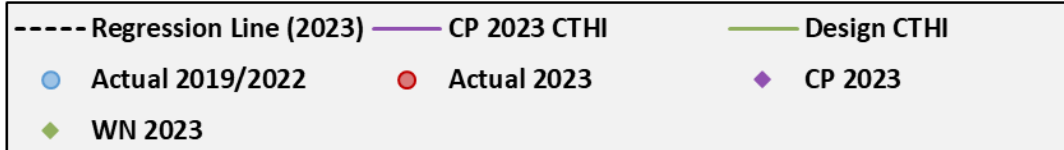
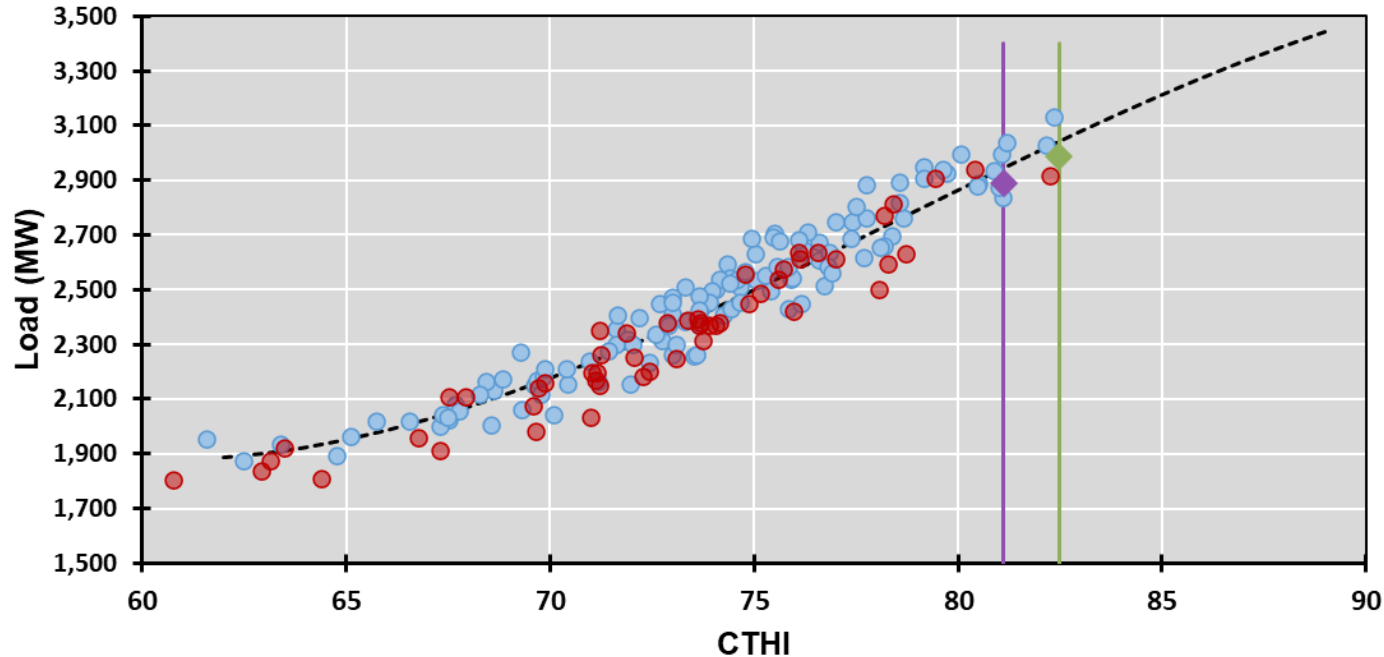
NYPA Pooled Model

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	436.88	5.61	77.9	0.0%
CTHI_NYPA	0.58	0.08	7.6	0.0%
Y2019	-118.17	0.83	-142.1	0.0%
Fri	-2.24	0.96	-2.3	2.2%

<i>Regression Statistics</i>	
Multiple R	99.6%
R Square	99.1%
Adjusted R Square	99.1%
Standard Error	5
Observations	183



NYSEG Pooled Model



Design condition is 50th percentile.

Purple dot shows 2023 coincident peak.

Green dot shows 2023 weather normalized coincident peak.

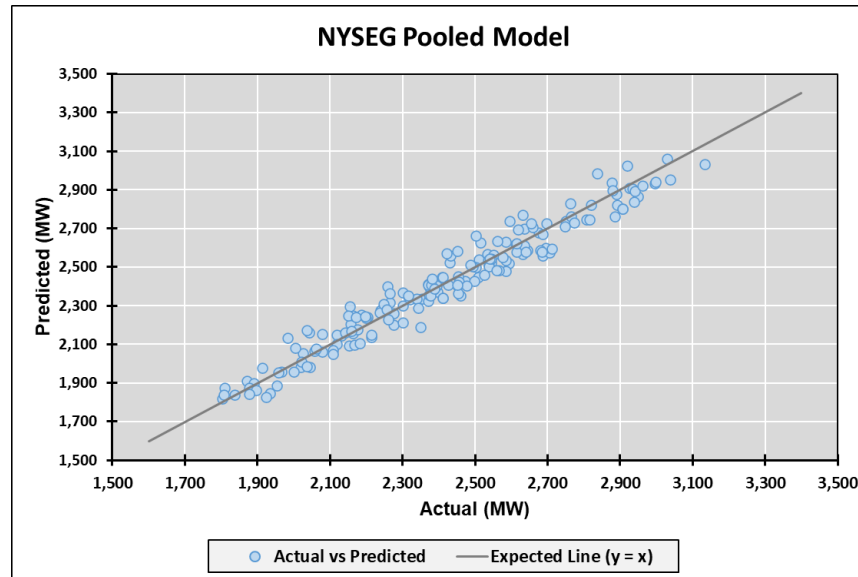
Dotted black line shows model fit during 2023 July-Aug design conditions.

2023 CP	2,887.8
2023 CTHI	81.11
Design CTHI	82.48
Avg MW / CTHI	71.3
Weather Adj	97.8
2023 WN CP	2,985.6

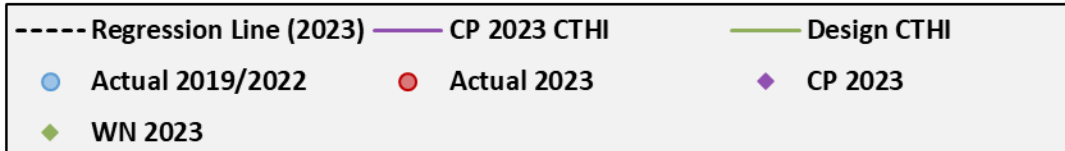
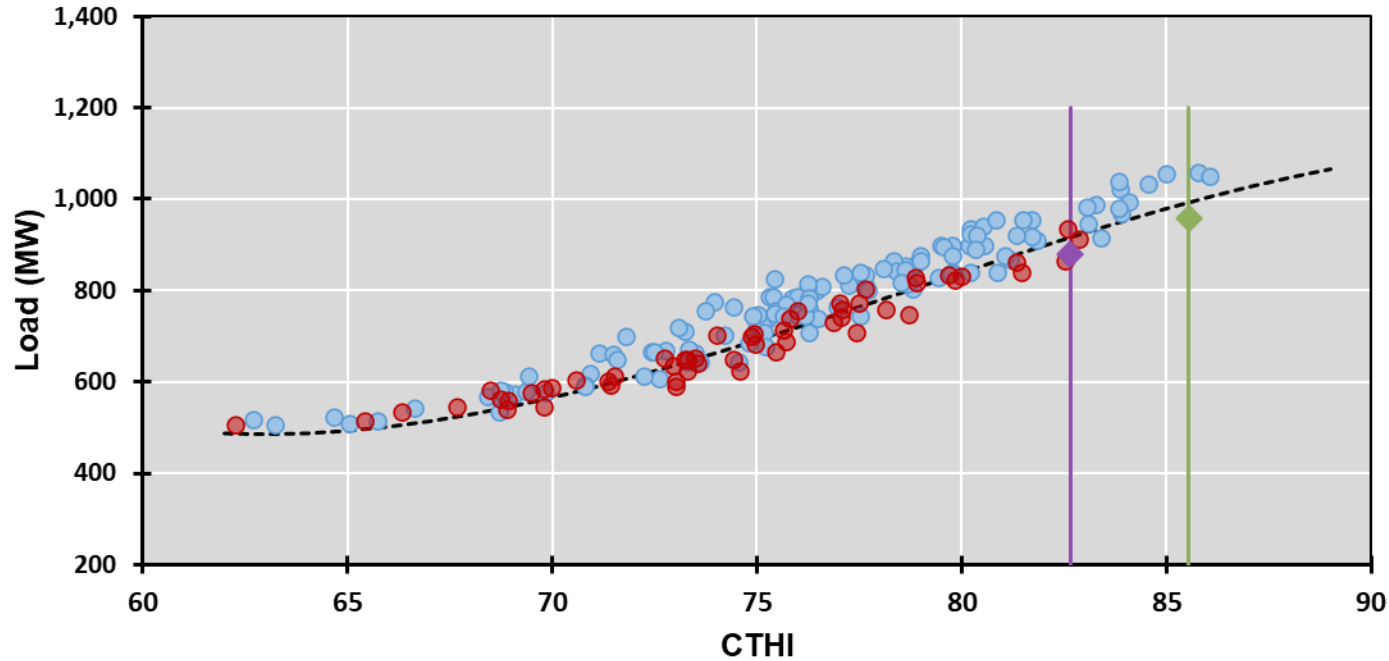
NYSEG Pooled Model

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	33597.11	7475.18	4.5	0.0%
CTHI_NYSEG	-1323.07	319.23	-4.1	0.0%
CTHI_2_NYSEG	17.76	4.52	3.9	0.0%
CTHI_3_NYSEG	-0.08	0.02	-3.5	0.0%
Y2019	64.51	10.57	6.1	0.0%
Jun	-61.23	12.44	-4.9	0.0%
Fri	-22.42	11.83	-1.9	5.9%

<i>Regression Statistics</i>	
Multiple R	97.2%
R Square	94.6%
Adjusted R Square	94.4%
Standard Error	73
Observations	236



O&R Pooled Model



Design condition is 67th percentile.

Purple dot shows 2023 coincident peak.

Green dot shows 2023 weather normalized coincident peak.

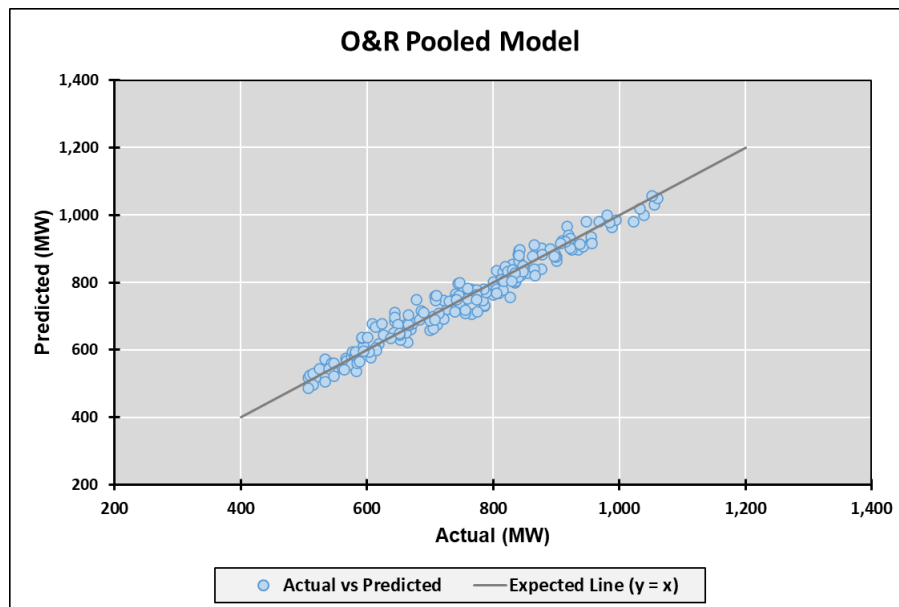
Dotted black line shows model fit during 2023 July-Aug design conditions.

2023 CP	880.4
2023 CTHI	82.66
Design CTHI	85.55
Avg MW / CTHI	26.3
Weather Adj	76.1
2023 WN CP	956.5

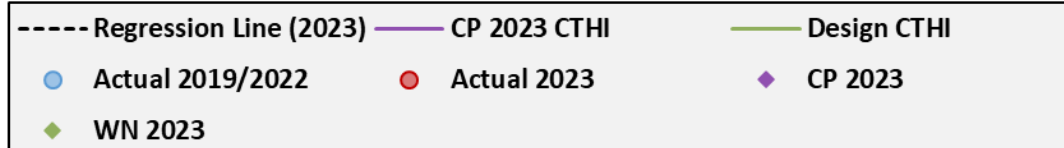
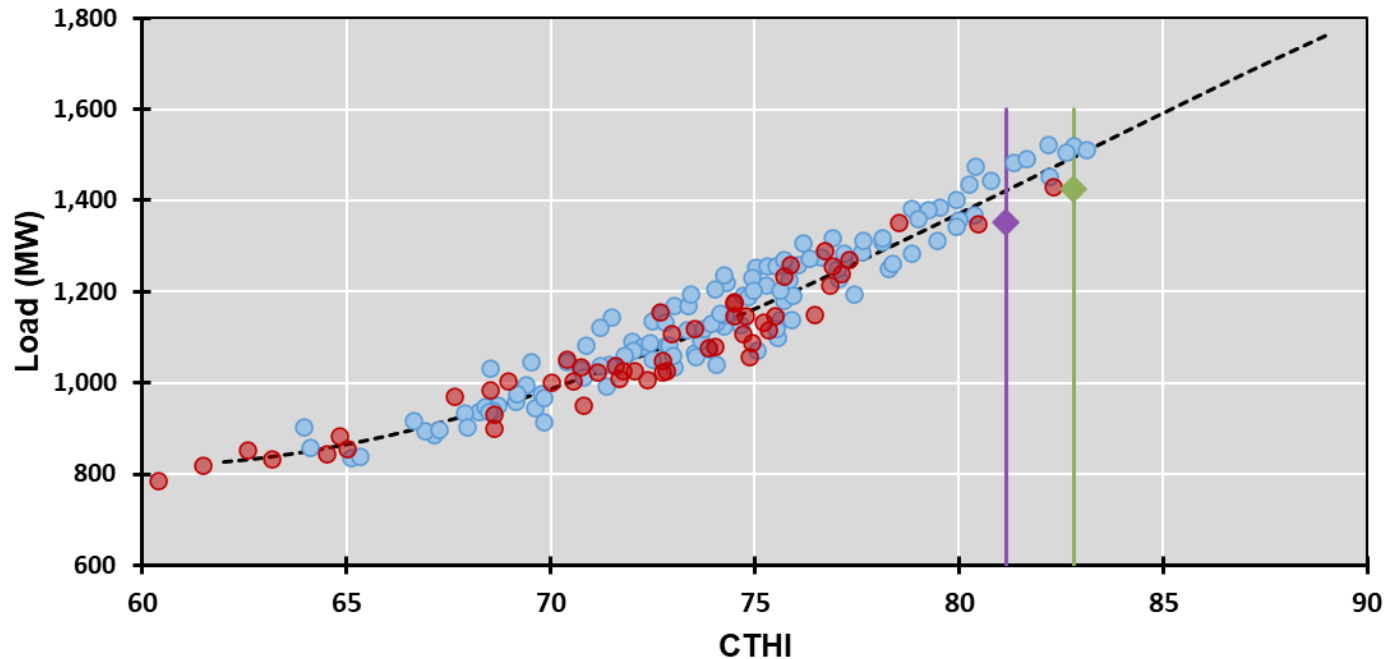
O&R Pooled Model

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	18091.37	4480.48	4.0	0.0%
CTHI_OnR	-718.91	181.55	-4.0	0.0%
CTHI_2_OnR	9.51	2.44	3.9	0.0%
CTHI_3_OnR	-0.04	0.01	-3.7	0.0%
Y2019	31.70	5.48	5.8	0.0%
Y2022	52.59	5.58	9.4	0.0%

<i>Regression Statistics</i>	
Multiple R	97.7%
R Square	95.5%
Adjusted R Square	95.3%
Standard Error	29
Observations	178



RG&E Pooled Model



Design condition is 50th percentile.

Purple dot shows 2023 coincident peak.

Green dot shows 2023 weather normalized coincident peak.

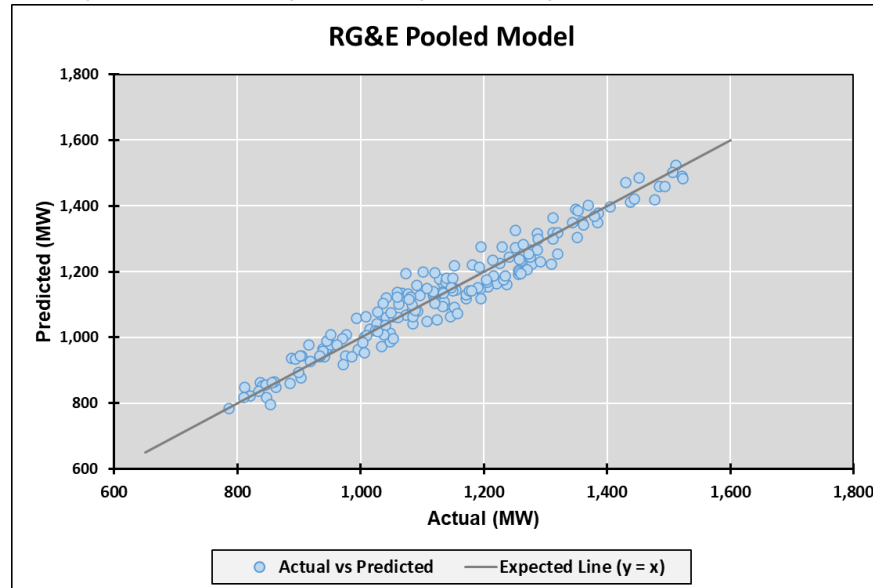
Dotted black line shows model fit during 2023 July-Aug design conditions.

2023 CP	1,352.5
2023 CTHI	81.15
Design CTHI	82.82
Avg MW / CTHI	44.2
Weather Adj	73.7
2023 WN CP	1,426.2

RGE Pooled Model

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	13919.42	4995.17	2.8	0.6%
CTHI_RGE	-539.24	211.37	-2.6	1.2%
CTHI_2_RGE	7.05	2.97	2.4	1.9%
CTHI_3_RGE	-0.03	0.01	-2.1	4.2%
Y2019	31.08	7.74	4.0	0.0%
Y2022	17.02	7.94	2.1	3.3%
Fri	-33.62	7.94	-4.2	0.0%

<i>Regression Statistics</i>	
Multiple R	97.0%
R Square	94.1%
Adjusted R Square	93.9%
Standard Error	42
Observations	179



Additional IIRM Forecast Information

NCP / CP Ratio Calculation Methodology

1. Calculate 15-year Average

- I. Calculate the average locality peak of the prior 15 years
- II. Calculate the average locality load during the NYCA peak load hour
- III. Calculate the average NCP/CP ratio using the information from steps (I) and (II)

2. Detect Outliers*

- I. Using the average ratio and standard deviation calculated in step 1 (15-year distribution)

3. Repeat Step 1 excluding data from outlier years

* Outlier years are defined as those that have an NCP to CP ratio of over 1.65 standard deviations above the historical average, representing the upper 5% tail of the normal distribution. Outlier years are taken out of the ratio calculation.

NCP/CP Ratio – G-to-J Locality

G-to-J Peak Ratio									
Year	G-to-J Date	G-to-J Hr Beg	NCP MW	NYCA Date	NYCA Hr Beg	CP MW	Delta	Ratio	Outlier
2009	8/21/2009	14	14,585	8/17/2009	15	14,388	197	1.0137	FALSE
2010	7/6/2010	16	15,809	7/6/2010	16	15,809	0	1.0000	FALSE
2011	7/22/2011	15	15,972	7/22/2011	15	15,972	0	1.0000	FALSE
2012	7/18/2012	13	15,420	7/17/2012	16	14,993	427	1.0285	FALSE
2013	7/19/2013	16	15,981	7/19/2013	16	15,981	0	1.0000	FALSE
2014	7/8/2014	16	13,959	7/1/2014	16	13,374	585	1.0437	FALSE
2015	7/20/2015	16	14,708	7/29/2015	16	14,440	268	1.0186	FALSE
2016	8/11/2016	16	15,067	8/11/2016	16	15,067	0	1.0000	FALSE
2017	7/20/2017	16	14,678	7/19/2017	17	14,163	515	1.0364	FALSE
2018	8/29/2018	16	15,033	8/29/2018	16	15,033	0	1.0000	FALSE
2019	7/17/2019	15	14,602	7/29/2019	16	14,157	445	1.0314	FALSE
2020	7/28/2020	14	14,077	7/27/2020	17	13,911	166	1.0119	FALSE
2021	8/12/2021	16	14,081	8/26/2021	16	14,008	73	1.0052	FALSE
2022	8/9/2022	17	14,870	7/20/2022	17	13,883	987	1.0711	TRUE
2023	7/27/2023	17	13,589	7/28/2023	17	13,350	239	1.0179	FALSE
Average			14,829			14,569	260	1.0179	
Std Dev								0.0199	
Average (Excluding Outliers)			14,826			14,618		1.0142	

NCP/CP Ratio – Zone J

Zone J Locality Peak Ratio									
Year	Zone J Date	J Hr Beg	NCP MW	NYCA Date	NYCA Hr Beg	CP MW	Delta	Ratio	Outlier
2009	8/21/2009	15	10,656	8/17/2009	15	10,387	269	1.0259	FALSE
2010	7/6/2010	16	11,213	7/6/2010	16	11,213	0	1.0000	FALSE
2011	7/22/2011	11	11,399	7/22/2011	15	11,319	80	1.0071	FALSE
2012	7/18/2012	12	11,138	7/17/2012	16	10,721	417	1.0389	FALSE
2013	7/19/2013	16	11,411	7/19/2013	16	11,411	0	1.0000	FALSE
2014	7/8/2014	16	10,094	7/1/2014	16	9,565	529	1.0553	FALSE
2015	7/20/2015	16	10,598	7/29/2015	16	10,386	212	1.0204	FALSE
2016	8/11/2016	16	10,966	8/11/2016	16	10,966	0	1.0000	FALSE
2017	7/20/2017	16	10,642	7/19/2017	17	10,224	418	1.0409	FALSE
2018	8/29/2018	16	10,878	8/29/2018	16	10,878	0	1.0000	FALSE
2019	7/17/2019	17	10,756	7/29/2019	16	10,199	557	1.0546	FALSE
2020	7/28/2020	14	10,106	7/27/2020	17	9,786	320	1.0327	FALSE
2021	8/27/2021	14	10,020	8/26/2021	16	9,995	25	1.0025	FALSE
2022	8/9/2022	16	10,753	7/20/2022	17	9,899	854	1.0863	TRUE
2023	7/27/2023	16	10,064	7/28/2023	17	9,599	465	1.0485	FALSE
Average			10,713			10,436	276	1.0265	
Std Dev								0.0256	
Average (Excluding Outliers)			10,710			10,475		1.0225	

NCP/CP Ratio – Zone K

Zone K Locality Peak Ratio									
Year	Zone K Date	K Hr Beg	NCP MW	NYCA Date	NYCA Hr Beg	CP MW	Delta	Ratio	Outlier
2009	8/21/2009	15	5,191	8/17/2009	15	5,060	131	1.0259	FALSE
2010	7/6/2010	16	5,822	7/6/2010	16	5,822	0	1.0000	FALSE
2011	7/22/2011	15	5,914	7/22/2011	15	5,914	0	1.0000	FALSE
2012	7/18/2012	13	5,456	7/17/2012	16	5,111	345	1.0675	TRUE
2013	7/18/2013	16	5,764	7/19/2013	16	5,673	91	1.0160	FALSE
2014	7/3/2014	16	4,868	7/1/2014	16	4,579	289	1.0631	TRUE
2015	7/20/2015	16	5,247	7/29/2015	16	5,136	111	1.0216	FALSE
2016	8/12/2016	16	5,411	8/11/2016	16	5,190	221	1.0426	FALSE
2017	7/20/2017	16	5,137	7/19/2017	17	4,989	148	1.0297	FALSE
2018	8/29/2018	16	5,411	8/29/2018	16	5,411	0	1.0000	FALSE
2019	7/17/2019	16	5,057	7/29/2019	16	4,947	110	1.0222	FALSE
2020	7/20/2020	17	5,433	7/27/2020	17	5,344	89	1.0167	FALSE
2021	8/13/2021	17	5,138	8/26/2021	16	5,018	120	1.0239	FALSE
2022	8/9/2022	17	5,215	7/20/2022	17	5,122	92	1.0180	FALSE
2023	7/27/2023	17	4,957	7/28/2023	17	4,956	1	1.0002	FALSE
Average			5,335			5,218	117	1.0223	
Std Dev								0.0204	
Average (Excluding Outliers)			5,361			5,276		1.0162	

NCP/CP Ratio – Upstate Zones

Upstate Zonal NCP/CP Ratios							
Year	A	B	C	D	E	F	G
2009	1.0052	1.0000	1.0191	1.0110	1.0413	1.0049	1.0082
2010	1.0430	1.0423	1.0316	1.0237	1.0251	1.0094	1.0000
2011	1.1529	1.0787	1.0570	1.0104	1.0566	1.0904	1.0064
2012	1.0011	1.0045	1.0000	1.0353	1.0115	1.0000	1.0206
2013	1.1144	1.0297	1.0270	1.0901	1.0117	1.0111	1.0073
2014	1.0239	1.0079	1.0127	1.0253	1.0176	1.0451	1.0368
2015	1.0100	1.0000	1.0315	1.1097	1.0401	1.0008	1.0000
2016	1.0485	1.0075	1.0065	1.0188	1.0064	1.0076	1.0319
2017	1.0230	1.0022	1.0447	1.0409	1.1579	1.0779	1.0414
2018	1.1495	1.0493	1.0758	1.0439	1.0759	1.0167	1.0300
2019	1.0129	1.0132	1.0397	1.0124	1.0372	1.0393	1.0492
2020	1.0944	1.1176	1.0101	1.0000	1.0060	1.0023	1.0239
2021	1.0121	1.0151	1.0491	1.1485	1.0269	1.0451	1.0321
2022	1.0278	1.0000	1.0082	1.0104	1.0088	1.0428	1.0627
2023	1.0797	1.0689	1.0497	1.0116	1.0315	1.0423	1.0245
Ratio	1.0373	1.0226	1.0272	1.0269	1.0280	1.0200	1.0217

Notes

Annual values marked in red are outliers excluded from the final ratio calculation

For computational simplicity, Zones H&I NCP/CP ratios are set equal to the Zone J value

Average Sub-Zonal Peak Load

Average Subzonal Load - Top Five Summer NYCA Daily Peak Hours over Five Years (2019 - 2023)												
	A	B	C	D	E	F	G	H	I	J	K	Total
Con Ed	0.0	0.0	0.0	0.0	0.0	0.0	0.0	249.6	1,259.9	9,897.5	0.0	11,407.0
Cen Hud	0.0	0.0	0.0	0.0	3.4	0.0	1,030.7	0.0	0.0	0.0	0.0	1,034.1
LIPA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4,961.7	4,961.7
Nat Grid	1,725.1	378.6	1,222.3	85.6	851.5	2,041.3	0.0	0.0	0.0	0.0	0.0	6,304.4
NYPA	0.0	0.0	0.0	418.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	418.2
NYSEG	619.8	0.0	1,274.2	95.8	407.4	149.8	19.0	338.1	0.0	0.0	0.0	2,904.1
O&R	0.0	0.0	0.0	0.0	0.0	0.0	980.9	0.0	0.0	0.0	0.0	980.9
RG&E	0.0	1,366.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1,366.3
Total	2,344.8	1,744.8	2,496.5	599.6	1,262.3	2,191.1	2,030.5	587.8	1,259.9	9,897.5	4,961.7	29,376.7

Note: Con Edison Zone G losses moved to Zone J

Sub-Zonal Peak Load Shares

Multipliers for TO to Zone												
Row Labels	A	B	C	D	E	F	G	H	I	J	K	Total
CE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0219	0.1105	0.8677	0.0000	1.0000
CH	0.0000	0.0000	0.0000	0.0000	0.0033	0.0000	0.9967	0.0000	0.0000	0.0000	0.0000	1.0000
LIPA	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	1.0000
NG	0.2736	0.0600	0.1939	0.0136	0.1351	0.3238	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000
NYPA	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000
NYSEG	0.2134	0.0000	0.4388	0.0330	0.1403	0.0516	0.0065	0.1164	0.0000	0.0000	0.0000	1.0000
OR	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000	0.0000	0.0000	1.0000
RGE	0.0000	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000

Note: Con Edison Zone G losses moved to Zone J

Multipliers for Zone to TO											
Row Labels	A	B	C	D	E	F	G	H	I	J	K
CE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.4247	1.0000	1.0000	0.0000
CH	0.0000	0.0000	0.0000	0.0000	0.0027	0.0000	0.5076	0.0000	0.0000	0.0000	0.0000
LIPA	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000
NG	0.7357	0.2170	0.4896	0.1428	0.6745	0.9316	0.0000	0.0000	0.0000	0.0000	0.0000
NYPA	0.0000	0.0000	0.0000	0.6974	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NYSEG	0.2643	0.0000	0.5104	0.1597	0.3227	0.0684	0.0093	0.5753	0.0000	0.0000	0.0000
OR	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.4831	0.0000	0.0000	0.0000	0.0000
RGE	0.0000	0.7830	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Note: Con Edison Zone G losses moved to Zone J

Preliminary Regional Load Growth Factors

Transmission District	Preliminary 1+RLGF
Con Edison	1.0029
Central Hudson	0.9940
LIPA	0.9936
National Grid	0.9996
NYPA	0.9981
NYSEG	0.9979
O&R	0.9940
RG&E	0.9965
NYCA	0.9992

Note: RLGs do not reflect large load growth

- Preliminary RLGs calculated as a ratio of the 2024 to 2023 coincident peak forecasts from the 2023 Gold Book, before Large Load impacts
- Zonal RLGs are shared out to the Transmission Districts using the sub-zonal peak load shares
- Preliminary RLGs will be used for the IRM forecast absent updates from the Transmission Owners, which are to be submitted by September 19

Preliminary Large Load Projections for 2024 IRM Forecast

2024 Projected Large Load Peak Values

by Zone	
Zone A	110 MW
Zone B	151 MW
Zone C	50 MW
Zone D	169 MW

by Transmission District	
National Grid	261 MW
NYPA	169 MW
NYSEG	50 MW

NYCA Total : 480 MW

- *Does not yet include Q3 Transmission Owner updates.*
- *Transmission Owners are to provide updated large load projections for use in the 2024 IRM forecast by September 19th.*

Next Steps

Next Steps

- **Transmission Owners:**

- Provide load and estimated DR impacts at time of NYCA and Locality peaks as applicable (by 9/15)
- Provide weather normalized load at time of NYCA and Locality peaks as applicable (by 9/15)
- Provide any updates on Regional Load Growth Factors (RLGFs) (by 9/19)
- Provide Large Load updates for consideration in the 2024 IRM forecast, if applicable (by 9/19)

- **NYISO:**

- Evaluate early September high load days and potential impacts on the weather normalization models
- Estimate Demand Response (DR) impacts during the NYCA peak hour
- Project BTM:NG load for the 2024 peak
- Project DER Aggregation impacts on 2024 peak

- **LFTF: Final Review of 2024 IRM Peak Forecast (9/28/2023)**

Questions?

Reference: CTHI Calculation

CTHI: Cumulative Temperature & Humidity Index

- CTHI is a variable used for modeling daily peaks in summer. This is a daily variable (one value per day).
- Multi-step calculation combines 144 values into a single index.
- Involves hourly dry bulb temperature, wet bulb temperature, and lag effects (heat build-up).

Step 1: Calculate hourly $THI^{[1]}$ as a weighted average of dry bulb temperature (DB) and wet bulb temperature (WB). There are 24 values per day.

For any day d ,

$THI_{di} = 0.6 \times DB_{di} + 0.4 \times WB_{di}$ where $i = 0, 1, 2, \dots, 23$ indicate the hours of the day

Step 2: Calculate THI_{max} of the day. This is the maximum hourly THI value of the day.

$THI_{max_d} = \max(THI_{di})$

Step 3: Calculate the daily $CTHI$ using weighted average of three days

$CTHI_d = 0.7 \times THI_{max_d} + 0.2 \times THI_{max_{d-1}} + 0.1 \times THI_{max_{d-2}}$

[1] THI = Temperature & Humidity Index

Our Mission & Vision



Mission

Ensure power system reliability
and competitive markets for New
York in a clean energy future



Vision

Working together with stakeholders
to build the cleanest, most reliable
electric system in the nation