New York ISO
Independent System Operator

NYSRC Fall Forecast Update – Preliminary 2024 Weather Normalization

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Demand Forecasting & Analysis

Load Forecasting Task Force

September 16, 2024

Agenda

- **2024 Preliminary Weather Normalization Summary and Methodology**
  - All preliminary weather normalization results are for the NYCA coincident peak
- **Weather Normalization Models**
- **Additional IRM Forecast Information**
  - Sub-zonal Load Shares
  - Locality and Zonal Non-Coincident to Coincident Peak Ratios
  - Preliminary Regional Load Growth Factors
- **Next Steps**
- **Reference: CTHI Calculation**

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Peak-Producing CTHI

Actual and 20-Year Normal Peak-Producing CTHI Statistics (Range: 2005 – 2024)

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	85.37	85.33	84.84	82.30	82.04	82.49	84.60	82.65	83.72
Min	82.80	81.18	81.83	77.35	77.13	78.22	81.59	77.80	80.38
Std Dev	2.21	2.20	2.19	2.09	2.79	2.03	2.28	2.33	2.08
Percentile									
50th	85.37	**85.33**	**84.84**	**82.30**	**82.04**	**82.49**	84.60	**82.65**	83.72
57th	85.76	85.71	85.22	82.66	82.53	82.85	85.00	83.06	**84.08**
67th	**86.32**	86.27	85.78	83.20	83.24	83.37	**85.58**	83.65	84.62
90th	88.20	88.14	87.64	84.98	85.62	85.10	87.52	85.64	86.39
2024 CP									
CTHI	***83.49***	***83.55***	***83.58***	***80.19***	***80.64***	***80.66***	***82.97***	***78.72***	***81.49***
Percentile	**20%**	**21%**	**28%**	**16%**	**31%**	**18%**	**24%**	**5%**	**14%**
z-score	-0.85	-0.81	-0.57	-1.01	-0.50	-0.90	-0.72	-1.69	-1.07
CTHI Delta (wrt 50)	-1.88	-1.78	-1.26	-2.11	-1.40	-1.83	-1.63	-3.93	-2.23
CTHI Delta (wrt Design)	-2.83	-1.78	-1.26	-2.11	-1.40	-1.83	-2.61	-3.93	-2.59

Note: The CTHI formula is shown on the reference slide

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 Transmission District design conditions.
- The 2024 NYCA peak occurred on July 8, Hour Beginning 17.

2024 Preliminary Weather Normalization Method

- Develop regression models by TO, comparing summer daily peak load against weather and calendar variables
- Pooled models using multiple years of data – 2022 to 2024 summers
- Using the slope of the curve, adjust the coincident peak load up or down to design weather conditions
- Consider information from other pertinent data points, such as the Locality peak or other high load days
- Load data points include estimated Demand Response impacts added back. Weather normalized peaks include add backs for DR and other load adjustments as appropriate

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Weather Normalization Models

- Regression models were developed using pooled data from the 2022, 2023, and 2024 summers
- June through September non-holiday weekdays were included
  - 2024 data through 8/28/2024
- Daily Transmission District Peak MW was regressed against the Cumulative Temperature and Humidity Index (CTHI) and calendar binary variables as significant and/or appropriate:
  - CTHI60 – CTHI at the 60-degree reference point
  - CTHI Squared – Second-order term
  - CTHI Cubed – Third-order term
  - Year 2022 & 2023 binaries
  - June & September binaries
  - Friday binary
- Outliers and days with CTHI <60 were excluded
- Estimated Demand Response impacts added to daily loads

			Included?	
Year	Peak Producing CTHI (NYCA)*	Peak Producing CTHI (NYCA) Percentile	IRM 2024	IRM 2025
2019	84.96	72%	Yes^	No
2020	83.56	47%	No	No
2021	84.50	65%	No	No
2022	83.55	47%	Yes	Yes
2023	83.80	52%	Yes	Yes
2024	81.49	14%	--	Yes

**2021 - June peak, 2023 - September peak*

^All TOs except National Grid

Summary of 2024 Preliminary Weather Normalization

2024 Preliminary Weather Normalized Coincident Peak Load							Comparison with 2024 ICAP Coincident Peak Load Forecast		
(1)	(2)	(3)	(4)	(5) = (4) - (3)	(6)	(7) = (5) + (6)			
TD	**2024 Actual CP MW, 7/8/2024 HB 17**	**CTHI at 2024 CP**	**Design CTHI**	**Delta CTHI**	**Total Adjustment MW***	**Preliminary WN Coincident Peak Load**	**2024 ICAP CP Forecast**	**Delta MW**	**Percent**
Con Edison	11,499.0	83.49	86.32	2.83	903.0	12,402.0	12,518.2	-116.2	-0.9%
Cen Hudson	1,035.6	83.55	85.33	1.78	50.1	1,085.7	1,033.7	52.0	4.8%
LIPA	4,879.9	83.58	84.84	1.26	171.9	5,051.8	4,963.0	88.8	1.8%
Nat. Grid	5,931.7	80.19	82.30	2.11	866.6	6,798.3	6,913.8	-115.5	-1.7%
NYPA	345.8	80.64	82.65	2.01	158.2	504.0	498.6	5.4	1.1%
NYSEG	2,860.2	80.66	82.49	1.83	148.3	3,008.5	3,063.7	-55.2	-1.8%
O&R	1,018.8	82.97	85.58	2.61	78.6	1,097.4	1,097.2	0.2	0.0%
RG&E	1,327.6	78.72	82.65	3.93	161.1	1,488.7	1,452.4	36.3	2.4%
NYCA	**28,898.6**	**81.49**	**84.08**	**2.59**	**2,537.8**	**31,436.4**	**31,540.6**	**-104.2**	**-0.3%**

** Total adjustment includes weather adjustment to design conditions, estimated demand response impacts, and other load adjustments as appropriate*

Notes:

- DSS/TO Load Data still under review and reconciliation
- Con-Edison & O&R are at 67th percentile design conditions

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Weather Normalization Models

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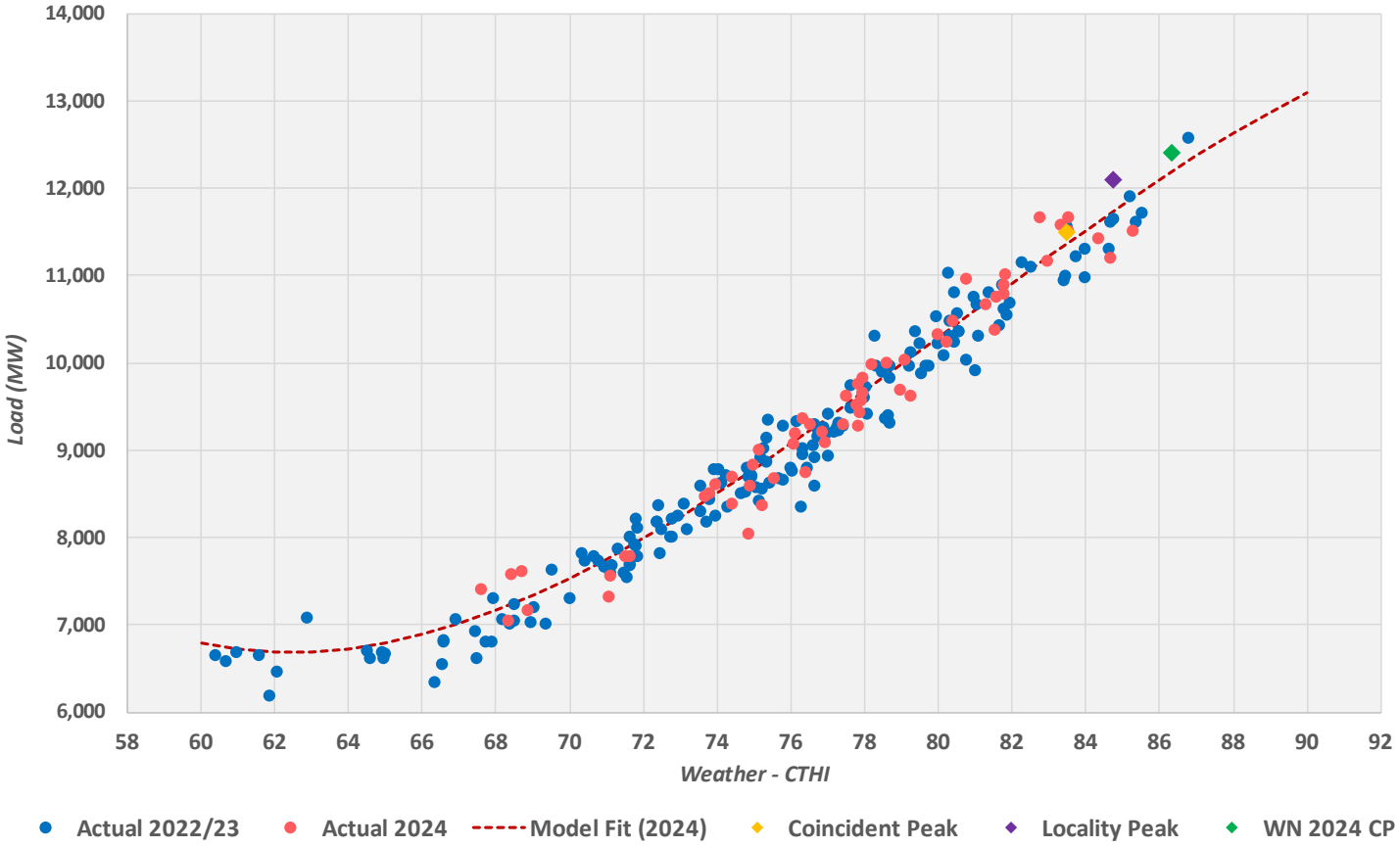
Con Ed Pooled Model



Design condition is 67th percentile.

Yellow dot shows 2024 coincident peak.

Purple dot shows 2024 Locality peak.

Green dot shows 2024 weather normalized coincident peak.

Dotted red line shows model fit during 2024 July & Aug design conditions.

Data points include estimated demand response impacts.

2024 CP	11,499.0
2024 CTHI	83.49
Design CTHI	86.32
Adjustment	903.0
2024 WN CP	**12,402.0**

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Con Ed Pooled Model

Regression Statistics	
Multiple R	0.987
R Square	0.975
Adjusted R Square	0.974
Standard Error	229.302
Observations	230

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	6798.7641	114.5732	59.3399	0.0000
CTHI60	-92.7903	29.0005	-3.1996	0.0016
CTHI_Sq	19.9295	2.3048	8.6468	0.0000
CTHI_Cb	-0.3281	0.0550	-5.9684	0.0000
Y2023	-110.5653	32.1648	-3.4375	0.0007
Fri	-175.5058	37.5518	-4.6737	0.0000

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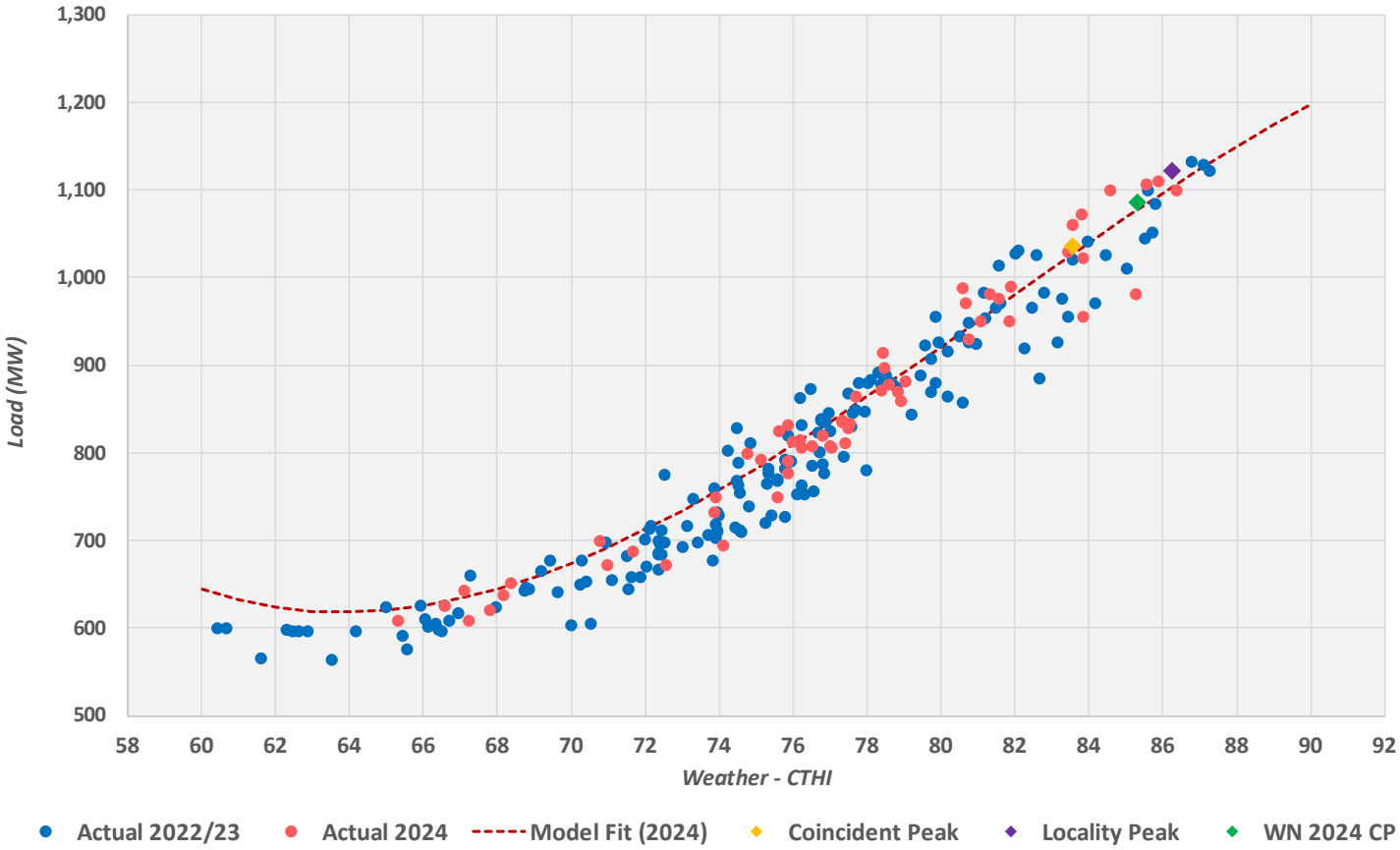
Central Hudson Pooled Model



Design condition is 50th percentile.

Yellow dot shows 2024 coincident peak.

Purple dot shows 2024 Locality peak.

Green dot shows 2024 weather normalized coincident peak.

Dotted red line shows model fit during 2024 July & Aug design conditions.

Data points include estimated demand response impacts.

2024 CP	1,035.6
2024 CTHI	83.55
Design CTHI	85.33
Adjustment	50.1
2024 WN CP	**1,085.7**

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Central Hudson Pooled Model

Regression Statistics	
Multiple R	0.981
R Square	0.962
Adjusted R Square	0.960
Standard Error	28.285
Observations	225

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	644.4970	15.3783	41.9096	0.0000
CTHI60	-14.1615	3.7075	-3.8197	0.0002
CTHI_Sq	2.0269	0.2844	7.1275	0.0000
CTHI_Cb	-0.0313	0.0065	-4.8334	0.0000
Y2023	-26.1483	4.0197	-6.5051	0.0000
Fri	-13.8690	4.7630	-2.9118	0.0040
June	-8.7501	4.9380	-1.7720	0.0778
Sept	-11.6598	6.2215	-1.8741	0.0623

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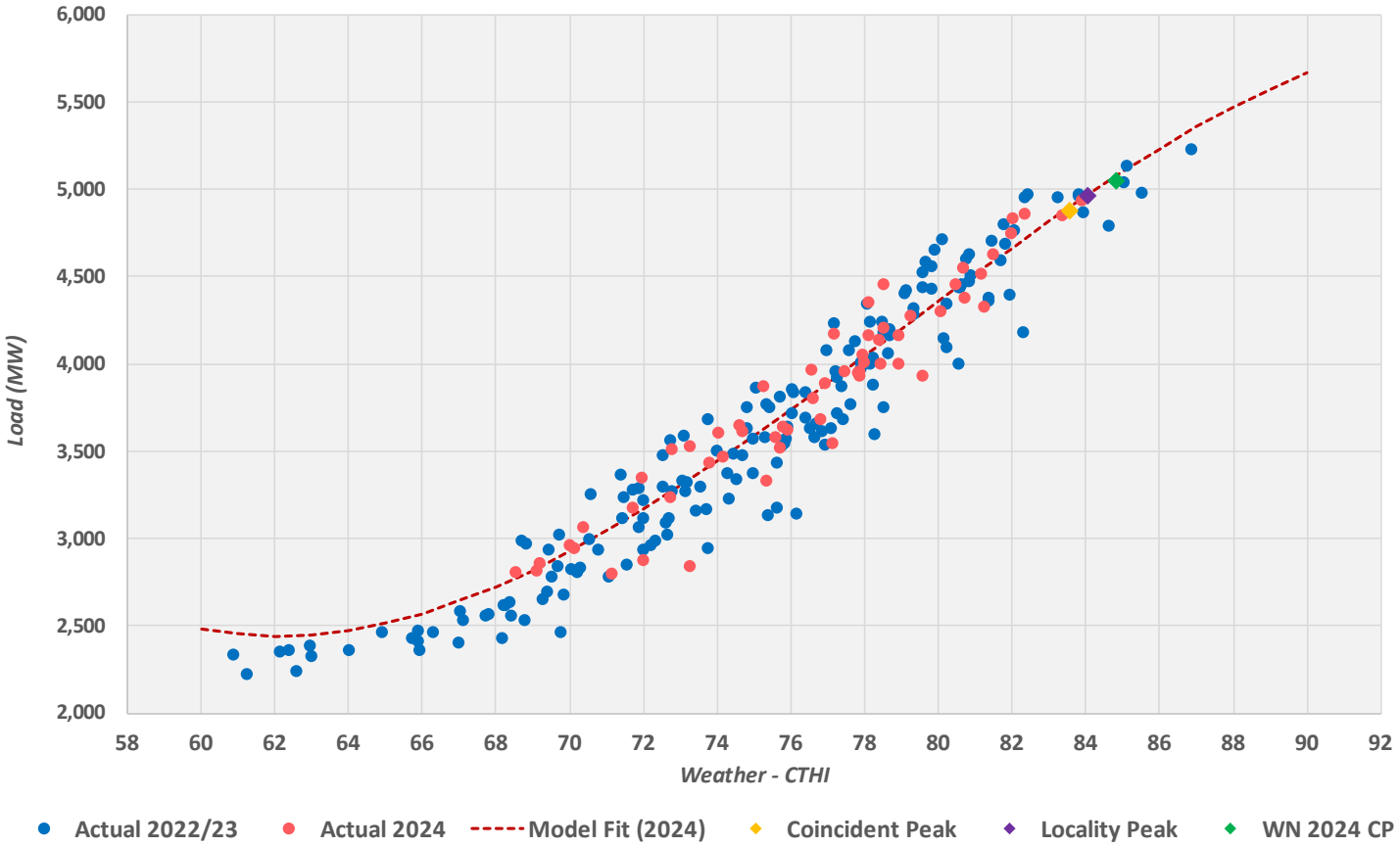
LIPA Pooled Model



Design condition is 50th percentile.

Yellow dot shows 2024 coincident peak.

Purple dot shows 2024 Locality peak.

Green dot shows 2024 weather normalized coincident peak.

Dotted red line shows model fit during 2024 July & Aug design conditions.

Data points include estimated demand response impacts.

2024 CP	4,879.9
2024 CTHI	83.58
Design CTHI	84.84
Adjustment	171.9
2024 WN CP	**5,051.8**

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LIPA Pooled Model

Regression Statistics	
Multiple R	0.971
R Square	0.943
Adjusted R Square	0.942
Standard Error	178.443
Observations	231

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	2485.5532	109.2117	22.7590	0.0000
CTHI60	-42.2124	26.7138	-1.5802	0.1155
CTHI_Sq	10.4832	2.0874	5.0221	0.0000
CTHI_Cb	-0.1846	0.0495	-3.7301	0.0002
June	-63.9828	32.9217	-1.9435	0.0532
Sept	-138.1302	38.3603	-3.6009	0.0004

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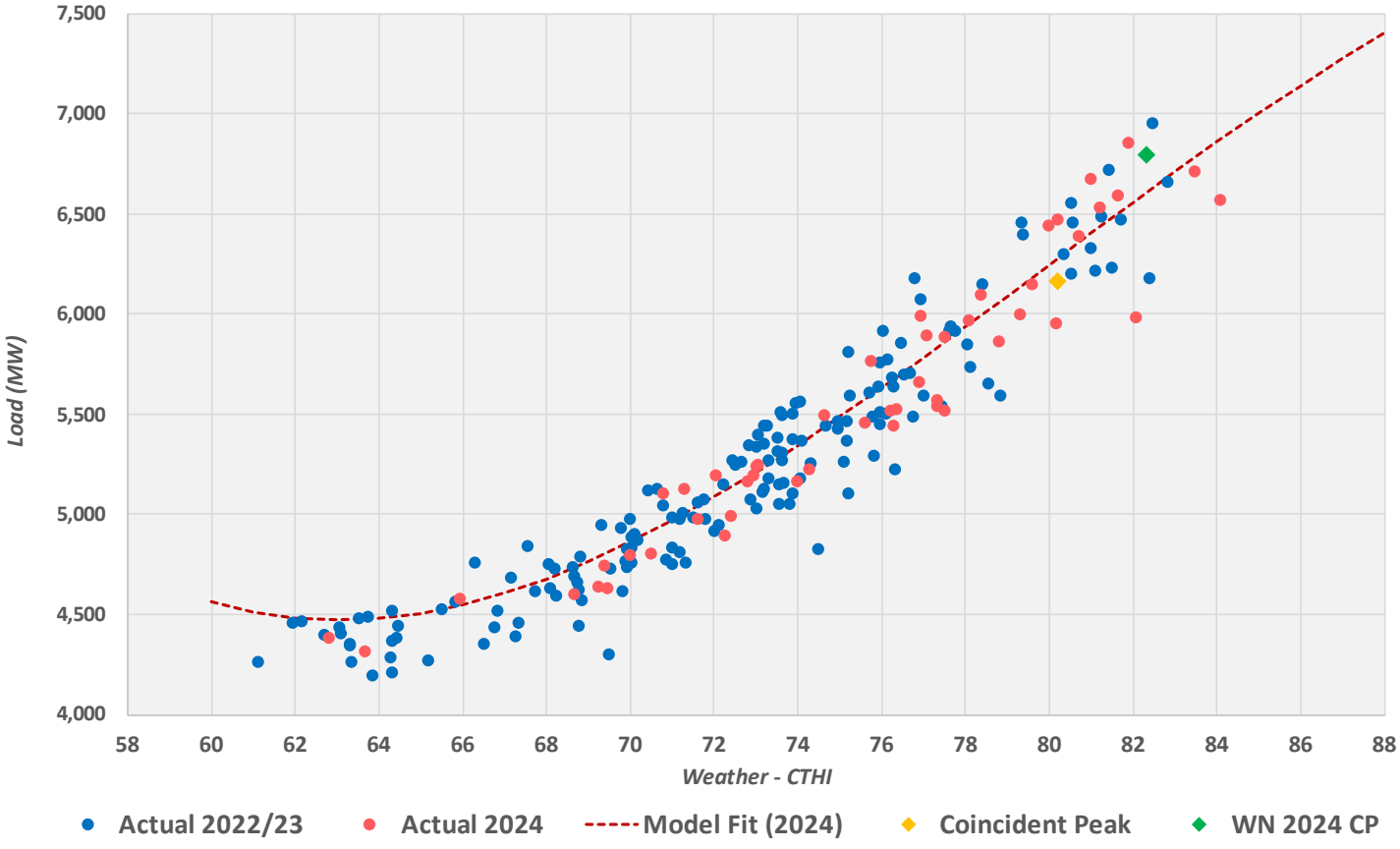
National Grid Pooled Model



Design condition is 50th percentile.

Yellow dot shows 2024 coincident peak.

Green dot shows 2024 weather normalized coincident peak.

Dotted red line shows model fit during 2024 July & Aug design conditions.

Data points include estimated demand response impacts.

2024 CP	5,931.7
2024 CTHI	80.19
Design CTHI	82.30
Adjustment	866.6
2024 WN CP	**6,798.3**

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National Grid Pooled Model

Regression Statistics	
Multiple R	0.977
R Square	0.954
Adjusted R Square	0.952
Standard Error	139.954
Observations	220

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	4561.4352	82.7785	55.1041	0.0000
CTHI60	-60.7722	24.0124	-2.5309	0.0121
CTHI_Sq	10.8957	2.1031	5.1808	0.0000
CTHI_Cb	-0.1822	0.0550	-3.3127	0.0011
Y2022	115.6362	24.5528	4.7097	0.0000
Y2023	-79.8988	24.9759	-3.1990	0.0016
Fri	-137.2880	23.6002	-5.8172	0.0000
June	-119.1158	22.1908	-5.3678	0.0000

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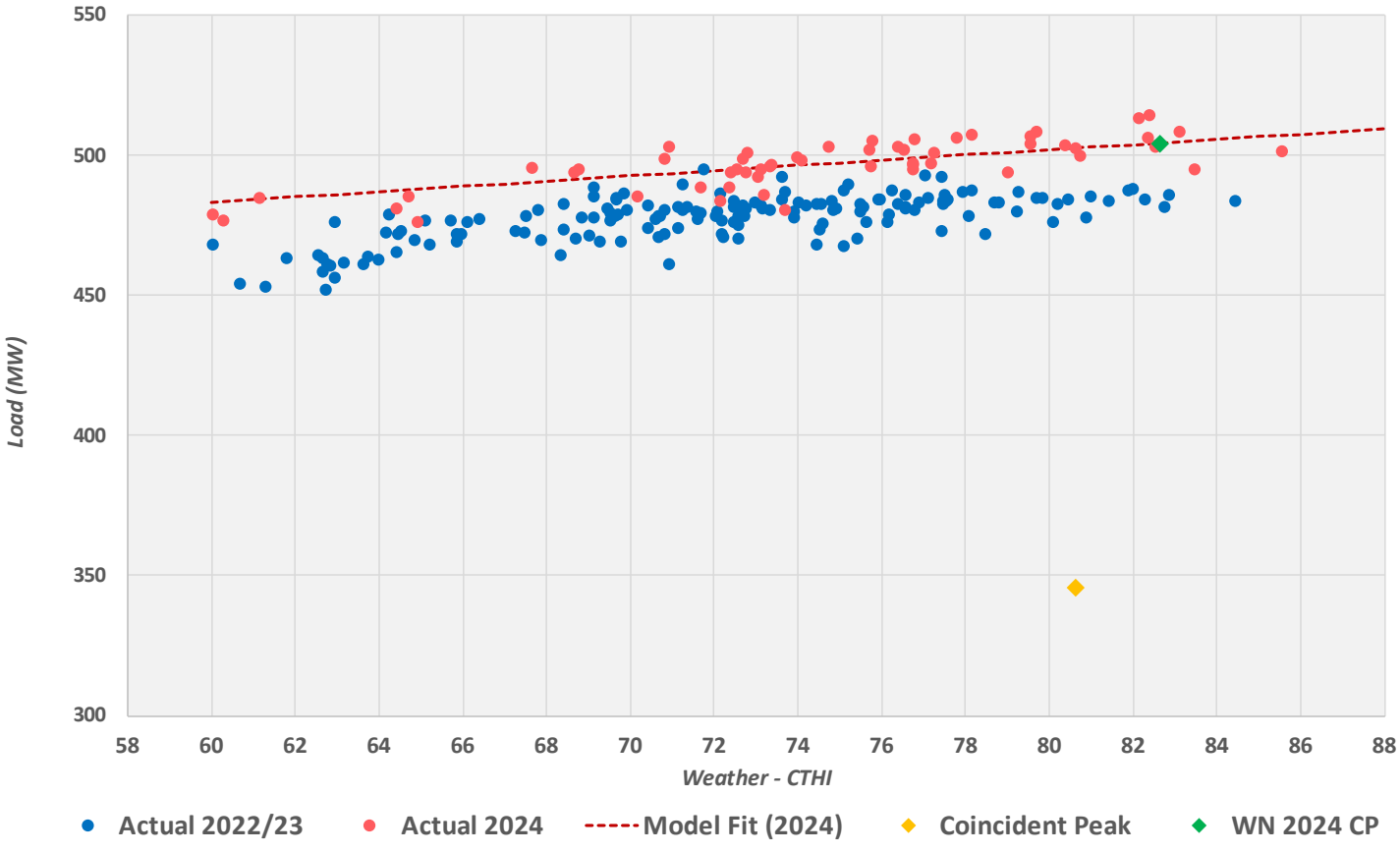
NYPA Pooled Model



Design condition is 50th percentile.

Yellow dot shows 2024 coincident peak.

Green dot shows 2024 weather normalized coincident peak.

Dotted red line shows model fit during 2024 July & Aug design conditions.

Data points include estimated demand response impacts.

2024 CP	345.8
2024 CTHI	80.64
Design CTHI	82.65
Adjustment	158.2
2024 WN CP	**504.0**

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NYPA Pooled Model

Regression Statistics	
Multiple R	0.895
R Square	0.801
Adjusted R Square	0.797
Standard Error	5.445
Observations	219

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	483.0370	1.2586	383.7774	0.0000
CTHI60	0.9381	0.0707	13.2703	0.0000
Y2022	-16.1528	0.9575	-16.8700	0.0000
Y2023	-14.6500	0.9652	-15.1776	0.0000
Sept	-7.0503	1.1395	-6.1872	0.0000

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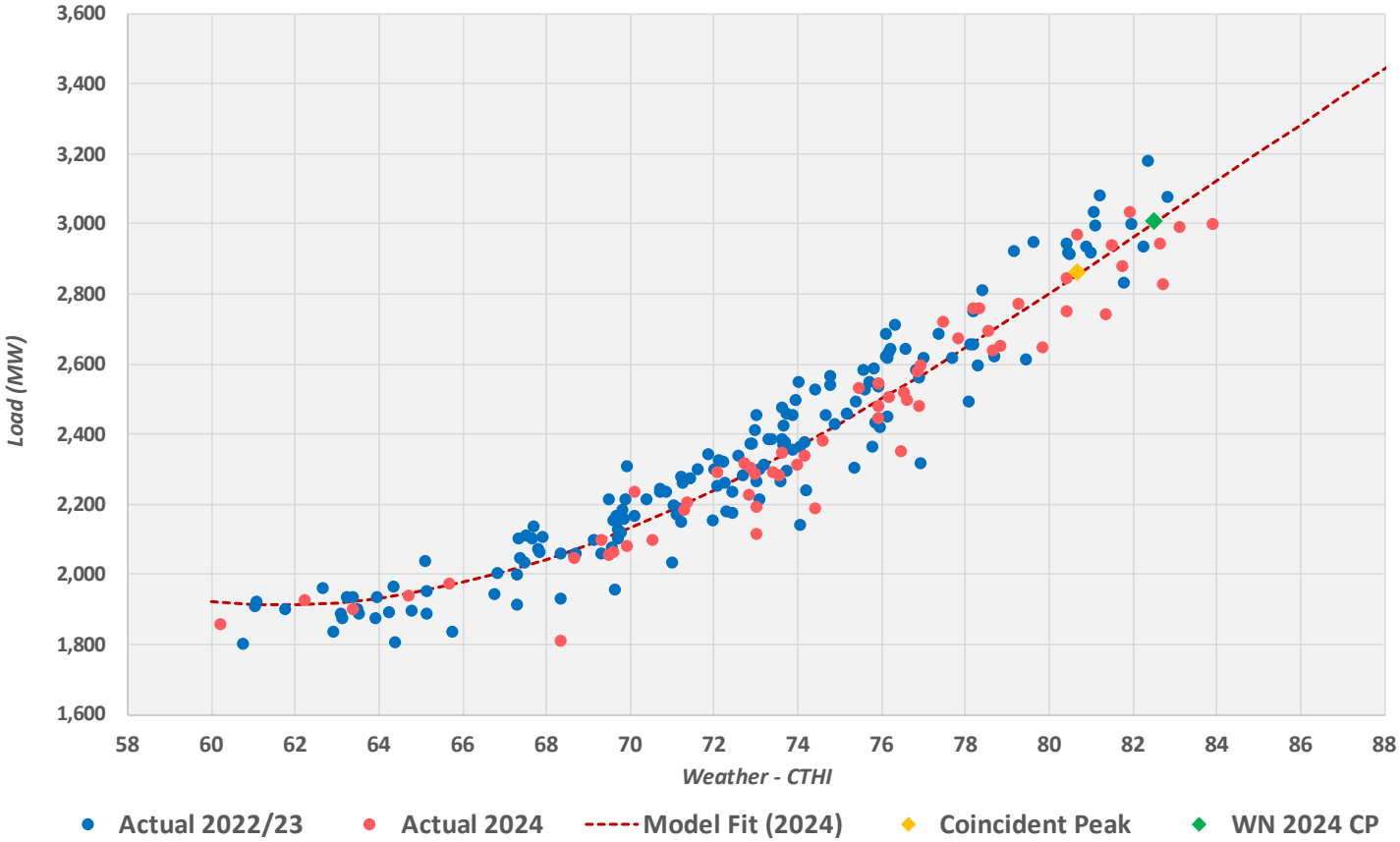
NYSEG Pooled Model



Design condition is 50th percentile.

Yellow dot shows 2024 coincident peak.

Green dot shows 2024 weather normalized coincident peak.

Dotted red line shows model fit during 2024 July & Aug design conditions.

Data points include estimated demand response impacts.

2024 CP	2,860.2
2024 CTHI	80.66
Design CTHI	82.49
Adjustment	148.3
2024 WN CP	**3,008.5**

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NYSEG Pooled Model

Regression Statistics	
Multiple R	0.975
R Square	0.951
Adjusted R Square	0.950
Standard Error	71.906
Observations	221

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	1924.1336	34.4682	55.8234	0.0000
CTHI60	-13.0599	10.0380	-1.3010	0.1947
CTHI_Sq	3.9506	0.9287	4.2537	0.0000
CTHI_Cb	-0.0552	0.0252	-2.1922	0.0295
Y2022	91.4570	12.8826	7.0993	0.0000
Y2023	23.7634	12.9468	1.8355	0.0678
Fri	-37.8703	12.1340	-3.1210	0.0021
June	-72.1142	12.2828	-5.8712	0.0000
Sept	-44.0174	16.6955	-2.6365	0.0090

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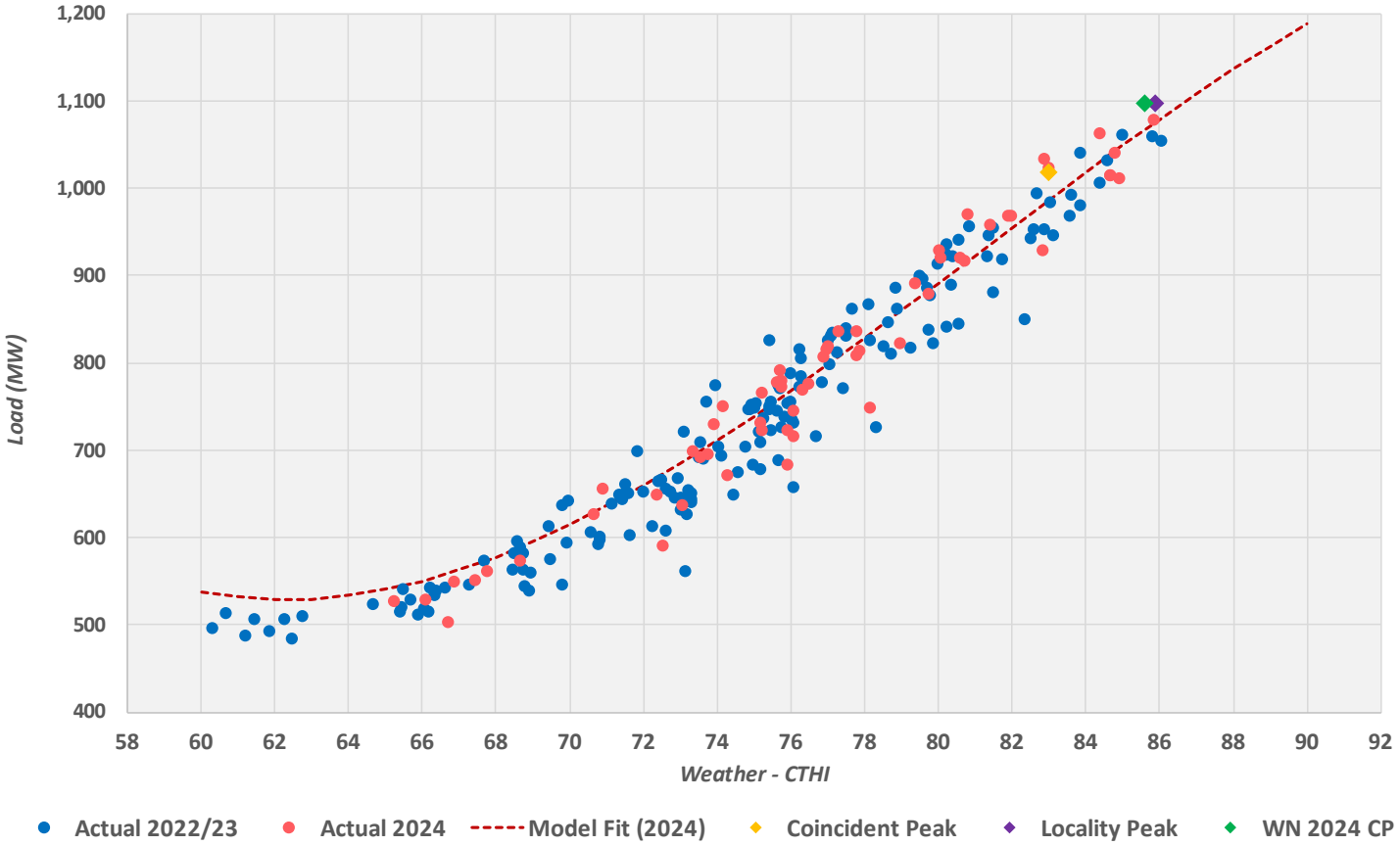
Orange & Rockland Pooled Model



Design condition is 67th percentile.

Yellow dot shows 2024 coincident peak.

Purple dot shows 2024 Locality peak.

Green dot shows 2024 weather normalized coincident peak.

Dotted red line shows model fit during 2024 July & Aug design conditions.

Data points include estimated demand response impacts.

2024 CP	1,018.8
2024 CTHI	82.97
Design CTHI	85.58
Adjustment	78.6
2024 WN CP	**1,097.4**

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O&R Pooled Model

Regression Statistics	
Multiple R	0.979
R Square	0.958
Adjusted R Square	0.957
Standard Error	31.845
Observations	225

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	538.2762	16.3347	32.9530	0.0000
CTHI60	-8.3095	4.0704	-2.0415	0.0424
CTHI_Sq	1.8937	0.3284	5.7659	0.0000
CTHI_Cb	-0.0298	0.0079	-3.7905	0.0002
Y2023	-9.0910	4.5147	-2.0136	0.0453
June	-18.0810	5.5362	-3.2659	0.0013
Sept	-24.4167	6.9226	-3.5271	0.0005

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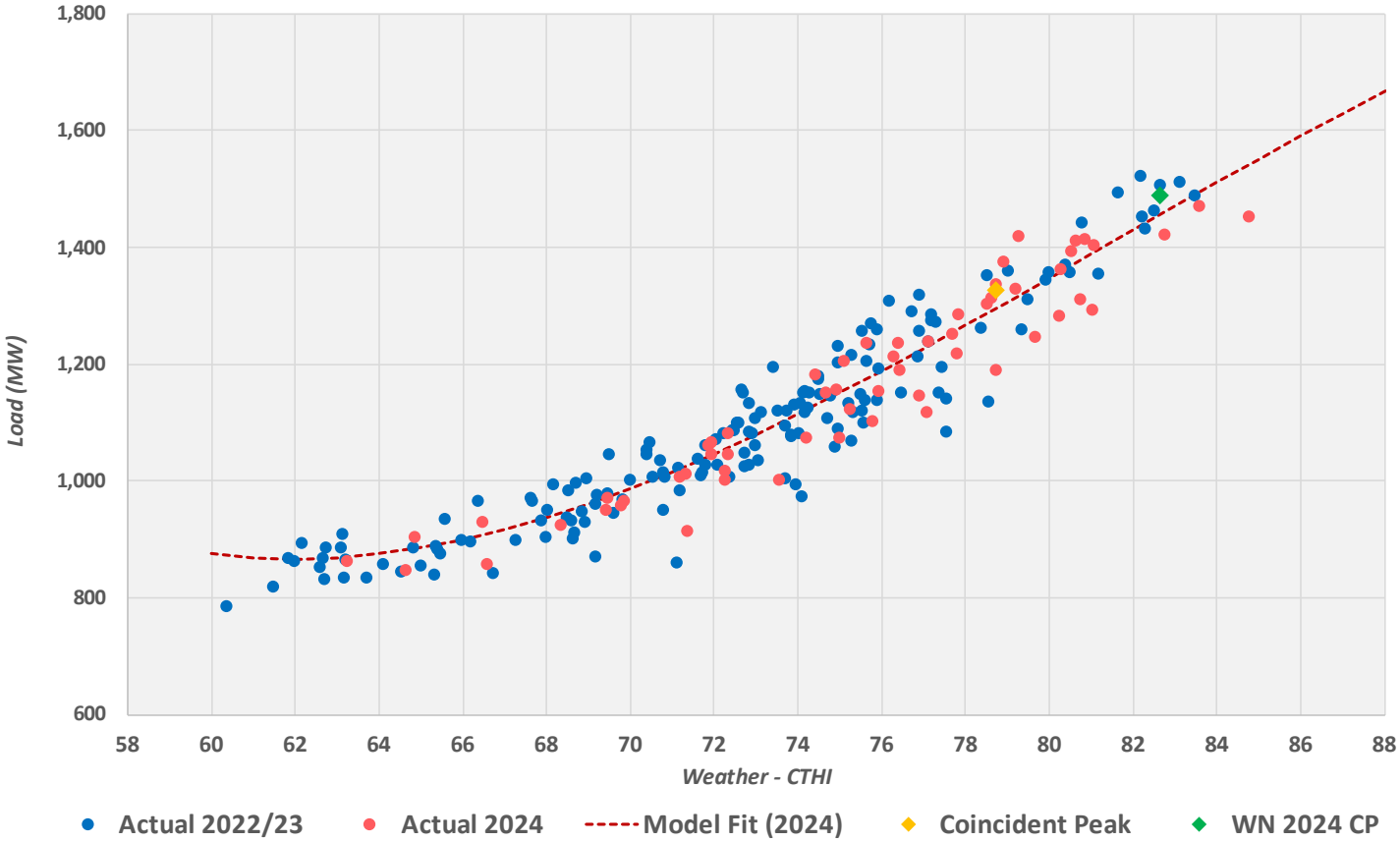
RG&E Pooled Model



Design condition is 50th percentile.

Yellow dot shows 2024 coincident peak.

Green dot shows 2024 weather normalized coincident peak.

Dotted red line shows model fit during 2024 July & Aug design conditions.

Data points include estimated demand response impacts.

2024 CP	1,327.6
2024 CTHI	78.72
Design CTHI	82.65
Adjustment	161.1
2024 WN CP	**1,488.7**

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RG&E Pooled Model

Regression Statistics	
Multiple R	0.963
R Square	0.928
Adjusted R Square	0.926
Standard Error	47.126
Observations	221

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	874.5329	22.9274	38.1435	0.0000
CTHI60	-8.4967	6.9169	-1.2284	0.2206
CTHI_Sq	2.3455	0.6105	3.8418	0.0002
CTHI_Cb	-0.0369	0.0160	-2.3082	0.0219
Y2022	24.8195	6.6797	3.7157	0.0003
Fri	-37.8329	7.8521	-4.8182	0.0000
June	-19.7728	7.3085	-2.7054	0.0074

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Additional IRM Forecast Information

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Average Sub-Zonal Peak Load

Average Subzonal Load - Top Five Summer NYCA Daily Peak Hours from Recent Years												
	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	232.0	1,198.9	9,758.2	0.0	11,189.1
Cen Hud	0.0	0.0	0.0	0.0	3.5	0.0	1,034.3	0.0	0.0	0.0	0.0	1,037.8
LIPA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4,908.3	4,908.3
Nat Grid	1,666.5	375.2	1,235.2	85.9	840.0	2,038.7	0.0	0.0	0.0	0.0	0.0	6,241.5
NYPA	0.0	0.0	0.0	417.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	417.8
NYSEG	618.9	0.0	1,265.2	95.3	413.8	154.1	18.9	337.4	0.0	0.0	0.0	2,903.7
O&R	0.0	0.0	0.0	0.0	0.0	0.0	1,010.1	0.0	0.0	0.0	0.0	1,010.1
RG&E	0.0	1,353.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1,353.3
Total	2,285.4	1,728.5	2,500.5	599.0	1,257.3	2,192.8	2,063.3	569.4	1,198.9	9,758.2	4,908.3	29,061.6

Note: Con Edison Zone G losses moved to Zone J

Data Period: 2023 & 2024 for Con Ed

2020 - 2024 for other TOs

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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	0.0207	0.1072	0.8721	0.0000	1.0000
CH	0.0000	0.0000	0.0000	0.0000	0.0034	0.0000	0.9966	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	0.2670	0.0601	0.1979	0.0138	0.1346	0.3266	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	0.2132	0.0000	0.4357	0.0328	0.1425	0.0531	0.0065	0.1162	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	0.4074	1.0000	1.0000	0.0000
CH	0.0000	0.0000	0.0000	0.0000	0.0028	0.0000	0.5013	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	0.7292	0.2170	0.4940	0.1434	0.6681	0.9297	0.0000	0.0000	0.0000	0.0000	0.0000
NYPA	0.0000	0.0000	0.0000	0.6975	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NYSEG	0.2708	0.0000	0.5060	0.1591	0.3291	0.0703	0.0092	0.5926	0.0000	0.0000	0.0000
OR	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.4896	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

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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.

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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
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	13,749	7/28/2023	17	13,351	398	1.0298	FALSE
2024	7/16/2024	17	14,370	7/8/2024	17	13,910	460	1.0331	FALSE
Average			14,825			14,537	288	1.0198	
Std Dev								0.0203	
Average (Excluding Outliers)			**14,822**			**14,583**		**1.0163**	

New York ISO

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
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
2024	7/16/2024	17	10,262	7/8/2024	17	10,016	246	1.0246	FALSE
Average			10,687			10,412	275	1.0264	
Std Dev								0.0257	
Average (Excluding Outliers)			**10,682**			**10,448**		**1.0224**	

New York ISO

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
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
2024	7/16/2024	17	4,941	7/8/2024	17	4,880	61	1.0126	FALSE
Average			5,318			5,206	112	1.0215	
Std Dev								0.0206	
Average (Excluding Outliers)			**5,342**			**5,262**		**1.0153**	

New York ISO

NCP/CP Ratio – Upstate Zones

Upstate Zonal NCP/CP Ratios							
Year	A	B	C	D	E	F	G
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	1.0494	1.0116	1.0316	1.0306	1.0245
2024	***1.2068***	***1.0961***	***1.0957***	***1.5210***	***1.2290***	***1.1137***	***1.0715***
Ratio	**1.0555**	**1.0244**	**1.0313**	**1.0409**	**1.0271**	**1.0244**	**1.0227**

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

New York ISO

Preliminary Regional Load Growth Factors

Transmission District	Preliminary 1+RLGF
Con Edison	1.0036
Central Hudson	1.0010
LIPA	0.9986
National Grid	0.9810
NYPA	0.9980
NYSEG	0.9750
O&R	1.0090
RG&E	1.0020
NYCA	*0.9951*

Note: RLGFs do not reflect large load growth

- Preliminary RLGFs are calculated as a ratio of the 2025 to 2024 coincident peak forecasts from the 2024 Gold Book, before Large Load impacts
- Zonal RLGFs are converted to Transmission District RLGFs based on the sub-zonal peak load shares, & information provided by Transmission Owners during the 2024 Gold Book forecast process
- Preliminary RLGFs will be used for the IRM forecast absent updates from the Transmission Owners, which are to be submitted by September 20

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Next Steps

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Next Steps

- **Transmission Owners:**
  - Provide load and estimated DR impacts at time of NYCA and Locality peaks as applicable **(by 9/18)**
  - Provide weather normalized load at time of NYCA and Locality peaks as applicable **(by 9/18)**
  - Provide any updates on Regional Load Growth Factors (RLGFs) **(by 9/20)**
  - Provide Large Load updates for consideration in the 2025 IRM forecast, if applicable **(by 9/20)**

- **NYISO:**
  - Evaluate Transmission Owner weather normalized load & RLGFs
  - Update Demand Response (DR) impacts during the 2024 peak hour(s)
  - Project BTM:NG load for the 2025 peak

- **LFTF: Final Review of 2025 IRM Peak Forecast (9/27/2024)**

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Questions?

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Reference: CTHI Calculation

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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 multiple weather variables from a three-day period into a single index.
- Includes dry bulb temperature, wet bulb temperature, and lag effects; accounting for humidity and 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 $i = 0, 1, 2, \ldots, 23$ 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

New York ISO

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

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