NYSRC Fall Forecast Update for 2016 Installed Reserve Margin Study - Final

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September 30, 2015
Rensselaer, NY

Actual and 20-Year Normal Peak-Producing CTHI Statistics – 1996 to 2015

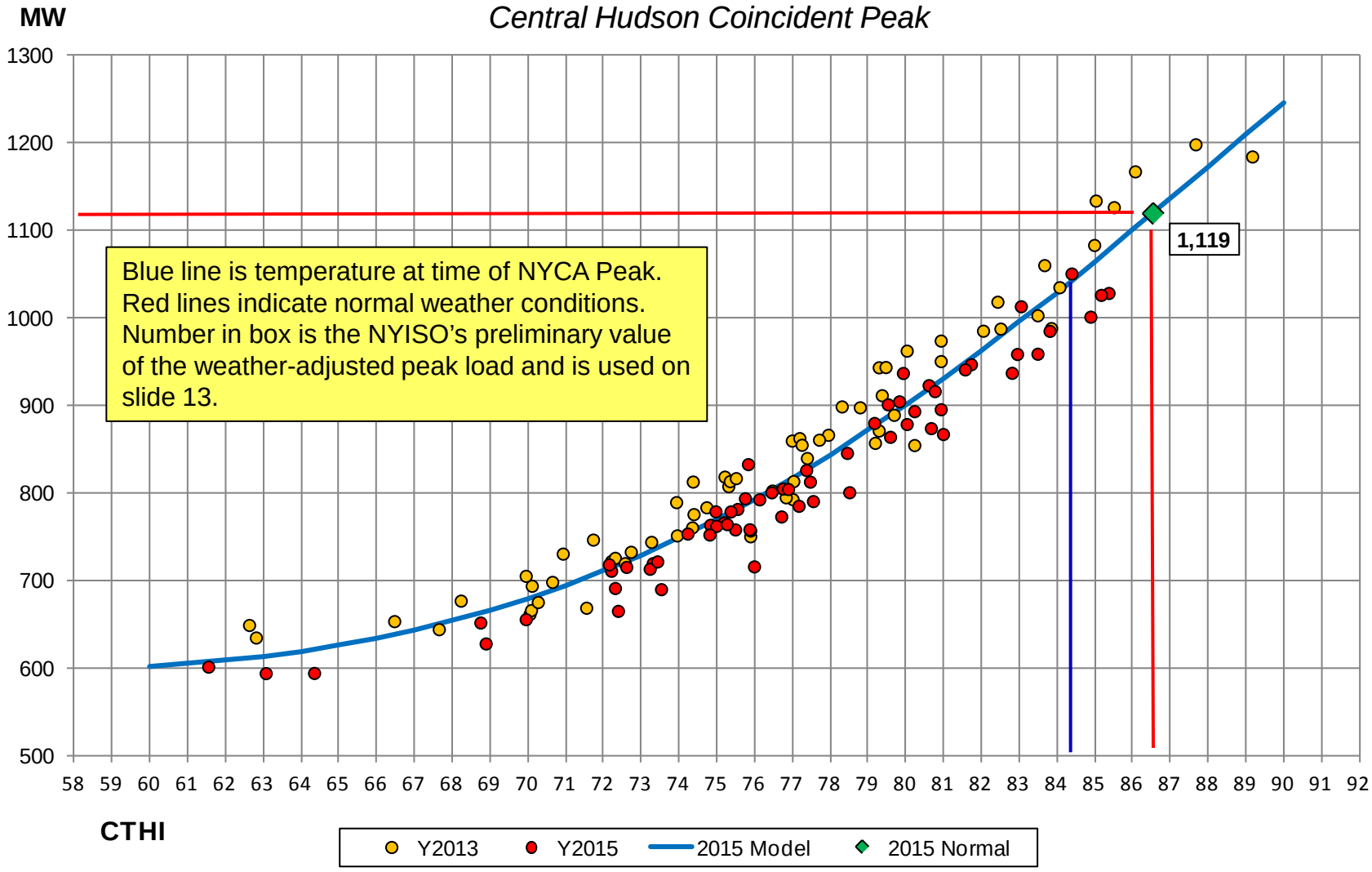
Statistic	CE	CH	LI	N_Grid	NYPA	NYSEG	OR	RGE	NYCA
Max	91.90	91.40	91.70	87.34	87.54	86.31	90.92	88.28	88.59
20-Yr Avg	86.54	86.55	85.41	82.83	81.87	81.61	85.20	83.42	84.01
Min	81.77	81.36	78.98	77.97	76.96	76.62	80.30	78.36	78.19
Std	2.96	2.94	3.52	2.77	3.07	2.72	3.08	2.71	2.88
50th	86.54	86.55	85.41	82.83	81.87	81.61	85.20	83.42	84.01
67th: CE, OR	87.81	87.81	86.93	84.02	83.19	82.78	86.53	84.59	85.26
90th	90.33	90.32	89.92	86.37	85.79	85.10	89.14	86.89	87.71
2015	84.07	84.38	82.98	82.87	83.16	81.08	82.42	82.78	82.79
Percentile	20%	23%	25%	51%	66%	42%	18%	41%	34%
z(2015)	-0.84	-0.74	-0.69	0.02	0.42	-0.20	-0.90	-0.24	-0.42
CTHI Delta	-2.47	-2.17	-2.43	0.04	1.30	-0.53	-2.78	-0.64	-1.22

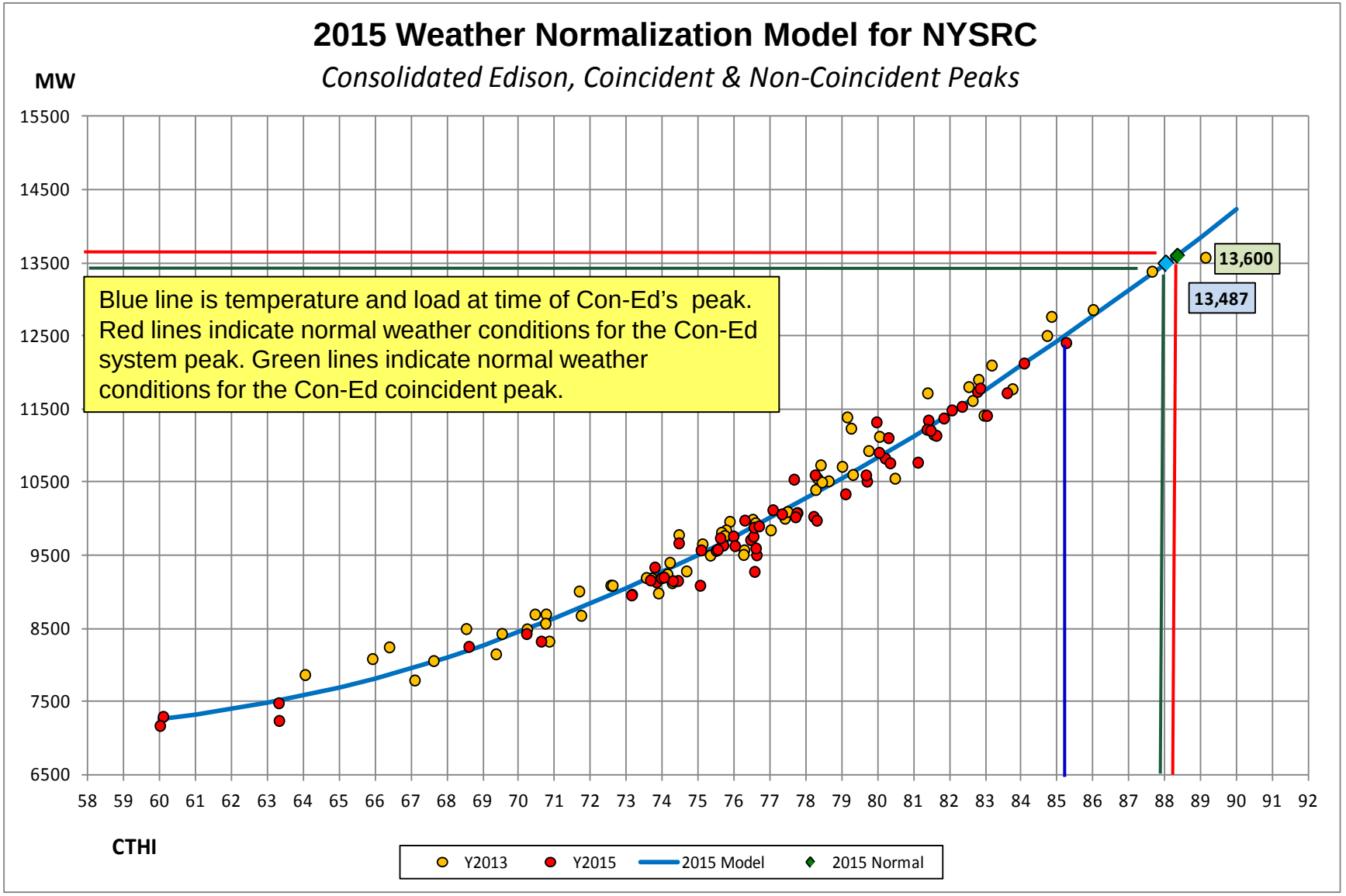
Z = (CTHI – Avg) / Std Dev

Con-Ed and O&R use the 67th percentile for design conditions. All others use the 50th percentile.

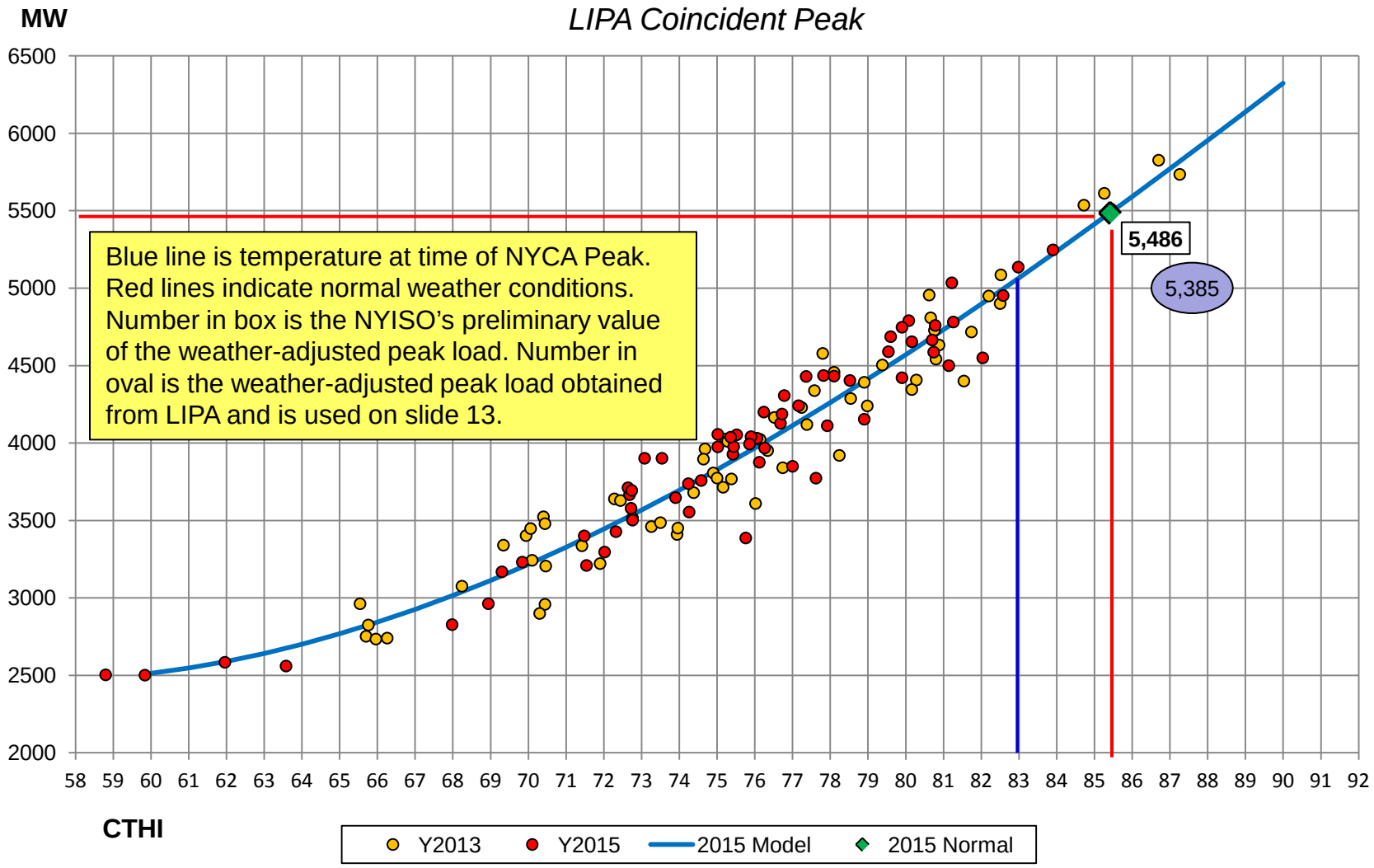
The peak-producing CTHI is the Cumulative Temperature-Humidity Index that occurs on the day of the NYCA peak each year.

2015 Weather Normalization Model for NYSRC





2015 Weather Normalization Model for NYSRC



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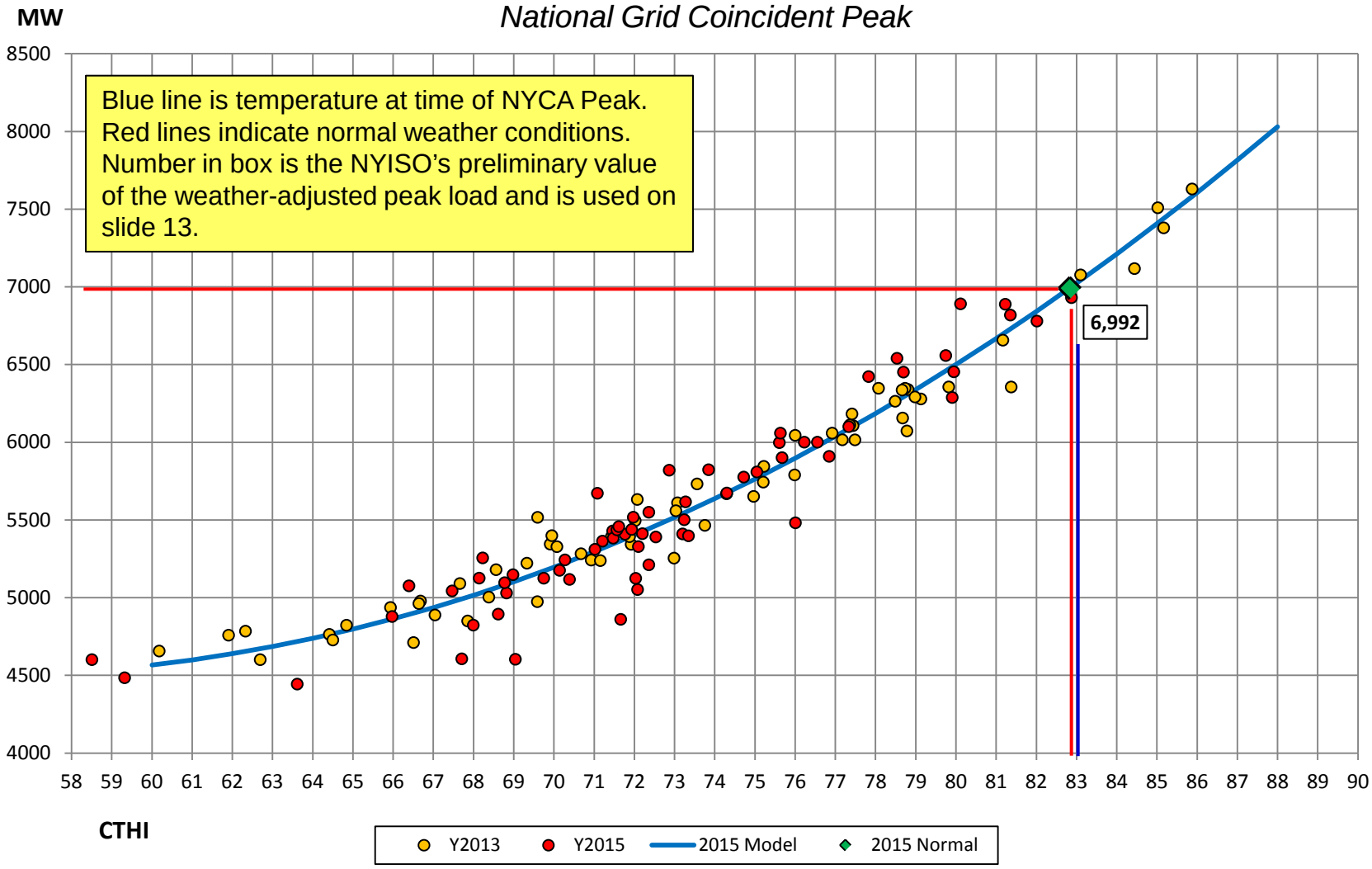

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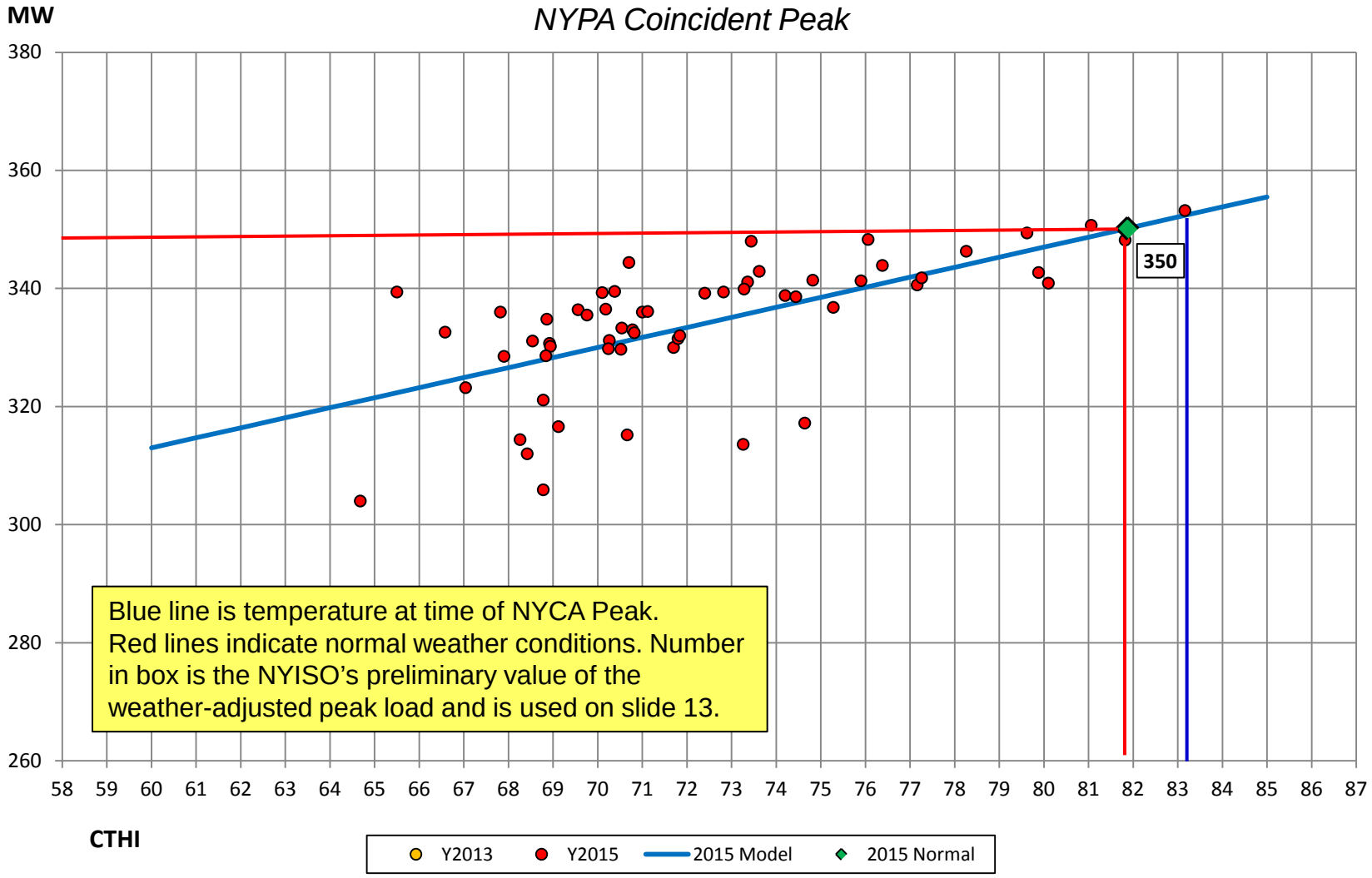

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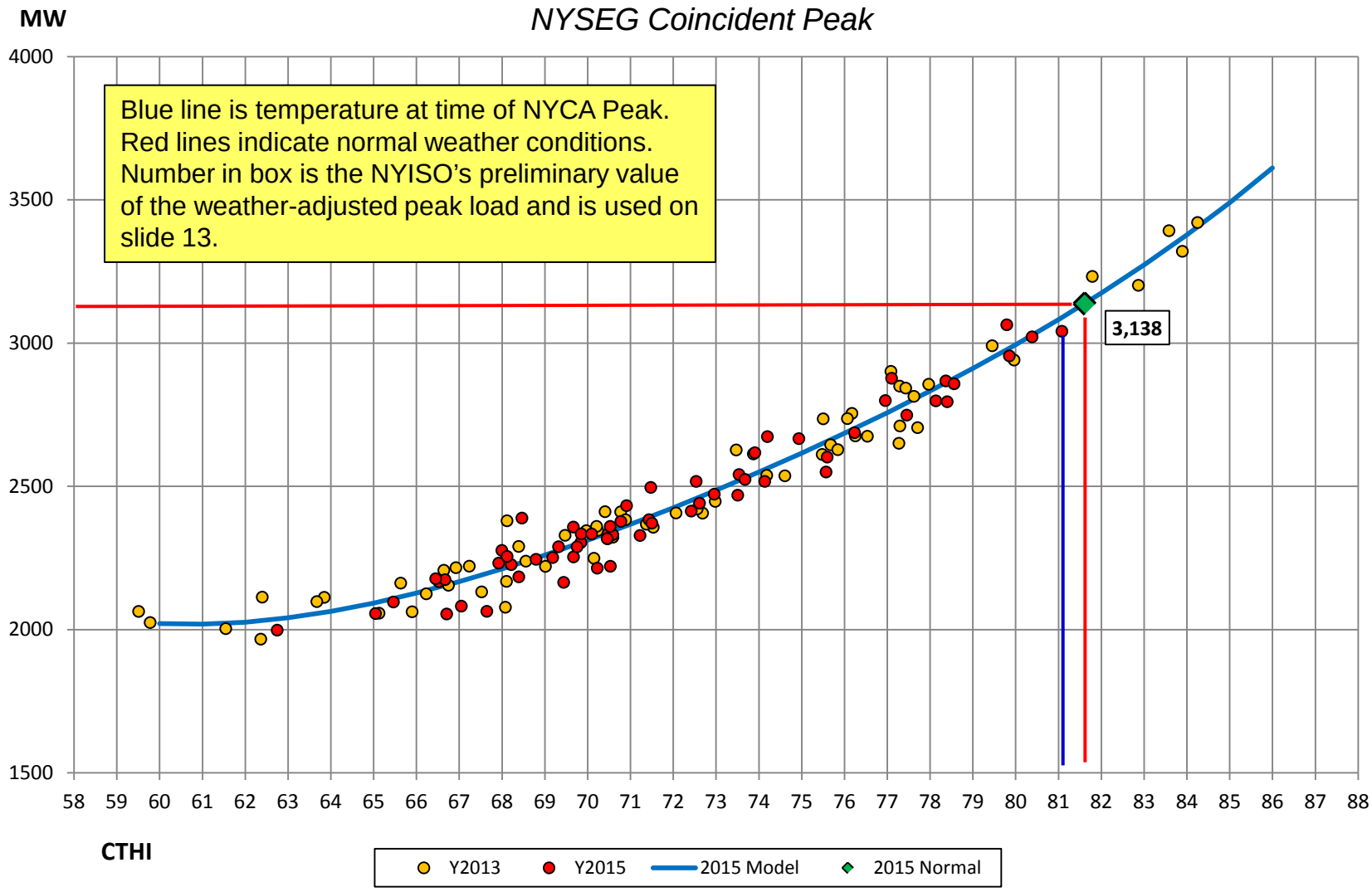
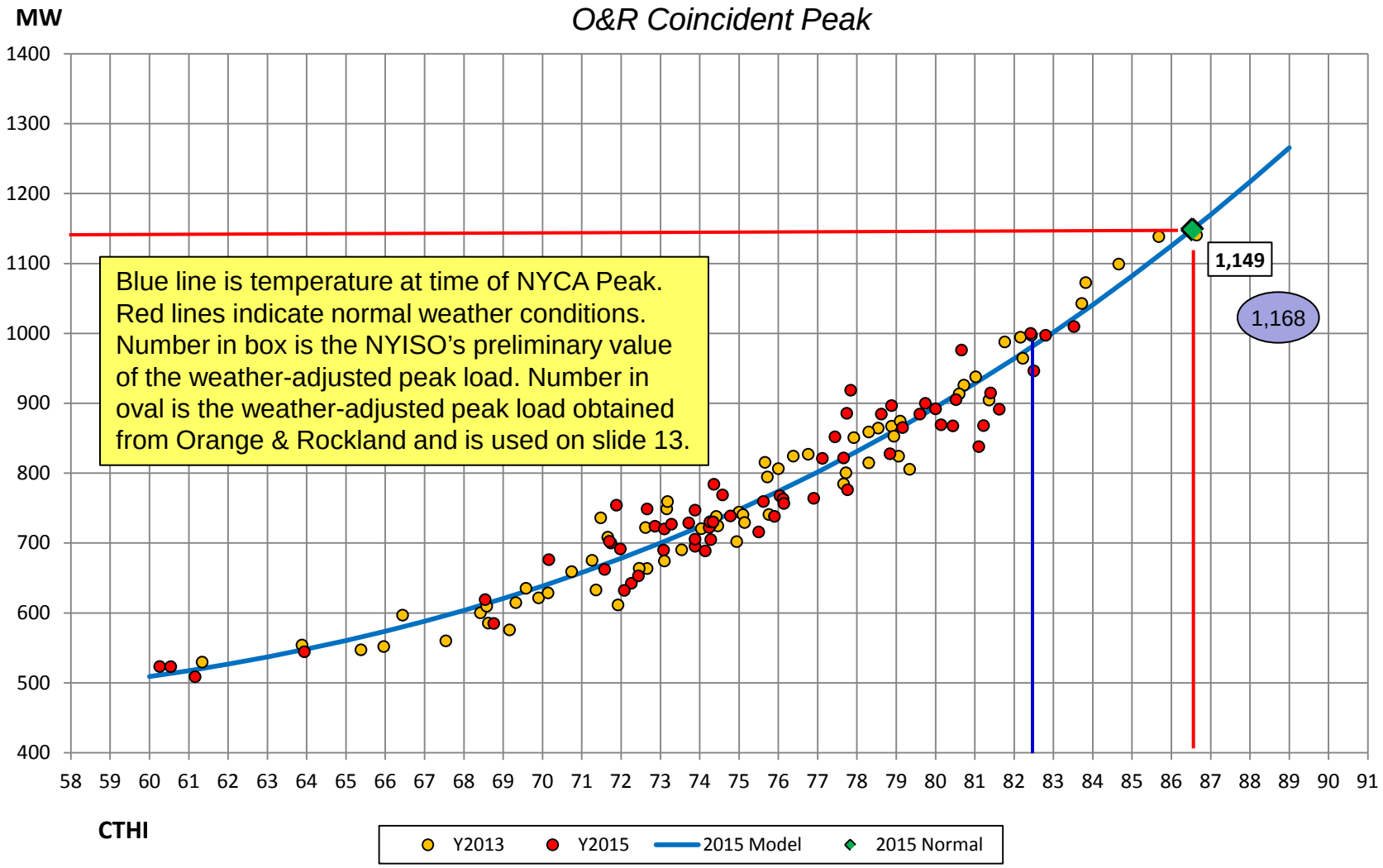
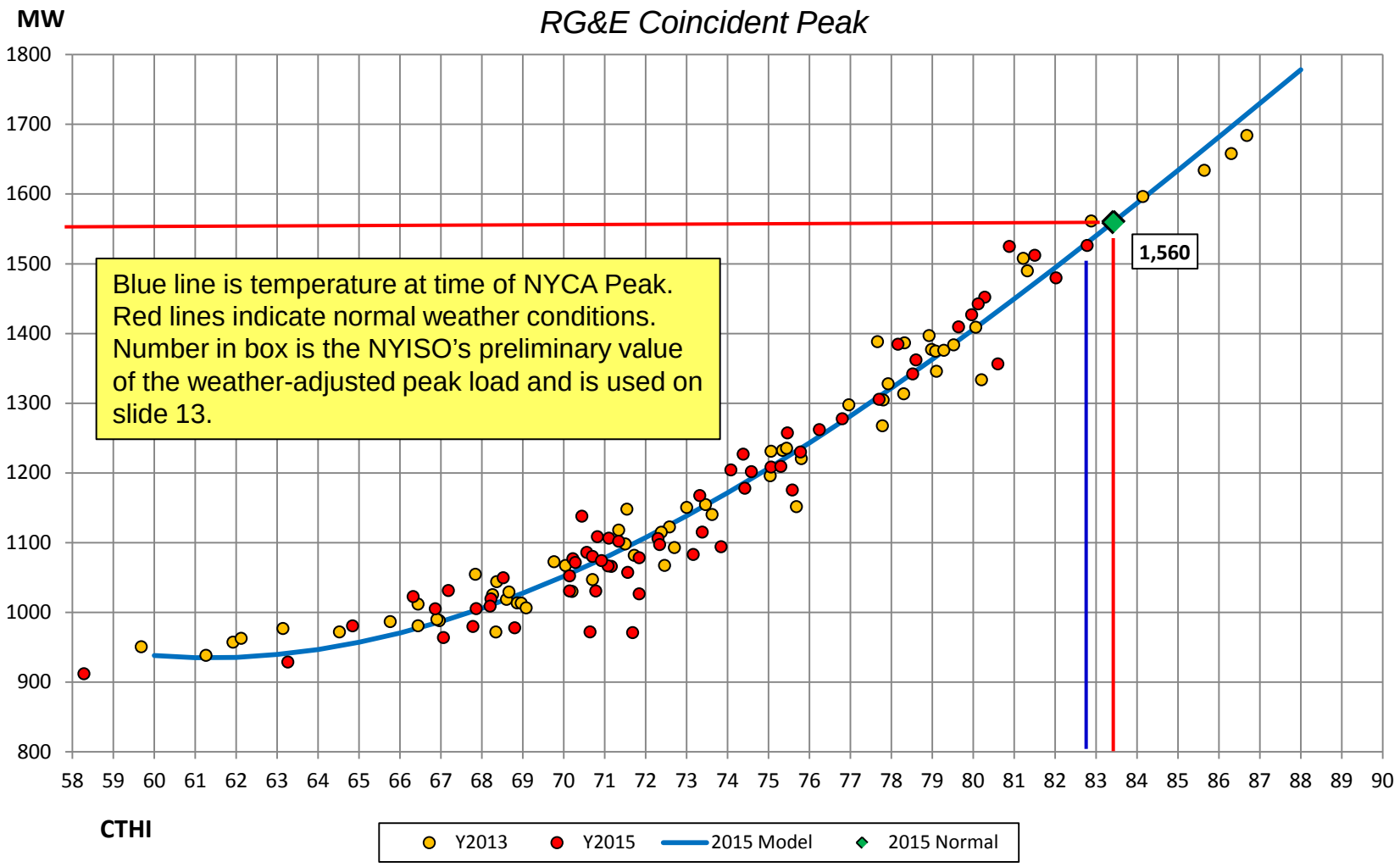


2015 Weather Normalization Model for NYSRC

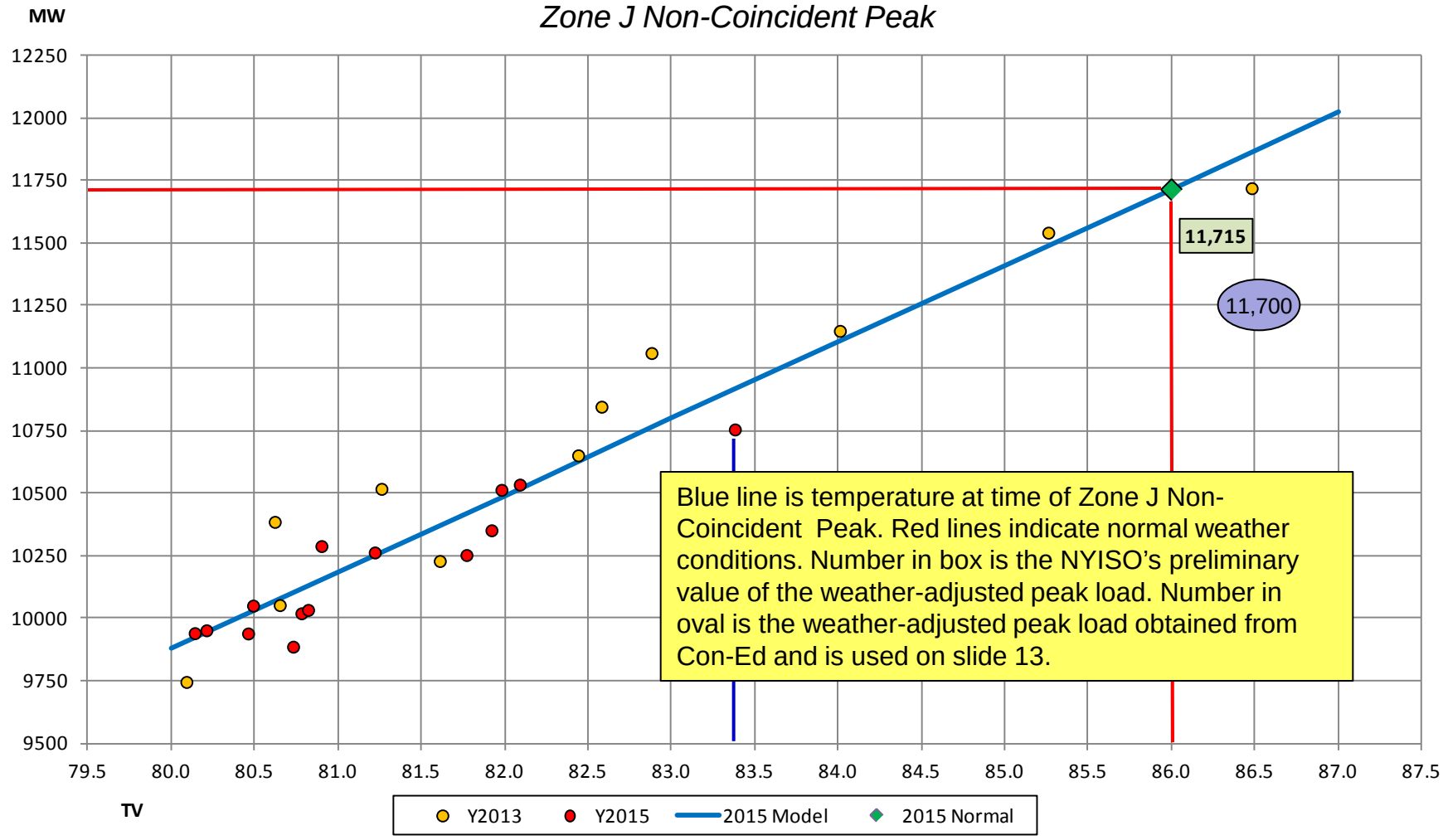


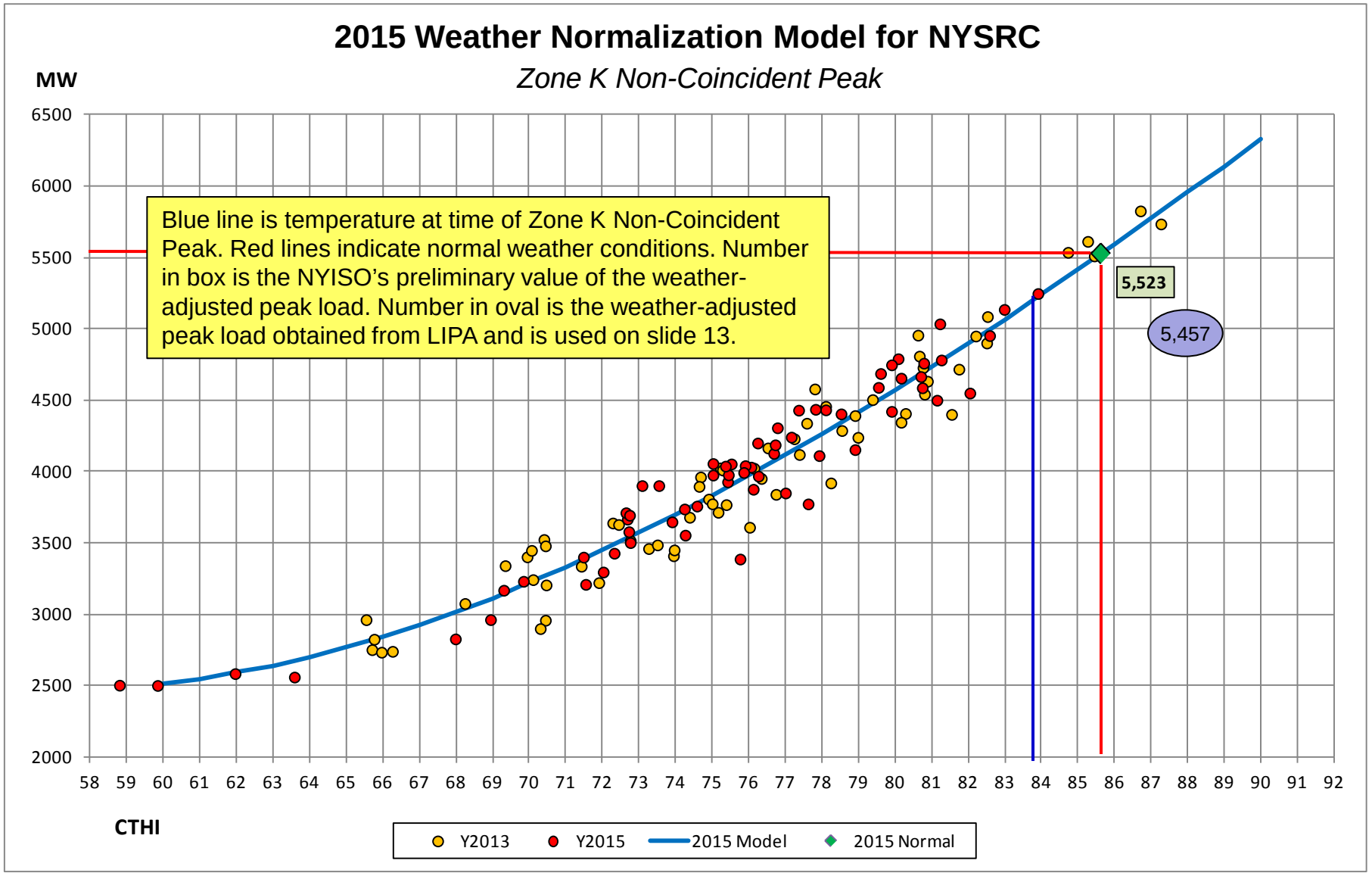
2015 Weather Normalization Model for NYSRC



2015 Weather Normalization Model for NYSRC

Zone J Non-Coincident Peak





2015 Weather Adjusted Peaks & Comparison to 2015 ICAP Forecast

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Transmission District	**2015 Actual MW, 7/29/2015 HB 16**	**Adjustments to Load**	**SCR/EDRP Estimate MW**	**Weather Adjustment MW**	**2015 Weather Normalized MW**	**Loss Reallocation MW**	**2015 WN MW, Adj for Losses**	**2015 ICAP Forecast MW**	**Over/Under MW**	**Percent Over/Under**
Cen. Hudson	**1,048**	0	0	**71**	**1,119**	-7	**1,112**	1,084	28	**2.6%**
Con Ed	**12,050**	0	0	**1,437**	**13,487**	166	**13,653**	13,793	-140	**-1.0%**
LIPA	**5,136**	0	0	**249**	**5,385**	53	**5,438**	5,541	-103	**-1.9%**
NGrid	**6,931**	0	0	**61**	**6,992**	-251	**6,741**	6,880	-139	**-2.1%**
NYPA	**344**	0	0	**6**	**350**	5	**355**	326	29	**8.2%**
NYSEG	**3,041**	0	0	**97**	**3,138**	8	**3,146**	3,180	-34	**-1.1%**
O&R	**1,000**	0	0	**168**	**1,168**	9	**1,177**	1,162	15	**1.3%**
RG&E	**1,526**	0	0	**34**	**1,560**	17	**1,577**	1,601	-24	**-1.5%**
Grand Total	**31,076**	0	0	2,123	**33,199**	0	**33,199**	**33,567**	-369	**-1.1%**

NYCA Load at Time of Peak: 31,138 MW, based on system telemetry.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Locality	**2015 Actual MW**	**Other Changes**	**SCR/EDRP Estimate MW**	**Locality Weather Adjustment MW**	**2015 Adjusted MW**	**2015 ICAP Forecast MW**	**Over/Under MW**	**Percent Over/Under**
Zone J - NYC	**10,586**	**0**	**0**	**1,114**	**11,700**	**11,929**	**229**	**2.0%**
Zone K - LI	**5,235**	**0**	**0**	**222**	**5,457**	**5,539**	**82**	**1.5%**
Zone GHIJ	**14,730**	**0**	**0**	**1,532**	**16,262**	**16,340**	**78**	**0.5%**

2016 Coincident Peak Forecasts by Transmission District

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Transmission District	2015 Actual MW	2015 Estimated SCR & Muni Self-Gen	SCR/EDRP Estimate MW	Weather Adjustment MW	2015 Weather Normalized MW	Loss Reallocation MW	2015 WN MW, Adj for Losses	Regional Load Growth Factors	2016 IRM Final Forecast
Central Hudson	1,048	0	0	71	1,119	-7	1,112	1.0020	1,114
Con Ed	12,050	0	0	1,437	13,487	166	13,653	1.0066	13,743
LIPA	5,136	0	0	249	5,385	53	5,438	1.0000	5,438
NGrid	6,931	0	0	61	6,992	-251	6,741	1.0060	6,782
NYPA	344	0	0	6	350	5	355	0.9951	353
NYSEG	3,041	0	0	97	3,138	8	3,146	1.0050	3,162
O&R	1,000	0	0	168	1,168	9	1,177	1.0161	1,196
RG&E	1,526	0	0	34	1,560	17	1,577	1.0080	1,590
Final Forecast	31,076	0	0	2,123	33,199	0	33,199	1.0054	33,378

Preliminary IRM Forecast	33,636
Change	-258

2016 Locality Peak Forecasts (Non-Coincident)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
NYCA or Locality	2015 Actual MW	2015 Estimated SCR & Muni Self-Gen	SCR/EDRP Estimate MW	Weather Adjustment MW	2015 Weather Normalized MW	Regional Load Growth Factors	2016 IRM Final Forecast	2016 Forecast from 2015 Gold Book	Change: (Current - Gold Book)
Zone J - NYC	10,586		0	1,114	11,700	1.0066	11,777	12,013	-236
Zone K - LI	5,235		0	222	5,457	1.0000	5,457	5,506	-49
Zone GHIJ	14,730		0	1,532	16,262	1.0069	16,375	16,441	-66

2016 G-to-J Locality Peak Forecast - Details

(1) 2015 Actual Coincident Peak MW for G-to-J Locality

(1) Transmission District	(2) Zone G	(3) Zone H	(4) Zone I	(5) Zone J	(6) Total, GHIJ
Cen. Hud.	1,048.0				1,048.0
Con Ed		264.0	1,332.0	10,454.0	12,050.0
NYSEG	22.0	335.0			357.0
O&R	1,000.0				1,000.0
Total	**2,070.0**	**599.0**	**1,332.0**	**10,454.0**	**14,455.0**

(2) 2015 Weather Normalized Coincident Peak for G-to-J Locality

(1) Transmission District	(2) Zone G	(3) Zone H	(4) Zone I	(5) Zone J	(6) Total, GHIJ
Cen. Hud.	1,119.0				1,119.0
Con Ed		311.0	1,573.0	11,603.0	13,487.0
NYSEG	22.7	345.7			368.4
O&R	1,168.0				1,168.0
Total	**2,309.7**	**656.7**	**1,573.0**	**11,603.0**	**16,142.4**

(3) 2015 Weather Normalized Locality Peak for G-to-J Locality

(1) Transmission District	(2) Zone G	(3) Zone H	(4) Zone I	(5) Zone J	(6) Total, GHIJ
Cen. Hud.	1,127.3				1,127.3
Con Ed		313.3	1,584.6	11,688.9	13,586.8
NYSEG	22.9	348.3			371.2
O&R	1,176.6				1,176.6
Total	**2,326.8**	**661.6**	**1,584.6**	**11,688.9**	**16,261.9**
NCP/CP Ratio	**1.0074**	**1.0074**	**1.0074**	**1.0074**	**1.0074**

(4) 2016 Forecast for G-to-J Locality

(1) Transmission District	(2) Zone G	(3) Zone H	(4) Zone I	(5) Zone J	(6) Total, GHIJ	(7) RLGF
Cen. Hud.	1,129.6				1,129.6	1.0020
Con Ed		315.4	1,595.1	11,766.0	13,676.5	1.0066
NYSEG	23.0	350.0			373.1	1.0050
O&R	1,195.5				1,195.5	1.0161
Total	**2,348.1**	**665.4**	**1,595.1**	**11,766.0**	**16,374.6**	**1.0069**

The determination of the NCP/CP ratio is shown on slide 18.

The RLGF is the Regional Load Growth Factor for 2016.

2016 Coincident Peak Forecast – By Zone & TD

2016 NYCA Coincident Peak Forecast For All Transmission Districts and by Zone												
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Transmission District	A	B	C	D	E	F	G	H	I	J	K	NYCA Forecast
Cen. Hud.							1,121.2					1,121.2
Con Ed								297.4	1,500.7	11,777.9		13,576.0
LIPA											5,385.0	5,385.0
NGrid	1,963.5	418.1	1,387.1	88.3	943.7	2,233.4						7,034.1
NYPA				348.3								348.3
NYSEG	711.2		1,408.9	114.0	406.4	143.1	22.8	347.3				3,153.7
O&R							1,186.8					1,186.8
RG&E		1,572.5										1,572.5
Total	2,674.7	1,990.6	2,796.0	550.6	1,350.1	2,376.5	**2,330.8**	**644.7**	**1,500.7**	**11,777.9**	5,385.0	33,377.6

2015 Proportional Allocation of Losses

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Transmission District	**2015 Actual MW**	**2015 Adjusted MW**	**Actual Losses**	**WN Losses**	**WN Load Less Losses**	**Proportion of LLL**	**WN Losses, Proportional**	**2014 Adjusted Actual MW**	**Loss Reallocation**
Central Hudson	1,048	1,119	29.0	31.0	1,088	0.033	24.0	1,112	-7.0
Con Ed	12,050	13,487	110.0	123.0	13,364	0.411	289.0	13,653	166.0
LIPA	5,136	5,385	60.0	63.0	5,322	0.164	116.0	5,438	53.0
NGrid	6,931	6,992	391.0	394.0	6,598	0.203	143.0	6,741	-251.0
NYPA	344	350	3.0	3.0	347	0.011	8.0	355	5.0
NYSEG	3,041	3,138	57.0	59.0	3,079	0.095	67.0	3,146	8.0
O&R	1,000	1,168	14.0	16.0	1,152	0.035	25.0	1,177	9.0
RG&E	1,526	1,560	17.0	17.0	1,543	0.047	34.0	1,577	17.0
Total	**31,076**	**33,199**	**681.0**	**706.0**	**32,493**	**1.000**	**706.0**	**33,199**	**0.0**

Determination of G-to-J Locality Ratio of Non-Coincident Peak to Coincident Peak

G-to-J Coincident Peak Dates & Times & Zonal MW						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Year	NYCA Peak Date	Hr Beg	Zone G	Zones H+I	Zone J	G-to-J CP
2006	8/2/2006	14	2,436	2,063	11,604	16,103
2007	8/8/2007	17	2,316	2,033	10,971	15,320
2008	6/9/2008	17	2,277	2,056	10,979	15,311
2009	8/17/2009	16	2,159	1,875	10,366	14,400
2010	7/6/2010	17	2,399	2,187	11,600	16,186
2011	7/22/2011	16	2,482	2,239	11,826	16,546
2012	7/17/2012	14	2,282	2,082	11,405	15,769
2013	7/19/2013	17	2,384	2,253	11,736	16,373
2014	9/2/2014	16	2,036	1,917	10,567	14,520
2015	7/29/2015	16	2,070	1,930	10,455	14,455
Average						15,498

G-to-J Locality Peak Dates & Times & Zonal MW							
(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15) = (14-7)
Year	G-to-J Peak Date	Hr Beg	Zone G	Zones H+I	Zone J	G-J NCP	Delta
2006	8/2/2006	17	2,497	2,133	11,660	16,290	187
2007	8/8/2007	17	2,316	2,033	10,971	15,320	-
2008	6/10/2008	17	2,338	2,101	11,262	15,701	390
2009	8/21/2009	15	2,117	1,879	10,661	14,657	257
2010	7/6/2010	17	2,399	2,187	11,600	16,186	-
2011	7/22/2011	16	2,482	2,239	11,826	16,546	-
2012	7/18/2012	13	2,288	2,071	11,424	15,783	14
2013	7/19/2013	17	2,384	2,253	11,736	16,373	-
2014	9/2/2014	17	2,046	1,933	10,572	14,551	32
2015	7/20/2015	16	2,059	1,996	10,675	14,730	275
Average						15,614	115
Ratio of G-to-J Locality Peak to G-to-J Coincident Peak (15,614/15,498)							1.0074

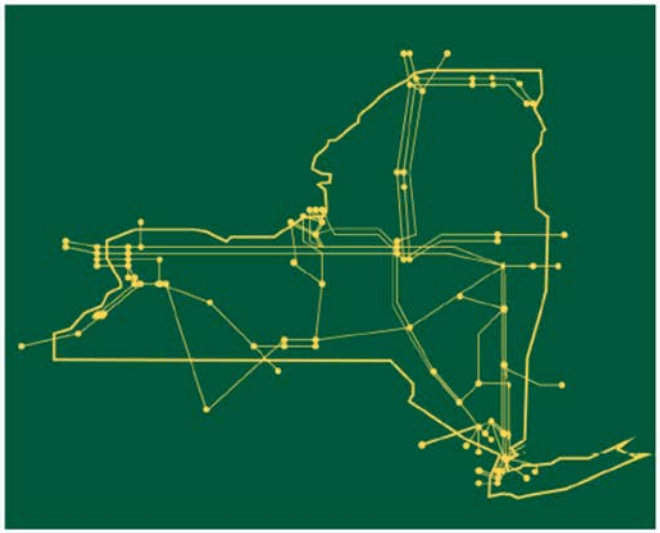
Determination of Zone J Locality Ratio of Non-Coincident Peak to Coincident Peak

NYCA Coincident Peak Dates & Times & Zonal MW

Zone J Locality Peak Dates & Times & Zonal MW

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15) = (13-6)
Year	**NYCA Peak Date**	**Hr Beg**	**Zone G**	**Zones H+I**	**Zone J**	**G-to-J CP**	**Year**	**Zone J Peak Date**	**Hr Beg**	**Zone G**	**Zones H+I**	**Zone J**	**G-to-J, Coin. with J**	**Delta**
2006	8/2/2006	14	2,436	2,063	11,604	16,103	2006	8/2/2006	17	2,497	2,133	11,660	16,290	56
2007	8/8/2007	17	2,316	2,033	10,971	15,320	2007	8/8/2007	17	2,316	2,033	10,971	15,320	-
2008	6/9/2008	17	2,277	2,056	10,979	15,311	2008	6/10/2008	17	2,338	2,101	11,262	15,701	283
2009	8/17/2009	16	2,159	1,875	10,366	14,400	2009	8/21/2009	15	2,117	1,879	10,661	14,657	294
2010	7/6/2010	17	2,399	2,187	11,600	16,186	2010	7/6/2010	17	2,399	2,187	11,600	16,186	-
2011	7/22/2011	16	2,482	2,239	11,826	16,546	2011	7/22/2011	12	2,375	2,107	11,876	16,358	50
2012	7/17/2012	14	2,282	2,082	11,405	15,769	2012	7/18/2012	15	2,115	2,002	11,438	15,554	33
2013	7/19/2013	17	2,384	2,253	11,736	16,373	2013	7/19/2013	17	2,384	2,253	11,736	16,373	-
2014	9/2/2014	16	2,036	1,917	10,567	14,520	2014	9/2/2014	17	2,046	1,933	10,572	14,551	5
2015	7/29/2015	16	2,070	1,930	10,455	14,455	2015	7/20/2015	16	2,059	1,996	10,675	14,730	220
Average					**11,151**		**Average**					**11,245**		**94**
							Ratio of J Locality Peak to J Coincident Peak (11,245/11,151)							**1.0084**

The New York Independent System Operator (NYISO) is a not-for-profit corporation responsible for operating the state's bulk electricity grid, administering New York's competitive wholesale electricity markets, conducting comprehensive long-term planning for the state's electric power system, and advancing the technological infrastructure of the electric system serving the Empire State.



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