

Summer 2013 Demand Response Event Response Summary

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**Joint Installed Capacity and Price Responsive Load
Working Groups**

February 19, 2014

NYISO, Rensselaer, NY

Demand Response Event Reporting

- ◆ Post-event response estimated based on comparison to projected load
- ◆ Resources have 75 days after the event to report data
- ◆ Once received, NYISO applies data validation procedures
- ◆ After data validation, payment processing and response analysis are performed
- ◆ Final event response reported in the year-end demand response compliance filing to FERC, filed January 15 each year
 - <http://www.nyiso.com/ViewerDocuments//Filing/Filing820/Attachments/Attachment%20I%20PUBLIC.pdf>

Mandatory and Voluntary Response for SCRs

- ◆ **Mandatory response is required when:**
 - *NYISO provides day-ahead advisory at least 21-hour advance notice, or 24-hour advance notice if issued after 3 p.m., and*
 - *NYISO provides at least 2-hour advance notice on the day of the event*
 - *Response data reporting is required*
- ◆ **Voluntary response when:**
 - *Day-ahead advisory is not provided with minimum required advance notice, or*
 - *When no day-ahead advisory is given, or*
 - *Any Targeted Demand Response Program (TDRP) deployment*
 - *Response data reporting is optional*
- ◆ **CBL data reporting is optional**
 - *Only required to receive energy payments*

Observations

- ◆ **SCR response for 2013 events is lower than for 2012 events**
- ◆ **Reliability need for SCRs for summer 2013 events extended for more than 4 hours**
 - *SCRs are only obligated to perform for 4 hours*
- ◆ **SCR response is sharply lower outside the 4 hour performance obligation window**
 - *2014 project “Market Rule Changes for DR Performance Obligations” will evaluate the SCR performance obligations*
- ◆ **NYISO has not seen significant evidence of fatigue in SCR responses with 5 contiguous days of DR activations**
- ◆ **2013 EDRP event response is comparable to 2012**

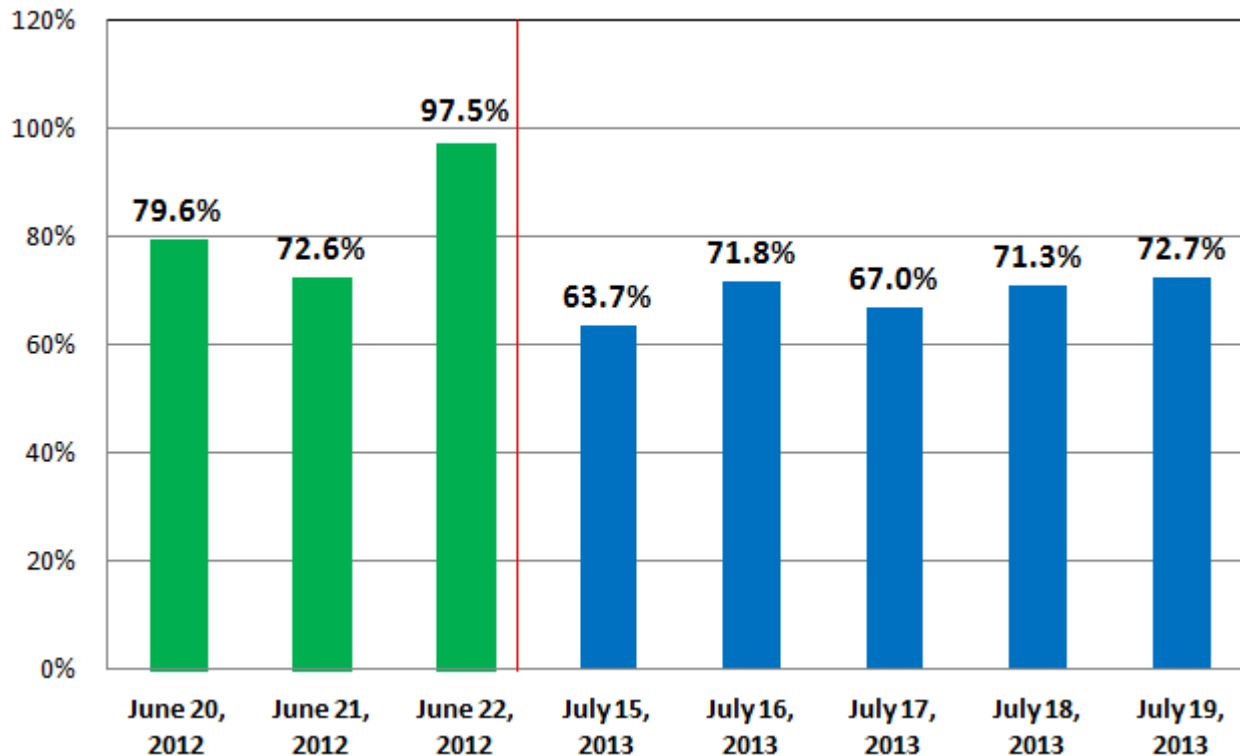
Summer 2013 DR Events

Event Date	Zones	Event Hours	Event Duration	Mandatory or Voluntary
July 15, 2013	G-K	HB 13 through HB17	5 hours	Mandatory
July 16, 2013	G-K	HB 13 through HB17	5 hours	Mandatory
July 17, 2013	G-K	HB 13 through HB17	5 hours	Mandatory
July 18, 2013	All zones	Zones G-K: HB 12 through HB17 Zones A-F: HB 13 through HB 17	6 hours 5 hours	Mandatory
July 19, 2013	All zones	Zones G-K: HB 12 through HB17 Zones A-F: HB 13 through HB 17	6 hours 5 hours	Mandatory

NYISO provided 21-hour day-ahead notification and 2-hour in-day activation notification for all five summer 2013 DR events

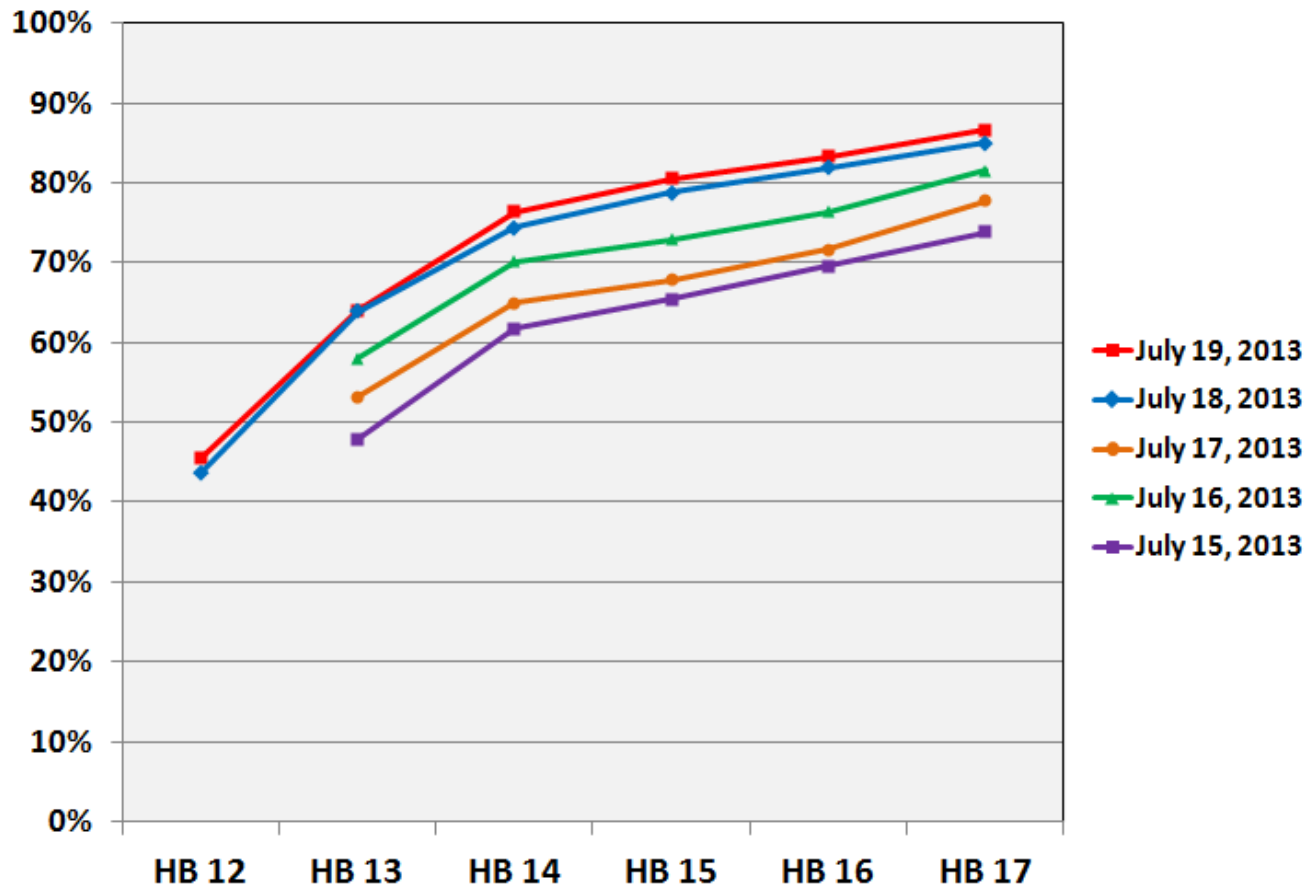
SCR Event Average Hourly Response – ICAP/ACL Basis

- ◆ SCR response for 2013 events is lower than for 2012 events
 - *For reference, 2014-2015 IRM Study discounted SCR effective response at 63.4%*



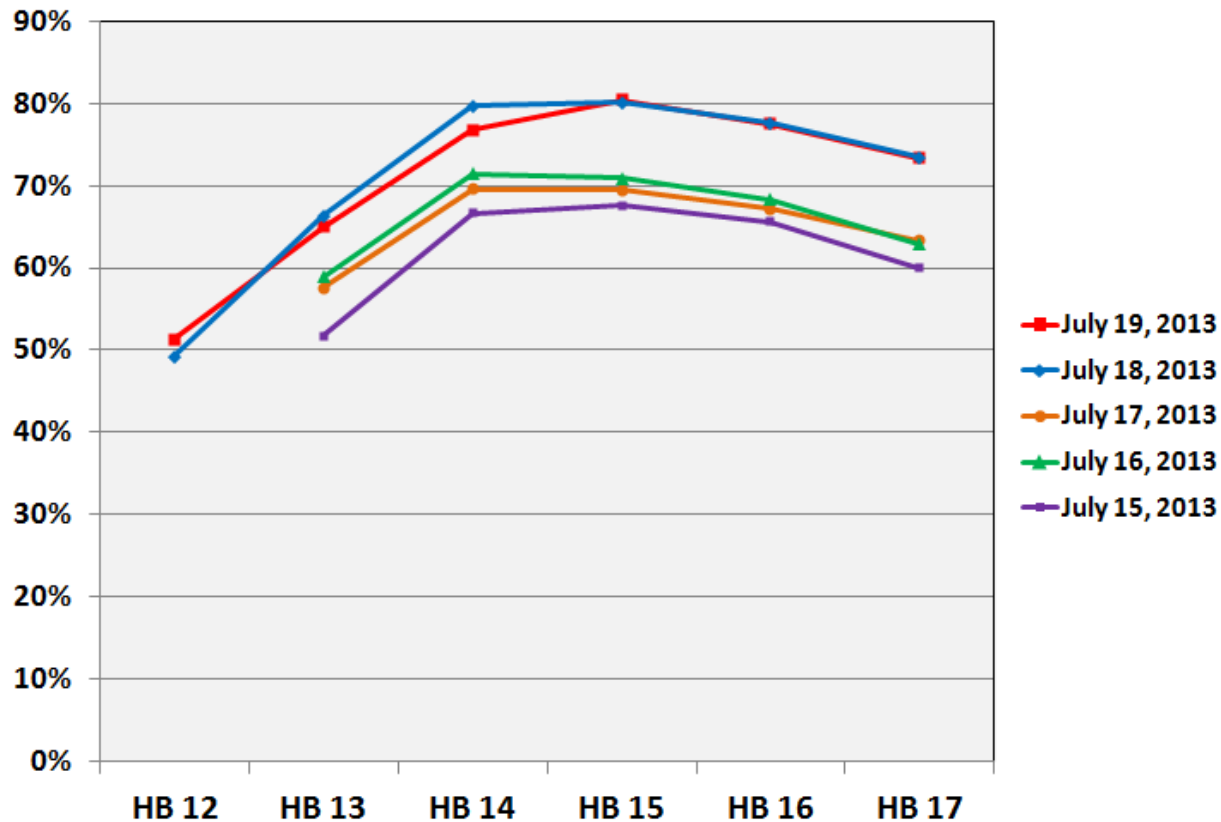
SCR Event Hourly Response – ICAP/ACL Basis

- ◆ SCRs are obligated to perform for 4 hours. Best 4-hour response is considered for SCR performance factor calculations.
- ◆ SCR response for 2013 events is sharply lower outside the 4 hour performance obligation



SCR Event Hourly Response – CBL Basis

- ◆ CBL is a better reflection of the energy response delivered
- ◆ SCR CBL response is comparable to the ACL response during the initial hours of the events
- ◆ CBL response in the later hours of the events is lower than the ACL response



SCR Event Response Summary – ICAP/ACL Basis

SCR ICAP Response	Zones	HB 12	HB 13	HB 14	HB 15	HB 16	HB 17	Average Hourly Response MW	Obligated SCR MW	Response as % of Obligated MW
July 15, 2013	G-K		256.7	331.0	350.8	372.6	396.0	341.4	536.1	63.7%
July 16, 2013	G-K		311.4	376.2	390.6	409.6	437.2	385.0	536.1	71.8%
July 17, 2013	G-K		284.9	348.0	363.4	383.8	416.7	359.4	536.1	67.0%
July 18, 2013	A-K*	233.6	751.6	874.4	925.5	962.6	999.2	884.0	1175.2	75.2%
July 19, 2013	A-K*	243.5	752.5	897.3	945.7	978.7	1018.5	898.1	1175.2	76.4%

*On July 18th and 19th, the DR event started at HB 12 in zones G-K and started at HB 13 in zones A-F.

SCR response in upstate is higher compared to downstate

EDRP Event Response

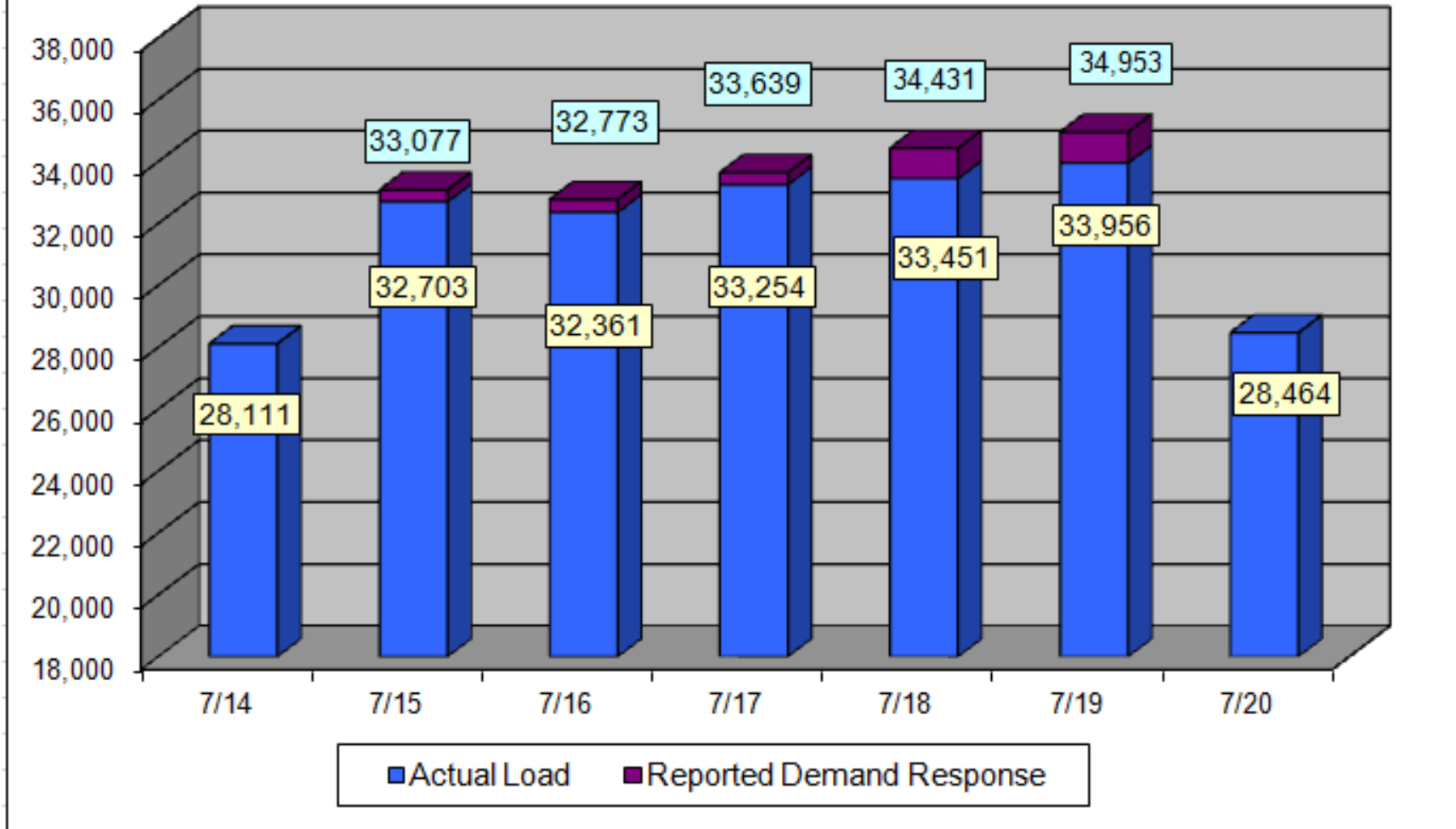
EDRP CBL Response	Zones	HB 12	HB 13	HB 14	HB 15	HB 16	HB 17	Average Hourly Response MW	Available EDRP MW	Response as % of Available MW
July 15, 2013	G-K		2.0	2.0	1.8	1.8	1.5	1.8	20.1	8.9%
July 16, 2013	G-K		2.1	2.0	2.1	2.0	2.0	2.1	20.1	10.2%
July 17, 2013	G-K		1.8	1.9	1.8	1.6	1.3	1.7	20.1	8.4%
July 18, 2013	A-K*	1.0	12.8	15.4	16.3	17.6	13.0	14.8	94.3	15.7%
July 19, 2013	A-K*	3.2	17.0	17.5	16.9	18.2	16.0	17.0	94.3	18.1%

*On July 18th and 19th, the DR event started at HB 12 in zones G-K and started at HB 13 in zones A-F.

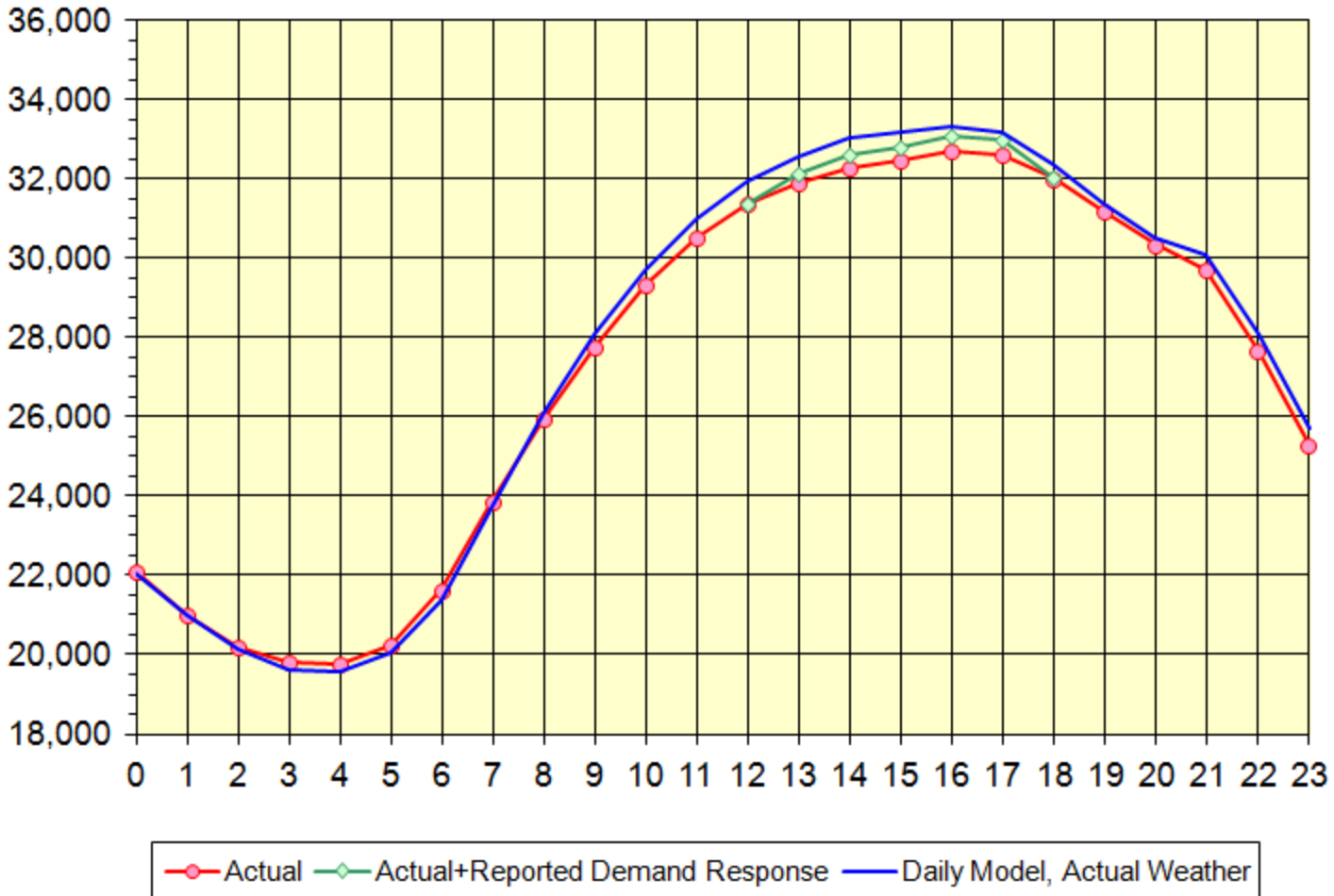
2013 EDRP event response is comparable to 2012

Daily Peaks & Demand Response - MW

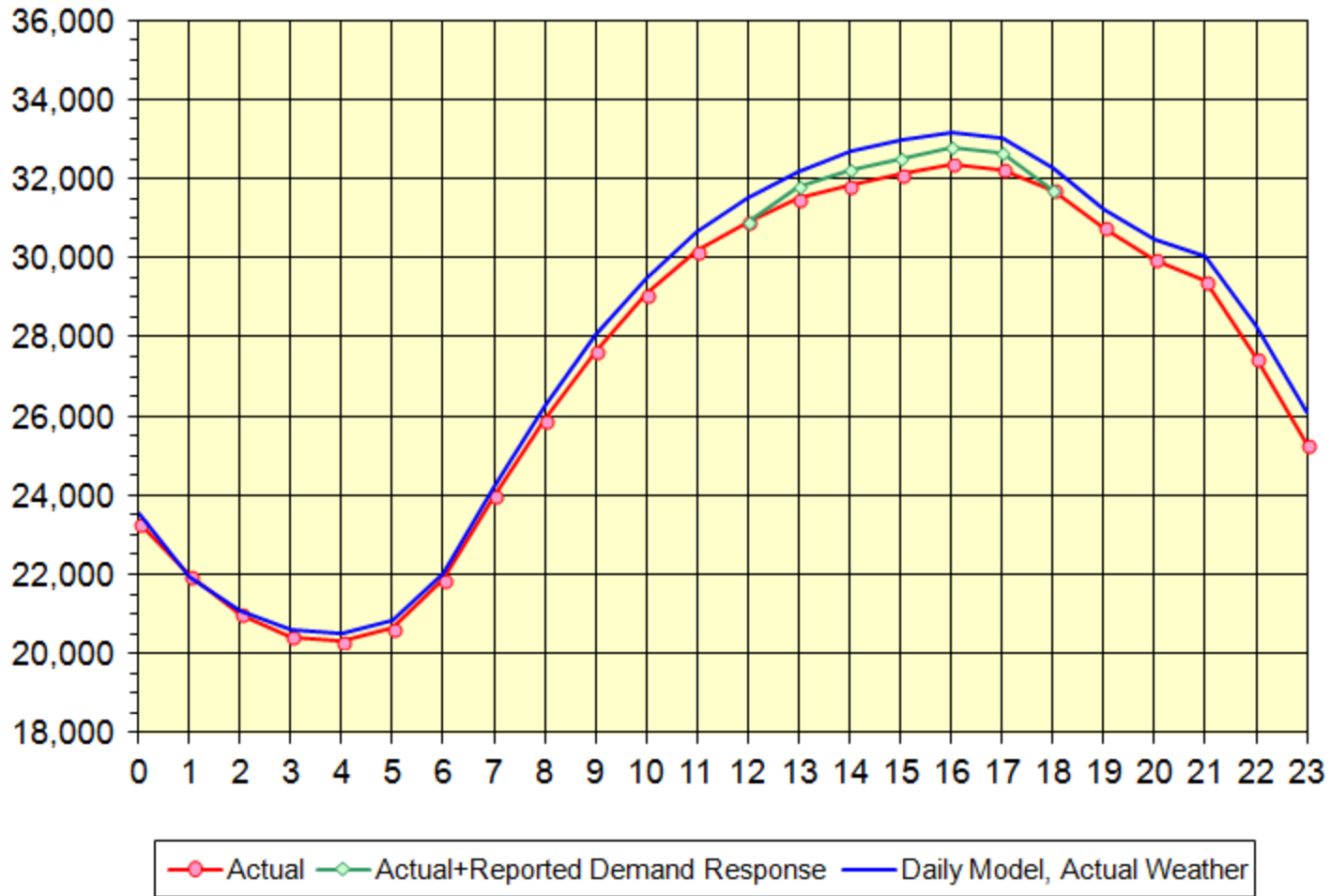
July 14 to July 20, 2013



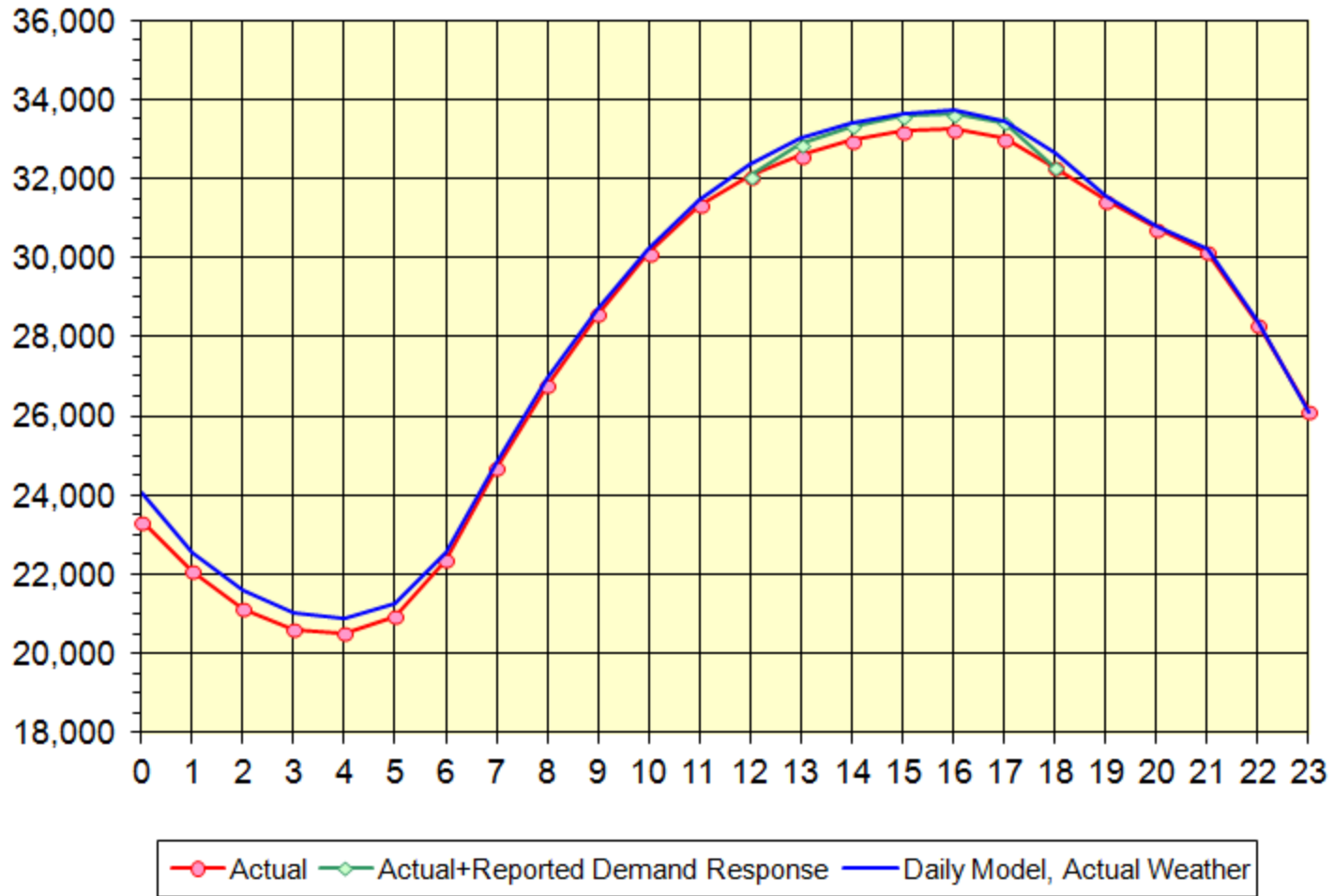
NYCA - July 15, 2013
Demand Response Called in Zones G to K



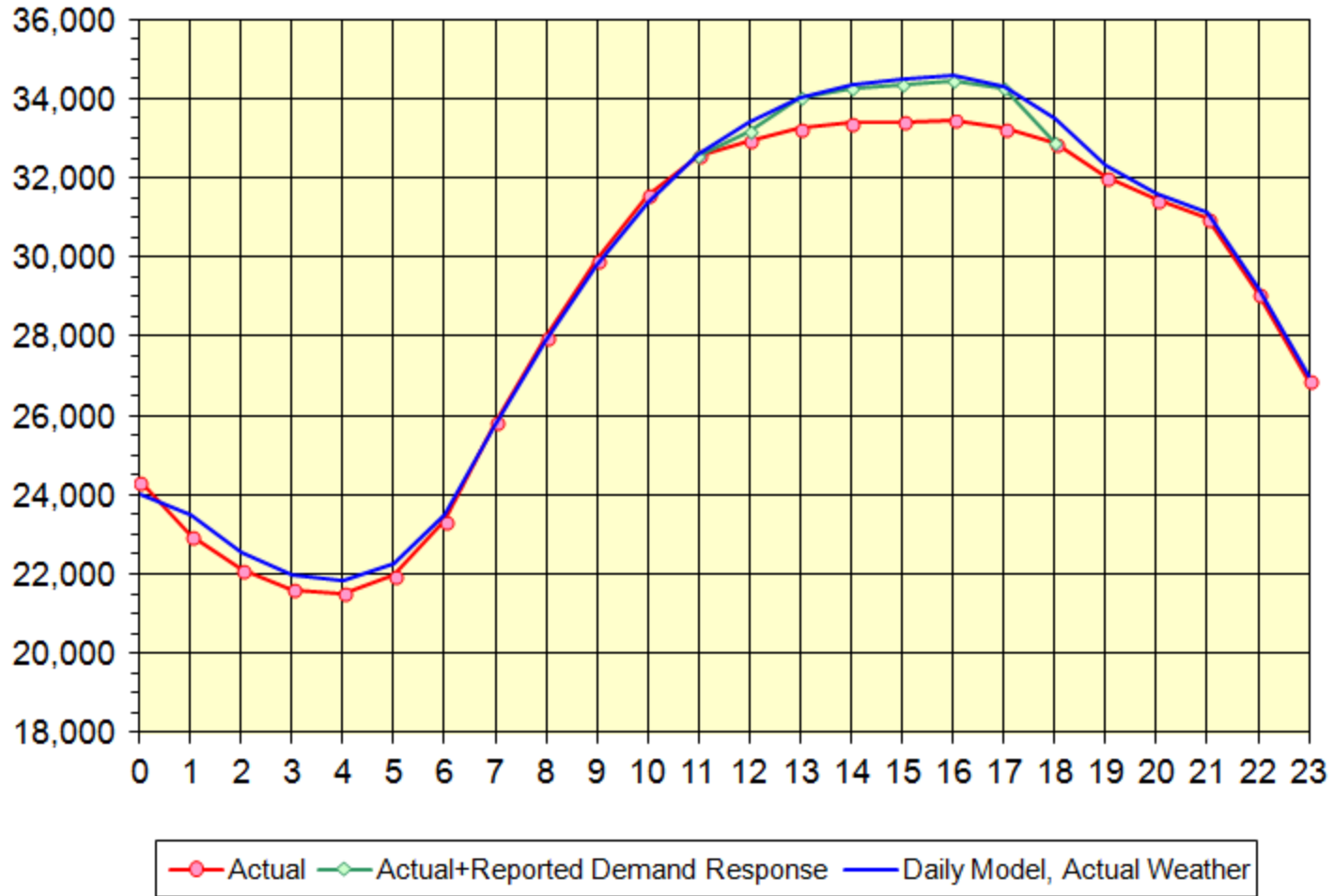
NYCA - July 16, 2013
Demand Response Called in Zones G to K



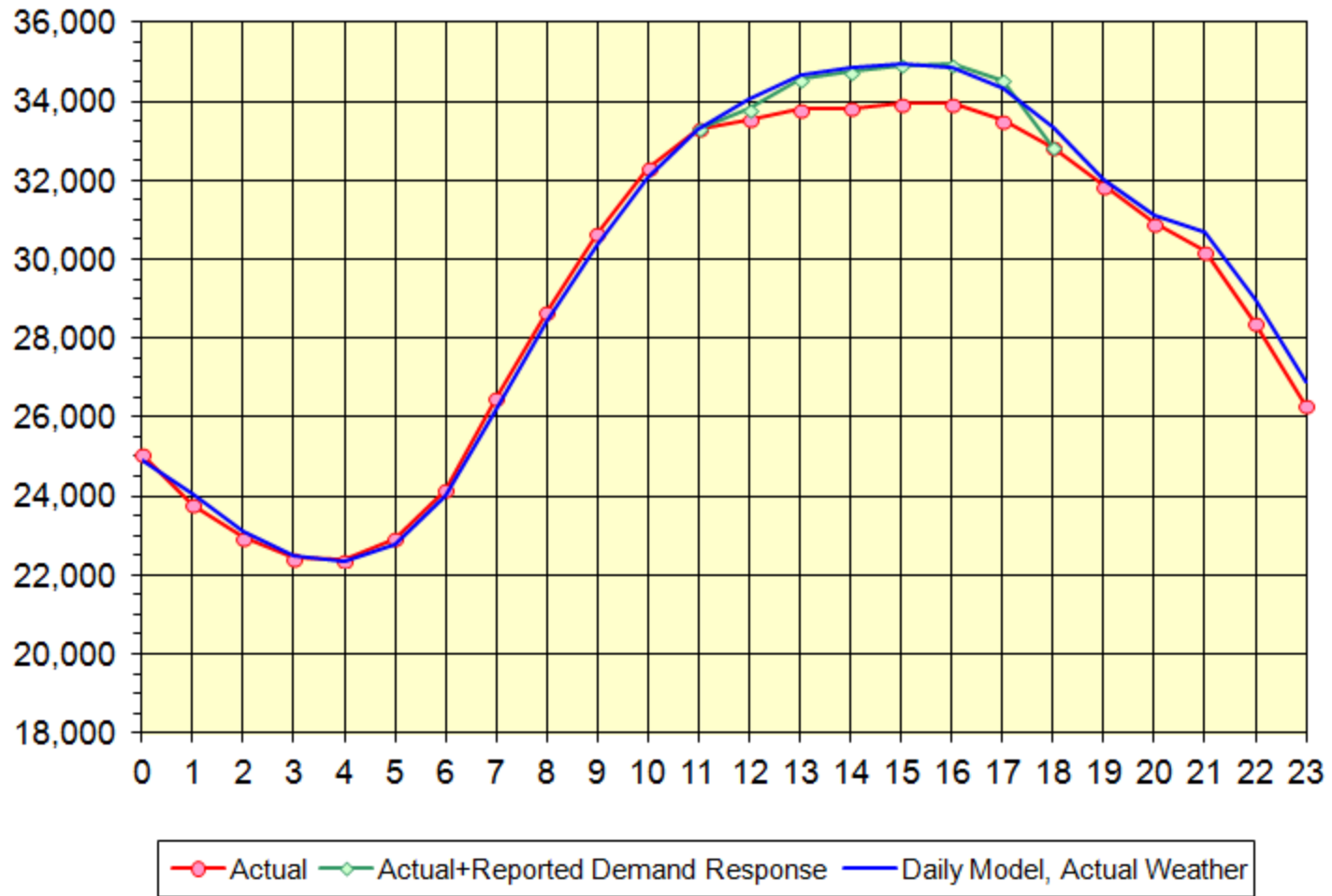
NYCA - July 17, 2013
Demand Response Called in Zones G to K



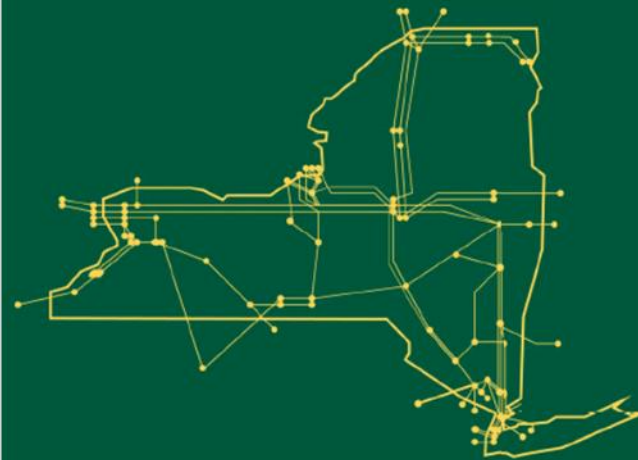
NYCA - July 18, 2013
 Demand Response Called in Zones A to K



NYCA - July 19, 2013
Demand Response Called in Zones A to K



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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APPENDIX

Detailed Hourly Event Response Data for Mandatory SCR Events and corresponding EDRP Response

Event Response Summary by Day – SCR & EDRP Combined

NYISO Event Date	Zones	Average Hourly Response MW	Obligated SCR MW and Available EDRP MW	Response as % of Obligated or Available MW
July 15, 2013	G-K	343.2	556.2	61.7%
July 16, 2013	G-K	387.1	556.2	69.6%
July 17, 2013	G-K	361.0	556.2	64.9%
July 18, 2013	A-K*	898.8	1269.5	70.8%
July 19, 2013	A-K*	915.2	1269.5	72.1%

*On July 18th and 19th, the DR event started at HB 12 in zones G-K and started at HB 13 in zones A-F.

Energy Payment Summary by Day – SCR & EDRP Combined

NYISO Event Date	Zones	SCR	EDRP	Total	Average Event Payment (\$/MWh)
July 15, 2013	G-K	\$723,535	\$4,702	\$728,236	\$505
July 16, 2013	G-K	\$771,721	\$5,151	\$776,872	\$500
July 17, 2013	G-K	\$879,394	\$5,128	\$884,523	\$571
July 18, 2013	A-K*	\$2,238,030	\$39,198	\$2,277,227	\$519
July 19, 2013	A-K*	\$2,276,119	\$46,738	\$2,322,857	\$528
	Totals	\$6,888,799	\$100,917	\$6,989,715	\$524

*On July 18th and 19th, the DR event started at HB 12 in zones G-K and started at HB 13 in zones A-F.

SCR Mandatory Event Response based on ICAP: July 15, 2013

Hourly Response based on ICAP/UCAP Measures										
15-Jul										
Zone	HB 12	HB 13	HB 14	HB 15	HB 16	HB 17		Average Hourly Response MW	Obligated ICAP MW	% Response of ICAP MW All Event Hours
G		19.2	27.9	31.6	32.6	32.7		28.8	35.9	80.2%
H		4.4	4.3	4.4	4.5	4.7		4.5	4.7	95.4%
I		7.3	15.2	16.7	17.0	18.2		14.9	25.2	59.1%
J		186.3	234.0	246.3	262.5	282.4		242.3	379.2	63.9%
K		39.4	49.6	51.7	56.0	58.0		51.0	91.1	56.0%
Total		256.7	331.0	350.8	372.6	396.0		341.4	536.1	63.7%

EDRP Response: July 15, 2013

15-Jul										
Zone	HB 12	HB 13	HB 14	HB 15	HB 16	HB 17		Average Hourly Response MW	Enrolled (MW)	% Response of Enrolled (MW)
G		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0%
H		0.003	0.000	0.006	0.025	0.015		0.010	1.600	0.6%
I		0.068	0.052	0.042	0.049	0.037		0.050	0.059	83.9%
J		1.5	1.6	1.6	1.6	1.4		1.5	15.9	9.6%
K		0.454	0.346	0.134	0.109	0.033		0.215	2.581	8.3%
Total		2.0	2.0	1.8	1.8	1.5		1.8	20.1	8.9%

SCR Mandatory Event Response based on ICAP: July 16, 2013

Hourly Response based on ICAP/UCAP Measures										
16-Jul										
Zone	HB 12	HB 13	HB 14	HB 15	HB 16	HB 17		Average Hourly MW	Obligated ICAP MW	% Response of ICAP MW All Event Hours
G		25.0	32.5	33.2	33.5	34.7		31.8	35.9	88.4%
H		4.4	4.8	4.8	4.8	4.9		4.7	4.7	101.5%
I		15.8	19.2	20.0	20.3	21.6		19.4	25.2	77.0%
J		225.0	269.7	280.2	294.6	317.3		277.4	379.2	73.1%
K		41.2	50.0	52.5	56.3	58.7		51.7	91.1	56.8%
Total		311.4	376.2	390.6	409.6	437.2		385.0	536.1	71.8%

EDRP Response: July 16, 2013

16-Jul										
Zone	HB 12	HB 13	HB 14	HB 15	HB 16	HB 17		Average Hourly Response MW	Enrolled (MW)	% Response of Enrolled (MW)
G		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0%
H		0.00	0.03	0.00	0.02	0.02		0.013	1.6	0.8%
I		0.09	0.09	0.08	0.07	0.06		0.079	0.4	21.9%
J		1.8	1.8	1.9	1.8	1.8		1.8	15.6	11.7%
K		0.2	0.1	0.1	0.1	0.1		0.1	2.6	5.7%
Total		2.1	2.0	2.1	2.0	2.0		2.1	20.1	10.2%

SCR Mandatory Event Response based on ICAP: July 17, 2013

Hourly Response based on ICAP/UCAP Measures										
17-Jul										
Zone	HB 12	HB 13	HB 14	HB 15	HB 16	HB 17		Average Hourly Response MW	Obligated ICAP MW	% Response of ICAP MW All Event Hours
G		21.8	27.9	28.2	29.4	29.7		27.4	35.9	76.2%
H		4.5	4.8	4.8	4.9	4.8		4.8	4.7	101.8%
I		15.4	19.1	20.0	20.5	22.8		19.5	25.2	77.6%
J		204.3	247.4	258.5	272.8	300.7		256.7	379.2	67.7%
K		39.0	48.9	51.9	56.2	58.6		50.9	91.1	55.9%
Total		284.9	348.0	363.4	383.8	416.7		359.4	536.1	67.0%

EDRP Response: July 17, 2013

17-Jul										
Zone	HB 12	HB 13	HB 14	HB 15	HB 16	HB 17		Average Hourly Response MW	Enrolled (MW)	% Response of Enrolled (MW)
G		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0%
H		0.067	0.007	0.000	0.000	0.000		0.015	1.6	0.9%
I		0.110	0.134	0.146	0.114	0.032		0.107	0.4	29.8%
J		1.6	1.7	1.6	1.4	1.3		1.5	15.6	9.7%
K		0.09	0.06	0.03	0.09	0.03		0.06	2.6	2.3%
Total		1.8	1.9	1.8	1.6	1.3		1.7	20.1	8.4%

SCR Mandatory Event Response based on ICAP: July 18, 2013

Hourly Response based on ICAP/UCAP Measures										
18-Jul										
Zone	HB 12	HB 13	HB 14	HB 15	HB 16	HB 17		Average Hourly Response MW	Obligated ICAP MW	% Response of ICAP MW All Event Hours
A		256.9	278.6	292.1	294.7	299.0		284.3	311.4	91.3%
B		38.1	54.5	56.8	58.2	60.2		53.6	64.4	83.2%
C		78.4	93.8	97.5	100.0	100.6		94.1	114.6	82.1%
D		6.4	7.0	7.4	7.4	6.6		7.0	9.2	76.0%
E		17.8	23.1	25.4	27.5	28.7		24.5	35.3	69.4%
F		79.9	86.5	96.6	101.3	103.4		93.5	104.2	89.7%
G	18.7	22.3	28.7	30.2	31.4	31.3		27.1	35.9	75.4%
H	3.4	4.5	4.6	4.6	4.6	4.6		4.4	4.7	93.6%
I	9.8	15.9	17.3	16.5	20.0	21.6		16.8	25.2	66.9%
J	169.3	190.7	231.2	246.3	261.9	285.8		230.9	379.2	60.9%
K	32.5	40.8	49.0	52.0	55.6	57.5		47.9	91.1	52.6%
Total	233.6	751.6	874.4	925.5	962.6	999.2		884.0	1175.2	75.2%

EDRP Response: July 18, 2013

18-Jul										
Zone	HB 12	HB 13	HB 14	HB 15	HB 16	HB 17		Average Hourly Response MW	Enrolled (MW)	% Response of Enrolled (MW)
A		2.8	3.4	2.7	2.9	1.9		2.7	13.5	20.3%
B		0.0	0.0	0.0	0.0	0.0		0.0	1.3	0.0%
C		1.3	1.1	3.0	4.0	1.9		2.2	13.9	16.0%
D		0.61	0.61	0.04	0.62	0.61		0.50	3.7	13.5%
E		1.7	1.5	1.5	1.5	1.5		1.5	15.0	10.1%
F		4.5	7.2	6.9	6.4	5.4		6.1	26.8	22.6%
G	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0%
H	0.008	0.000	0.000	0.003	0.000	0.000		0.002	1.600	0.1%
I	0.1	0.1	0.1	0.1	0.1	0.1		0.1	0.4	25.8%
J	0.9	1.8	1.5	2.1	2.0	1.7		1.7	15.6	10.9%
K	0.0	0.0	0.0	0.0	0.0	0.0		0.0	2.6	0.3%
Total	1.0	12.8	15.4	16.3	17.6	13.0		14.8	94.3	15.7%

SCR Mandatory Event Response based on ICAP: July 19, 2013

Hourly Response based on ICAP/UCAP Measures									
19-Jul									
Zone	HB 12	HB 13	HB 14	HB 15	HB 16	HB 17	Average Hourly Response MW	Obligated ICAP MW	% Response of ICAP MW All Event Hours
A		252.2	281.2	292.5	295.6	300.0	284.3	311.4	91.3%
B		36.5	53.0	55.8	58.4	60.8	52.9	64.4	82.2%
C		77.0	92.9	97.0	99.0	98.7	92.9	114.6	81.1%
D		3.5	3.5	3.5	3.6	3.5	3.5	9.2	38.5%
E		17.2	22.5	25.8	26.4	28.4	24.1	35.3	68.1%
F		83.2	97.9	97.7	98.8	97.6	95.0	104.2	91.2%
G	18.9	22.6	29.7	30.5	30.3	30.2	27.1	35.9	75.3%
H	4.5	4.5	4.6	4.5	4.4	4.4	4.5	4.7	96.1%
I	13.9	14.9	16.5	17.3	17.8	19.6	16.7	25.2	66.2%
J	172.7	199.8	245.3	267.6	287.0	316.0	248.1	379.2	65.4%
K	33.4	41.1	50.0	53.3	57.4	59.2	49.1	91.1	53.9%
Total	243.5	752.5	897.3	945.7	978.7	1018.5	898.1	1175.2	76.4%

EDRP Response: July 19, 2013

19-Jul										
Zone	HB 12	HB 13	HB 14	HB 15	HB 16	HB 17		Average Hourly Response MW	Enrolled (MW)	% Response of Enrolled (MW)
A		1.5	1.9	1.8	2.6	1.5		1.9	13.5	13.9%
B		0.0	0.0	0.0	0.0	0.0		0.0	1.3	0.0%
C		1.4	1.1	0.9	1.2	1.2		1.2	13.9	8.4%
D		0.7	0.7	0.1	0.7	0.6		0.5	3.7	14.7%
E		2.5	2.0	2.0	1.9	1.8		2.0	15.0	13.5%
F		7.3	8.6	8.1	8.0	7.3		7.9	26.8	29.3%
G	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0%
H	0.01	0.04	0.02	0.03	0.01	0.00		0.02	1.60	1.2%
I	0.13	0.16	0.16	0.15	0.16	0.22		0.16	0.36	45.3%
J	3.1	3.4	3.1	3.8	3.7	3.4		3.4	15.6	21.8%
K	0.0	0.0	0.0	0.0	0.0	0.0		0.0	2.6	0.1%
Total	3.2	17.0	17.5	16.9	18.2	16.0		17.0	94.3	18.1%

Summer 2012: SCR Event Response Summary – ICAP Basis

SCR ICAP Response	Zones	HB 12	HB 13	HB 14	HB 15	HB 16	HB 17	Average Hourly Response MW	Obligated SCR MW	Response as % of Obligated MW
May 29, 2012	A-K*	193.3	576.7	461.3	476.5	475.8	733.2	486.1	1618.3	30.0%
June 20, 2012	C,G-J			453.0	471.4	480.6	507.7	478.2	600.6	79.6%
June 21, 2012	A-K	244.9	1271.3	1387.2	1314.7	989.3	1021.8	1176.3	1620.7	72.6%
June 22, 2012	G-K		482.7	546.9	602.8	633.8	658.9	585.0	600.0	97.5%
July 17, 2012	B*			19.9	34.1	38.5	35.8	32.1	76.5	42.0%
July 18, 2012	G-K*		271.5	349.8	400.3	462.8	514.7	413.0	602.6	68.5%

* Voluntary events