

# MISO ICTE Reliability: TLR 5 Event Analysis Report



Event Date: 7/4/2013

Flowgate ID/Name: FG 6509 Nelson AT 1 500/230kV flo Hartburg-Cypress 500kV

**Metrics Tables:** TLR Date 7/4/2013 09:00  
Return to Zero 7/5/2013 00:45  
Duration 15 hours 45 minutes  
Hours in TLR 5 12 hours  
Highest Level 5A  
MW Cut 2255  
Firm 1606  
Non-Firm 649

**NNL:**

EES	367	LEPA	
AECI		ONT	
AMIL		PJM	
CLEC	5	SMEE	
CSWS		SOCO	
EDE		SPA	
LAFA		TVA	
LAGN	40	WSCS	

**Flowgate information at the time of the TLR 5 issuance:**

Line Rating: 560 LODF: 0.6229 PC MVA: 613 Contingent Element: 644 Monitored Element: 212

**Root Cause:**

This event was caused by increasing flows north to south heading into the WOTAB load pocket. Contributing to the heavier load across the Nelson transformer AT1 was an increase in generation output that has lower sensitivities outside of the constrained area, unplanned outages and reduced generation in the WOTAB and Western load pockets.

**Planned or Unplanned Generation Outage(s): (none, if blank)**

Type:  
Unplanned Nelson Unit 4 on 7/1/13

**Planned or Unplanned Transmission Outage(s): (none, if blank)**

Type:  
Unplanned Nelson-Richard 500kV line on 7/1/13  
Unplanned Hartburg 500/230kV Xfmr on 7/3/13  
Unplanned Hartburg-Inland Orange 230kV line on 7/3/13

**Tags Excluded from the TLR** (The following tags were excluded for Reliability)

None

**Internal Non-Firm Tags that were curtailed:** No Internal Non-Firm tags were curtailed

**Non-Firm AFC's suspended:** from 11:00 EST to 23:00 EST on 7/4/2013

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## AFC Limitations before, during and after the TLR Event:

		Firm AFC available on NELXF_HBCYP (MW)																
AFC Initialization Summary Report Time Stamp (EST)		7/4																7/5
		HB 9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	HB 0	
Prior to Day Ahead	7/2/2013 17:50	332	347	305	278	240	226	245	213	200	204	234	257	183	238	270	322	
Day Ahead	7/3/2013 10:10	293	339	300	276	231	227	247	216	205	207	235	256	181	233	278	360	
Prior to Day Ahead	7/3/2013 17:57																442	
Day Ahead	7/4/2013 10:05																199	
		Sum of impact of firm reservations and rfcalc baseflow on NELXF_HBCYP (MW)																
AFC Initialization Summary Report Time Stamp (EST)		7/4																7/5
		HB 9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	HB 0	
Prior to Day Ahead	7/2/2013 17:50	228	213	255	282	320	334	315	347	360	356	326	303	377	322	290	238	
Day Ahead	7/3/2013 10:10	267	221	260	284	329	333	313	344	355	353	325	304	379	327	282	200	
Prior to Day Ahead	7/3/2013 17:57																138	
Day Ahead	7/4/2013 10:05																361	
TFC of NELXF_HBCYP																		
560																		
AFC Initialization Summary Report Time Stamp (EST)		Average Firm AFC available on NELXF_HBCYP (MW)																
Prior to Day Ahead	7/2/2013 5:50:18 PM, 7/3/2013 5:57:47 PM	349																
Day Ahead	7/3/2013 10:10:29 AM, 7/4/2013 10:05:14 AM	227																
		-122																
AFC Initialization Summary Report Time Stamp (EST)		Average Sum of impact of firm reservations and rfcalc baseflow on NELXF_HBCYP (MW)																
Prior to Day Ahead	7/2/2013 5:50:18 PM, 7/3/2013 5:57:47 PM	221																
Day Ahead	7/3/2013 10:10:29 AM, 7/4/2013 10:05:14 AM	333																
		112																

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	AFC Initialization Summary Report Timestamp (EST)	AFC available on NELXF_HBCYP (MW)																
		7/4 HB 9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	7/5 HB 0	
Prior to Day Ahead	7/2/2013 17:50	332	347	305	278	240	226	245	213	200	204	234	257	183	238	270	322	Firm
Day Ahead	7/3/2013 10:10	293	339	300	276	231	227	247	216	205	207	235	256	181	233	278	360	Firm
Prior to Day Ahead	7/3/2013 17:57																442	Firm
Operating Horizon	7/4/2013 0:11	360	316	289	191	168	132	107	96	109	113	185	185	137	215	287		Non-Firm
Operating Horizon	7/4/2013 1:11	322	273	243	143	119	82	56	45	59	66	143	146	97	179	255		Non-Firm
Operating Horizon	7/4/2013 2:12	315	265	233	132	107	69	43	31	45	54	131	136	87	169	247		Non-Firm
Operating Horizon	3/7/2004 3:11	315	264	231	130	104	66	40	28	42	51	128	133	84	168	246		Non-Firm
Operating Horizon	7/4/2013 3:41	315	264	231	130	104	66	40	28	42	51	128	133	84	168	246		Non-Firm
Operating Horizon	7/4/2013 4:10	328	278	246	146	121	84	58	46	60	69	145	150	100	183	260		Non-Firm
Operating Horizon	7/4/2013 5:09	332	283	252	252	128	91	66	55	68	76	153	157	157	188	264		Non-Firm
Operating Horizon	7/4/2013 6:09	323	274	242	143	118	81	54	43	57	65	142	146	96	178	255		Non-Firm
Operating Horizon	7/4/2013 7:09	382	294	264	165	141	105	79	68	82	89	165	177	127	207	283		Non-Firm
Operating Horizon	7/4/2013 8:09	348	351	277	179	156	120	94	84	98	105	180	191	141	221	295		Non-Firm
Operating Horizon	7/4/2013 9:09	501	363	347	194	172	137	137	137	137	137	196	207	157	235	308		Non-Firm
Day Ahead	7/4/2013 10:05																199	Firm
Operating Horizon	7/4/2013 10:14		772	374	293	194	206	182	172	186	192	219	229	178	255	326		Non-Firm
Operating Horizon	7/4/2013 11:09			0	0	0	0	0	0	180	186	213	224	173	251	323		Non-Firm
Operating Horizon	7/4/2013 12:19				0	0	0	0	0	166	173	201	212	162	241	315	420	Non-Firm
Operating Horizon	7/4/2013 13:12					0	0	0	0	155	162	191	202	152	232	307	412	Non-Firm
Operating Horizon	7/4/2013 14:13						0	0	0	143	151	180	192	142	224	299	405	Non-Firm
Operating Horizon	7/4/2013 15:12							0	0	203	120	150	206	156	236	310	416	Non-Firm
Operating Horizon	7/4/2013 16:12								0	0	0	0	0	0	0	326	431	Non-Firm
Operating Horizon	7/4/2013 17:11									0	0	0	0	0	0	355	440	Non-Firm
Operating Horizon	7/4/2013 18:11										0	0	0	0	0	340	444	Non-Firm
Operating Horizon	7/4/2013 19:11											0	0	0	0	346	449	Non-Firm
Operating Horizon	7/4/2013 20:11												0	0	0	341	444	Non-Firm
Operating Horizon	7/4/2013 21:12													0	0	388	349	Non-Firm
Operating Horizon	7/4/2013 22:11														0	388	515	Non-Firm
Operating Horizon	7/4/2013 23:12															585	431	Non-Firm
Operating Horizon	7/5/2013 0:11																485	Non-Firm

Indicates TLR Avoidance (Non-sale of Non-Firm)

## Event History:

### TLR Event History

6509 - Nelson AT1 500/230 (ftlo) Hartburg 500kv - Cypress

	Status	TLR	Effective Time	Confirmation Time	Run Time	Flow Change Requested	Requested Relief	Remaining Relief	Relief Provided	Total Cuts			RC Ack Cuts			MF	NNL
										Tags	MW	Relief	Tags	MW	Relief		
NH	SUPERSEDED	1	07/04/2013 09:00	07/04/2013 08:40	07/04/2013 08:39	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	0
NH	SUPERSEDED	5A	07/04/2013 11:00	07/04/2013 10:36	07/04/2013 10:35	-20.0	45.0	0.0	46	29	233	23	29	233	23	0	23
NH	SUPERSEDED	5A	07/04/2013 12:00	07/04/2013 11:30	07/04/2013 11:27	+39.0	24.0	0.0	49	30	256	26	30	256	26	0	23
NH	SUPERSEDED	5A	07/04/2013 13:00	07/04/2013 12:30	07/04/2013 12:27	+40.0	57.0	0.0	82	36	194	28	36	194	28	0	54
NH	SUPERSEDED	5A	07/04/2013 14:00	07/04/2013 13:27	07/04/2013 13:25	+80.0	0.0	0.0	55	33	155	22	33	155	22	0	32
NH	SUPERSEDED	5A	07/04/2013 15:00	07/04/2013 14:27	07/04/2013 14:26	-30.0	41.0	0.0	75	37	191	28	37	191	28	0	47
NH	SUPERSEDED	5A	07/04/2013 16:00	07/04/2013 15:30	07/04/2013 15:27	+17.0	15.0	0.0	63	33	210	25	33	210	25	0	38
NH	SUPERSEDED	5A	07/04/2013 17:00	07/04/2013 16:26	07/04/2013 16:25	0.0	25.0	0.0	65	34	173	24	34	173	24	0	41
NH	SUPERSEDED	5A	07/04/2013 18:00	07/04/2013 17:28	07/04/2013 17:25	+5.0	28.0	0.0	71	33	175	25	33	175	25	0	46
NH	SUPERSEDED	5A	07/04/2013 19:00	07/04/2013 18:27	07/04/2013 18:25	-5.0	18.0	0.0	66	34	128	18	34	128	18	0	48
NH	SUPERSEDED	5A	07/04/2013 20:00	07/04/2013 19:27	07/04/2013 19:25	+5.0	4.0	0.0	54	32	106	15	32	106	15	0	39
NH	SUPERSEDED	5A	07/04/2013 21:00	07/04/2013 20:27	07/04/2013 20:25	+15.0	0.0	0.0	29	30	85	10	30	85	10	0	19
NH	SUPERSEDED	5A	07/04/2013 22:00	07/04/2013 21:27	07/04/2013 21:25	0.0	0.0	0.0	23	7	349	23	7	349	23	0	0
NH	SUPERSEDED	3A	07/04/2013 23:00	07/04/2013 22:27	07/04/2013 22:26	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	0
NH	SUPERSEDED	3A	07/05/2013 00:00	07/04/2013 23:17	07/04/2013 23:16	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	0
NH	SUPERSEDED	3A	07/05/2013 00:00	07/04/2013 23:26	07/04/2013 23:25	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	0
NH	TERMINATED	0	07/05/2013 00:45	07/05/2013 00:26	07/05/2013 00:26	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	0

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## Event Summary:

### Event Summary

FILE SAVED AS: MISO\_6509\_20130704\_0800.htm

Incident:	MISO_6509_20130704_0800	Date:	07/04/2013 (EST)	Reliability Coordinator:	MISO
Initial Conditions:	N/A				
Flowgate:	6509 - Nelson AT1 500/230 (flo) Hart...	Rating:	0	LODF:	62.29%
TLR Direction:	Normal				
Effective StartTime:	07/04/2013 09:00 (EST)	Effective EndTime:	07/05/2013 00:45 (EST)	TLR Duration:	15 Hours and 45 Minutes

### TLR Actions

Confirm Time	Level	Effective Hour	Priority	Schedule						NNL Relief			Market Relief				Flow		TLR Action Comments		
				Total Tags Cut / Hold	IDC Cut		RC Cut Acknowledge		Hold		CA	IDC MVV	RC Acn MVV	Type	Mkt	IDC MVV	RC Acn MVV	Current		Post Cont.	Cont. Flow
					MVV	Relief	MVV	Relief	MVV	Relief											
Jul 04 08:40 (EST)	TLR 1	CURRENT		NONE						NONE			NONE				216	579	583	N/A	
Jul 04 10:36 (EST)	TLR 5A	NEXT	1-NS 2-NH 6-NN 7-F Total	1/0 1/0 2/10 25/10 29 / 0	30 5 10 188 233	2.0 0.3 2.0 18.8 23.2	30 5 10 188 233	2.0 0.3 2.0 18.8 23.2	0 0 0 0 0	0.0 0.0 0.0 0.0 0.0	EES LAGN Total	21.0 2.0 23.0	21.0 2.0 23.0	NONE		212	613	644	N/A		
Jul 04 11:30 (EST)	TLR 5A	NEXT	2-NH 6-NN 7-F Total	1/0 2/10 27/10 30 / 0	50 10 196 256	3.7 2.0 20.6 26.3	50 10 196 256	3.7 2.0 20.6 26.3	0 0 0 0	0.0 0.0 0.0 0.0	EES LAGN Total	20.0 2.0 22.0	21.0 2.0 23.0	NONE		195	548	567	N/A		
Jul 04 12:30 (EST)	TLR 5A	NEXT	2-NH 6-NN 7-F Total	1/0 2/10 33/10 36 / 0	23 10 161 194	1.6 1.9 24.1 27.7	23 10 161 194	1.6 1.9 24.1 27.7	0 0 0 0	0.0 0.0 0.0 0.0	CLEC EES LAGN Total	1.0 48.0 5.0 54.0	0.0 48.0 5.0 53.0	NONE		195	555	578	N/A		
Jul 04 13:27 (EST)	TLR 5A	NEXT	2-NH 6-NN 7-F Total	1/0 2/10 30/10 33 / 0	23 10 122 155	1.6 1.9 18.8 22.4	23 10 122 155	1.6 1.9 18.8 22.4	0 0 0 0	0.0 0.0 0.0 0.0	CLEC EES LAGN Total	1.0 29.0 3.0 33.0	0.0 29.0 3.0 32.0	NONE		175	536	581	N/A		
Jul 04 14:27 (EST)	TLR 5A	NEXT	2-NH 6-NN 7-F Total	1/0 2/10 34/10 37 / 0	23 10 158 191	1.6 1.9 24.2 27.8	23 10 158 191	1.6 1.9 24.2 27.8	0 0 0 0	0.0 0.0 0.0 0.0	CLEC EES LAGN Total	1.0 42.0 5.0 48.0	0.0 42.0 5.0 47.0	NONE		183	577	634	N/A		
Jul 04 15:30 (EST)	TLR 5A	NEXT	2-NH 6-NN 7-F Total	1/0 1/0 31/10 33 / 0	23 5 182 210	1.6 0.4 23.3 25.3	23 5 182 210	1.6 0.4 23.3 25.3	0 0 0 0	0.0 0.0 0.0 0.0	CLEC EES LAGN Total	1.0 34.0 4.0 39.0	0.0 34.0 4.0 38.0	NONE		180	566	620	N/A		
Jul 04 16:26 (EST)	TLR 5A	NEXT	2-NH 6-NN 7-F Total	1/0 1/0 32/10 34 / 0	23 5 145 173	1.6 0.4 22.2 24.2	23 5 145 173	1.6 0.4 22.2 24.2	0 0 0 0	0.0 0.0 0.0 0.0	CLEC EES LAGN Total	1.0 36.0 4.0 41.0	1.0 36.0 4.0 41.0	NONE		0	0	0	N/A		
Jul 04 17:23 (EST)	TLR 5A	NEXT	6-NN 7-F Total	1/0 32/10 33 / 0	5 170 175	0.4 24.4 24.8	5 170 175	0.4 24.4 24.8	0 0 0	0.0 0.0 0.0	CLEC EES LAGN Total	1.0 41.0 4.0 46.0	1.0 41.0 4.0 46.0	NONE		0	0	0	N/A		
Jul 04 18:27 (EST)	TLR 5A	NEXT	6-NN 7-F Total	1/0 33/10 34 / 0	5 123 128	0.4 17.9 18.3	5 123 128	0.4 17.9 18.3	0 0 0	0.0 0.0 0.0	CLEC EES LAGN Total	1.0 43.0 4.0 48.0	1.0 43.0 5.0 49.0	NONE		0	0	0	N/A		
Jul 04 19:27 (EST)	TLR 5A	NEXT	1-NS 6-NN 7-F Total	0/1 1/0 31/10 32 / 1	0 5 101 106	0.0 0.4 14.4 14.7	0 5 101 106	0.0 0.4 14.4 14.7	15 0 0 15	1.0 0.0 0.0 1.0	CLEC EES LAGN Total	1.0 35.0 4.0 40.0	1.0 35.0 4.0 40.0	NONE		0	0	0	N/A		

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Event Date	TLR	Category	1-NS	6-NN	7-F	Total	0	1.3	2.0	5.2	16.0	256	16.0	0	0.0	35	2.2	CLEC	EES	LAGN	Total	RC Cut	Hold	N/A		
Jul 04 19:27 (EST)	TLR 5A	NEXT	0/1	1/0	31/0	32 / 1	0	5	101	14.4	101	14.4	0	0.0	15	1.0	0.0	1.0	35.0	4.0	40.0	40.0	0	0	0	N/A
Jul 04 20:27 (EST)	TLR 5A	NEXT	1-NS	1/0	6-NN	1/0	20	5	101	14.4	101	14.4	0	0.0	0	0.0	0	0.0	35.0	4.0	40.0	40.0	0	0	0	N/A
Jul 04 21:27 (EST)	TLR 5A	NEXT	1-NS	3/0	2-NH	4/0	82	256	11	2.3	11	2.3	0	0.0	0	0.0	0	0.0	17.0	2.0	19.0	20.0	0	0	0	N/A
Jul 04 22:27 (EST)	TLR 3A	NEXT	NONE																			0	0	0	N/A	
Jul 04 23:17 (EST)	TLR 3A PRELIM	NEXT	NONE																			0	0	0	N/A	
Jul 04 23:26 (EST)	TLR 3A	NEXT	1-NS	0/2	2-NH	0/1	0	0	0	0	0	0	0	0	35	2.2	0	0.0	0	0	0	0	0	0	0	N/A
Jul 05 00:26 (EST)	TLR 0	CURRENT	NONE																			0	0	0	N/A	

### TLR Schedule Totals

Priority	Schedule			
	Total Tags Cut / Hold	IDC Cut MVW	RC Cut Acknowledge MVW	Hold MVW
0	0	0	0	0
1	5	132	132	50
2	11	426	426	18
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	18	91	91	0
7	336	1606	1606	6
<b>Total</b>	<b>370</b>	<b>2255</b>	<b>2255</b>	<b>74</b>

### TLR NNL Totals

CA	NNL Relief	
	IDC MVW	RC Actn MVW
CLEC	8.0	5.0
EES	366.0	367.0
LAGN	39.0	40.0
<b>Total</b>	<b>413.0</b>	<b>412.0</b>