

SPP TLR 5 Investigation Report
Flowgate 5364
(Brookline XFMR1 for the loss of Brookline XFMR2)
(BRKXF1BRKXF2)
TLR Level 5: January 11, 2011
Report Issued:

1. Description of purpose/cause of hold/curtailment.

This report is submitted in accordance with the NERC Transmission Loading Relief Investigation Procedure for the Level 5 TLR event that occurred on Flowgate 5364 on January 11, 2011. Flowgate 5364 is an SPP flowgate. The Level 5 TLR was in effect from 8:00 PM on January 11, 2011 until 3:35 PM on January 12, 2011. Projected post-contingent flows on the Brookline XFMR1 for the loss of Brookline XFMR2 line did not exceed the SOL.

2. Facility/flowgate limitations and flows at the time the TLR was initiated.

At the time the Level 5A TLR was issued, the Limiting Element was rated at 400 MVA. Flow on the Limiting Element was 241 MVA. Flow on the Contingent Element was 244 MVA. The LODF was approximately 54.7%. Post-contingent flow on the Limiting Element was approximately 374 MVA.

3. TLR levels, timing, and relief requested amounts.

TLRs levels, timing and relief requested amounts are shown in the Event History and NERC TLR Log.

4. Transmission and generation outages or changes from prediction that may have contributed.

There were no unplanned outages. The high loading of Brook line transformers was caused by a combination of a 345kV line outage for maintenance and low Hydro generation.

5. Procedures implemented prior to hold/curtailment.

There were no non-firm transactions. Next hour flows predicted that not enough non-firm could be curtailed to alleviate loading on the flowgate.

6. The initial investigation shall compare all transaction curtailment lists as generated by the IDC with the list of transactions flowing as determined by the IDC (Whole Transaction Lists) both before and after curtailment. The reasons for any transactions that were excluded from curtailment shall be provided. For those transactions not curtailed, the Reliability Authority will identify those entities and any affiliation with said entities.

There were no known transactions excluded from curtailment for this TLR.

7. List of known transactions not in the IDC with Transaction Contribution Factors greater than the curtailment threshold and actions taken to curtail such transactions.

There were no known transactions not in the IDC.

8. Excerpts from the RA Operations Log containing information relevant to the TLR event.

Information was provided to Reliability Coordinators through the IDC and the RCIS. Also the SPP Reliability Coordinators logged information describing the actions taken at each issuance of the TLR. Times in the RC Log are CDT.

9. Flowgate limitations as identified by security analysis processes conducted by the Reliability Authority for the day prior to the TLR event.

In the next day process, we did not see an issue with this flowgate, based off of the peak study.

10. State Estimator snapshots and security analysis, including any contingency analysis or stability analysis, along with any other recorded data indicating need for TLR.

The SPP Reliability Coordinator was monitoring their state estimator, RTCA and RTLODF applications for current flowgate loading and other potential issues during this time. eDNA data historian recorded all line flows before, during and after the Level 5 TLR event.

11. ATC limitations before, during, and after the TLR event.

SPP Tariff Administration grants transmission service using an AFC process. This process evaluates each transmission request on a case by case basis. SPP Tariff Administration was not granting any transmission requests that impacted the congested flowgate by 3 % or greater at the time of the Level 5 TLR.

12. Description of actions taken to avoid future hold/curtailments.

This TLR was caused by a line outage and low generation. Due to this situation, no actions were taken to avoid future hold/curtailments.

13. Provide IDC generated Congestion Management Reports showing transaction curtailment list and Control Area NNL (network and native load) curtailment responsibility.

Congestion Management Reports for each issuance of the TLR have been reviewed and are archived in the IDC. These screen shots have not been included to reduce the size of this report.

14. Re-dispatch actions taken.

SPP EIS Market redispatch was implemented during the entire TLR event. Firm and non-firm Market Flow were reduced on the flowgate as reported in the TLR Event History and NERC TLR Log. AECI had 23 MW of NNL and SPA had 29 MW of NNL.

Event History

Issuing RC: SWPP
Flowgate: 5364 - BRKXF1BRKXF2
Event Begin: 2011-01-11 19:05
Event End: 2011-01-12 15:35
Event Duration: 20 Hours

TLR Level	TLR Date	TLR Confirm Time	Run Time	Requested Relief	Remaining Relief	Relief Provided	Total Cuts	
							Tags	MW
TLR Level 3A	01/11/2011 19:05	01/11/2011 18:47	01/11/2011 18:46:49	0.0	0.0	0.0	0	0
TLR Level 5A	01/11/2011 20:00	01/11/2011 19:31	01/11/2011 19:28:08	24.0	0.0	25.1	20	58
TLR Level 5A	01/11/2011 21:00	01/11/2011 20:30	01/11/2011 20:25:44	15.0	0.0	22.2	17	55
TLR Level 5A	01/11/2011 22:00	01/11/2011 21:30	01/11/2011 21:26:24	0.0	0.0	5.8	10	17
TLR Level 5A	01/11/2011 23:00	01/11/2011 22:34	01/11/2011 22:25:45	7.0	0.0	9.0	11	20
TLR Level 5A	01/12/2011 00:00	01/11/2011 23:36	01/11/2011 23:34:47	8.0	0.0	12.2	14	29
TLR Level 5A	01/12/2011 01:00	01/12/2011 00:28	01/12/2011 00:27:28	15.0	0.0	20.0	14	29
TLR Level 5A	01/12/2011 02:00	01/12/2011 01:30	01/12/2011 01:26:06	35.0	0.0	64.9	2	8
TLR Level 5A	01/12/2011 03:00	01/12/2011 02:30	01/12/2011 02:26:53	10.0	0.0	11.0	13	27
TLR Level 5A	01/12/2011 04:00	01/12/2011 03:30	01/12/2011 03:26:40	26.0	0.0	30.7	14	38
TLR Level 5A	01/12/2011 05:00	01/12/2011 04:28	01/12/2011 04:25:38	17.0	0.0	21.5	12	23
TLR Level 5A	01/12/2011 06:00	01/12/2011 05:35	01/12/2011 05:34:15	0.0	0.0	3.8	6	6
TLR Level 5A	01/12/2011 07:00	01/12/2011 06:27	01/12/2011 06:26:34	0.0	0.0	16.4	1	5
TLR Level 5A	01/12/2011 08:00	01/12/2011 07:30	01/12/2011 07:29:30	0.0	0.0	0.6	1	5
TLR Level 5A	01/12/2011 09:00	01/12/2011 08:28	01/12/2011 08:27:10	0.0	0.0	0.0	0	0
TLR Level 5A	01/12/2011 10:00	01/12/2011 09:30	01/12/2011 09:28:48	10.0	0.0	10.9	11	22
TLR Level 5A	01/12/2011 11:00	01/12/2011 10:34	01/12/2011 10:29:59	0.0	0.0	8.0	0	0
TLR Level 5A	01/12/2011 12:00	01/12/2011 11:29	01/12/2011 11:28:11	0.0	0.0	8.0	0	0
TLR Level 5A	01/12/2011 13:00	01/12/2011 12:39	01/12/2011 12:36:27	16.0	0.0	16.6	9	18
TLR Level 5A	01/12/2011 14:00	01/12/2011 13:28	01/12/2011 13:26:23	10.0	0.0	13.4	12	30
TLR Level 5A	01/12/2011 15:00	01/12/2011 14:35	01/12/2011 14:34:32	0.0	0.0	5.0	6	6
TLR Level 0	01/12/2011 15:35	01/12/2011 15:25	01/12/2011 15:24:40	0.0	0.0	0.0	0	0

Event Summary

FILE SAVED AS: SWPP_5364_20110111_1805.htm

Incident: SWPP_5364_20110111_1805	Date: 01/11/2011	Reliability Coordinator: SWPP
Initial Conditions: loading		
Flowgate: 5364 - BRKXF1BRKXF2	Rating: 400	LODF: 54.65%
TLR Direction: Normal		
Effective StartTime: 01/11/2011 19:05	Effective EndTime: 01/12/2011 15:35	TLR Duration: 20 Hours and 30 Minutes

TLR Actions

Confirm Time	Level	Effective Hour	Priority	Schedule								INL Relief				Market Relief				Flow			TLR Action Comments
				Total Tags Cut / Hold	IDC Cut MW	Relief MW	RC Cut Acknowledge MW	Relief MW	Hold MW	Relief MW	CA	IDC MW	RC Achn MW	Type	Mkt	IDC MW	RC Achn MW	Current	Post Cont.	Cont. Flow			
Jan 11 18:47	TLR 3A	NEXT	7-F	0 / 1	0	0.0	0	0.0	5	0.4	NONE				ED-2	SWPP	0.0	0.0	248	365	251	N/A	
			Total	0 / 1	0	0.0	0	0.0	5	0.4					ED-6	SWPP	0.0	0.0					
															FIRM-7	SWPP	0.0	0.0					
															Total		0.0	0.0					
Jan 11 19:31	TLR 5A	NEXT	7-F	20 / 0	58	6.0	58	6.0	0	0.0	AECI	2.0	2.0	ED-2	SWPP	0.0	0.0	241	374	244	N/A		
			Total	20 / 0	58	6.0	58	6.0	0	0.0	SPA	4.0	4.0	ED-6	SWPP	12.7	12.7						
											Total	6.0	6.0	FIRM-7	SWPP	0.0	0.0						
															FIRM-CREDIT	SWPP	0.0	0.0					
															Total		12.7	12.7					
Jan 11 20:30	TLR 5A	NEXT	7-F	17 / 0	55	6.0	55	6.0	0	0.0	AECI	4.0	4.0	ED-2	SWPP	0.0	0.0	230	357	233	N/A		
			Total	17 / 0	55	6.0	55	6.0	0	0.0	SPA	5.0	5.0	ED-6	SWPP	8.1	8.1						
											Total	9.0	9.0	FIRM-7	SWPP	0.0	0.0						
															FIRM-CREDIT	SWPP	0.0	0.0					
															Total		8.1	8.1					
Jan 11 21:30	TLR 5A	NEXT	7-F	10 / 0	17	2.0	17	2.0	0	0.0	SPA	1.0	1.0	ED-2	SWPP	0.0	0.0	243	376	245	N/A		
			Total	10 / 0	17	2.0	17	2.0	0	0.0	Total	1.0	1.0	ED-6	SWPP	2.4	2.4						
															FIRM-7	SWPP	0.0	0.0					
															FIRM-CREDIT	SWPP	0.0	0.0					
															Total		2.4	2.4					
Jan 11 22:34	TLR 5A	NEXT	7-F	11 / 0	20	2.3	20	2.3	0	0.0	AECI	1.0	2.0	ED-2	SWPP	0.0	0.0	240	372	242	N/A		
			Total	11 / 0	20	2.3	20	2.3	0	0.0	SPA	2.0	2.0	ED-6	SWPP	3.4	3.4						
											Total	3.0	4.0	FIRM-7	SWPP	0.0	0.0						
															FIRM-CREDIT	SWPP	0.0	0.0					
															Total		3.4	3.4					
Jan 11 23:36	TLR 5A	NEXT	7-F	14 / 0	29	3.4	29	3.4	0	0.0	AECI	2.0	2.0	ED-2	SWPP	0.0	0.0	225	349	227	N/A		
			Total	14 / 0	29	3.4	29	3.4	0	0.0	SPA	2.0	2.0	ED-6	SWPP	4.7	4.7						
											Total	4.0	4.0	FIRM-7	SWPP	0.0	0.0						
															FIRM-CREDIT	SWPP	0.0	0.0					
															Total		4.7	4.7					
Jan 12 00:28	TLR 5A	NEXT	7-F	14 / 0	29	3.4	29	3.4	0	0.0	AECI	2.0	2.0	ED-2	SWPP	0.0	0.0	240	371	241	N/A		
			Total	14 / 0	29	3.4	29	3.4	0	0.0	SPA	2.0	2.0	ED-6	SWPP	12.6	12.6						
											Total	4.0	4.0	FIRM-7	SWPP	0.0	0.0						
															FIRM-CREDIT	SWPP	0.0	0.0					
															Total		12.6	12.6					
Jan 12 01:30	TLR 5A	NEXT		NONE								NONE				ED-2	SWPP	0.0	0.0	242	374	243	N/A
																ED-6	SWPP	48.0	48.0				
																FIRM-7	SWPP	16.0	16.0				
																FIRM-CREDIT	SWPP	0.0	0.0				
																Total		64.0	64.0				
Jan 12 02:30	TLR 5A	NEXT	7-F	13 / 0	27	3.2	27	3.2	0	0.0	AECI	2.0	2.0	ED-2	SWPP	0.0	0.0	239	370	240	N/A		
			Total	13 / 0	27	3.2	27	3.2	0	0.0	SPA	2.0	2.0	ED-6	SWPP	4.1	4.1						
											Total	4.0	4.0	FIRM-7	SWPP	0.0	0.0						
															FIRM-CREDIT	SWPP	0.0	0.0					
															Total		4.1	4.1					
Jan 12 03:30	TLR 5A	NEXT	7-F	14 / 0	38	4.3	38	4.3	0	0.0	AECI	1.0	2.0	ED-2	SWPP	0.0	0.0	238	366	238	N/A		
			Total	14 / 0	38	4.3	38	4.3	0	0.0	SPA	2.0	2.0	ED-6	SWPP	22.5	22.5						
											Total	3.0	4.0	FIRM-7	SWPP	0.0	0.0						
															FIRM-CREDIT	SWPP	0.0	0.0					
															Total		22.5	22.5					
Jan 12 04:28	TLR 5A	NEXT	7-F	12 / 0	23	2.6	23	2.6	0	0.0	AECI	1.0	2.0	ED-2	SWPP	0.0	0.0	233	361	235	N/A		
			Total	12 / 0	23	2.6	23	2.6	0	0.0	SPA	2.0	2.0	ED-6	SWPP	15.5	15.5						
											Total	3.0	4.0	FIRM-7	SWPP	0.0	0.0						
															FIRM-CREDIT	SWPP	0.0	0.0					
															Total		15.5	15.5					
Jan 12 05:35	TLR 5A	NEXT	7-F	6 / 0	6	0.7	6	0.7	0	0.0	NONE				ED-2	SWPP	0.0	0.0	236	369	240	N/A	
			Total	6 / 0	6	0.7	6	0.7	0	0.0					ED-6	SWPP	2.6	2.6					
															FIRM-7	SWPP	0.0	0.0					
															FIRM-CREDIT	SWPP	0.0	0.0					
															Total		2.6	2.6					
Jan 12 06:27	TLR 5A	NEXT		NONE								NONE				ED-2	SWPP	0.0	0.0	230	356	232	N/A
																ED-6	SWPP	16.0	16.0				
																FIRM-7	SWPP	0.0	0.0				
																FIRM-CREDIT	SWPP	0.0	0.0				
																Total		16.0	16.0				
Jan 12 07:30	TLR 5A	NEXT		NONE								NONE				ED-2	SWPP	0.0	0.0	244	378	246	N/A
																ED-6	SWPP	0.0	0.0				
																FIRM-7	SWPP	0.0	0.0				
																FIRM-CREDIT	SWPP	0.0	0.0				
																Total		0.0	0.0				
Jan 12 08:28	TLR 5A	NEXT		NONE								NONE				ED-2	SWPP	0.0	0.0	242	375	245	N/A
																ED-6	SWPP	0.0	0.0				
																FIRM-7	SWPP	0.0	0.0				
																FIRM-CREDIT	SWPP	0.0	0.0				
																Total		0.0	0.0				
Jan 12 09:30	TLR 5A	NEXT	7-F	11 / 0	22	2.7	22	2.7	0	0.0	AECI	2.0	2.0	ED-2	SWPP	0.0	0.0	242	375	244	N/A		
			Total	11 / 0	22	2.7	22	2.7	0	0.0	SPA	2.0	2.0	ED-6	SWPP	4.2	4.2						
											Total	4.0	4.0	FIRM-7	SWPP	0.0	0.0						
															FIRM-CREDIT	SWPP	0.0	0.0					
				</																			

Jan 12 12:39	TLR 5A	NEXT	7-F Total	9 / 0 18	2.1 18	2.1 18	2.1 18	0 0	0.0 0.0	AECI SPA Total	1.0 2.0 3.0	1.0 2.0 3.0	ED-2 ED-8 FIRM-7 FIRM-CREDIT Total	0.0 12.0 0.0 0.0 12.0	0.0 12.0 0.0 0.0 12.0	235	364	237	N/A
Jan 12 13:28	TLR 5A	NEXT	7-F Total	12 / 0 30	3.5 30	3.5 30	3.5 30	0 0	0.0 0.0	AECI SPA Total	2.0 3.0 5.0	2.0 3.0 5.0	ED-2 ED-8 FIRM-7 FIRM-CREDIT Total	0.0 5.4 0.0 0.0 5.4	0.0 5.4 0.0 0.0 5.4	234	362	238	N/A
Jan 12 14:25	TLR 5A	NEXT	7-F Total	6 / 0 6	0.7 6	0.7 6	0.7 6	0 0	0.0 0.0	NONE	NONE	NONE	ED-2 ED-8 FIRM-7 FIRM-CREDIT Total	0.0 3.7 0.0 0.0 3.7	0.0 3.7 0.0 0.0 3.7	215	333	217	N/A
Jan 12 15:25	TLR 0	CURRENT			NONE					NONE			NONE			203	315	205	N/A

TLR Schedule Totals

Priority	Schedule			
	Total Tags Cut / Hold	IDC Cut MW	RC Cut Acknowledge MW	Hold MW
0	0	0	0	0
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	169	378	378	5
Total	169	378	378	5

TLR NNL Totals

CA	NNL Relief	
	IDC MW	RC Ackn MW
AECI	20.0	23.0
SPA	29.0	29.0
Total	49.0	52.0

TLR Market Flow Totals

Market	Type	Market Relief	
		IDC MW	RC Ackn MW
SWFP	ED-2	0.0	0.0
	ED-8	193.8	193.8
	FIRM-7	16.0	16.0
Total for SWFP		209.8	209.8
Total		209.8	209.8

Date	Time	Category	Issue
1/11/2011	17:46	TLR - 3a Initial	Issued TLR level 3A
1/11/2011	18:28	TLR - 5a Initial	Issued TLR level 5a Aeci nnl= 2.4mw will lower Chotct 31mw @ -7.8GSF SPA nnl = 3.9 will lower Keystone 35mw @-6.8 gsf and raise Tablerock 3 5mw @ 11.5 gsf +6.4
1/11/2011	19:26	TLR - 5a Reissue	Issued TLR level 5a Aeci nnl= 3.6mw will lower Chotct 46mw @ -7.8GSF SPA nnl = 4.5 will lower Keystone 35mw @-6.8 gsf and raise Tablerock 3 5mw @ 11.5 gsf =6.4
1/11/2011	20:30	TLR - 5a Reissue	Issued TLR level 5a Aeci nnl= .1mw will no relief required Spa nnl=1.4 raise Tablerock 35mw @ 11.5 gsf =more than 1.4
1/11/2011	21:34	TLR - 5a Reissue	Issued TLR level 5a Aeci nnl= 1.8mw will lower Chotct 20mw @ -7.8GSF SPA nnl = 2.2 will will leave generation at current level
1/11/2011	22:34	TLR - 5a Reissue	Issued TLR level 5a Aeci nnl= 1.8mw will lower Chotct 20mw @ -7.8GSF SPA nnl =2.2 will will leave generation at current level
1/12/2011	00:26	TLR - 5a Reissue	Reissued TLR level 5A no nnl
1/12/2011	01:26	TLR - 5a Reissue	Reissued TLR level 5A Aeci nnl=17. will lower Choto 20mw Spa nnl=2.0 will raise tablerock unit 25mw
1/12/2011	02:26	TLR - 5a	Reissued TLR level 5A Aeci nnl=17. will lower Choto 20mw Spa

Date	Time	Category	Issue
		Reissue	nnl=2.0 will raise tablerock unit 25mw
1/12/2011	04:34	TLR - 5a Reissue	Reissued TLR level 5A no nnl
1/12/2011	08:28	TLR - 5a Reissue	Reissued TLR level 5A, Aeci nnl=1.6, dropping Choto 12 Mw- Spa nnl=2.4 taking Keystone unit off line droppping 70 mws, Table Rock generation dropping 50 mws, MaCarthney raising generation 20 mws also SPA advise
1/12/2011	09:40	TLR - 5a Initial	Reissued TLR level 5A, NO>NNL this issue.
1/12/2011	11:36	TLR - 5a Initial	Reissued TLR level 5A, Aeci nnl=1.0, dropping Choto 8 Mw- Spa nnl=1.6. SPA will inc James River GT 1 10.
1/12/2011	12:26	TLR - 5a Reissue	Reissued TLR level 5A, AECI total>NNL responsibility =1.7, reducing Choto generation an additional 5 mws to 13 mws- SPA total>NNL resposibilities =2.9 mws. SPA will inc James River GT 1 10.
1/12/2011	13:34	TLR - 5a Initial	Reissued TLR level 5A, AECI total>NNL responsibility =0.2, reducing Choto generation an additional 11 mws to 13 mws- SPA total>NNL resposibilities =0.4 mws. SPA will advise increase sales north (out of CU) and increasing Bull Shoals.
1/12/2011	14:24	TLR - 0	TLR -0, loading at 87% PC flows at 348