

## RAPPORTS AU NPCC



Hydro-Québec TransÉnergie a l'obligation de transmettre annuellement à la Régie de l'énergie, en vertu de la décision D-2002-175 et tel que réitéré dans la décision D-2009-015, une copie des rapports publics qu'elle aura fournis au *Northeast Power Coordinating Council* («*NPCC*») concernant les événements rapportables et la liste de ces événements pour chacune des occasions où une indisponibilité rencontre les critères « d'événement rapportable », soit une perte de charge de 300 MW et plus ou une perte de production de 500 MW et plus.

À cet égard, le Transporteur présente ci-après la liste des événements rapportables au NPCC et des rapports afférents qu'il lui a transmis en 2010.



## LISTE DES RAPPORTS ATR (AREA TROUBLE REPORT) FOURNIS PAR TRANSÉNERGIE AU NPCC EN 2010

Temps			MW perdus		Perturbations	T récupération		Fréquence	C-11	% Récup.		Cause	Caté- gories
Mois	Jour	Heure	Prod. / Réception	Charge/ Livraison	installation et équipement	ACE (T-4)	ACE=0	extrême	%charge/0 ,1 Hz	%APC <1000 (code 1)	%APC >=1000 (code 2)		
Janvier		aucun rapport											
Février		aucun rapport											
Mars		aucun rapport											
Avril		aucun rapport											
Mai	10	14:38:12	507		Décl. L7068 Chissibi / La Grande-3; décl. A10, A11, A12 à la centrale La Grande-3.	00:50	00:54	59,64 Hz	15,35%	100%	-	Incident lors d'un essai sur les protections de télédéclenchement «C» et «D» de la L7068.	2
	22	16:08:00	1505		Décl. L7081 Nemiscau / Abitibi; rejet de production A3, A5, A11, A14 et A16 à la centrale La Grande-2.	06:43	06:58	58,80 Hz	2,84%	-	100%	Lors de travaux sur la protection de défaillance du D700-29, un relais est resté piqué.	3
	24	18:50:42	628		Décl. L3032 Micoua / Manic-5; décl. A55, A56, A57, A58 à la centrale Manic-5.	s/o	01:39	59,54 Hz	5,33%	100%	-	Foudre	1
	24	19:34:35	743		Décl. L3027 Micoua-Manic-3; perte de production de A31, A32, A33 à la centrale Manic-3. Décl. L3123 Micoua / Toulnoustouc; perte de production A1 à la centrale Toulnoustouc.	s/o	01:53	59,47 Hz	2,85%	100%	-	Foudre	1
	25	19:07:03	786		Décl. L7018 Jacques-Cartier / Saguenay; rejet de production A3, A4, A5 à la centrale La Grande-4.	s/o	02:53	59,47 Hz	3,19%	100%	-	Foudre	1
	27	17:12:39	1197	1188	Décl. des deux pôles du RMCC aux postes Radisson, Nicolet et Sandy Pond; rejet de production A21, A22, A23, A25 à la centrale La Grande-2A et perte de livraisons sur NEPEX.	s/o	00:28	60,53 Hz 59,65 Hz	4,79%	-	100%	Feux de forêt. Détection d'un défaut à environ 720 km au sud du poste Radisson.	1
	29	19:25:33	1167	885	Décl. des deux pôles du RMCC aux postes Radisson, Nicolet et Sandy Pond; rejet de production A21, A22, A23, A25 à la centrale La Grande-2A et perte de livraisons sur NEPEX.	s/o	00:23	60,05 Hz 59,81 Hz	6,78%	-	100%	Feux de forêt	1

**LISTE DES RAPPORTS ATR (AREA TROUBLE REPORT) FOURNIS PAR TRANSÉNERGIE AU NPCC EN 2010**

Temps			MW perdus		Perturbations	T récupération		Fréquence	C-11	% Récup.		Cause	Caté- gories
Mois	Jour	Heure	Prod. / Réception	Charge/ Livraison	installation et équipement	ACE (T-4)	ACE=0	extrême	%charge/0 ,1 Hz	%APC <1000 (code 1)	%APC >=1000 (code 2)		
Juin	19	16:33:32	592		Décl. L7093 Abitibi / La Vérendrye; rejet de production A2, A3 à la centrale La Grande-2.	02:20	02:27	59,54 Hz	5,20%	100%	-	Orage	1
	22	15:01:39	1135		Décl. L7080 Nemiscau / Abitibi; rejet de production A2, A3, A14, A15 à la centrale La Grande-2.	02:27	02:44	59,24 Hz	5,82%	-	100%	Feux de forêt	1
	22	15:07:29	1360		Décl. L7078 Albanel / Chibougamau; rejet de production A2, A3, A4, A5, A6 à la centrale La Grande-4.	s/o	11:33	50,13 Hz	2,98%	-	100%	Feux de forêt	1
	22	15:28:12	814		Décl. L7078 Albanel / Chibougamau; rejet de production A1, A7, A9 à la centrale La Grande-4.	s/o	01:42	59,45 Hz	2,18%	100%	-	Feux de forêt	1
	22	16:29:30	774		Décl. L7059 Albanel / Chissibi; rejet de production A3, A5, A6 à la centrale La Grande-4.	s/o	01:53	59,45 Hz	2,59%	100%	-	Feux de forêt	1
	30	14:49:51	857		Décl. L7029 Arnaud / Manicouagan; rejet de production A4, A6 à la centrale Churchill Falls.	02:31	02:56	59,46 Hz	4,81%	100%	-	Foudre, défaut sévère	1
Juillet	4	12:03:18	1184		Décl. L7061 Nemiscau / La Grande-2, rejet de production A3, A4, A13, A14 à la centrale La Grande-2.	02:32	03:07	59,17 Hz	3,58%	-	100%	Lors de la mise en charge de L7061 par le disjoncteur D700-9, ce dernier a déclenché par fuite d'huile phase B.	3
	12	23:03:51	534		Opération incorrecte de l'automatisme RPTC lors du retrait de L7061 Nemiscau / La Grande-2; rejet de production A14, A16 à la centrale La Grande-2C.	00:53	00:54	59,58 Hz	8,16%	100%	-	Opération incorrecte de l'automatisme de réseau RPTC, dont la cause n'a pas été identifiée (au 8 mars 2011).	3
	13	00:09:24	797	750	Décl. L7029 Manicouagan / Arnaud; rejet de production A4, A5 à la centrale Churchill Falls. Variations de tension importantes et perte de charge de clients industriels, dont 458 MW chez Alouette.	s/o	00:14	59,97 Hz	31,59%	100%	-	Orage	1
	30	11:43:39	774		Décl. L7078 Albanel / Chibougamau, rejet de production A3, A4, A6 à la centrale La Grande-4.	s/o	02:31	59,45 Hz	3,11%	100%	-	À 09:41, XL1 déclenche à la mise en charge à cause d'un défaut de l'alimentation pneumatique des contacts auxiliaires du D700-1, la phase B demeurant fermée. À 11:43, en ouvrant le sectionneur 1B6 pour isoler le D700-1 et vérifier la discordance de phase	3

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Temps			MW perdus		Perturbations	T récupération		Fréquence	C-11	% Récup.		Cause	Caté- gories
Mois	Jour	Heure	Prod. / Réception	Charge/ Livraison	installation et équipement	ACE (T-4)	ACE=0	extrême	%charge/0 ,1 Hz	%APC <1000 (code 1)	%APC >=1000 (code 2)		
Août	2	19:05:54	1292		Décl. L7076 Albanel / Chibougamau; rejet de production A1, A2, A3, A4, A6 à la centrale La Grande-4.	05:58	06:07	59,10 Hz	2,78%	-	100%	Foudre	1
	5	16:15:03	507		Décl. L7024 Chamouchouane / Jacques- Cartier; rejet de production A3, A4 à la centrale La Grande-4.	01:50	01:55	59,67 Hz	2,24%	100%	-	Foudre	1
	5	17:29:36	786		Décl. L7026 Chamouchouane / Saguenay; rejet de production A3, A4, A6 à la centrale La Grande-4.	03:56	04:03	59,50 Hz	2,72%	100%	-	Foudre	1
Sept.	1	15:29:15	1650		Décl. L7092 Abitibi / La Vérendrye; rejet de production A4, A6, A8, A13, A14 à la centrale La Grande-2.	s/o	09:21	58,90 Hz	1,56%	-	100%	Orage	1
Oct.	19	05:06:57	941		Décl. L7094 au poste La Vérendrye; rejet de production A3, A5, A10 à la centrale La Grande-2.	s/o	07:42	59,19 Hz	2,50%	100%	-	À la mise en charge de la L7094 avec le D-7002, discordance de phases due à un problème de garnitures.	3
	19	21:41:18	1168		Décl. A16, A3, A11, A10 à la centrale La Grande-2.	02:23	02:33	59,70 Hz	3,76%	-	100%	Incident. Lors d'une demande de baisse de tension de 5 kV à la centrale (de 754kV à 749kV), l'opérateur CER a enregistré une consigne de 700kV. Décl. par basse pression réserves oléopneumatiques.	2
	30	02:00:02	633		Décl. A10 puis A7, dans un intervalle de 55 secondes, à la centrale La Grande-2.	03:55	03:35	59,68 Hz	4,81%	100%	-	Erreur humaine, modification d'une consigne en kV plutôt qu'en MX. Groupes à la limite de sous-excitation, déclenchent par basse pression réserves oléopneumatiques.	2
Nov.		aucun rapport											
Déc.	6	18:43:03	1103		Décl. L7019 Micoua / Saguenay; rejet de production aux centrales Manic 5 (631MW) et Manic 5A (472MW).	s/o	04:41	59,38 Hz	1,88%	-	100%	Fils de garde recouverts de glace en contact avec des phases.	1
	9	08:40:36	850		Décl. L7076 Albanel / Chibougamau par RPTC; détection de ligne ouverte (DLO) et rejet de production A4, A5, A9 à la centrale La Grande 4.	01:59	04:29	59,50 Hz	2,43%	100%	-	Ouverture du D700-62 Chibougamau, pour entretien NPCC, et mauvaise indication par position d'appareil provenant d'un sectionneur adjacent au D700-61; bobine brûlée et came défectueuse.	3

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Temps			MW perdus		Perturbations	T récupération		Fréquence	C-11	% Récup.		Cause	Caté- gories
Mois	Jour	Heure	Prod. / Réception	Charge/ Livraison	installation et équipement	ACE (T-4)	ACE=0	extrême	%charge/0 ,1 Hz	%APC <1000 (code 1)	%APC >=1000 (code 2)		
	15	06:31:36	1000		Décl. L7032 Montagnais / Arnaud; rejet de production A2, A4 à la centrale Churchill Falls.	s/o	07:13	59,47 Hz	2,12%	-	100%	Forts vents causant un court-circuit phase B-N sur L7032.	1
	15	09:15:27	782		Décl. L7033 Montagnais / Arnaud; rejet de production A2, A4 à la centrale Churchill Falls.	04:08	04:09	59,56 Hz	1,63%	100%	-	Pluie et forts vents causant un court-circuit phase B-N sur L7033.	1
	19	08:30:00	560		Décl. du T6 au poste La Grande-2; perte de production A11, A12 à la centrale La Grande-2.	01:27	01:39	59,69 Hz	3,82%	100%	-	Fonctionnement incorrect du relais 87-3 de la protection "B" du T6.	3

s/o : sans objet car ACE à T-4 est positif      \* 1: causes naturelles (météo) 2: incident, intervention humaine 3: bris d'appareillage/défaut logiciel



Report No. ATR\_HQTE\_2010\_05\_10\_15\_LA GRANDE-3\_507 MW Date: 05-10-10 Time: 14:38:12  
**QUÉBEC**

Origin: Generation loss at La Grande-3 GS (units 10, 11 and 12).

Cause: Tripping of a 735-kV Line (7068) between Chissibi Substation and La Grande-3 GS caused by a human error when technicians were testing the remote tripping protection of the line.

Generation Loss: 507 MW Percent of Loss to First Contingency: 49 %  
 Load Loss: \_\_\_\_\_ MW Maximum Interchange Deviation: 110 MW

Time to return ACE to initial (T-4) value: 00:50 minutes  
 Time to return ACE to zero: 00:54 minutes

Runback? (Y/N) N  
 Included in DCS? (Y/N) N  
 Reviewed by Area? (Y/N) N  
 Reviewed by CO-1? (Y/N) N

Freq. (@T-4) 59,9760 Freq. (after) 59,9983 Freq. Dev. 0,0222

Comments: The line was unavailable for 50 minutes.

See Comment File: \_\_\_\_\_ See Graph File(s): \_\_\_\_\_

**INTERCHANGE TABLE**

T = Time of Disturbance

Time	F	Sched	Actual	ACE	Time	F	Sched	Actual	ACE
T-60 sec					T+32 sec	59,9247	3661	3643	-232
T-56 sec					T+36 sec	59,9370	3661	3645	-297
T-52 sec	60,0083	3661	3678	27	T+40 sec	59,9530	3661	3645	-281
T-48 sec	60,0070	3661	3672	42	T+44 sec	59,9823	3661	3658	-195
T-44 sec	60,0007	3661	3678	23	T+48 sec	59,9990	3661	3657	-54
T-40 sec	59,9993	3661	3681	3	T+52 sec	60,0017	3661	3662	10
T-36 sec	59,9950	3661	3677	-6	T+56 sec	59,9893	3661	3658	11
T-32 sec	59,9913	3661	3675	-29	T+60 sec	59,9850	3661	3658	-27
T-28 sec	59,9907	3661	3670	-39	T+2 min	60,0510	3661	3674	274
T-24 sec	59,9910	3661	3670	-46	T+3 min	60,0160	3661	3676	85
T-20 sec	59,9940	3661	3670	-38	T+4 min	59,9860	3661	3677	-40
T-16 sec	59,9987	3661	3673	-21	T+5 min	59,9710	3661	3677	-147
T-12 sec	59,9950	3661	3675	0	T+6 min	59,9500	3661	3667	-220
T-08 sec	59,9833	3661	3683	-37	T+7 min	60,0260	3661	3692	99
T-04 sec	59,9760	3661	3684	-88	T+8 min	59,9940	3661	3694	-30
T=0 sec	59,9830	3661	3679	-114	T+9 min	59,9900	3661	3694	-64
T+04 sec	59,9483	3661	3628	-65	T+10 min	59,9830	3661	3686	-61
T+08 sec	59,5987	3661	3574	-271	T+11 min	60,0300	3661	3686	151
T+12 sec	59,7400	3661	3641	-1562	T+12 min	59,9860	3661	3682	-97
T+16 sec	59,8893	3661	3645	-1040	T+13 min	60,0120	3661	3682	64
T+20 sec	59,9987	3661	3640	-331	T+14 min	60,0150	3661	3671	64
T+24 sec	59,9850	3661	3644	-64	T+15 min	59,9800	3661	3676	-54
T+28 sec	59,9557	3661	3644	-68					

Report No. ATR\_HQTE\_2010\_05\_22\_17\_NEMISCAU\_1505 MW Date: 05-22-10 Time: 16:08:00  
**QUÉBEC**

Origin: Generation rejection at La Grande-2 GS (units 3, 5, 11, 14 and 16).

Cause: Tripping of a 735-kV Line (7081) at Nemiscau Substation when technicians were testing a protection system of circuit-breaker D700-29. A realy contact stucked in close position.

Generation Loss: 1505 MW Percent of Loss to First Contingency: 147 %  
 Load Loss: \_\_\_\_\_ MW Maximum Interchange Deviation: 502 MW

Time to return ACE to initial (T-4) value: 06:43 minutes  
 Time to return ACE to zero: 06:58 minutes

Freq. (@T-4) 59,9673 Freq. (after) 60,0198 Freq. Dev. 0,0524  
 Runback? (Y/N) N  
 Included in DCS? (Y/N) N  
 Reviewed by Area? (Y/N) N  
 Reviewed by CO-1? (Y/N) N

Comments: A second tripping occured at 16:15:13 when trying to restore line 7081.  
Line 7081 was unavailable for 29min 30sec.

See Comment File: \_\_\_\_\_ See Graph File(s): \_\_\_\_\_

**INTERCHANGE TABLE**

T = Time of Disturbance

Time	F	Sched	Actual	ACE	Time	F	Sched	Actual	ACE
T-60 sec					T+32 sec	59,6527	3743	3671	-1461
T-56 sec					T+36 sec	59,6620	3743	3675	-1265
T-52 sec	60,0103	3743	3758	25	T+40 sec	59,6740	3743	3659	-1195
T-48 sec	60,0050	3743	3756	45	T+44 sec	59,6743	3743	3663	-1157
T-44 sec	60,0083	3743	3751	21	T+48 sec	59,6900	3743	3645	-1158
T-40 sec	60,0210	3743	3752	43	T+52 sec	59,6927	3743	3638	-1099
T-36 sec	60,0290	3743	3749	97	T+56 sec	59,7053	3743	3645	-1097
T-32 sec	60,0167	3743	3744	101	T+60 sec	59,7090	3743	3645	-1077
T-28 sec	60,0067	3743	3737	56	T+2 min	59,7200	3743	3629	-1006
T-24 sec	59,9920	3743	3739	14	T+3 min	59,8130	3743	3646	-719
T-20 sec	59,9900	3743	3742	-35	T+4 min	59,9650	3743	3682	-222
T-16 sec	59,9853	3743	3742	-40	T+5 min	59,8830	3743	3673	-411
T-12 sec	59,9720	3743	3746	-68	T+6 min	59,8360	3743	3668	-563
T-08 sec	59,9633	3743	3747	-121	T+7 min	59,9920	3743	3645	19
T-04 sec	59,9673	3743	3758	-148	T+8 min	59,8110	3743	3595	-624
T=0 sec	59,9810	3743	3767	-118	T+9 min	59,8230	3743	3599	-629
T+04 sec	60,0010	3743	3637	-51	T+10 min	59,9590	3743	3622	-177
T+08 sec	59,0177	3743	3256	22	T+11 min	59,9730	3743	3650	-96
T+12 sec	58,9430	3743	3544	-4145	T+12 min	59,9840	3743	3659	-67
T+16 sec	59,2750	3743	3619	-3669	T+13 min	60,0080	3743	3667	-16
T+20 sec	59,4303	3743	3644	-2302	T+14 min	60,0320	3743	3696	121
T+24 sec	59,4900	3743	3663	-2077	T+15 min	60,0550	3743	3714	191
T+28 sec	59,5713	3743	3669	-1744					

**QUÉBEC**

Origin: Generation rejection at Manic-5 GS (units 55, 56, 57 and 58).

Cause: Tripping of one 315-kV line (3032) between Micoua Substation and Manic-5 GS caused by a lightning surge.

Generation Loss: 628 MW      Percent of Loss to First Contingency: 61 %  
 Load Loss: \_\_\_\_\_ MW      Maximum Interchange Deviation: 125 MW

Time to return ACE to initial (T-4) value: \_\_\_\_\_ minutes  
 Time to return ACE to zero: 01:39 minutes      Runback? (Y/N) N

Freq. (@T-4)	Freq. (after)	Freq. Dev.	Included in DCS? (Y/N)
<u>59,9997</u>	<u>59,9880</u>	<u>-0,0117</u>	<u>N</u>
			Reviewed by Area? (Y/N) <u>N</u>
			Reviewed by CO-1? (Y/N) <u>N</u>

Comments: The restoration took 3 minutes.

See Comment File: \_\_\_\_\_ See Graph File(s): \_\_\_\_\_

**INTERCHANGE TABLE**

T = Time of Disturbance

Time	F	Sched	Actual	ACE	Time	F	Sched	Actual	ACE
T-60 sec					T+32 sec	59,9400	4910	4800	-196
T-56 sec					T+36 sec	59,8940	4910	4791	-354
T-52 sec	60,0073	4910	4846	14	T+40 sec	59,8713	4910	4794	-518
T-48 sec	60,0160	4910	4846	42	T+44 sec	59,8720	4910	4787	-599
T-44 sec	60,0227	4910	4847	85	T+48 sec	59,9090	4910	4801	-504
T-40 sec	60,0093	4910	4842	99	T+52 sec	59,9370	4910	4808	-376
T-36 sec	59,9890	4910	4846	17	T+56 sec	59,9583	4910	4811	-251
T-32 sec	59,9887	4910	4845	-53	T+60 sec	59,9590	4910	4808	-236
T-28 sec	59,9960	4910	4842	-45	T+2 min	60,0250	4910	4837	125
T-24 sec	60,0050	4910	4847	-9	T+3 min	60,0250	4910	4847	112
T-20 sec	60,0077	4910	4847	28	T+4 min	59,9990	4910	4835	7
T-16 sec	60,0103	4910	4840	38	T+5 min	59,9890	4910	4830	-75
T-12 sec	60,0100	4910	4842	51	T+6 min	60,0060	4910	4838	-11
T-08 sec	60,0043	4910	4843	39	T+7 min	60,0140	4910	4843	76
T-04 sec	59,9997	4910	4842	16	T+8 min	60,0440	4910	4858	100
T=0 sec	59,9940	4910	4838	-11	T+9 min	59,9940	4910	4843	9
T+04 sec	59,9847	4910	4804	-31	T+10 min	60,0370	5148	4851	186
T+08 sec	59,7103	4910	4717	-78	T+11 min	60,0100	5148	4942	24
T+12 sec	59,5870	4910	4767	-1877	T+12 min	60,0060	5148	5006	-15
T+16 sec	59,7417	4910	4777	-1841	T+13 min	59,9740	5148	5061	-133
T+20 sec	59,8630	4910	4780	-986	T+14 min	60,0020	5148	5071	17
T+24 sec	59,9160	4910	4785	-574	T+15 min	60,0230	5148	5080	132
T+28 sec	59,9480	-2423	-2632	-313					

Report No. ATR\_HQTE\_2010\_05\_24\_20\_MICOUA\_743 MW Date: 05-24-10 Time: 19:34:30  
**QUÉBEC**

Origin: Generation loss of 743 MW: Manic-3 GS 538 MW (units 31, 32, 33), Toulustouc GS 205 MW (unit 1).

Cause: Tripping of two 315-kV lines, 3027 Micoua-Manic-3 GS and 3123 Micoua-Toulustouc GS caused by a lightning surge.

Generation Loss: 743 MW Percent of Loss to First Contingency: 72 %  
 Load Loss: \_\_\_\_\_ MW Maximum Interchange Deviation: 165 MW

Time to return ACE to initial (T-4) value: \_\_\_\_\_ minutes  
 Time to return ACE to zero: 01:53 minutes

Runback? (Y/N) N  
 Included in DCS? (Y/N) N  
 Reviewed by Area? (Y/N) N  
 Reviewed by CO-1? (Y/N) N

Freq. (@T-4) 60,0027 Freq. (after) 60,0238 Freq. Dev. 0,0211

Comments: The restoration took 4 minutes.

See Comment File: \_\_\_\_\_ See Graph File(s): \_\_\_\_\_

**INTERCHANGE TABLE**

T = Time of Disturbance

Time	F	Sched	Actual	ACE	Time	F	Sched	Actual	ACE
T-60 sec					T+32 sec	59,8813	5148	5000	-460
T-56 sec					T+36 sec	59,8700	5148	5012	-551
T-52 sec	59,9900	5161	5071	-25	T+40 sec	59,8727	5148	5009	-583
T-48 sec	59,9840	5148	5070	-54	T+44 sec	59,8820	5148	5007	-565
T-44 sec	59,9937	5148	5068	-65	T+48 sec	59,8920	5148	5014	-510
T-40 sec	60,0043	5148	5070	-13	T+52 sec	59,9080	5148	5017	-468
T-36 sec	60,0070	5148	5069	25	T+56 sec	59,9257	5148	5020	-388
T-32 sec	60,0013	5148	5068	25	T+60 sec	59,9290	5148	5024	-366
T-28 sec	59,9980	5148	5069	-2	T+2 min	60,0080	5148	5048	46
T-24 sec	59,9950	5148	5070	-8	T+3 min	60,0170	5148	5060	115
T-20 sec	59,9920	5148	5072	-29	T+4 min	60,0380	5148	5018	152
T-16 sec	59,9980	5148	5069	-32	T+5 min	60,0090	5148	5004	71
T-12 sec	60,0020	5148	5062	0	T+6 min	60,0720	5148	5021	340
T-08 sec	60,0007	5148	5073	6	T+7 min	60,0410	5148	5032	207
T-04 sec	60,0027	5148	5070	5	T+8 min	60,0160	5148	5030	95
T=0 sec	60,0040	5148	5070	12	T+9 min	60,0000	5148	5022	44
T+04 sec	59,8533	5148	4969	22	T+10 min	59,9920	5148	5014	31
T+08 sec	59,3410	5148	4905	-818	T+11 min	60,0160	5148	5022	81
T+12 sec	59,6360	5148	4970	-2203	T+12 min	60,0040	5148	5023	22
T+16 sec	59,8000	5148	4981	-1417	T+13 min	59,9990	5148	5015	3
T+20 sec	59,8907	5148	5003	-702	T+14 min	60,0220	5148	5010	125
T+24 sec	59,8870	5148	4999	-576	T+15 min	60,0050	5148	5014	48
T+28 sec	59,8950	5148	5007	-474					

Report No. ATR\_HQTE\_2010\_05\_25\_20\_L7018\_786 MW Date: 05-25-10 Time: 19:07:03  
**QUÉBEC**

Origin: Generation rejection at La Grande-4 GS (units 3, 4 and 5).

Cause: Tripping of one 735-kV line (7018) between Jacques-Cartier and Saguenay Substations caused by a lightning surge.

Generation Loss: 786 MW Percent of Loss to First Contingency: 81 %  
 Load Loss: \_\_\_\_\_ MW Maximum Interchange Deviation: 94 MW

Time to return ACE to initial (T-4) value: \_\_\_\_\_ minutes  
 Time to return ACE to zero: 02:53 minutes

Runback? (Y/N) N  
 Included in DCS? (Y/N) Y  
 Reviewed by Area? (Y/N) N  
 Reviewed by CO-1? (Y/N) N

Freq. (@T-4) 60,0043 Freq. (after) 60,0120 Freq. Dev. 0,0077

Comments: The line reclosed within 1 second.  
At the time of the event, the first contingency loss was 972 MW.

See Comment File: \_\_\_\_\_ See Graph File(s): \_\_\_\_\_

**INTERCHANGE TABLE**

T = Time of Disturbance

Time	F	Sched	Actual	ACE	Time	F	Sched	Actual	ACE
T-60 sec					T+32 sec	59,8630	4678	4617	-428
T-56 sec					T+36 sec	59,8410	4678	4623	-698
T-52 sec	60,0077	4678	4714	22	T+40 sec	59,8557	4678	4632	-747
T-48 sec	60,0030	4678	4708	40	T+44 sec	59,8670	4678	4632	-650
T-44 sec	59,9967	4678	4709	8	T+48 sec	59,8890	4678	4632	-588
T-40 sec	59,9887	4678	4705	-29	T+52 sec	59,8983	4678	4634	-490
T-36 sec	59,9890	4678	4698	-64	T+56 sec	59,9010	4678	4633	-458
T-32 sec	59,9903	4678	4687	-51	T+60 sec	59,8990	4678	4634	-465
T-28 sec	59,9863	4678	4687	-50	T+2 min	60,0030	4678	4649	-17
T-24 sec	59,9910	4678	4683	-70	T+3 min	60,0270	4678	4668	123
T-20 sec	59,9960	4678	4683	-36	T+4 min	59,9900	4678	4652	-54
T-16 sec	60,0060	4678	4683	-15	T+5 min	60,0680	4678	4665	233
T-12 sec	60,0140	4678	4692	46	T+6 min	60,0620	4678	4675	254
T-08 sec	60,0063	4678	4685	57	T+7 min	60,0450	4678	4683	247
T-04 sec	60,0043	4678	4689	21	T+8 min	59,9980	4678	4668	-43
T=0 sec	60,0020	4678	4689	22	T+9 min	60,0140	4678	4677	54
T+04 sec	59,8727	4678	4617	3	T+10 min	60,0000	4678	4625	10
T+08 sec	59,3467	4678	4554	-736	T+11 min	59,9920	4678	4616	-21
T+12 sec	59,6460	4678	4621	-2317	T+12 min	59,9980	4678	4655	16
T+16 sec	59,8367	4678	4649	-1407	T+13 min	59,9870	4678	4652	-113
T+20 sec	59,9407	4678	4642	-536	T+14 min	60,0080	4678	4647	72
T+24 sec	59,9350	4678	4636	-357	T+15 min	59,9890	4678	4640	-190
T+28 sec	59,9480	4678	4633	-283					

Report No. ATR\_HQTE\_2010\_05\_27\_18\_RMCC\_1197 MW Date: 05-27-10 Time: 17:12:39

**QUÉBEC**

Origin: Generation rejection at La Grande-2A GS (units 21, 22, 23 and 25).

Cause: Tripping of the two terminals of HVDC (RMCC) at Radisson, Nicolet, Sandy Pond Substations due to forest fires. A fault was detected at about 720 km south of Radisson Substation.

Generation Loss: 1197 MW Percent of Loss to First Contingency: 123 %  
 Load Loss: 1188 MW Maximum Interchange Deviation: 186 MW

Time to return ACE to initial (T-4) value: \_\_\_\_\_ minutes  
 Time to return ACE to zero: 00:28 minutes

Runback? (Y/N) N  
 Included in DCS? (Y/N) N  
 Reviewed by Area? (Y/N) N  
 Reviewed by CO-1? (Y/N) N

Freq. (@T-4) 59,9927 Freq. (after) 60,0345 Freq. Dev. 0,0418

Comments: Loss of export of 1188 MW to ISO-NE.  
Frequency swing between 60,53 Hz and 59,65 Hz.  
Normal operation was restored at 18:07.

See Comment File: \_\_\_\_\_ See Graph File(s): \_\_\_\_\_

**INTERCHANGE TABLE**

T = Time of Disturbance

Time	F	Sched	Actual	ACE	Time	F	Sched	Actual	ACE
T-60 sec					T+32 sec	60,0560	5077	5074	317
T-56 sec					T+36 sec	59,9960	5077	5065	103
T-52 sec	59,9733	5077	5047	-74	T+40 sec	59,9693	5077	3472	-59
T-48 sec	59,9650	5077	5045	-139	T+44 sec	59,9493	5077	3857	-155
T-44 sec	59,9703	5077	5047	-152	T+48 sec	59,9580	5077	3870	-208
T-40 sec	59,9670	5077	5048	-134	T+52 sec	59,9700	5077	3864	-167
T-36 sec	59,9660	5077	5048	-157	T+56 sec	59,9670	5077	3859	-116
T-32 sec	59,9767	5077	5050	-143	T+60 sec	59,9630	5077	3860	-140
T-28 sec	59,9860	5077	5055	-93	T+2 min	59,9820	5077	3858	-86
T-24 sec	59,9860	5077	5053	-56	T+3 min	60,0380	5077	3875	188
T-20 sec	59,9857	5077	5057	-69	T+4 min	59,9770	5077	3866	-37
T-16 sec	59,9977	5077	5052	-52	T+5 min	59,9860	5077	3861	-74
T-12 sec	60,0060	5077	5043	3	T+6 min	60,0030	5077	3860	-8
T-08 sec	60,0027	5077	5041	24	T+7 min	59,9990	5077	3855	-81
T-04 sec	59,9927	5077	5044	1	T+8 min	60,0180	5077	3840	37
T=0 sec	59,9880	5077	5062	-45	T+9 min	59,9870	5077	3836	-57
T+04 sec	60,0200	5077	5132	-59	T+10 min	60,0040	5077	3832	-3
T+08 sec	60,4470	5077	5121	130	T+11 min	59,9990	5077	3831	-55
T+12 sec	60,0900	5077	5025	2054	T+12 min	59,9960	5077	3830	-61
T+16 sec	59,5700	5077	5043	-175	T+13 min	60,0190	5077	3835	40
T+20 sec	59,7133	5077	5077	-2378	T+14 min	60,0250	5077	3839	167
T+24 sec	59,9660	5077	5058	-619	T+15 min	59,9840	5077	3841	-38
T+28 sec	60,0527	5077	5064	16					

Report No. ATR\_HQTE\_2010\_05\_29\_20\_RMCC\_1167MW Date: 05-29-10 Time: 19:25:33

**QUÉBEC**

Origin: Generation rejection at La Grande-2A GS (units 21, 22, 23 and 25).

Cause: Tripping of the two terminals of HVDC (RMCC) at Radisson, Nicolet, Sandy Pond Substations due to forest fires.

Generation Loss: 1167 MW      Percent of Loss to First Contingency: 114 %  
 Load Loss: 885 MW      Maximum Interchange Deviation: 102 MW

Time to return ACE to initial (T-4) value: 00:23 minutes  
 Time to return ACE to zero: 00:23 minutes      Runback? (Y/N) N

Freq. (@T-4) 60,0045      Freq. (after) 0,0145      Freq. Dev. -59,9900      Included in DCS? (Y/N) N  
 Reviewed by Area? (Y/N) N  
 Reviewed by CO-1? (Y/N) N

Comments: Loss of export of 858 MW to ISO-NE.  
Frequency swing between 60,04 Hz and 59,81 Hz.  
Normal operation was restored at 20:32.

See Comment File: \_\_\_\_\_ See Graph File(s): \_\_\_\_\_

**INTERCHANGE TABLE**

T = Time of Disturbance

Time	F	Sched	Actual	ACE	Time	F	Sched	Actual	ACE
T-60 sec					T+32 sec	59,9900	4113	3177	31
T-56 sec	59,9867	4113	4030	-55	T+36 sec	59,9700	4113	3175	-67
T-52 sec	60,0000	4113	4035	-49	T+40 sec	59,9567	4113	3175	-161
T-48 sec	60,0200	4113	4037	57	T+44 sec	59,9600	4113	3172	-137
T-44 sec	60,0167	4113	4037	60	T+48 sec	59,9700	4113	3173	-124
T-40 sec	60,0100	4113	4037	65	T+52 sec	59,9700	4113	3173	-112
T-36 sec	60,0100	4113	4037	56	T+56 sec	59,9700	4113	3173	-115
T-32 sec	60,0100	4113	4034	44	T+60 sec	59,9700	4113	3173	-108
T-28 sec	60,0100	4113	4036	21	T+2 min	59,9900	4113	3181	-78
T-24 sec	60,0200	4113	4037	43	T+3 min	59,9700	4113	3178	-81
T-20 sec	60,0200	4113	4043	63	T+4 min	59,9400	4113	3157	-168
T-16 sec	60,0200	4113	4041	104	T+5 min	60,0300	4113	3163	-43
T-12 sec	60,0200	4113	4040	83	T+6 min	60,0100	3994	3160	41
T-08 sec	60,0167	4113	4035	73	T+7 min	59,9900	3276	3155	-71
T-04 sec	60,0100	4113	4036	53	T+8 min	59,9900	3276	3163	46
T=0 sec	60,0500	4113	4037	53	T+9 min	59,9900	3276	3155	10
T+04 sec	60,0500	4113	4048	253	T+10 min	60,0300	3276	3159	155
T+08 sec	59,6833	4113	4045	-513	T+11 min	60,0100	3276	3148	54
T+12 sec	59,8300	4113	4029	-227	T+12 min	59,9800	3276	3154	-34
T+16 sec	60,0167	4113	4050	-373	T+13 min	60,0000	3276	3160	-11
T+20 sec	59,9700	4113	4045	-337	T+14 min	60,0100	3276	3161	43
T+24 sec	60,0200	4113	3169	41	T+15 min	59,9900	3276	3169	-32
T+28 sec	59,9480	4113	3169	28					

Report No. ATR\_HQTE\_2010\_06\_19\_17\_La Grande-2\_592 MW Date: 06-19-10 Time: 16:33:27  
**QUÉBEC**

Origin: Generation rejection at La Grande-2 GS (units 2 and 3).

Cause: Tripping oh one 735-kV Lines (7093) between Abitibi and La Verendrye substations  
caused by a thunderstorm.

Generation Loss: 592 MW Percent of Loss to First Contingency: 44 %  
Load Loss: \_\_\_\_\_ MW Maximum Interchange Deviation: 47 MW

Time to return ACE to initial (T-4) value: 02:20 minutes  
Time to return ACE to zero: 02:27 minutes

Freq. (@T-4) Freq. (after) Freq. Dev. Runback? (Y/N) N  
Included in DCS? (Y/N) N  
59,9757 59,9978 0,0221 Reviewed by Area? (Y/N) N  
Reviewed by CO-1? (Y/N) N

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

See Comment File: \_\_\_\_\_ See Graph File(s): \_\_\_\_\_

**INTERCHANGE TABLE**

T = Time of Disturbance

Time	F	Sched	Actual	ACE	Time	F	Sched	Actual	ACE
T-60 sec					T+32 sec	59,8680	5768	5632	-427
T-56 sec					T+36 sec	59,8760	5768	5645	-547
T-52 sec	59,9940	5768	5656	-7	T+40 sec	59,8907	5768	5642	-534
T-48 sec	59,9890	5768	5656	-34	T+44 sec	59,9070	5768	5643	-458
T-44 sec	59,9877	5768	5654	-51	T+48 sec	59,9080	5768	5639	-401
T-40 sec	59,9903	5768	5654	-52	T+52 sec	59,8987	5768	5637	-399
T-36 sec	59,9880	5768	5655	-39	T+56 sec	59,9027	5768	5643	-450
T-32 sec	59,9907	5768	5654	-52	T+60 sec	59,9070	5768	5642	-424
T-28 sec	59,9967	5768	5656	-34	T+2 min	59,9660	5768	5677	-156
T-24 sec	60,0020	5768	5658	-10	T+3 min	60,0470	5768	5705	189
T-20 sec	60,0020	5768	5659	9	T+4 min	59,9960	5768	5723	4
T-16 sec	59,9973	5768	5658	5	T+5 min	59,9790	5768	5699	-156
T-12 sec	59,9950	5768	5657	-16	T+6 min	60,0180	5768	5711	94
T-08 sec	59,9930	5768	5655	-23	T+7 min	60,0440	5768	5728	158
T-04 sec	59,9757	5768	5660	-41	T+8 min	60,0140	5768	5715	55
T=0 sec	59,9500	5768	5691	-138	T+9 min	60,0400	5768	5731	204
T+04 sec	59,8873	5768	5636	-240	T+10 min	60,0480	5768	5734	232
T+08 sec	59,4813	5768	5613	-553	T+11 min	59,9970	5768	5706	25
T+12 sec	59,6560	5768	5630	-1931	T+12 min	60,0110	5768	5719	95
T+16 sec	59,8400	5768	5635	-1337	T+13 min	59,9860	5768	5716	-46
T+20 sec	59,9490	5768	5628	-494	T+14 min	60,0130	5768	5721	48
T+24 sec	59,9420	5768	5629	-249	T+15 min	59,9810	5768	5711	-61
T+28 sec	59,9100	5768	5640	-249					



Report No. ATR\_HQTE\_2010\_06\_22\_16\_La Grande-2\_1135 MW Date: 06-22-10 Time: 15:01:39  
**QUÉBEC**

Origin: Generation rejection at La Grande-2 GS (units 2, 3, 14 and 15).

Cause: Tripping on one 735-kV Lines (7080) between Nemiscau and Abitibi substations caused by forest fire.

Generation Loss: 1135 MW Percent of Loss to First Contingency: 77 %  
 Load Loss: \_\_\_\_\_ MW Maximum Interchange Deviation: 332 MW

Time to return ACE to initial (T-4) value: 02:27 minutes

Time to return ACE to zero: 02:44 minutes

Runback? (Y/N) N

Included in DCS? (Y/N) N

Freq. (@T-4) 59,9590 Freq. (after) 59,8365 Freq. Dev. -0,1225

Reviewed by Area? (Y/N) N

Reviewed by CO-1? (Y/N) N

Comments: At the time of the event, the First Contingency Loss was 1476 MW, so the Percent of Loss to First Contingency is 77%.

See Comment File: \_\_\_\_\_ See Graph File(s): \_\_\_\_\_

#### INTERCHANGE TABLE

T = Time of Disturbance

Time	F	Sched	Actual	ACE	Time	F	Sched	Actual	ACE
T-60 sec					T+32 sec	59,8777	4819	4750	-478
T-56 sec					T+36 sec	59,8410	4819	4750	-614
T-52 sec	60,0233	4819	4798	189	T+40 sec	59,8237	4819	4750	-729
T-48 sec	60,0090	4819	4801	81	T+44 sec	59,8247	4819	4756	-796
T-44 sec	60,0093	4819	4797	41	T+48 sec	59,8470	4819	4758	-737
T-40 sec	60,0073	4819	4795	44	T+52 sec	59,8563	4819	4765	-657
T-36 sec	60,0050	4819	4798	30	T+56 sec	59,8523	4819	4760	-621
T-32 sec	60,0150	4819	4805	33	T+60 sec	59,8460	4819	4755	-650
T-28 sec	60,0243	4819	4802	86	T+2 min	59,9290	4819	4781	-330
T-24 sec	60,0210	4819	4802	121	T+3 min	60,0380	4819	4805	125
T-20 sec	60,0123	4819	4801	87	T+4 min	60,0490	4819	4824	266
T-16 sec	60,0143	4819	4804	53	T+5 min	60,0080	4819	4812	50
T-12 sec	60,0170	4819	4804	77	T+6 min	59,1550	4819	4514	-2810
T-08 sec	59,9830	4819	4803	39	T+7 min	59,8630	4819	4761	-652
T-04 sec	59,9590	4819	4805	-124	T+8 min	59,8680	4819	4781	-550
T=0 sec	59,9620	4819	4802	-208	T+9 min	59,8590	4819	4764	-584
T+04 sec	59,9580	4819	4802	-169	T+10 min	59,8230	4819	4752	-727
T+08 sec	59,3440	4819	4472	-183	T+11 min	59,8330	4819	4755	-598
T+12 sec	59,3970	4819	4694	-3237	T+12 min	59,7740	4819	4752	-926
T+16 sec	59,6250	4819	4741	-2471	T+13 min	59,8140	4819	4674	-754
T+20 sec	59,7680	4819	4742	-1404	T+14 min	59,8700	4819	4573	-572
T+24 sec	59,8410	4819	4748	-971	T+15 min	59,8880	4819	4441	-518
T+28 sec	59,8810	4819	4743	-614					

**QUÉBEC**

Origin: Generation rejection at La Grande-4 GS (units 2, 3, 4, 5 and 6).

Cause: Tripping of one 735-kV Lines (7078) between Albanel and Chibougamau substations caused by forest fire.

Generation Loss: 1360 MW Percent of Loss to First Contingency: 98,9 %  
 Load Loss: \_\_\_\_\_ MW Maximum Interchange Deviation: 315 MW

Time to return ACE to initial (T-4) value: \_\_\_\_\_ minutes  
 Time to return ACE to zero: 11:33 minutes

Runback? (Y/N) N  
 Included in DCS? (Y/N) Y  
 Reviewed by Area? (Y/N) N  
 Reviewed by CO-1? (Y/N) N

Freq. (@T-4) 60,0423 Freq. (after) 59,9880 Freq. Dev. -0,0543

Comments: Before this event, Line 7080 had tripped at 15:01:39. At the time of the event, the First Contingency Loss was 1375 MW, so the Percent of Loss to First Contingency is 98,9% and this event is included in the DCS Report.

See Comment File: \_\_\_\_\_

See Graph File(s): \_\_\_\_\_

**INTERCHANGE TABLE**

T = Time of Disturbance

Time	F	Sched	Actual	ACE	Time	F	Sched	Actual	ACE
T-60 sec					T+32 sec	59,8017	4819	4740	-921
T-56 sec					T+36 sec	59,8150	4819	4745	-849
T-52 sec	60,0117	3234	3226	1335	T+40 sec	59,8163	4819	4755	-778
T-48 sec	60,0080	4819	4812	50	T+44 sec	59,7993	4819	4756	-784
T-44 sec	60,0033	4819	4811	31	T+48 sec	59,7960	4819	4739	-871
T-40 sec	59,9980	4819	4809	7	T+52 sec	59,8013	4819	4751	-878
T-36 sec	60,0120	4819	4823	-12	T+56 sec	59,8083	4819	4748	-848
T-32 sec	60,0617	4819	4830	116	T+60 sec	59,8190	4819	4754	-836
T-28 sec	60,0823	4819	4829	320	T+2 min	59,8560	4819	4776	-571
T-24 sec	60,0770	4819	4828	382	T+3 min	59,8740	4819	4772	-531
T-20 sec	60,0613	4819	4827	335	T+4 min	59,8450	4819	4758	-675
T-16 sec	60,0453	4819	4828	259	T+5 min	59,8300	4819	4755	-748
T-12 sec	60,0410	4819	4823	193	T+6 min	59,7910	4819	4750	-817
T-08 sec	60,0377	4819	4828	181	T+7 min	59,8290	4819	4682	-741
T-04 sec	60,0423	4819	4829	177	T+8 min	59,8630	4819	4593	-562
T=0 sec	60,0460	4819	4827	201	T+9 min	59,8840	4819	4462	-476
T+04 sec	60,0487	4819	4827	215	T+10 min	59,9340	4819	4327	-260
T+08 sec	59,8613	4819	4664	209	T+11 min	59,9420	3819	4211	-257
T+12 sec	59,1550	4819	4514	-2810	T+12 min	60,0500	3819	4154	215
T+16 sec	59,4003	4819	4753	-3902	T+13 min	60,1110	3819	4061	436
T+20 sec	59,6257	4819	4752	-2311	T+14 min	60,0230	3819	3948	124
T+24 sec	59,6970	4819	4738	-1640	T+15 min	60,0470	3819	3880	212
T+28 sec	59,7677	-2423	-2632	-1187					

Report No. ATR\_HQTE\_2010\_06\_22\_16\_La Grande-4\_814 MW Date: 06-22-10 Time: 15:28:12  
**QUÉBEC**

Origin: Generation rejection at La Grande-4 GS (units 1, 7 and 9).

Cause: Tripping oh one 735-kV Lines (7078) between Albanel and Chibougamau substations caused by forest fire.

Generation Loss: 814 MW Percent of Loss to First Contingency: 60 %  
 Load Loss: \_\_\_\_\_ MW Maximum Interchange Deviation: 204 MW

Time to return ACE to initial (T-4) value: \_\_\_\_\_ minutes  
 Time to return ACE to zero: 01:42 minutes

Runback? (Y/N) N  
 Included in DCS? (Y/N) N  
 Reviewed by Area? (Y/N) N  
 Reviewed by CO-1? (Y/N) N

Freq. (@T-4) 60,0587 Freq. (after) 60,0238 Freq. Dev. -0,0349

Comments: At the time of the event, the fFirst Contingency Loss was 1361 MW, so the Percent of Loss to First Contingency is 60%.

See Comment File: \_\_\_\_\_ See Graph File(s): \_\_\_\_\_

**INTERCHANGE TABLE**

T = Time of Disturbance

Time	F	Sched	Actual	ACE	Time	F	Sched	Actual	ACE
T-60 sec					T+32 sec	59,8840	3319	3611	-445
T-56 sec					T+36 sec	59,8770	3319	3605	-492
T-52 sec	60,0213	3319	3677	94	T+40 sec	59,8663	3319	3605	-530
T-48 sec	60,0270	3319	3679	91	T+44 sec	59,8690	3319	3615	-580
T-44 sec	60,0443	3319	3686	137	T+48 sec	59,8920	3319	3613	-523
T-40 sec	60,0617	3319	3681	215	T+52 sec	59,9120	3319	3621	-437
T-36 sec	60,0830	3319	3686	293	T+56 sec	59,9253	3319	3625	-355
T-32 sec	60,0883	3319	3684	380	T+60 sec	59,9270	3319	3621	-347
T-28 sec	60,0657	3319	3678	375	T+2 min	60,0260	3319	3664	153
T-24 sec	60,0400	3319	3682	257	T+3 min	60,0380	3319	3675	143
T-20 sec	60,0303	3319	3678	164	T+4 min	59,9790	3319	3643	-109
T-16 sec	60,0310	3319	3681	130	T+5 min	59,9780	3319	3653	-79
T-12 sec	60,0420	3319	3677	140	T+6 min	60,0240	3319	3702	56
T-08 sec	60,0567	3319	3677	204	T+7 min	60,0420	3319	3702	209
T-04 sec	60,0587	3319	3674	256	T+8 min	60,0280	3319	3687	110
T=0 sec	60,0550	3319	3670	254	T+9 min	60,0100	3319	3686	69
T+04 sec	59,8737	3319	3579	233	T+10 min	60,0220	3319	3662	91
T+08 sec	59,3173	3319	3470	-734	T+11 min	60,0630	3319	3631	219
T+12 sec	59,5890	3319	3596	-2254	T+12 min	60,0390	3319	3574	204
T+16 sec	59,7690	3319	3610	-1576	T+13 min	60,0500	3319	3571	128
T+20 sec	59,8890	3319	3602	-788	T+14 min	59,9930	3319	3563	-4
T+24 sec	59,8930	3319	3606	-528	T+15 min	60,0220	3319	3553	50
T+28 sec	59,8943	3319	3610	-430					



Report No. ATR\_HQTE\_2010\_06\_30\_15\_CHURCHILL FALLS\_857 MW Date: 06-30-10 Time: 14:49:51

**QUÉBEC**

Origin: Generation rejection at Churchill Falls GS (units 4 and 6).

Cause: Tripping of one 735-kV Lines (7029) between Arnaud and Manicouagan substations caused by a thunderstorm.

Generation Loss: 857 MW Percent of Loss to First Contingency: 67 %  
 Load Loss: \_\_\_\_\_ MW Maximum Interchange Deviation: 186 MW

Time to return ACE to initial (T-4) value: 02:31 minutes

Time to return ACE to zero: 02:56 minutes

Runback? (Y/N) N

Included in DCS? (Y/N) N

Freq. (@T-4) 59,9920 Freq. (after) 60,0345 Freq. Dev. 0,0425

Reviewed by Area? (Y/N) N

Reviewed by CO-1? (Y/N) N

Comments: Line 7029 was back on network 3 minutes later.

CORRECTION: When this event occurred, the First Contingency Loss was 1279 MW.

So the percent is 67% instead of 88% and this event is not included in the DCS.

See Comment File: \_\_\_\_\_

See Graph File(s): \_\_\_\_\_

**INTERCHANGE TABLE**

T = Time of Disturbance

Time	F	Sched	Actual	ACE	Time	F	Sched	Actual	ACE
T-60 sec					T+32 sec	59,8893	3028	3066	-252
T-56 sec					T+36 sec	59,8670	3028	3060	-432
T-52 sec	60,0027	3028	3116	0	T+40 sec	59,8643	3028	3068	-503
T-48 sec	60,0130	3028	3120	15	T+44 sec	59,8800	3028	3063	-502
T-44 sec	60,0223	3028	3111	61	T+48 sec	59,9010	3028	3066	-406
T-40 sec	60,0270	3028	3110	91	T+52 sec	59,9050	3028	3053	-346
T-36 sec	60,0350	3028	3111	105	T+56 sec	59,8990	3028	3057	-347
T-32 sec	60,0310	3028	3110	134	T+60 sec	59,8950	3028	3062	-361
T-28 sec	60,0130	3028	3111	100	T+2 min	59,9860	3028	3086	-119
T-24 sec	60,0080	3028	3111	36	T+3 min	60,0160	3028	3110	37
T-20 sec	60,0013	3028	3109	26	T+4 min	59,9850	3028	3119	21
T-16 sec	59,9920	3028	3107	-4	T+5 min	60,0180	3028	3126	14
T-12 sec	59,9890	3028	3110	-37	T+6 min	60,0080	3028	3135	22
T-08 sec	59,9900	3028	3113	-41	T+7 min	59,9930	3028	3132	17
T-04 sec	59,9920	3028	3110	-39	T+8 min	60,0130	3028	3129	-5
T=0 sec	59,9980	3028	3100	-25	T+9 min	60,0720	3028	3161	250
T+04 sec	59,8807	3028	3030	-3	T+10 min	60,0570	3028	3160	218
T+08 sec	59,3317	3028	2930	-545	T+11 min	60,0260	3097	3127	28
T+12 sec	59,6380	3028	3057	-1869	T+12 min	60,0170	3097	3117	29
T+16 sec	59,8153	3028	3031	-1142	T+13 min	59,9930	3097	3122	-53
T+20 sec	59,9293	3028	3068	-511	T+14 min	59,9880	3097	3113	-43
T+24 sec	59,9440	3028	3065	-277	T+15 min	60,0010	3097	3114	28
T+28 sec	59,9333	3028	3058	-183					

Report No. ATR\_HQTE\_2010\_07\_04\_13\_NEMISCAU\_1184 MW Date: 07-04-10 Time: 12:03:18  
**QUÉBEC**

Origin: Generation rejection at La Grande-2 GS (units 3, 4, 13 and 14).

Cause: Tripping of one 735-kV Line (7061) between Nemiscau and La Grande-2 Substations, when putting it on-load by closing the circuit-breaker 700-9, which tripped due to oil leakage.

Generation Loss: 1184 MW Percent of Loss to First Contingency: 116 %  
 Load Loss: \_\_\_\_\_ MW Maximum Interchange Deviation: 326 MW

Time to return ACE to initial (T-4) value: 02:32 minutes  
 Time to return ACE to zero: 03:07 minutes

Runback? (Y/N) N  
 Included in DCS? (Y/N) N  
 Reviewed by Area? (Y/N) N  
 Reviewed by CO-1? (Y/N) N

Freq. (@T-4) 59,9680 Freq. (after) 60,0250 Freq. Dev. 0,0570

Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

See Comment File: \_\_\_\_\_

See Graph File(s): \_\_\_\_\_

**INTERCHANGE TABLE**

T = Time of Disturbance

Time	F	Sched	Actual	ACE	Time	F	Sched	Actual	ACE
T-60 sec					T+32 sec	59,8000	3191	3078	-844
T-56 sec					T+36 sec	59,7930	3191	3068	-821
T-52 sec	59,9903	3191	3049	-20	T+40 sec	59,7877	3191	3076	-824
T-48 sec	59,9880	3191	3062	-46	T+44 sec	59,7857	3191	3083	-852
T-44 sec	59,9933	3191	3062	-45	T+48 sec	59,8180	3191	3087	-796
T-40 sec	59,9973	3191	3072	-24	T+52 sec	59,8367	3191	3093	-700
T-36 sec	59,9970	3191	3079	-10	T+56 sec	59,8620	3191	3111	-633
T-32 sec	59,9877	3191	3076	-23	T+60 sec	59,8620	3191	3098	-599
T-28 sec	59,9837	3191	3081	-64	T+2 min	59,9470	3191	3197	-252
T-24 sec	59,9840	3191	3087	-67	T+3 min	59,9880	3191	3221	-13
T-20 sec	59,9800	3191	3090	-76	T+4 min	60,0210	3191	3239	104
T-16 sec	59,9800	3191	3094	-86	T+5 min	59,9830	3191	3250	-142
T-12 sec	59,9760	3191	3097	-84	T+6 min	60,0640	3191	3290	226
T-08 sec	59,9727	3191	3099	-103	T+7 min	60,0290	3191	3285	164
T-04 sec	59,9680	3191	3102	-126	T+8 min	60,0250	3191	3278	60
T=0 sec	59,9750	3191	3092	-138	T+9 min	60,0300	3191	3265	86
T+04 sec	59,5003	3191	2834	-85	T+10 min	60,0200	3191	3265	102
T+08 sec	59,1173	3191	2777	-2467	T+11 min	60,0130	3191	3252	96
T+12 sec	59,4410	3191	3030	-2823	T+12 min	60,0470	3191	3268	237
T+16 sec	59,5623	3191	3022	-2031	T+13 min	60,0240	3191	3258	74
T+20 sec	59,6670	3191	3053	-1625	T+14 min	60,0290	3191	3264	87
T+24 sec	59,7430	3191	3057	-1229	T+15 min	60,0000	3191	3263	19
T+28 sec	59,7790	3191	3050	-954					

Report No. ATR\_HQTE\_2010\_07\_12\_24\_RPTC\_534 MW Date: 07-12-10 Time: 23:03:51  
**QUÉBEC**

Origin: Generation rejection at La Grande-2C GS (units 14 and 16).

Cause: When a 735-kV line (7061) between Nemiscau and La Grande-2 Substations was withdrawn for voltage control purposes, an incorrect operation of the RPTC SPS caused this generation rejection.

Generation Loss: 534 MW Percent of Loss to First Contingency: 47 %  
 Load Loss: \_\_\_\_\_ MW Maximum Interchange Deviation: 225 MW

Time to return ACE to initial (T-4) value: 00:53 minutes

Time to return ACE to zero: 00:54 minutes

Runback? (Y/N) N

Included in DCS? (Y/N) N

Freq. (@T-4) 59,9957 Freq. (after) 60,0023 Freq. Dev. 0,0066

Reviewed by Area? (Y/N) N

Reviewed by CO-1? (Y/N) N

Comments: This event is still under investigation with HQTE Resources in SPS operations analysis.

See Comment File: \_\_\_\_\_ See Graph File(s): \_\_\_\_\_

**INTERCHANGE TABLE**

T = Time of Disturbance

Time	F	Sched	Actual	ACE	Time	F	Sched	Actual	ACE
T-60 sec					T+32 sec	59,9547	1515	2131	-259
T-56 sec					T+36 sec	59,9640	1515	2135	-182
T-52 sec	59,9737	1515	2435	-71	T+40 sec	59,9733	1515	2129	-125
T-48 sec	59,9690	1515	2426	-117	T+44 sec	59,9727	1515	2118	-90
T-44 sec	59,9730	1515	2417	-121	T+48 sec	59,9780	1515	2088	-139
T-40 sec	59,9837	1515	2394	-96	T+52 sec	60,0113	1515	2064	-64
T-36 sec	59,9800	1515	2383	-54	T+56 sec	60,0363	1515	2053	75
T-32 sec	59,9727	1515	2377	-84	T+60 sec	60,0290	1515	2056	87
T-28 sec	59,9567	1515	2360	-122	T+2 min	60,0660	1515	1931	340
T-24 sec	59,9440	1515	2351	-192	T+3 min	60,0340	1515	1808	70
T-20 sec	59,9567	1515	2342	-211	T+4 min	60,0330	1515	1708	126
T-16 sec	59,9727	1515	2318	-154	T+5 min	59,9810	1515	1635	-81
T-12 sec	59,9860	1515	2295	-94	T+6 min	59,9560	1515	1565	-193
T-08 sec	59,9923	1515	2284	-51	T+7 min	60,0060	1515	1533	21
T-04 sec	59,9957	1515	2278	-22	T+8 min	59,9720	1515	1515	-84
T=0 sec	59,9720	1515	2263	-21	T+9 min	59,9980	1515	1512	25
T+04 sec	59,7013	1515	2197	-138	T+10 min	59,9810	1515	1528	-52
T+08 sec	59,4740	1515	2204	-1404	T+11 min	59,9830	1515	1561	-75
T+12 sec	59,7950	1515	2165	-1247	T+12 min	59,9920	1515	1548	-94
T+16 sec	59,9177	1515	2159	-633	T+13 min	59,9960	1515	1537	-12
T+20 sec	59,9870	1515	2181	-200	T+14 min	60,0310	1515	1551	58
T+24 sec	59,9580	1515	2167	-130	T+15 min	59,9900	1515	1551	-67
T+28 sec	59,9380	1515	2155	-171					

Report No. ATR\_HQTE\_2010\_07\_13\_01\_RPTC\_797 MW Date: 07-13-10 Time: 00:09:24  
**QUÉBEC**

Origin: Generation rejection at Churchill Falls GS (units 4 and 5).

Cause: Tripping of one 735-kV line (7029) between Arnaud and Manicouagan Substations due to a thunderstorm.

Generation Loss: 797 MW Percent of Loss to First Contingency: 80 %  
 Load Loss: 750 MW Maximum Interchange Deviation: 18 MW

Time to return ACE to initial (T-4) value:      minutes

Time to return ACE to zero: 00:14 minutes

Runback? (Y/N)     N    

Included in DCS? (Y/N)     Y    

Freq. (@T-4) 60,000 Freq. (after) 59,980 Freq. Dev. -0,120

Reviewed by Area? (Y/N)     N    

Reviewed by CO-1? (Y/N)     N    

Comments: Important voltage variations caused the tripping of Industrial customers: Alouette (458 MW), Arbec and ArcelorMittal, for a total of about 750 MW.

See Comment File: \_\_\_\_\_

See Graph File(s): \_\_\_\_\_

**INTERCHANGE TABLE**

T = Time of Disturbance

Time	F	Sched	Actual	ACE
T-60 sec	60,0200		947	109
T-56 sec				
T-52 sec	59,9900	1515	940	-7
T-48 sec	60,0300	1515	939	-1
T-44 sec	60,0400	1515	947	62
T-40 sec	60,0600	1515	954	190
T-36 sec	60,0500	1515	957	204
T-32 sec	60,0433	1515	943	177
T-28 sec	60,0300	1515	950	124
T-24 sec	60,0200	1515	954	93
T-20 sec	60,0200	1515	956	79
T-16 sec	60,0200	1515	954	51
T-12 sec	60,0100	1515	953	75
T-08 sec	60,0067	1515	954	57
T-04 sec	60,0000	1515	947	20
T=0 sec	60,0000	1515	943	20
T+04 sec	60,0000	1515	931	-18
T+08 sec	60,0000	1515	934	-9
T+12 sec	59,9900	1515	945	-110
T+16 sec	60,0433	1515	929	136
T+20 sec	60,0300	1515	933	75
T+24 sec	60,0100	1515	935	67
T+28 sec	60,0233	-2423	-2632	25

Time	F	Sched	Actual	ACE
T+32 sec	60,0200	1515	940	36
T+36 sec	59,9900	1515	943	58
T+40 sec	59,9900	1515	942	-70
T+44 sec	59,9900	1515	942	-38
T+48 sec	60,0000	1515	934	-13
T+52 sec	60,0400	1515	943	88
T+56 sec	60,0300	1515	941	63
T+60 sec	60,0200	1515	937	92
T+2 min	59,9600	1515	932	-164
T+3 min	59,9600	1515	937	-177
T+4 min	59,9400	1515	918	-256
T+5 min	60,0000	1515	935	9
T+6 min	60,0100	1515	929	-8
T+7 min	59,9700	1515	936	-46
T+8 min	60,0100	1515	944	48
T+9 min	60,0000	1515	941	2
T+10 min	60,0400	1515	944	47
T+11 min	59,9900	1515	932	1
T+12 min	59,9800	1515	938	-40
T+13 min	60,0000	1515	929	5
T+14 min	60,0000	1515	935	42
T+15 min	60,0200			



Report No. ATR\_HQTE\_2010\_07\_30\_12\_CHIBOUGAMAU\_774 MW Date: 07-30-10 Time: 11:43:39  
**QUÉBEC**

Origin: Generation rejection at La Grande-4 GS (units 3, 4 and 6).

Cause: Tripping of one 735-kV line (7078) between Albanel and Chibougamau Substations. At 09:41, when closing the circuit breaker D700-1 (XL1) to put on-load the inductance XL1, D700-1 opened due to a fault in the pneumatic feed of the auxiliary contacts, phase B of D700-1 remaining closed. At 11:43, when the disconnecting switch 1B8 was opened to isolate D700-1 and check the phase unbalance, line 7078 tripped.

Generation Loss: 774 MW Percent of Loss to First Contingency: 76 %  
 Load Loss: \_\_\_\_\_ MW Maximum Interchange Deviation: 146 MW

Time to return ACE to initial (T-4) value: \_\_\_\_\_ minutes  
 Time to return ACE to zero: 02:31 minutes

Runback? (Y/N) N  
 Included in DCS? (Y/N) N  
 Reviewed by Area? (Y/N) N  
 Reviewed by CO-1? (Y/N) N

Freq. (@T-4) 60,010 Freq. (after) 60,0238 Freq. Dev. 0,0228

Comments: \_\_\_\_\_

See Comment File: \_\_\_\_\_ See Graph File(s): \_\_\_\_\_

**INTERCHANGE TABLE**

T = Time of Disturbance

Time	F	Sched	Actual	ACE	Time	F	Sched	Actual	ACE
T-60 sec					T+32 sec	59,8847	4825	4696	-426
T-56 sec					T+36 sec	59,8610	4825	4683	-568
T-52 sec	60,0130	4825	4747	65	T+40 sec	59,8730	4825	4689	-633
T-48 sec	60,0100	4825	4749	57	T+44 sec	59,8750	4825	4691	-553
T-44 sec	60,0017	4825	4751	36	T+48 sec	59,8860	4825	4690	-541
T-40 sec	59,9997	4825	4758	-2	T+52 sec	59,8913	4825	4686	-494
T-36 sec	60,0020	4825	4756	6	T+56 sec	59,8900	4825	4689	-474
T-32 sec	60,0013	4825	4758	10	T+60 sec	59,8880	4825	4686	-488
T-28 sec	60,0000	4825	4753	5	T+2 min	59,9960	4825	4720	-44
T-24 sec	60,0080	4825	4755	2	T+3 min	60,0090	4825	4737	41
T-20 sec	60,0097	4825	4758	41	T+4 min	60,0170	4825	4742	120
T-16 sec	60,0130	4825	4760	42	T+5 min	60,0290	4825	4756	136
T-12 sec	60,0160	4825	4762	69	T+6 min	60,0550	4825	4773	202
T-08 sec	60,0070	4825	4752	62	T+7 min	60,0130	4825	4753	99
T-04 sec	60,0010	4825	4755	24	T+8 min	60,0110	4825	4743	74
T=0 sec	59,8890	4825	4709	0	T+9 min	60,0320	4825	4752	167
T+04 sec	59,4357	4825	4610	-659	T+10 min	60,0120	4825	4755	47
T+08 sec	59,4390	4825	4674	-3004	T+11 min	59,9840	4825	4749	-117
T+12 sec	59,7510	4825	4665	-1689	T+12 min	60,0080	4825	4753	-5
T+16 sec	59,8723	4825	4663	-910	T+13 min	60,0250	4825	4752	127
T+20 sec	59,9270	4825	4678	-434	T+14 min	60,0350	4825	4754	130
T+24 sec	59,9140	4825	4693	-388	T+15 min	60,0410	4825	4760	202
T+28 sec	59,9060	4825	4697	-380					

Report No. ATR\_HQTE\_2010\_08\_02\_20\_7076\_1292 MW Date: 08-02-10 Time: 19:05:54  
**QUÉBEC**

Origin: Generation rejection at La Grande-4 GS (units 1, 2, 3, 4 and 6).

Cause: Tripping of one 735-kV Line (7076) between Albanel and Chibougamau Substations due to a lightning surge.

Generation Loss: 1292 MW Percent of Loss to First Contingency: 139 %  
 Load Loss: \_\_\_\_\_ MW Maximum Interchange Deviation: 338 MW

Time to return ACE to initial (T-4) value: 05:58 minutes  
 Time to return ACE to zero: 06:07 minutes

Freq. (@T-4) Freq. (after) Freq. Dev. Runback? (Y/N) N  
 Included in DCS? (Y/N) N  
59,9817 60,0308 0,0491 Reviewed by Area? (Y/N) N  
 Reviewed by CO-1? (Y/N) N

Comments: The line reclosed after 5 seconds.

See Comment File: \_\_\_\_\_ See Graph File(s): \_\_\_\_\_

**INTERCHANGE TABLE**

T = Time of Disturbance

Time	F	Sched	Actual	ACE	Time	F	Sched	Actual	ACE
T-60 sec					T+32 sec	59,7897	4570	4537	-952
T-56 sec					T+36 sec	59,7660	4570	4530	-961
T-52 sec	59,9850	4570	4604	-65	T+40 sec	59,7607	4570	4534	-1036
T-48 sec	59,9880	4570	4609	-68	T+44 sec	59,7803	4570	4533	-1046
T-44 sec	59,9907	4570	4607	-51	T+48 sec	59,8080	4570	4547	-922
T-40 sec	59,9900	4570	4607	-46	T+52 sec	59,8373	4570	4551	-804
T-36 sec	59,9920	4570	4608	-46	T+56 sec	59,8517	4570	4555	-679
T-32 sec	59,9913	4570	4604	-35	T+60 sec	59,8560	4570	4559	-684
T-28 sec	59,9800	4570	4603	-48	T+2 min	59,9490	4570	4586	-201
T-24 sec	59,9780	4570	4606	-109	T+3 min	59,9500	4570	4570	-225
T-20 sec	59,9903	4570	4608	-87	T+4 min	59,9680	4570	4580	-212
T-16 sec	60,0010	4570	4608	-30	T+5 min	59,9730	4570	4570	-113
T-12 sec	60,0050	4570	4611	12	T+6 min	59,9990	4570	4561	-41
T-08 sec	59,9957	4570	4606	16	T+7 min	60,0690	4570	4576	327
T-04 sec	59,9817	4570	4610	-44	T+8 min	60,0750	4570	4593	387
T=0 sec	59,7870	4570	4488	-92	T+9 min	60,0010	4570	4570	28
T+04 sec	59,0377	4570	4272	-1204	T+10 min	60,0160	4570	4559	49
T+08 sec	59,0950	4570	4363	-5000	T+11 min	60,0350	4570	4566	163
T+12 sec	59,5320	4570	4495	-2784	T+12 min	60,0120	4570	4581	71
T+16 sec	59,6747	4570	4508	-1785	T+13 min	60,0450	4570	4583	238
T+20 sec	59,7457	4570	4503	-1259	T+14 min	60,0420	4570	4572	221
T+24 sec	59,7620	4570	4514	-1130	T+15 min	60,0240	4570	4562	194
T+28 sec	59,7767	4570	4520	-1005					

Report No. ATR\_HQTE\_2010\_08\_05\_17\_7024\_507 MW Date: 08-05-10 Time: 16:15:03  
**QUÉBEC**

Origin: Generation rejection at La Grande-4 GS (units 3 and 4).

Cause: Tripping of one 735-kV Line (7024) between Chamouchouane and Jacques-Cartier Substations due to a lightning surge.

Generation Loss: 507 MW Percent of Loss to First Contingency: 53 %  
 Load Loss: \_\_\_\_\_ MW Maximum Interchange Deviation: 96 MW

Time to return ACE to initial (T-4) value: 01:50 minutes  
 Time to return ACE to zero: 01:55 minutes

Runback? (Y/N) N  
 Included in DCS? (Y/N) N  
 Reviewed by Area? (Y/N) N  
 Reviewed by CO-1? (Y/N) N

Freq. (@T-4) 59,990 Freq. (after) 60,0103 Freq. Dev. 0,0113

Comments: The line reclosed after 2 seconds.

See Comment File: \_\_\_\_\_ See Graph File(s): \_\_\_\_\_

**INTERCHANGE TABLE**

T = Time of Disturbance

Time	F	Sched	Actual	ACE	Time	F	Sched	Actual	ACE
T-60 sec					T+32 sec	59,9410	4731	4605	-416
T-56 sec					T+36 sec	59,9490	4731	4603	-265
T-52 sec	59,9923	4731	4626	-25	T+40 sec	59,9477	4731	4607	-234
T-48 sec	59,9910	4731	4623	-37	T+44 sec	59,9397	4731	4600	-252
T-44 sec	59,9877	4731	4619	-47	T+48 sec	59,9450	4731	4607	-262
T-40 sec	59,9810	4731	4625	-67	T+52 sec	59,9543	4731	4608	-260
T-36 sec	59,9800	4731	4624	-103	T+56 sec	59,9753	4731	4611	-208
T-32 sec	59,9833	4731	4622	-89	T+60 sec	59,9750	4731	4611	-160
T-28 sec	59,9807	4731	4620	-84	T+2 min	60,0130	4731	4673	13
T-24 sec	59,9820	4731	4619	-99	T+3 min	60,0140	4731	4755	79
T-20 sec	59,9897	4731	4623	-77	T+4 min	60,0270	4731	4762	142
T-16 sec	59,9943	4731	4628	-43	T+5 min	59,9990	4731	4754	3
T-12 sec	59,9960	4731	4627	-24	T+6 min	60,0350	4731	4770	204
T-08 sec	59,9970	4731	4635	-19	T+7 min	59,9990	4731	4759	-2
T-04 sec	59,9990	4731	4636	-16	T+8 min	59,9910	4731	4754	-66
T=0 sec	60,0050	4731	4620	0	T+9 min	60,0140	4731	4751	68
T+04 sec	59,8783	4731	4600	33	T+10 min	59,9950	4731	4748	-11
T+08 sec	59,5733	4731	4540	-728	T+11 min	59,9950	4731	4749	-57
T+12 sec	59,7740	4731	4582	-1457	T+12 min	60,0260	4731	4736	65
T+16 sec	59,8633	4731	4576	-943	T+13 min	60,0230	4731	4733	125
T+20 sec	59,9027	4731	4582	-545	T+14 min	59,9910	4731	4732	-53
T+24 sec	59,8970	4731	4590	-499	T+15 min	60,0010	4731	4736	-6
T+28 sec	59,9090	4731	4594	-481					

Report No. ATR\_HQTE\_2010\_08\_05\_18\_7026\_786 MW Date: 08-05-10 Time: 17:29:36  
**QUÉBEC**

Origin: Generation rejection at La Grande-4 GS (units 3, 4 and 6).

Cause: Tripping of one 735-kV line (7026) between Chamouchouane and Saguenay Substations due to a lightning surge.

Generation Loss: 786 MW Percent of Loss to First Contingency: 85 %  
 Load Loss: \_\_\_\_\_ MW Maximum Interchange Deviation: 140 MW

Time to return ACE to initial (T-4) value: 03:56 minutes  
 Time to return ACE to zero: 04:03 minutes

Freq. (@T-4) 60,0023 Freq. (after) 59,9880 Freq. Dev. -0,0143  
 Runback? (Y/N) N  
 Included in DCS? (Y/N) Y  
 Reviewed by Area? (Y/N) N  
 Reviewed by CO-1? (Y/N) N

Comments: The line reclosed after 5 seconds.

See Comment File: \_\_\_\_\_

See Graph File(s): \_\_\_\_\_

**INTERCHANGE TABLE**

T = Time of Disturbance

Time	F	Sched	Actual	ACE	Time	F	Sched	Actual	ACE
T-60 sec					T+32 sec	59,8693	4800	4670	-605
T-56 sec					T+36 sec	59,8680	4800	4675	-598
T-52 sec	59,9813	4800	4753	-38	T+40 sec	59,8600	4800	4682	-625
T-48 sec	59,9660	4800	4744	-106	T+44 sec	59,8670	4800	4670	-659
T-44 sec	59,9537	4800	4748	-180	T+48 sec	59,8720	4800	4679	-616
T-40 sec	59,9510	4800	4747	-230	T+52 sec	59,8813	4800	4678	-591
T-36 sec	59,9580	4800	4745	-235	T+56 sec	59,9007	4800	4684	-541
T-32 sec	59,9677	4800	4747	-193	T+60 sec	59,9040	4800	4683	-506
T-28 sec	59,9757	4800	4746	-144	T+2 min	59,9060	4800	4691	-456
T-24 sec	59,9820	4800	4741	-110	T+3 min	59,9290	4800	4694	-363
T-20 sec	59,9870	4800	4744	-78	T+4 min	60,0050	4800	4724	-11
T-16 sec	59,9843	4800	4747	-63	T+5 min	60,0270	4800	4750	180
T-12 sec	59,9820	4800	4741	-81	T+6 min	60,0170	4800	4751	3
T-08 sec	59,9903	4800	4746	-81	T+7 min	60,0140	4800	4764	68
T-04 sec	60,0023	4800	4744	-32	T+8 min	60,0620	4800	4773	290
T=0 sec	59,9560	4800	4687	24	T+9 min	60,0120	4800	4752	35
T+04 sec	59,5507	4800	4604	-280	T+10 min	60,0200	4800	4762	137
T+08 sec	59,4153	4800	4690	-2572	T+11 min	60,0130	4800	4754	50
T+12 sec	59,7010	4800	4655	-1953	T+12 min	60,0150	4800	4754	68
T+16 sec	59,8143	4800	4656	-1212	T+13 min	60,0100	4800	4756	19
T+20 sec	59,8627	4800	4668	-731	T+14 min	60,0100	4800	4748	40
T+24 sec	59,8600	4800	4671	-693	T+15 min	59,9970	4800	4750	-15
T+28 sec	59,8680	-2423	-2632	-639					

Report No. ATR\_HQTE\_2010\_09\_01\_16\_7092\_1650 MW Date: 09-01-10 Time: 15:29:15

**QUÉBEC**

Origin: Generation rejection at La Grande-2 GS (units 4, 6, 8, 13 and 14).

Cause: Tripping of one 735-kV Line (7092) between Abitibi and La Vérendrye Substations due to a lightning surge.

Generation Loss: 1650 MW Percent of Loss to First Contingency: 184 %  
 Load Loss: \_\_\_\_\_ MW Maximum Interchange Deviation: 742 MW

Time to return ACE to initial (T-4) value: \_\_\_\_\_ minutes  
 Time to return ACE to zero: 09:21 minutes

Runback? (Y/N) N  
 Included in DCS? (Y/N) N  
 Reviewed by Area? (Y/N) N  
 Reviewed by CO-1? (Y/N) N

Freq. (@T-4) 60,0433 Freq. (after) 60,0053 Freq. Dev. -0,0381

Comments: The line reclosed after five seconds.

See Comment File: \_\_\_\_\_

See Graph File(s): \_\_\_\_\_

**INTERCHANGE TABLE**

T = Time of Disturbance

Time	F	Sched	Actual	ACE	Time	F	Sched	Actual	ACE
T-60 sec					T+32 sec	59,5530	3791	3623	-2114
T-56 sec					T+36 sec	59,6100	3791	3624	-1798
T-52 sec	60,0453	3791	3740	167	T+40 sec	59,5820	3791	3603	-1557
T-48 sec	60,0240	3791	3774	211	T+44 sec	59,5057	3791	3615	-1731
T-44 sec	59,9970	3791	3767	74	T+48 sec	59,5250	3791	3613	-1967
T-40 sec	59,9883	3791	3773	-32	T+52 sec	59,5357	3791	3614	-1945
T-36 sec	59,9910	3791	3767	-54	T+56 sec	59,5463	3791	3618	-1896
T-32 sec	59,9960	3791	3766	-34	T+60 sec	59,5700	3791	3621	-1884
T-28 sec	60,0007	3791	3764	-9	T+2 min	59,6410	3791	3694	-1502
T-24 sec	60,0050	3791	3764	3	T+3 min	59,7460	3791	3748	-1103
T-20 sec	60,0073	3791	3768	23	T+4 min	59,8010	3791	3764	-858
T-16 sec	60,0120	3791	3774	40	T+5 min	59,7950	3791	3774	-971
T-12 sec	60,0170	3791	3776	57	T+6 min	59,8650	3791	3802	-683
T-08 sec	60,0300	3791	3775	88	T+7 min	59,9450	3791	3798	-253
T-04 sec	60,0433	3791	3777	158	T+8 min	59,9020	3791	3794	-398
T=0 sec	60,0280	3791	3750	203	T+9 min	59,9880	3791	3825	-78
T+04 sec	59,8640	3791	3317	89	T+10 min	60,0150	3791	3810	148
T+08 sec	58,7533	3791	3035	-734	T+11 min	60,0090	3791	3801	-28
T+12 sec	58,9990	3791	3406	-4488	T+12 min	59,9810	3791	3804	-58
T+16 sec	59,2043	3791	3499	-4033	T+13 min	59,9990	3791	3816	-31
T+20 sec	59,3447	3791	3554	-3084	T+14 min	60,0200	3791	3752	79
T+24 sec	59,3980	3791	3592	-2727	T+15 min	60,0210	3791	3685	92
T+28 sec	59,4713	3791	3624	-2416					

Report No. ATR\_HQTE\_2010\_10\_19\_06\_7094\_941MW Date: 10-19-10 Time: 05:06:57  
**QUÉBEC**

Origin: Generation rejection at La Grande-2 GS (units 3, 5 and 10).

Cause: Tripping of a 735-kV Line (7094) at La Vérendrye Substation when it was put back on load due to a faulty circuit breaker (700-2) which had a gland packing problem.

Generation Loss: 941 MW Percent of Loss to First Contingency: 92 %  
 Load Loss: \_\_\_\_\_ MW Maximum Interchange Deviation: 181 MW

Time to return ACE to initial (T-4) value: \_\_\_\_\_ minutes  
 Time to return ACE to zero: 07:42 minutes

Runback? (Y/N) N  
 Included in DCS? (Y/N) Y  
 Reviewed by Area? (Y/N) N  
 Reviewed by CO-1? (Y/N) N

Freq. (@T-4) 60,0187 Freq. (after) 60,0308 Freq. Dev. 0,0121

Comments: The units were back in production between 05:13 and 05:15.  
The circuit breaker (700-2) was back 12hours 42 minutes later.

See Comment File: \_\_\_\_\_

See Graph File(s): \_\_\_\_\_

**INTERCHANGE TABLE**

T = Time of Disturbance

Time	F	Sched	Actual	ACE	Time	F	Sched	Actual	ACE
T-60 sec					T+32 sec	59,8457	-1912	-1955	-518
T-56 sec					T+36 sec	59,8270	-1912	-1953	-480
T-52 sec	60,0340	-1912	-1921	81	T+40 sec	59,7977	-1912	-1951	-504
T-48 sec	60,0430	-1912	-1920	114	T+44 sec	59,7850	-1912	-1954	-602
T-44 sec	60,0503	-1912	-1916	142	T+48 sec	59,8110	-1912	-1950	-586
T-40 sec	60,0443	-1912	-1912	150	T+52 sec	59,8497	-1912	-1946	-530
T-36 sec	60,0490	-1912	-1910	132	T+56 sec	59,8967	-1912	-1952	-402
T-32 sec	60,0447	-1912	-1904	146	T+60 sec	59,9100	-1912	-1945	-363
T-28 sec	60,0500	-1912	-1898	143	T+2 min	59,9450	-1912	-1899	-171
T-24 sec	60,0390	-1912	-1895	157	T+3 min	59,9480	-1912	-1908	-145
T-20 sec	60,0380	-1912	-1895	121	T+4 min	59,9230	-1912	-1913	-216
T-16 sec	60,0273	-1912	-1894	115	T+5 min	59,9730	-1912	-1899	-109
T-12 sec	60,0210	-1912	-1896	71	T+6 min	59,9380	-1912	-1910	-169
T-08 sec	60,0233	-1912	-1893	69	T+7 min	59,8970	-1912	-1914	-296
T-04 sec	60,0187	-1912	-1891	67	T+8 min	60,0470	-1912	-1886	129
T=0 sec	60,0160	-1912	-1893	57	T+9 min	60,0690	-1912	-1849	218
T+04 sec	59,6573	-1912	-1946	42	T+10 min	60,0260	-1912	-1852	79
T+08 sec	58,9587	-1912	-2071	-1245	T+11 min	59,9530	-1912	-1870	-105
T+12 sec	59,3710	-1912	-2000	-2226	T+12 min	59,9840	-1912	-1890	-97
T+16 sec	59,5337	-1912	-2010	-1670	T+13 min	60,0680	-1912	-1857	233
T+20 sec	59,6963	-1912	-1996	-1223	T+14 min	60,0310	-1912	-1854	134
T+24 sec	59,7430	-1912	-1979	-876	T+15 min	60,0400	-1912	-1853	143
T+28 sec	59,8043	-1912	-1966	-693					

Report No. ATR\_HQTE\_2010\_10\_19\_22\_La Grande-2\_1168 MW Date: 10-19-10 Time: 21:41:18  
**QUÉBEC**

Origin: Generation loss at La Grande-2 GS (units 16, 3, 11 and 10).

Cause: Human error by an operator at Rouyn regional control center. He had to reduce the voltage by 5 kV, from 754kV to 749kV, but he entered a setpoint of 700kV.

Generation Loss: 1168 MW Percent of Loss to First Contingency: 114 %  
 Load Loss: \_\_\_\_\_ MW Maximum Interchange Deviation: 71 MW

Time to return ACE to initial (T-4) value: 02:23 minutes  
 Time to return ACE to zero: 02:33 minutes

Freq. (@T-4)	Freq. (after)	Freq. Dev.	Runback? (Y/N)	<u>N</u>
<u>59,9747</u>	<u>60,0260</u>	<u>0,0513</u>	Included in DCS? (Y/N)	<u>N</u>
			Reviewed by Area? (Y/N)	<u>N</u>
			Reviewed by CO-1? (Y/N)	<u>N</u>

Comments: The units tripped on a low pression on electropneumatic reserves, one after another, between 21:41:18 and 21:42:59,9 until the voltage increased.

See Comment File: \_\_\_\_\_ See Graph File(s): \_\_\_\_\_

**INTERCHANGE TABLE**

T = Time of Disturbance

Time	F	Sched	Actual	ACE	Time	F	Sched	Actual	ACE
T-60 sec					T+32 sec	59,6857	-161	-184	-1157
T-56 sec					T+36 sec	59,8110	-161	-189	-920
T-52 sec					T+40 sec	59,8857	-161	-178	-620
T-48 sec					T+44 sec	59,9453	-161	-167	-350
T-44 sec					T+48 sec	59,9490	-161	-172	-219
T-40 sec					T+52 sec	59,9423	-161	-174	-175
T-36 sec					T+56 sec	59,9373	-161	-142	-219
T-32 sec					T+60 sec	59,9380	-161	-149	-221
T-28 sec	60,0060	-161	-108	51	T+2 min	59,9340	-161	-159	-375
T-24 sec	60,0020	-161	-111	14	T+3 min	60,0880	-161	-107	314
T-20 sec	59,9993	-161	-112	4	T+4 min	59,9730	-161	-113	-93
T-16 sec	59,9967	-161	-108	-6	T+5 min	60,0100	-161	-122	-4
T-12 sec	59,9800	-161	-123	-14	T+6 min	59,9950	-161	-113	23
T-08 sec	59,9713	-161	-105	-88	T+7 min	60,0150	-161	-107	78
T-04 sec	59,9747	-161	-121	-109	T+8 min	60,0100	-161	-105	24
T=0 sec	59,9500	-161	-118	-92	T+9 min	60,0010	-161	-90	70
T+04 sec	59,8207	-161	-122	-226	T+10 min	60,0620	-161	-101	238
T+08 sec	59,7713	-161	-144	-807	T+11 min	60,0300	-161	-90	78
T+12 sec	59,8140	-161	-151	-600	T+12 min	60,0340	-161	-95	98
T+16 sec	59,6980	-161	-192	-728	T+13 min	60,0130	-161	-97	66
T+20 sec	59,7820	-161	-145	-1241	T+14 min	60,0060	-161	-97	40
T+24 sec	59,8360	-161	-176	-583	T+15 min	60,0510	-161	-114	143
T+28 sec	59,7133	-161	-174	-626					

Report No. ATR\_HQTE\_2010\_10\_30\_03\_La Grande 2 633 MW Date: 10-30-10 Time: 02:00:02  
**QUÉBEC**

Origin: Generation loss at La Grande-2 GS (units 10 and 7 tripped by low pressure in an interval of 55 seconds).

Cause: An operator who had to adjust a set point used a kV-reference instead of a MX-reference. The MX production of the GS went from 23 MX to -250 MX. The excitations of the units approached the limit zone of the underexcitation limiter. Operating the units in their instability zone resulted in a 1,2 Hz oscillation. To regulate the oscillation, the speed governors used all the electropneumatic reserves.

Generation Loss: 633 MW Percent of Loss to First Contingency: 62 %  
 Load Loss: \_\_\_\_\_ MW Maximum Interchange Deviation: 45 MW

Time to return ACE to initial (T-4) value: 03:55 minutes  
 Time to return ACE to zero: 03:35 minutes

Freq. (@T-4) 60,0033 Freq. (after) 59,9880 Freq. Dev. -0,0153  
 Runback? (Y/N) N  
 Included in DCS? (Y/N) N  
 Reviewed by Area? (Y/N) N  
 Reviewed by CO-1? (Y/N) N

Comments: At the time of the event, only 2 units out of 16 were in operation. The settings of the underexcitation limiter will be reviewed to take into account the latest configuration data of the network.

See Comment File: \_\_\_\_\_

See Graph File(s): \_\_\_\_\_

**INTERCHANGE TABLE**

T = Time of Disturbance

Time	F	Sched	Actual	ACE	Time	F	Sched	Actual	ACE
T-60 sec					T+32 sec	59,9327	-2578	-2423	-201
T-56 sec					T+36 sec	59,9890	-2578	-2427	-103
T-52 sec	59,9977	-1668	-1580	-810	T+40 sec	60,0037	-2578	-2428	-6
T-48 sec	60,0080	-2477	-2396	34	T+44 sec	60,0150	-2578	-2425	19
T-44 sec	60,0137	-2477	-2398	28	T+48 sec	60,0400	-2578	-2395	102
T-40 sec	60,0070	-2477	-2400	37	T+52 sec	60,0107	-2578	-2397	106
T-36 sec	59,9930	-2477	-2410	12	T+56 sec	60,0097	-2578	-2419	11
T-32 sec	59,9887	-2477	-2398	-23	T+60 sec	59,9670	-2578	-2420	35
T-28 sec	59,9913	-2477	-2385	-32	T+2 min	60,0150	-2578	-2477	63
T-24 sec	59,9880	-2477	-2399	-20	T+3 min	60,0070	-2578	-2501	34
T-20 sec	59,9817	-2477	-2403	-39	T+4 min	59,9970	-2578	-2497	-25
T-16 sec	59,9903	-2477	-2391	-48	T+5 min	59,9960	-2578	-2498	-43
T-12 sec	59,9890	-2477	-2381	-17	T+6 min	60,0410	-2578	-2492	135
T-08 sec	59,9860	-2477	-2391	-35	T+7 min	60,0730	-2578	-2468	232
T-04 sec	60,0033	-2477	-2401	-30	T+8 min	60,0610	-2578	-2461	193
T=0 sec	60,0160	-2477	-2393	24	T+9 min	60,0500	-2578	-2461	136
T+04 sec	59,9227	-2612	-2415	50	T+10 min	60,0070	-2578	-2474	-3
T+08 sec	59,7260	-2578	-2427	-269	T+11 min	59,9850	-2578	-2476	-55
T+12 sec	59,7470	-2578	-2436	-743	T+12 min	59,9960	-2578	-2487	23
T+16 sec	59,8523	-2578	-2447	-646	T+13 min	60,0180	-2578	-2499	70
T+20 sec	59,9177	-2578	-2428	-322	T+14 min	60,0430	-2578	-2469	127
T+24 sec	59,9290	-2578	-2435	-231	T+15 min	59,9890	-2578	-2485	-11
T+28 sec	59,9250	-2423	-2632	-174					



Report No. ATR\_HQTE\_2010\_12\_06\_19\_7019\_1103 MW Date: 12-06-10 Time: 18:43:03  
**QUÉBEC**

Origin: Generation rejection of 631 MW at Manic-5 GS and 472 MW at Manic-5A GS.

Cause: Tripping, reclosing and tripping of a 735-kV Line (7019) at Micoua and Saguenay Substations caused by earth-wires covered with ice and in contact with phases.

Generation Loss: 1103 MW Percent of Loss to First Contingency: 114 %  
 Load Loss: \_\_\_\_\_ MW Maximum Interchange Deviation: 123 MW

Time to return ACE to initial (T-4) value: \_\_\_\_\_ minutes  
 Time to return ACE to zero: 04:41 minutes

Freq. (@T-4) Freq. (after) Freq. Dev.  
60,0027 60,0010 -0,0017

Runback? (Y/N) N  
 Included in DCS? (Y/N) N  
 Reviewed by Area? (Y/N) N  
 Reviewed by CO-1? (Y/N) N

Comments: Earth-wires were de-iced and recovered their position.

See Comment File: \_\_\_\_\_

See Graph File(s): \_\_\_\_\_

**INTERCHANGE TABLE**

T = Time of Disturbance

Time	F	Sched	Actual	ACE	Time	F	Sched	Actual	ACE
T-60 sec					T+32 sec	59,8537	2555	2461	-953
T-56 sec					T+36 sec	59,7970	2555	2444	-950
T-52 sec	60,0033	2555	2519	19	T+40 sec	59,7770	2555	2442	-1162
T-48 sec	59,9990	2555	2523	19	T+44 sec	59,7853	2555	2460	-1246
T-44 sec	59,9960	2555	2521	-11	T+48 sec	59,8100	2555	2465	-1120
T-40 sec	59,9967	2555	2514	-21	T+52 sec	59,8340	2555	2461	-1010
T-36 sec	59,9960	2555	2506	-17	T+56 sec	59,8480	2555	2451	-877
T-32 sec	59,9937	2555	2511	-24	T+60 sec	59,8540	2555	2458	-875
T-28 sec	59,9897	2555	2513	-43	T+2 min	59,9750	2555	2495	-151
T-24 sec	59,9920	2555	2514	-61	T+3 min	59,9840	2555	2507	-78
T-20 sec	60,0017	2555	2507	-31	T+4 min	59,9840	2555	2508	-108
T-16 sec	60,0063	2555	2515	19	T+5 min	60,0110	2555	2497	51
T-12 sec	60,0070	2555	2512	40	T+6 min	60,0090	2555	2502	53
T-08 sec	60,0040	2555	2508	33	T+7 min	59,9960	2555	2497	-29
T-04 sec	60,0027	2555	2508	22	T+8 min	59,9790	2555	2507	-69
T=0 sec	60,0030	2555	2509	13	T+9 min	60,0320	2555	2505	171
T+04 sec	59,8643	2555	2465	19	T+10 min	60,0230	2555	2460	177
T+08 sec	59,2707	2555	2385	-936	T+11 min	60,0120	2555	2438	91
T+12 sec	59,4820	2555	2386	-3340	T+12 min	60,0140	2555	2383	24
T+16 sec	59,6047	2555	2437	-2666	T+13 min	60,0180	1786	2313	110
T+20 sec	59,6823	2555	2424	-2000	T+14 min	59,9710	1786	2226	-164
T+24 sec	59,7540	2555	2453	-1632	T+15 min	60,0010	1786	2117	-92
T+28 sec	59,8113	2555	2465	-1253					

Report No. ATR\_HQTE\_2010\_12\_09\_09\_7076\_850 MW Date: 12-09-10 Time: 08:40:36  
**QUÉBEC**

Origin: Generation rejection at La Grande-4 GS (units 4, 5 and 9).

Cause: At Chibougamau substation, a burnt coil and a defective cam on a disconnecting switch adjacent to the circuit-breaker 700-61 caused an invalid indication to preset RPTC SPS. When circuit breaker 700-62 was opened, RPTC SPS operated to trip line 7076 Albanel-Chamouchouane and reject the generation.

Generation Loss: 850 MW Percent of Loss to First Contingency: 83 %  
 Load Loss: \_\_\_\_\_ MW Maximum Interchange Deviation: 155 MW

Time to return ACE to initial (T-4) value: 01:59 minutes  
 Time to return ACE to zero: 04:29 minutes

Freq. (@T-4) 59,9927 Freq. (after) 60,0003 Freq. Dev. 0,0076  
 Runback? (Y/N) N  
 Included in DCS? (Y/N) Y  
 Reviewed by Area? (Y/N) N  
 Reviewed by CO-1? (Y/N) N

Comments: Withdrawal of circuit-breaker 700-62 was made to carry out NPCC maintenance.

See Comment File: \_\_\_\_\_ See Graph File(s): \_\_\_\_\_

**INTERCHANGE TABLE**

T = Time of Disturbance

Time	F	Sched	Actual	ACE	Time	F	Sched	Actual	ACE
T-60 sec					T+32 sec	59,8537	3270	3161	-961
T-56 sec					T+36 sec	59,8780	3270	3171	-791
T-52 sec	60,0063	3270	3225	29	T+40 sec	59,8820	3270	3167	-672
T-48 sec	60,0090	3270	3220	39	T+44 sec	59,8843	3270	3170	-670
T-44 sec	60,0077	3270	3226	52	T+48 sec	59,8950	3270	3181	-669
T-40 sec	60,0057	3270	3225	41	T+52 sec	59,9203	3270	3194	-580
T-36 sec	60,0040	3270	3223	28	T+56 sec	59,9423	3270	3196	-421
T-32 sec	59,9997	3270	3222	14	T+60 sec	59,9420	3270	3188	-396
T-28 sec	60,0063	3270	3228	3	T+2 min	59,9920	3270	3201	-59
T-24 sec	60,0140	3270	3222	53	T+3 min	59,9790	3270	3219	-132
T-20 sec	60,0137	3270	3224	83	T+4 min	59,9860	3270	3228	-65
T-16 sec	60,0057	3270	3220	77	T+5 min	60,0160	3270	3231	70
T-12 sec	59,9910	3270	3222	10	T+6 min	60,0180	3270	3242	76
T-08 sec	59,9880	3270	3227	-62	T+7 min	60,0320	3270	3254	230
T-04 sec	59,9927	3270	3224	-67	T+8 min	60,0280	3270	3239	173
T=0 sec	59,9880	3270	3207	-35	T+9 min	60,0300	3270	3241	195
T+04 sec	59,6720	3270	3124	-77	T+10 min	60,0390	3270	3240	210
T+08 sec	59,3810	3270	3069	-2335	T+11 min	60,0120	3270	3225	69
T+12 sec	59,5900	3270	3153	-2760	T+12 min	60,0010	3270	3223	41
T+16 sec	59,6860	3270	3159	-2215	T+13 min	60,0040	3270	3221	47
T+20 sec	59,7570	3270	3163	-1663	T+14 min	59,9820	3270	3230	-81
T+24 sec	59,7940	3270	3168	-1363	T+15 min	60,0140	3270	3225	51
T+28 sec	59,8247	3270	3170	-1121					

Report No. ATR\_HQTE\_2010\_12\_15\_07\_7032\_1000 MW Date: 12-15-10 Time: 06:31:36

**QUÉBEC**

Origin: Generation rejection at Churchill Falls GS (units 2 and 4).

Cause: Tripping of a 735-kV Line (7032) at Montagnais and Arnaud Substations due to windstorm causing a phase-to-neutral short-circuit.

Generation Loss: 1000 MW Percent of Loss to First Contingency: 98 %  
 Load Loss: \_\_\_\_\_ MW Maximum Interchange Deviation: 149 MW

Time to return ACE to initial (T-4) value: \_\_\_\_\_ minutes  
 Time to return ACE to zero: 07:13 minutes

Runback? (Y/N) N  
 Included in DCS? (Y/N) Y  
 Reviewed by Area? (Y/N) N  
 Reviewed by CO-1? (Y/N) N

Freq. (@T-4) 60,0040 Freq. (after) 59,9880 Freq. Dev. -0,0160

Comments: \_\_\_\_\_

See Comment File: \_\_\_\_\_

See Graph File(s): \_\_\_\_\_

**INTERCHANGE TABLE**

T = Time of Disturbance

Time	F	Sched	Actual	ACE	Time	F	Sched	Actual	ACE
T-60 sec					T+32 sec	59,8603	222	86	-770
T-56 sec					T+36 sec	59,8630	222	104	-746
T-52 sec	59,9840	222	173	-94	T+40 sec	59,8497	222	89	-736
T-48 sec	59,9850	222	174	-83	T+44 sec	59,8513	222	116	-823
T-44 sec	59,9843	222	171	-84	T+48 sec	59,8680	222	108	-771
T-40 sec	59,9850	222	172	-86	T+52 sec	59,8827	222	106	-693
T-36 sec	59,9860	222	178	-81	T+56 sec	59,8890	222	96	-608
T-32 sec	59,9913	222	175	-69	T+60 sec	59,8880	222	113	-619
T-28 sec	59,9967	222	180	-41	T+2 min	59,9430	222	114	-359
T-24 sec	60,0050	222	171	-9	T+3 min	59,9670	222	118	-181
T-20 sec	60,0133	222	177	40	T+4 min	59,9850	222	139	-109
T-16 sec	60,0133	222	174	82	T+5 min	59,9230	222	117	-439
T-12 sec	60,0080	222	173	68	T+6 min	59,9720	222	115	-172
T-08 sec	60,0053	222	181	41	T+7 min	59,9760	222	127	-111
T-04 sec	60,0040	222	172	26	T+8 min	60,0940	222	157	392
T=0 sec	60,0050	222	164	20	T+9 min	60,0730	-203	179	411
T+04 sec	59,8503	222	129	32	T+10 min	60,0150	-203	160	70
T+08 sec	59,3523	222	23	-1012	T+11 min	60,0420	-203	179	179
T+12 sec	59,5800	222	79	-2759	T+12 min	60,0200	-203	184	127
T+16 sec	59,6947	222	73	-2094	T+13 min	59,9910	-203	169	-51
T+20 sec	59,7827	222	70	-1486	T+14 min	59,9950	-203	175	-21
T+24 sec	59,8190	222	86	-1143	T+15 min	59,9790	-203	147	-59
T+28 sec	59,8497	-2423	-2632	-914					

Report No. ATR\_HQTE\_2010\_12\_15\_10\_7033\_782 MW Date: 12-15-10 Time: 09:15:27  
**QUÉBEC**

Origin: Generation rejection at Churchill Falls GS (units 2 and 4).

Cause: Tripping, reclosing and tripping of a 735-kV Line (7033) at Montagnais and Arnaud Substations due to heavy rain and windstorm causing a phase-to-neutral short-circuit.

Generation Loss: 782 MW Percent of Loss to First Contingency: 88 %  
 Load Loss: \_\_\_\_\_ MW Maximum Interchange Deviation: 126 MW

Time to return ACE to initial (T-4) value: 04:08 minutes  
 Time to return ACE to zero: 04:09 minutes

Runback? (Y/N) N  
 Included in DCS? (Y/N) Y  
 Reviewed by Area? (Y/N) N  
 Reviewed by CO-1? (Y/N) N

Freq. (@T-4) 60,0000 Freq. (after) 60,0238 Freq. Dev. 0,0237

Comments: Line 7032 was still withdrawn after tripping at 06:31:36 and trying twice to restore it. It was put back in the system at 09:31:42.

See Comment File: \_\_\_\_\_

See Graph File(s): \_\_\_\_\_

**INTERCHANGE TABLE**

T = Time of Disturbance

Time	F	Sched	Actual	ACE	Time	F	Sched	Actual	ACE
T-60 sec					T+32 sec	59,8390	687	697	-1002
T-56 sec					T+36 sec	59,8460	687	701	-924
T-52 sec	60,0077	687	772	59	T+40 sec	59,8500	687	702	-856
T-48 sec	60,0060	687	773	41	T+44 sec	59,8523	687	700	-845
T-44 sec	60,0060	687	769	36	T+48 sec	59,8530	687	700	-845
T-40 sec	60,0047	687	772	34	T+52 sec	59,8677	687	695	-832
T-36 sec	60,0030	687	774	21	T+56 sec	59,8940	687	710	-728
T-32 sec	60,0020	687	773	17	T+60 sec	59,8970	687	707	-671
T-28 sec	59,9973	687	775	6	T+2 min	59,9660	687	731	-151
T-24 sec	59,9920	687	776	-25	T+3 min	59,9680	687	734	-193
T-20 sec	59,9907	687	770	-49	T+4 min	59,9950	262	754	-58
T-16 sec	59,9927	687	767	-49	T+5 min	60,0550	262	783	322
T-12 sec	59,9940	687	771	-41	T+6 min	60,0050	262	766	38
T-08 sec	59,9987	687	766	-29	T+7 min	59,9950	262	755	-31
T-04 sec	60,0000	687	762	-5	T+8 min	59,9980	262	654	-51
T=0 sec	59,9910	687	753	0	T+9 min	59,9780	262	572	-130
T+04 sec	59,7230	687	709	-71	T+10 min	59,9910	262	493	-56
T+08 sec	59,4800	687	636	-1946	T+11 min	60,0310	262	466	121
T+12 sec	59,6330	687	689	-2413	T+12 min	60,0000	262	415	-12
T+16 sec	59,6983	687	681	-1970	T+13 min	60,0180	262	376	117
T+20 sec	59,7520	687	684	-1615	T+14 min	60,0110	262	373	56
T+24 sec	59,7880	687	693	-1361	T+15 min	60,0090	262	354	70
T+28 sec	59,8160	-2423	-2632	-1152					

Report No. ATR\_HQTE\_2010\_12\_19\_09\_La Grande-2\_560 MW Date: 12-19-10 Time: 08:30:00  
**QUÉBEC**

Origin: Generation loss at La Grande-2 GS (units 11 and 12).

Cause: Tripping of power transformer T6 caused by a faulty operation of a relay (87-3) while the load on unit 12 was increasing.

Generation Loss: 560 MW Percent of Loss to First Contingency: 60 %  
 Load Loss: \_\_\_\_\_ MW Maximum Interchange Deviation: 94 MW

Time to return ACE to initial (T-4) value: 01:27 minutes  
 Time to return ACE to zero: 01:39 minutes

Runback? (Y/N) N  
 Included in DCS? (Y/N) N  
 Reviewed by Area? (Y/N) N  
 Reviewed by CO-1? (Y/N) N

Freq. (@T-4) 59,9973 Freq. (after) 60,0120 Freq. Dev. 0,0147

Comments: The settings of the relay 87-3 associated with protection "B" were adjusted.

See Comment File: \_\_\_\_\_ See Graph File(s): \_\_\_\_\_

**INTERCHANGE TABLE**

T = Time of Disturbance

Time	F	Sched	Actual	ACE	Time	F	Sched	Actual	ACE
T-60 sec					T+32 sec	59,9503	961	870	-245
T-56 sec					T+36 sec	59,9490	961	870	-250
T-52 sec	60,0147	961	901	75	T+40 sec	59,9517	961	869	-259
T-48 sec	60,0070	961	896	72	T+44 sec	59,9593	961	866	-240
T-44 sec	60,0017	961	899	28	T+48 sec	59,9720	961	871	-186
T-40 sec	59,9977	961	900	7	T+52 sec	59,9813	961	875	-126
T-36 sec	59,9940	961	900	-19	T+56 sec	59,9873	961	877	-82
T-32 sec	60,0030	961	898	-22	T+60 sec	59,9880	961	878	-81
T-28 sec	60,0150	961	900	37	T+2 min	60,0140	961	890	44
T-24 sec	60,0160	961	907	89	T+3 min	60,0080	961	906	84
T-20 sec	60,0090	961	906	72	T+4 min	60,0000	961	907	-5
T-16 sec	60,0017	961	908	36	T+5 min	59,9940	961	897	-50
T-12 sec	59,9970	961	904	0	T+6 min	59,9980	961	899	-10
T-08 sec	59,9947	961	904	-19	T+7 min	59,9810	961	888	-107
T-04 sec	59,9973	961	902	-24	T+8 min	59,9940	961	898	-42
T=0 sec	59,9180	961	866	-10	T+9 min	59,9800	961	897	-121
T+04 sec	59,6740	961	834	-545	T+10 min	59,9810	961	892	-84
T+08 sec	59,6950	961	859	-1953	T+11 min	60,0110	961	901	20
T+12 sec	59,8560	961	860	-1066	T+12 min	60,0050	961	896	65
T+16 sec	59,9147	961	856	-612	T+13 min	59,9980	961	889	-30
T+20 sec	59,9533	961	857	-353	T+14 min	60,0010	961	901	15
T+24 sec	59,9530	961	862	-255	T+15 min	59,9950	961	906	-34
T+28 sec	59,8497	961	872,1297	-230,744					