

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 2009.

LISTE DES RAPPORTS ATR (AREA TROUBLE REPORT) FOURNIS PAR TRANSÉNERGIE AU NPCC EN 2009

Temps			MW perdus		Perturbations	T récupération		Fréquence	% Récup.		Cause	Caté- gories
Mois	Jour	Heure	Production	Charge	installation et équipements	ACE (T-4)	ACE=0	extrême	%APC <1000 (code 1)	%APC >=1000 (code 2)		
Janvier	1	05:40:12	867		Décl. T3 au poste Micoua et L3034 Manic-5-PA-Micoua; perte de production A41, A42, A43 à la centrale Manic-5-PA.	s/o	03:13	59,45 Hz	100%	-	Décl. du T3 par gaz et température (charge admissible sur le transformateur dépassée).	3
	2	14:11:51	1937		Décl. T2 au poste Micoua; perte de production de 3 groupes à Manic-3, 7 groupes à Manic-5, 2 groupes à Toulnostouc.	10:03	10:07	58,67 Hz	-	100%	Haute température d'enroulement phase A du T2 au poste Micoua; pompe du système de refroidissement hors.	3
	14	16:49:21	614		Décl. L7081 Nemiscau-Abitibi; rejet de production A14, A15 à la centrale La Grande-2.	01:04	01:19	59,69 Hz	100%	-	Défaut majeur phase A du D700-57 au poste Nemiscau; bris mécanique des quatre têtes.	3
Février	16	21:21:30	943		Décl. L7051, T72 au poste Churchill Falls; décl. A2 et A3 à la centrale Churchill Falls.	s/o	03:02	59,47 Hz	100%	-	Défaut majeur du transformateur de courant TC3 associé au D700-3 au poste Churchill Falls.	3
Mars		aucun										
Avril		aucun										
Mai	6	16:18:10	975		Décl. L3152 LG1-Radisson, perte de la centrale La Grande-1.	s/o	04:13	59,23 Hz	100%	-	Décl. du A2 à la centrale LG-1 lors de la séquence d'arrêt, par opération de la protection de motorisation. Le D300 2 (A2) n'a pas ouvert au poste LG1 à cause d'un fil lâche dans le circuit de déclenchement.	3
Juin	14	18:11:38	1141		Décl. L7092 Abitibi-La Vérendrye; rejet de production A2, A14, A15, A16 à la centrale La Grande-2.	s/o	05:16	59,05 Hz	-	100%	Foudre	1
	16	02:52:00	650 import		Décl. de la L3052 Chenier-Petite Nation-Outaouais et du GC1 au poste Outaouais (en essais de m.e.s du GC2.)	02:00	02:14	59,33 Hz	100%	-	Foudre	1
	23	15:59:48	861		L7080 Nemiscau-Abitibi devient hors charge; rejet de production A2, A14, A15 à la centrale La Grande-2.	03:39	05:02	59,39 Hz	100%	-	Décl. du D700-34 au poste Nemiscau à cause d'un bas niveau d'huile (bris de tuyauterie).	3
	24	16:02:36	525		Décl. de la L7077 Albanel-Chibougama; rejet de production A4, A5 à la centrale La Grande-4.	01:04	01:28	59,57 Hz	100%	-	Foudre	1
	25	14:51:41	1197	1766 export Nat. Grid	Décl. du RMCC Radisson-Nicolet-Sandy Pond; rejet de production A23, A24, A25, A26 à la centrale La Grande-2A.	s/o	01:00	60,53 Hz	-	100%	Foudre	1
	25	15:04:18	714		Décl. de la L7077 Albanel-Chibougama; rejet de production A4, A5, A9 à la centrale La Grande-4.	s/o	04:56	59,43 Hz	100%	-	Foudre	1

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Temps			MW perdus		Perturbations	T récupération		Fréquence	% Récup.		Cause	Caté- gories
Mois	Jour	Heure	Produc- tion	Charge	installation et équipements	ACE (T-4)	ACE=0	extrême	%APC <1000 (code 1)	%APC >=1000 (code 2)		
Juillet	9	14:22:09	746		Décl. L7053 Montagnais-Churchill Falls; décl. A10, A11 à la centrale Churchill Falls.	02:15	02:28	59,43 Hz	100%	-	Feu de forêt	1
Août	8	06:36:40	612	62	Décl. de la L2370 Tranche-Trois-Rivières puis décl. des L2331 et L2358; perte de production aux centrales Beaumont, Tranche et La Tuque.	s/o	02:12	59,42 Hz	100%	-	Défaut phase A-Neutre sur la L2370.	3
	29	14:20:10	600	356 export Nat. Grid	Perte de production A21, A22 à la centrale La Grande-2-A.	00:20	00:30	59,95 Hz	100%	-	Incident d'exploitation, erreur d'un technicien qui travaillait sur D300-43, D300-44 au poste Radisson.	2
Sept.		aucun										
Oct.	1	14:21:23	870		Rejet de production A2, A3, A14 à la centrale La Grande-2	02:42	02:44	59,38 Hz	100%	-	Incident d'exploitation lors de travaux de remplacement (phase de démantèlement) de l'oscillo 735-151 au Bâtiment #15 du poste Abitibi. Les techniciens ont isolé la protection RPTC associée à l'oscillo en oubliant d'isoler la protection de bas courant "B" sur L7094.	2
	1	15:06:09	868		Décl. de la L7093 Abitibi-La Vérendrye; rejet de production A2, A3, A14 à la centrale La Grande-2.	03:37	03:41	59,43 Hz	100%	-	Incident d'exploitation lors de travaux de remplacement (phase de démantèlement) de l'oscillo 735-151 au Bâtiment #15 du poste Abitibi. Le technicien a isolé une protection sur L7093 en oubliant de mettre la poignée 43B à HORS.	2
	7	20:34:55	622		Décl. L7072 Tilly-La Grande-4 et décl. A3, A4, A5 à la centrale La Grande-4.	s/o	03:43	59,58 Hz	100%	-	Mauvais réglage implanté lors de l'entretien de la protection différentielle du T2 à La Grande-4.	2
	27	12:11:35	622		Décl. A2 à la centrale Gentilly-2.	s/o	01:59	59,63 Hz	100%	-	À la fermeture du D230-42 pour essai de synchronisation du A42 à la centrale Bécancour, les barres B2 et B4 déclenchent par protection différentielle. Une sortie du relais Snémo SMDS?A était en problème (et active).	3
Nov.	17	20:42:10	1230		Décl. A21, A22, A23, A24 à la centrale La Grande-2A lors de la remise sous tension de la L3163 Radisson-La Grande-2A.	03:37	03:40	59,20 Hz	-	100%	Lors de la remise sous tension de L3163 (après réfection des protections), incendie dans une boîte de jonction dû à un mauvais raccordement de câbles.	2

LISTE DES RAPPORTS ATR (AREA TROUBLE REPORT) FOURNIS PAR TRANSÉNERGIE AU NPCC EN 2009

Temps			MW perdus		Perturbations	T récupération		Fréquence	% Récup.		Cause	Caté- gories
Mois	Jour	Heure	Produc- tion	Charge	installation et équipements	ACE (T-4)	ACE=0	extrême	%APC <1000 (code 1)	%APC >=1000 (code 2)		
Déc.	10	15:09:31	2037		Décl. L7081, L7082 Nemiscau-Abitibi. Rejet de production A2, A3, A4, A13, A14, A15, A16 à la centrale La Grande-2.	14:35	14:38	58,86 Hz	-	100%	Incident d'exploitation. Sectionneur L7082B80 ouvert sous charge par inadvertance par un technicien qui travaillait dans la boîte de jonction du sectionneur au poste Abitibi.	2
	15	09:31:35	2714	2446	Ouverture de toutes les lignes à 735kV au poste Albanel par une opération inappropriée de la fonction MURG. Rejet de production aux centrales La Grande-4, Laforge-1, Laforge-2 et Brisay. Télédéléstage de charges de 2446MW et 1736Mvar.	s/o	00:50	59,61 Hz	-	100%	Activation de la fonction MURG au poste Albanel à partir d'un pupitre de formation à la PA Rouyn. Problème d'attribution des privilèges aux usagers.	2
	22	08:34:00	506		Décl. du groupe A1 à la centrale Churchill Falls.	00:50	00:51	59,68 Hz	100%	-	Relais de mise-à-la-terre stator 64A1 défectueux.	3

Report No. ATR_HQTE_2009_01_01_06_MICOUA_867MW Date: 01-01-09 Time: 05:40:12
QUÉBEC

Origin: Generation loss at Manic-5-PA GS (units 41, 42 and 43).

Cause: Tripping of a 735-kV power transformer (T3) at Micoua Substation because of a gas and temperature alarm and phase unbalance on the circuit breaker associated with unit 44.

Generation Loss: 867 MW Percent of Loss to First Contingency: 86,7 %
 Load Loss: _____ MW Maximum Interchange Deviation: 114 MW

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

Time to return ACE to zero: 03:13 minutes

Runback? (Y/N) N

Included in DCS? (Y/N) Y

Freq. (@T-4) 60,0053 Freq. (after) 60,0175 Freq. Dev. 0,0122

Reviewed by Area? (Y/N) N

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

Comments: Line 3034 tripped. The maximum permissible load on the transformer was exceeded.

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	59,8173	1283	1197	-775
T-56 sec					T+36 sec	59,8290	1283	1199	-980
T-52 sec	60,0007	1283	1228	34	T+40 sec	59,8410	1283	1202	-924
T-48 sec	60,0010	1283	1227	-4	T+44 sec	59,8147	1283	1200	-856
T-44 sec	60,0010	1283	1230	4	T+48 sec	59,8300	1283	1203	-991
T-40 sec	59,9997	1283	1231	4	T+52 sec	59,8513	1283	1205	-911
T-36 sec	59,9990	1283	1237	-6	T+56 sec	59,8610	1283	1205	-791
T-32 sec	59,9990	1283	1227	-6	T+60 sec	59,8610	1283	1208	-797
T-28 sec	59,9997	1283	1227	-6	T+2 min	59,9200	1283	1232	-435
T-24 sec	60,0050	1283	1229	2	T+3 min	59,9990	1283	1254	-44
T-20 sec	60,0087	1283	1230	34	T+4 min	60,0240	1283	1273	159
T-16 sec	60,0113	1283	1234	55	T+5 min	60,0120	1283	1286	89
T-12 sec	60,0110	1283	1238	71	T+6 min	60,0040	1283	1286	-2
T-08 sec	60,0087	1283	1237	60	T+7 min	60,0540	1283	1315	294
T-04 sec	60,0053	1283	1238	46	T+8 min	60,0550	1283	1328	358
T=0 sec	60,0020	1283	1220	25	T+9 min	60,0270	1283	1307	196
T+04 sec	59,9087	1283	1192	4	T+10 min	60,0030	1283	1297	11
T+08 sec	59,3803	1283	1124	-628	T+11 min	59,9970	1283	1280	-4
T+12 sec	59,5550	1283	1176	-2958	T+12 min	60,0380	1283	1271	217
T+16 sec	59,7323	1283	1163	-2266	T+13 min	60,0150	1283	1266	58
T+20 sec	59,8480	1283	1173	-1223	T+14 min	60,0180	1283	1266	87
T+24 sec	59,8730	1283	1186	-843	T+15 min	59,9990	1283	1267	2
T+28 sec	59,8610	1283	1190	-650					

Report No. ATR_HQTE_2009_01_02_15_MICOUA_1937MW Date: 01-02-09 Time: 14:11:51
QUÉBEC

Origin: Generation loss at Manic-3 GS (3 units), Manic-5 GS (7 units) and Tournustouc GS (2 units).

Cause: Tripping of a 735-kV power transformer (T2) at Micoua Substation because of a winding high temperature on phase A.

Generation Loss: 1937 MW Percent of Loss to First Contingency: 193,7 %
 Load Loss: _____ MW Maximum Interchange Deviation: 433 MW

Time to return ACE to initial (T-4) value: 10:03 minutes

Time to return ACE to zero: 10:07 minutes

Runback? (Y/N) N

Included in DCS? (Y/N) N

Freq. (@T-4) 59,9880 Freq. (after) 60,0178 Freq. Dev. 0,0298

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	59,5043	1893	1793	-2904
T-56 sec					T+36 sec	59,5630	1893	1793	-2568
T-52 sec	60,0013	1893	1960	26	T+40 sec	59,6057	1893	1792	-2244
T-48 sec	59,9970	1893	1962	-2	T+44 sec	59,6267	1893	1779	-2036
T-44 sec	59,9920	1893	1962	-26	T+48 sec	59,6240	1893	1790	-2004
T-40 sec	59,9887	1893	1963	-51	T+52 sec	59,6240	1893	1788	-2000
T-36 sec	59,9890	1893	1961	-67	T+56 sec	59,6290	1893	1794	-1998
T-32 sec	59,9900	1893	1960	-60	T+60 sec	59,6360	1893	1793	-1983
T-28 sec	59,9900	1893	1957	-59	T+2 min	59,7650	1893	1844	-1241
T-24 sec	59,9900	1893	1952	-59	T+3 min	59,7450	1893	1835	-1369
T-20 sec	59,9940	1893	1962	-53	T+4 min	59,7420	1893	1832	-1333
T-16 sec	59,9960	1893	1966	-27	T+5 min	59,7980	1893	1872	-1086
T-12 sec	59,9930	1893	1961	-21	T+6 min	59,8570	1893	1893	-768
T-08 sec	59,9873	1893	1960	-50	T+7 min	59,8590	1893	1930	-717
T-04 sec	59,9880	1893	1964	-75	T+8 min	59,9020	1893	1964	-546
T=0 sec	59,9930	1893	1968	-60	T+9 min	59,9120	1893	1983	-458
T+04 sec	59,9783	1893	1912	-31	T+10 min	59,9880	1893	2005	-125
T+08 sec	59,0120	1893	1531	-134	T+11 min	60,1600	1893	2119	1015
T+12 sec	58,6940	1893	1551	-6512	T+12 min	60,0700	1893	2075	421
T+16 sec	58,9407	1893	1589	-7084	T+13 min	60,0130	1893	2043	84
T+20 sec	59,2307	1893	1680	-5302	T+14 min	59,9880	1893	2026	-32
T+24 sec	59,3350	1893	1749	-4060	T+15 min	60,0000	1893	2010	11
T+28 sec	59,4297	1893	1785	-3358					

QUÉBEC

Origin: Generation rejection at LG 2 GS (units 14 and 15).

Cause: Tripping of a 735 kV line (L7081) at Abitibi and Nemiscau substations caused by a major mechanical failure on a 735-kV circuit breaker (D700-57) at Nemiscau Substation.

Generation Loss: 614 MW Percent of Loss to First Contingency: 61,4 %
 Load Loss: _____ MW Maximum Interchange Deviation: 62 MW

Time to return ACE to initial (T-4) value: 01:04 minutes
 Time to return ACE to zero: 01:19 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) 59,9830 Freq. (after) 59,9880 Freq. Dev. 0,0050

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	59,9713	143	167	-269
T-56 sec					T+36 sec	59,9580	143	178	-224
T-52 sec					T+40 sec	59,9500	143	196	-261
T-48 sec	59,9800	143	226	-99	T+44 sec	59,9553	143	213	-319
T-44 sec	59,9827	143	232	-120	T+48 sec	59,9770	143	190	-210
T-40 sec	59,9913	143	235	-96	T+52 sec	59,9850	143	202	-118
T-36 sec	59,9980	143	232	-39	T+56 sec	59,9947	143	198	-74
T-32 sec	59,9917	143	227	-19	T+60 sec	59,9960	143	199	-63
T-28 sec	59,9803	143	230	-73	T+2 min	60,0300	143	227	137
T-24 sec	59,9770	143	229	-134	T+3 min	60,0260	143	230	199
T-20 sec	59,9797	143	225	-135	T+4 min	59,9840	143	216	-75
T-16 sec	59,9810	143	229	-127	T+5 min	60,0050	143	212	-38
T-12 sec	59,9850	143	227	-113	T+6 min	60,0170	143	245	136
T-08 sec	59,9877	143	224	-87	T+7 min	60,0070	143	266	54
T-04 sec	59,9830	143	225	-80	T+8 min	60,0070	143	284	68
T=0 sec	59,9770	143	231	-118	T+9 min	60,0080	143	304	41
T+04 sec	59,9797	143	207	-153	T+10 min	59,9890	143	323	-60
T+08 sec	59,7657	143	192	-119	T+11 min	60,0210	349	355	78
T+12 sec	59,7030	143	183	-1730	T+12 min	59,9650	349	372	-233
T+16 sec	59,7683	143	164	-1822	T+13 min	59,9890	349	387	-56
T+20 sec	59,8437	143	169	-1305	T+14 min	59,9720	349	402	-130
T+24 sec	59,9000	143	163	-849	T+15 min	59,9960	349	416	-35
T+28 sec	59,9440	-2423	-2632	-524					

Report No. ATR_HQTE_2009_02_16_22_CHURCHILL_943MW Date: 02-16-09 Time: 21:21:30
QUÉBEC

Origin: Generation loss at Churchill Falls GS (units 2 and 3).

Cause: Tripping of a 735-kV line (7051) and a 735/230-kV power transformer (T72) at Churchill Falls GS due to the explosion of the current transformer (TC3, phase A) associated with the circuit breaker 700-3.

Generation Loss: 943 MW Percent of Loss to First Contingency: 94,3 %
 Load Loss: _____ MW Maximum Interchange Deviation: 116 MW

Time to return ACE to initial (T-4) value: _____ minutes
 Time to return ACE to zero: 03:02 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) 60,0053 Freq. (after) 60,0125 Freq. Dev. 0,0072

Comments: Line 7051 was back on service at 23h30min.

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	59,8990	3045	2914	-512
T-56 sec					T+36 sec	59,8940	3045	2912	-549
T-52 sec	60,0100	3045	2977	86	T+40 sec	59,8927	3045	2910	-576
T-48 sec	60,0010	3045	2978	44	T+44 sec	59,8963	3045	2909	-585
T-44 sec	59,9960	3045	2975	-2	T+48 sec	59,8980	3045	2913	-541
T-40 sec	59,9973	3045	2974	-21	T+52 sec	59,9060	3045	2906	-550
T-36 sec	59,9970	3045	2972	-11	T+56 sec	59,9207	3045	2913	-497
T-32 sec	59,9983	3045	2968	-16	T+60 sec	59,9200	3045	2910	-463
T-28 sec	59,9997	3045	2969	-7	T+2 min	59,9690	3045	2925	-181
T-24 sec	60,0030	3045	2971	0	T+3 min	59,9950	3045	2946	-8
T-20 sec	60,0070	3045	2974	21	T+4 min	60,0430	3045	2984	241
T-16 sec	60,0097	3045	2972	46	T+5 min	60,0400	3045	2990	233
T-12 sec	60,0100	3045	2975	57	T+6 min	60,0220	3045	2988	128
T-08 sec	60,0053	3045	2976	47	T+7 min	60,0420	3045	3007	230
T-04 sec	60,0053	3045	2949	27	T+8 min	60,0130	3045	2982	53
T=0 sec	59,8700	3045	2872	32	T+9 min	59,9820	3045	2956	-69
T+04 sec	59,4380	3045	2833	-942	T+10 min	59,9750	3045	2964	-126
T+08 sec	59,4577	3045	2899	-3606	T+11 min	60,0060	3045	2970	33
T+12 sec	59,7330	3045	2894	-2053	T+12 min	60,0170	3045	2981	57
T+16 sec	59,8290	3045	2886	-1233	T+13 min	60,0150	3045	2986	9
T+20 sec	59,8900	3045	2894	-792	T+14 min	60,0090	3045	2975	51
T+24 sec	59,9030	3045	2912	-601	T+15 min	60,0090	3045	2974	71
T+28 sec	59,9043	3045	2911	-498					

Report No. ATR_HQTE_2009_05_06_17_LG1_975MW Date: 05-06-09 Time: 16:18:10

QUÉBEC

Origin: Generation loss at La Grande-1 GS (units 1, 2, 3, 4, 6, 7, 8, 10, 11 and 12).

Cause: Unit 2 tripped during a stopping sequence when the "motorization" protection operated.

Circuit breaker D300-2 did not open because of a loose wire in the tripping circuit.

The backup protection tripped La Grande-1 substation and line 3152 La Grande-1/Radisson.

Generation Loss: 975 MW Percent of Loss to First Contingency: 97,5 %
 Load Loss: _____ MW Maximum Interchange Deviation: 96 MW

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

Time to return ACE to zero: 04:13 minutes

Runback? (Y/N) N

Included in DCS? (Y/N) Y

Freq. (@T-4) _____ Freq. (after) _____ Freq. Dev. _____
59,9943 60,0375 0,0432

Reviewed by Area? (Y/N) N

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

Comments: The cause of the operation of the motorization protection of unit 2 is under investigation.
Line 3153 was out for maintenance purposes.

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	59,8020	3922	3930	-764
T-56 sec					T+36 sec	59,8160	3922	3929	-783
T-52 sec	59,9823	3922	3965	-97	T+40 sec	59,8267	3922	3929	-704
T-48 sec	60,0030	3922	3968	-58	T+44 sec	59,8157	3922	3924	-672
T-44 sec	60,0057	3922	3963	18	T+48 sec	59,7890	3922	3928	-771
T-40 sec	59,9983	3922	3965	13	T+52 sec	59,7930	3922	3931	-850
T-36 sec	60,0010	3922	3967	-12	T+56 sec	59,8153	3922	3925	-810
T-32 sec	60,0083	3922	3969	13	T+60 sec	59,8150	3922	3932	-765
T-28 sec	60,0070	3922	3971	39	T+2 min	59,9580	3922	3943	-148
T-24 sec	59,9960	3922	3964	21	T+3 min	59,9610	3922	3964	-215
T-20 sec	59,9877	3922	3968	-28	T+4 min	60,0130	3922	3966	-37
T-16 sec	59,9917	3922	3970	-46	T+5 min	60,0350	3922	3972	133
T-12 sec	59,9960	3922	3970	-28	T+6 min	60,0060	3922	3966	1
T-08 sec	60,0023	3922	3967	-5	T+7 min	59,9850	3922	3957	-146
T-04 sec	59,9943	3922	3965	7	T+8 min	60,0490	3922	3973	115
T=0 sec	59,9810	3922	3964	-35	T+9 min	60,0320	3922	3970	125
T+04 sec	59,9810	3922	3959	-92	T+10 min	60,0120	3922	3974	63
T+08 sec	59,5943	3922	3883	-73	T+11 min	60,0540	3922	4067	278
T+12 sec	59,3010	3922	3869	-2749	T+12 min	60,0780	3922	3988	389
T+16 sec	59,5450	3922	3944	-2758	T+13 min	60,0310	3922	3987	138
T+20 sec	59,6907	3922	3918	-1556	T+14 min	60,0390	3922	3990	72
T+24 sec	59,7470	3922	3934	-1217	T+15 min	60,0020	3922	3980	62
T+28 sec	59,7937	3922	3924	-926					

Report No. ATR_HQTE_2009_06_14_19_Abitibi_1141MW Date: 06-14-09 Time: 18:11:36

QUÉBEC

Origin: Generation rejection at La Grande-2 GS (units 2, 14, 15 and 16).

Cause: Tripping of a 735-kV line (7092) at Abitibi and La Verendrye Substations caused by a lightning strike.

Generation Loss: 1141 MW Percent of Loss to First Contingency: 114,1 %
 Load Loss: _____ MW Maximum Interchange Deviation: 274 MW

Time to return ACE to initial (T-4) value: _____ minutes
 Time to return ACE to zero: 05:16 minutes
 Runback? (Y/N) N
 Included in DCS? (Y/N) N
 Freq. (@T-4) Freq. (after) Freq. Dev. Reviewed by Area? (Y/N) N
59,9970 60,0115 0,0145 Reviewed by CO-1? (Y/N) N

Comments: Line 7080, on the north side of Abitibi substation, was out for maintenance purposes.

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	59,8903	1397	1274	-399
T-56 sec					T+36 sec	59,8360	1397	1269	-453
T-52 sec	60,0163	1397	1340	91	T+40 sec	59,8173	1397	1283	-601
T-48 sec	60,0150	1397	1338	47	T+44 sec	59,8070	1397	1280	-640
T-44 sec	60,0267	1397	1339	70	T+48 sec	59,7750	1397	1276	-727
T-40 sec	60,0313	1397	1339	100	T+52 sec	59,7723	1397	1270	-788
T-36 sec	60,0280	1397	1337	124	T+56 sec	59,7713	1397	1271	-785
T-32 sec	60,0143	1397	1337	92	T+60 sec	59,7890	1397	1275	-782
T-28 sec	60,0057	1397	1339	39	T+2 min	59,8590	1272	1299	-455
T-24 sec	60,0080	1397	1345	20	T+3 min	59,9310	1272	1311	-286
T-20 sec	60,0250	1397	1344	45	T+4 min	59,9370	1272	1312	-230
T-16 sec	60,0350	1397	1343	107	T+5 min	59,9850	1272	1336	-63
T-12 sec	60,0380	1397	1340	134	T+6 min	60,0460	1272	1354	179
T-08 sec	60,0223	1397	1340	131	T+7 min	60,0420	1272	1356	94
T-04 sec	59,9970	1397	1340	54	T+8 min	59,9950	1272	1355	-20
T=0 sec	59,9860	1397	1344	-30	T+9 min	60,0660	1272	1357	294
T+04 sec	59,7913	1397	1169	-56	T+10 min	60,0340	1272	1370	63
T+08 sec	58,9633	1397	1066	-884	T+11 min	60,0170	1272	1360	53
T+12 sec	59,1690	1397	1242	-3147	T+12 min	60,0630	1272	1375	171
T+16 sec	59,5250	1397	1253	-2297	T+13 min	59,9900	1272	1365	-5
T+20 sec	59,6943	1397	1278	-1411	T+14 min	59,9950	1272	1345	-53
T+24 sec	59,8040	1397	1265	-968	T+15 min	59,9980	1272	1331	57
T+28 sec	59,8680	1397	1267	-576					

Report No. ATR_HQTE_2009_06_16_03_OUTAOUAIS_650MW Date: 06-16-09 Time: 02:52:00
QUÉBEC

Origin: Loss of import from Hydro One at Outaouais substation.

Cause: Tripping of a 315-kV line (3052) Chenier - Petite Nation - Outaouais Substations
and of the converter unit #1, caused by a lightning strike.

Generation Loss: 650 MW Percent of Loss to First Contingency: 65 %
Load Loss: _____ MW Maximum Interchange Deviation: 620 MW

Time to return ACE to initial (T-4) value: 02:00 minutes

Time to return ACE to zero: 02:14 minutes

Runback? (Y/N) N

Included in DCS? (Y/N) N

Freq. (@T-4) 59,9850 Freq. (after) 59,9890 Freq. Dev. 0,0040
Reviewed by Area? (Y/N) N
Reviewed by CO-1? (Y/N) N

Comments: Commissioning tests were on-going at Outaouais Interconnection.

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	59,8403	-927	-415	-381
T-56 sec					T+36 sec	59,8040	-927	-410	-443
T-52 sec	60,0083	-927	-986	6	T+40 sec	59,8133	-927	-410	-525
T-48 sec	60,0090	-927	-983	22	T+44 sec	59,8510	-927	-393	-473
T-44 sec	60,0170	-927	-988	29	T+48 sec	59,8810	-927	-400	-371
T-40 sec	60,0177	-927	-986	46	T+52 sec	59,9077	-927	-390	-285
T-36 sec	60,0110	-927	-987	43	T+56 sec	59,9143	-927	-394	-219
T-32 sec	60,0090	-927	-982	24	T+60 sec	59,9170	-927	-385	-235
T-28 sec	60,0177	-927	-983	28	T+2 min	59,9780	-927	-350	-45
T-24 sec	60,0290	-927	-985	51	T+3 min	60,0650	-927	-334	142
T-20 sec	60,0300	-927	-984	79	T+4 min	60,0120	-927	-370	34
T-16 sec	60,0187	-927	-981	70	T+5 min	59,9760	-927	-398	-54
T-12 sec	60,0040	-927	-984	40	T+6 min	60,0230	-927	-399	52
T-08 sec	59,9837	-927	-985	-7	T+7 min	59,9930	-927	-395	-8
T-04 sec	59,9850	-927	-982	-46	T+8 min	60,0230	-927	-382	90
T=0 sec	59,9950	-927	-992	-33	T+9 min	60,0040	-928	-355	6
T+04 sec	59,9057	-927	-539	-7	T+10 min	59,9920	-928	-342	-31
T+08 sec	59,2463	-927	-362	-298	T+11 min	59,9770	-928	-334	-50
T+12 sec	59,4570	-927	-407	-1691	T+12 min	59,9910	-928	-338	-9
T+16 sec	59,6663	-927	-414	-1300	T+13 min	59,9820	-928	-345	-40
T+20 sec	59,8257	-927	-414	-725	T+14 min	60,0030	-928	-347	12
T+24 sec	59,8510	-927	-418	-469	T+15 min	59,9800	-928	-352	-51
T+28 sec	59,8523	-927	-415	-355					

QUÉBEC

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

Cause: A 735 kV line (L7080) Nemiscau - Abitibi substations became off-load when a 735kV circuit breaker (700-34) tripped at Nemiscau substation.

Generation Loss: 861 MW Percent of Loss to First Contingency: 86,1 %
 Load Loss: _____ MW Maximum Interchange Deviation: 263 MW

Time to return ACE to initial (T-4) value: 03:39 minutes
 Time to return ACE to zero: 05:02 minutes

			Runback? (Y/N)	<u>N</u>
			Included in DCS? (Y/N)	<u>Y</u>
Freq. (@T-4)	Freq. (after)	Freq. Dev.	Reviewed by Area? (Y/N)	<u>N</u>
<u>59,9720</u>	<u>59,9880</u>	<u>0,0160</u>	Reviewed by CO-1? (Y/N)	<u>N</u>

Comments: The circuit breaker tripped because of a low oil level caused by the breakage of an oil piping.

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	59,9110	4808	4730	-259
T-56 sec					T+36 sec	59,8820	4808	4720	-419
T-52 sec	60,0163	4730	4787	105	T+40 sec	59,8727	4808	4728	-514
T-48 sec	59,9970	4730	4785	55	T+44 sec	59,8517	4808	4717	-536
T-44 sec	59,9817	4730	4784	-30	T+48 sec	59,8490	4808	4716	-616
T-40 sec	59,9730	4730	4782	-94	T+52 sec	59,8463	4808	4719	-629
T-36 sec	59,9780	4730	4784	-121	T+56 sec	59,8453	4808	4718	-640
T-32 sec	59,9797	4730	4786	-92	T+60 sec	59,8520	4808	4717	-638
T-28 sec	59,9803	4730	4780	-91	T+2 min	59,8770	4808	4770	-528
T-24 sec	59,9890	4730	4782	-81	T+3 min	59,9280	4808	4789	-328
T-20 sec	59,9847	4730	4781	-52	T+4 min	59,9990	4808	4802	-17
T-16 sec	59,9773	4730	4780	-78	T+5 min	60,0060	4808	4828	-11
T-12 sec	59,9750	4730	4781	-106	T+6 min	60,0390	4808	4814	263
T-08 sec	59,9720	4730	4777	-113	T+7 min	60,0120	4808	4824	86
T-04 sec	59,9720	4730	4776	-125	T+8 min	60,0160	4808	4821	35
T=0 sec	59,9790	4730	4771	-116	T+9 min	60,0300	4808	4827	119
T+04 sec	59,7323	4730	4655	-75	T+10 min	60,0500	4808	4852	285
T+08 sec	59,2407	4730	4512	-1363	T+11 min	60,0160	4808	4853	84
T+12 sec	59,6030	4730	4709	-2380	T+12 min	60,0250	4808	4833	119
T+16 sec	59,7883	4834	4704	-1400	T+13 min	59,9880	4808	4812	-84
T+20 sec	59,9003	4808	4700	-685	T+14 min	60,0030	4808	4827	4
T+24 sec	59,9330	4808	4723	-413	T+15 min	60,0430	4808	4833	162
T+28 sec	59,9370	-2423	-2632	-233					

Report No. ATR_HQTE_2009_06_24_17_ALBANEL_525MW Date: 06-24-09 Time: 16:02:36

QUÉBEC

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

Cause: Tripping of a 735 kV line (L7077) at Albanel and Chibougamau Subsations due to a lightning strike.

Generation Loss: 525 MW Percent of Loss to First Contingency: 52,5 %
 Load Loss: _____ MW Maximum Interchange Deviation: 120 MW

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

Time to return ACE to zero: 01:28 minutes

Runback? (Y/N) N

Included in DCS? (Y/N) N

Freq. (@T-4) 59,9867 Freq. (after) 60,0238 Freq. Dev. 0,0371

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	59,8987	5086	5275	-328
T-56 sec					T+36 sec	59,8790	5086	5261	-416
T-52 sec	60,0083	5086	5318	28	T+40 sec	59,8990	5086	5271	-493
T-48 sec	60,0100	5086	5314	38	T+44 sec	59,9423	5086	5282	-378
T-44 sec	60,0040	5086	5314	35	T+48 sec	59,9540	5086	5275	-199
T-40 sec	59,9927	5086	5313	4	T+52 sec	59,9553	5086	5282	-173
T-36 sec	59,9880	5086	5311	-40	T+56 sec	59,9667	5086	5286	-173
T-32 sec	59,9797	5086	5309	-57	T+60 sec	59,9760	5086	5291	-148
T-28 sec	59,9763	5086	5310	-92	T+2 min	60,0320	5086	5332	164
T-24 sec	59,9880	5086	5313	-93	T+3 min	59,9940	5086	5342	54
T-20 sec	59,9860	5086	5309	-50	T+4 min	60,0360	5086	5297	137
T-16 sec	59,9833	5086	5307	-61	T+5 min	60,0000	5086	5283	70
T-12 sec		5086	5306	-67	T+6 min	59,9940	5086	5286	-22
T-08 sec	59,9733	5086	5307	-106	T+7 min	59,9910	5086	5275	-42
T-04 sec	59,9867	5086	5312	-94	T+8 min	60,0110	5086	5273	23
T=0 sec	59,9890	5086	5312	-42	T+9 min	60,0040	5086	5265	-37
T+04 sec	59,7357	5086	5232	-42	T+10 min	60,1050	5086	5398	401
T+08 sec	59,4540	5086	5193	-1288	T+11 min	60,0900	5086	5349	376
T+12 sec	59,7600	5086	5245	-1478	T+12 min	60,0410	5086	5347	215
T+16 sec	59,9067	5086	5257	-766	T+13 min	60,0140	5086	5346	38
T+20 sec	59,9733	5086	5265	-224	T+14 min	59,9690	5086	5306	-68
T+24 sec	59,9540	5086	5269	-170	T+15 min	59,9950	5086	5306	15
T+28 sec	59,9247	5086	5269	-182					

Report No. ATR_HQTE_2009_06_25_15_RMCC_1197MW Date: 06-25-09 Time: 14:51:41

QUÉBEC

Origin: Generation rejection at La Grande-2A GS (units 23, 24, 25 and 26).

Cause: Tripping of the HVDC Interconnection Radisson - Nicolet - Sandy Pond substations caused by a thunderstorm.

Generation Loss: 1197 MW
Load Loss: 1766 MW

Percent of Loss to First Contingency: 119,7 %
Maximum Interchange Deviation: 94 MW

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

Time to return ACE to zero: 01:00 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)
60,0213

Freq. (after)
60,0120

Freq. Dev.
-0,0093

Comments: _____

See Comment File: _____

See Graph File(s): _____

INTERCHANGE TABLE

T = Time of Disturbance

Time	F	Sched	Actual	ACE
T-60 sec				
T-56 sec				
T-52 sec	60,0463	4789	4929	193
T-48 sec	60,0330	4789	4921	214
T-44 sec	60,0307	4789	4925	147
T-40 sec	60,0373	4789	4926	148
T-36 sec	60,0280	4789	4925	182
T-32 sec	60,0070	4789	4921	100
T-28 sec	60,0010	4789	4924	23
T-24 sec	60,0020	4789	4922	2
T-20 sec	60,0007	4789	4919	8
T-16 sec	59,9960	4789	4919	-4
T-12 sec	60,0030	4789	4921	-23
T-08 sec	60,0180	4789	4922	33
T-04 sec	60,0213	4789	4919	93
T=0 sec	60,1740	4789	5000	91
T+04 sec	60,6233	4789	5062	974
T+08 sec	60,3093	4789	4982	3188
T+12 sec	60,0180	4789	3310	629
T+16 sec	60,0287	4789	3315	-106
T+20 sec	60,0993	4789	3286	133
T+24 sec	60,1370	4789	3242	471
T+28 sec	59,9370	4789	3244,337	636,867

Time	F	Sched	Actual	ACE
T+32 sec	60,1160	4789	3254	620
T+36 sec	60,0790	4789	3242	455
T+40 sec	60,0417	4789	3243	305
T+44 sec	60,0160	4789	3241	140
T+48 sec	60,0250	4789	3232	100
T+52 sec	60,0170	4789	3227	109
T+56 sec	59,9840	4789	3210	64
T+60 sec	59,9870	4789	3214	-10
T+2 min	59,9720	4789	3196	-159
T+3 min	60,0240	4789	3193	123
T+4 min	59,9990	4789	3182	30
T+5 min	59,9940	4789	3185	-30
T+6 min	60,0130	4789	3161	61
T+7 min	60,0080	4789	3152	15
T+8 min	59,9580	4789	3144	-234
T+9 min	59,9830	4857	3134	-111
T+10 min	60,0090	4857	3148	32
T+11 min	59,9730	4860	3141	-126
T+12 min	60,0140	4860	3151	58
T+13 min	59,9620	3206	3095	-391
T+14 min	59,9050	3206	3085	-416
T+15 min	59,9010	3206	3090	-414

Report No. ATR_HQTE_2009_06_25_16_ALBANEL_714MW Date: 06-25-09 Time: 15:04:18

QUÉBEC

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

Cause: Tripping of a 735 kV line (L7077) at Albanel and Chibougamau substations caused by a thunderstorm.

Generation Loss: 714 MW Percent of Loss to First Contingency: 71,4 %
 Load Loss: _____ MW Maximum Interchange Deviation: 186 MW

Time to return ACE to initial (T-4) value: _____ minutes
 Time to return ACE to zero: 04:56 minutes Runback? (Y/N) N

Freq. (@T-4) 60,0187 Freq. (after) 60,0345 Freq. Dev. 0,0158
 Included in DCS? (Y/N) N
 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	59,8843	3206	3098	-346
T-56 sec					T+36 sec	59,8770	3206	3093	-479
T-52 sec	60,0070	4860	3147	5	T+40 sec	59,8757	3206	3090	-528
T-48 sec	60,0140	4860	3149	39	T+44 sec	59,8877	3206	3083	-522
T-44 sec	60,0130	4860	3148	58	T+48 sec	59,8720	3206	3084	-507
T-40 sec	60,0137	4860	3150	57	T+52 sec	59,8720	3206	3081	-546
T-36 sec	60,0140	4860	3152	59	T+56 sec	59,8787	3206	3075	-536
T-32 sec	60,0083	4860	3148	55	T+60 sec	59,8770	3206	3084	-520
T-28 sec	60,0017	4860	3146	25	T+2 min	59,9100	3206	3096	-389
T-24 sec	60,0000	4860	3150	4	T+3 min	59,9180	3206	3093	-414
T-20 sec	59,9977	4860	3152	-4	T+4 min	60,0010	3153	3098	-174
T-16 sec	59,9990	4860	3152	-7	T+5 min	59,9970	3153	3174	3
T-12 sec	59,9940	4860	3153	-4	T+6 min	60,0400	3153	3195	139
T-08 sec	60,0093	4860	3156	-9	T+7 min	60,0360	3153	3211	191
T-04 sec	60,0187	4860	3161	61	T+8 min	60,0290	3153	3217	94
T=0 sec	60,0090	4860	3150	82	T+9 min	60,0000	3153	3204	-1
T+04 sec	59,9637	4860	3095	27	T+10 min	59,9890	3153	3202	-34
T+08 sec	59,4683	4860	3046	-201	T+11 min	60,0140	3153	3167	17
T+12 sec	59,5610	4860	3088	-2258	T+12 min	60,0520	3153	3209	185
T+16 sec	59,8277	4860	3090	-1693	T+13 min	60,0250	3153	3215	106
T+20 sec	60,0043	2103	3082	-440	T+14 min	60,0340	3153	3175	139
T+24 sec	59,9630	3206	3089	-160	T+15 min	60,0360	3153	3221	158
T+28 sec	59,9270	3206	3093,953	-150,965					

Report No. ATR_HQTE_2009_07_09_15_CHURCHILL FALLS_746MW Date: 07-09-09 Time: 14:22:09

QUÉBEC

Origin: Generation loss at Churchill Falls GS (units 10 and 11).

Cause: Tripping of a 735-kV line (7053) Montagnais - Churchill Falls at Montagnais Substation caused by a forest fire.

Generation Loss: 746 MW Percent of Loss to First Contingency: 74.6 %
 Load Loss: _____ MW Maximum Interchange Deviation: 133 MW

Time to return ACE to initial (T-4) value: 02:15 minutes
 Time to return ACE to zero: 02:28 minutes

Freq. (@T-4)	Freq. (after)	Freq. Dev.	Runback? (Y/N)	<u>N</u>
<u>59,9883</u>	<u>60,0085</u>	<u>0,0202</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: Line 7053 and Power transformer T76 at Churchill Falls GS were unavailable during 3 minutes 39 seconds. Line 7053 was back in the system at 14:25:47.

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	59,8430	2965	2852	-508
T-56 sec					T+36 sec	59,8410	2965	2853	-626
T-52 sec	59,9997	2965	2869	16	T+40 sec	59,8503	2965	2860	-645
T-48 sec	60,0030	2965	2860	-4	T+44 sec	59,8597	2965	2857	-593
T-44 sec	60,0093	2965	2861	20	T+48 sec	59,8850	2965	2849	-546
T-40 sec	60,0113	2965	2862	43	T+52 sec	59,9143	2965	2858	-435
T-36 sec	60,0100	2965	2855	47	T+56 sec	59,9187	2965	2847	-317
T-32 sec	60,0067	2965	2862	39	T+60 sec	59,9070	2965	2845	-346
T-28 sec	60,0000	2965	2866	22	T+2 min	59,9700	2965	2867	-99
T-24 sec	59,9990	2965	2872	-10	T+3 min	60,0210	2965	2880	114
T-20 sec	60,0000	2965	2868	-2	T+4 min	60,0270	2965	2883	157
T-16 sec	59,9980	2965	2870	-4	T+5 min	59,9840	2965	2871	-52
T-12 sec	59,9940	2965	2867	-10	T+6 min	59,9900	2965	2870	-110
T-08 sec	59,9897	2965	2862	-28	T+7 min	60,0010	2965	2872	13
T-04 sec	59,9883	2965	2862	-47	T+8 min	59,9930	2965	2864	-40
T=0 sec	59,9950	2965	2858	-45	T+9 min	60,0240	2965	2876	52
T+04 sec	59,7883	2965	2833	-12	T+10 min	60,0320	2965	2884	68
T+08 sec	59,4600	2965	2729	-1063	T+11 min	60,0260	2965	2877	101
T+12 sec	59,6280	2965	2822	-2148	T+12 min	60,0060	2965	2869	14
T+16 sec	59,8427	2965	2822	-1287	T+13 min	59,9950	2965	2861	-12
T+20 sec	59,9607	2965	2838	-420	T+14 min	60,0240	2965	2871	87
T+24 sec	59,9210	2965	2851	-297	T+15 min	60,0090	2965	2865	54
T+28 sec	59,8837	2965	2851	-328					

Report No. ATR_HQTE_2009_08_08_07_Beaumont Trenche La Tuque_612 MW Date: 08-08-09 Time: 06:36:40

QUÉBEC

Origin: Generation loss at Beaumont, Trenche and La Tuque GS (239 MW, 233 MW and 140 MW).

Cause: Tripping of a 215-kV line (2370) between Trenché and Trois-Rivières Substations because of a Phase A - Neutral fault on the line, followed by the tripping of lines 2331 La Tuque/Trenche/Trois-Rivières and 2358 La Tuque/Beaumont/Trois-Rivières. The three GS were islanded from Trois-Rivières Substation.

Generation Loss: 612 MW Percent of Loss to First Contingency: 61,2 %
 Load Loss: 62 MW Maximum Interchange Deviation: 94 MW

Time to return ACE to initial (T-4) value: 02:12 minutes
 Time to return ACE to zero: 02:12 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) Freq. (after) Freq. Dev.
60,0167 60,0153 -0,0014

Comments: At this moment, a part of line 2358 was isolated from Trois-Rivières substation; the line protections were not adapted to this particular configuration. Configurations and line protections will be reviewed.

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	835	1043	-348
T-56 sec					T+36 sec	59,8640	835	1048	-340
T-52 sec	60,0323	835	1088	79	T+40 sec	59,8507	835	1053	-362
T-48 sec	60,0320	835	1089	88	T+44 sec	59,8290	835	1041	-402
T-44 sec	60,0213	835	1086	81	T+48 sec	59,8280	835	1042	-441
T-40 sec	60,0000	835	1087	42	T+52 sec	59,8253	835	1049	-456
T-36 sec	59,9860	835	1086	-13	T+56 sec	59,8260	835	1036	-459
T-32 sec	59,9763	835	1088	-47	T+60 sec	59,8380	835	1044	-456
T-28 sec	59,9803	835	1089	-62	T+2 min	59,9890	835	1063	-46
T-24 sec	59,9880	835	1086	-48	T+3 min	60,0680	835	1093	179
T-20 sec	59,9990	835	1084	-23	T+4 min	60,0170	835	1104	69
T-16 sec	60,0057	835	1082	1	T+5 min	60,0310	835	1123	105
T-12 sec	60,0150	835	1085	22	T+6 min	60,0150	835	1111	57
T-08 sec	60,0173	835	1085	43	T+7 min	60,0300	835	1110	93
T-04 sec	60,0167	835	1085	46	T+8 min	60,0140	835	1120	56
T=0 sec	60,0160	835	1081	46	T+9 min	60,0480	835	1131	121
T+04 sec	59,9387	835	1053	43	T+10 min	59,9740	835	1121	-22
T+08 sec	59,6580	835	991	-215	T+11 min	60,0180	835	1108	65
T+12 sec	59,4450	835	1026	-1382	T+12 min	60,0190	835	1101	56
T+16 sec	59,5850	835	1038	-1482	T+13 min	59,9850	835	1089	-52
T+20 sec	59,7350	835	1055	-998	T+14 min	60,0310	835	1121	113
T+24 sec	59,8000	835	1050	-683	T+15 min	60,0260	835	1133	65
T+28 sec	59,8547	835	1052	-472					

Report No. ATR_HQTE_2009_08_29_15_La Grande 2A_600MW Date: 08-29-09 Time: 14:20:10
QUÉBEC

Origin: Generation loss at La Grande-2A GS (units 21 and 22).

Cause: Human error by a technician who was working on circuit breakers 300-43, 300-44 at Radisson Substation.

Generation Loss: 600 MW Percent of Loss to First Contingency: 60 %
 Load Loss: 356 MW export Maximum Interchange Deviation: _____ MW

Time to return ACE to initial (T-4) value: 00:20 minutes
 Time to return ACE to zero: 00:30 minutes

Freq. (@T-4)
59,9700

Freq. (after)

Freq. Dev.

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

Comments: Loss of export of 356 MW to National Grid on HVDC network (RMCC).
The net generation lost being 244 MW, the frequency chart shows a deviation of only -6 Hz / +5 Hz.
For this reason, the data collection did not start and data is not available.

See Comment File: _____ See Graph File(s): FREQUENCY CHARTS and ACE CHART

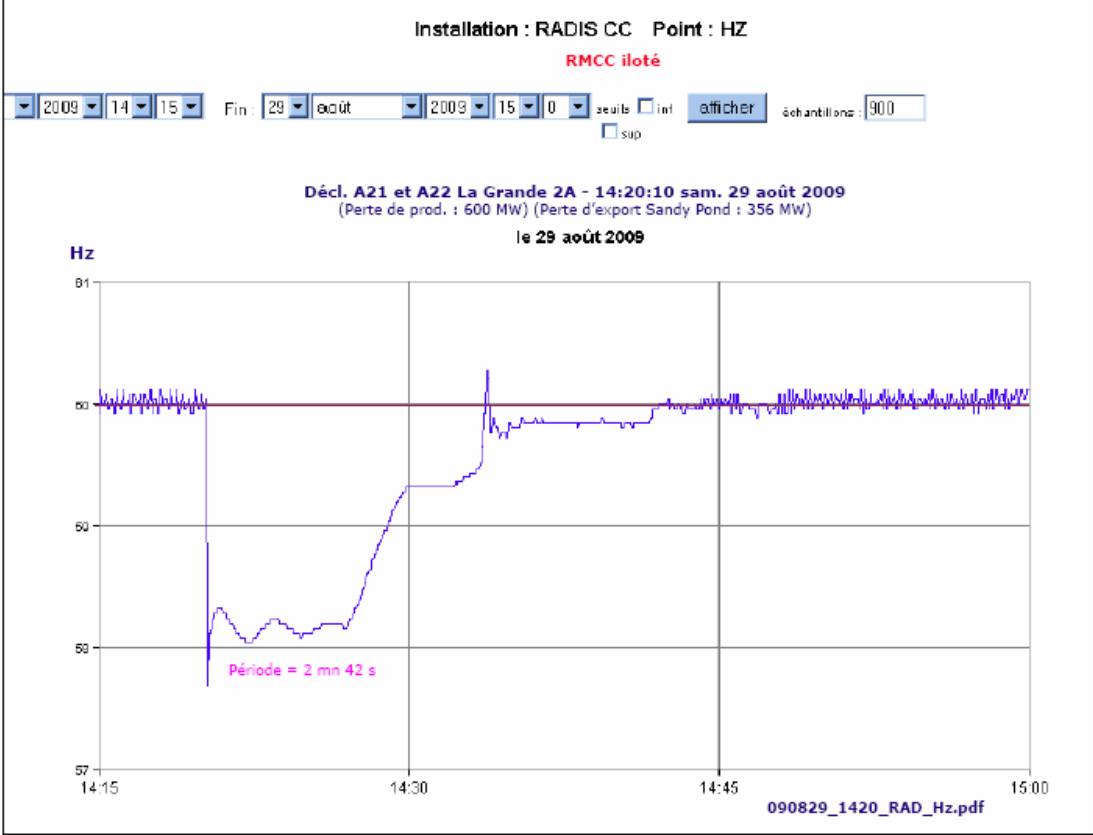
INTERCHANGE TABLE

T = Time of Disturbance

Time	F	Sched	Actual	ACE	Time	F	Sched	Actual	ACE
T-60 sec					T+32 sec				
T-56 sec					T+36 sec				
T-52 sec					T+40 sec				
T-48 sec					T+44 sec				
T-44 sec					T+48 sec				
T-40 sec					T+52 sec				
T-36 sec					T+56 sec				
T-32 sec					T+60 sec				
T-28 sec					T+2 min				
T-24 sec					T+3 min				
T-20 sec					T+4 min				
T-16 sec					T+5 min				
T-12 sec					T+6 min				
T-08 sec					T+7 min				
T-04 sec	59,9700			-98	T+8 min				
T=0 sec					T+9 min				
T+04 sec					T+10 min				
T+08 sec					T+11 min				
T+12 sec					T+12 min				
T+16 sec					T+13 min				
T+20 sec					T+14 min				
T+24 sec					T+15 min				
T+28 sec									

(suite du rapport à la page suivante)

Frequency Chart at Radisson Substation, on 08-29-09 from 14:15 to 15:00



Report No. ATR_HQTE_2009_10_01_15_ABITIBI_870 MW Date: 10-01-09 Time: 14:21:23

QUÉBEC

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

Cause: A human error during the dismantling of a disturbance recorder in Abitibi substation (in order to replace it) caused the operation of the automatic generation-rejection control (RPTC).

Generation Loss: 870 MW Percent of Loss to First Contingency: 87 %
 Load Loss: _____ MW Maximum Interchange Deviation: 123 MW

Time to return ACE to initial (T-4) value: 02:42 minutes
 Time to return ACE to zero: 02:44 minutes

			Runback? (Y/N)	<u>N</u>
			Included in DCS? (Y/N)	<u>Y</u>
Freq. (@T-4)	Freq. (after)	Freq. Dev.	Reviewed by Area? (Y/N)	<u>N</u>
<u>59,9947</u>	<u>60,0290</u>	<u>0,0343</u>	Reviewed by CO-1? (Y/N)	<u>N</u>

Comments: When they isolated an RPTC protection system associated to the disturbance recorder for testing purposes, the technicians forgot to isolate the undercurrent protection system "B" on line 7094.

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	59,9180	4618	4556	-302
T-56 sec					T+36 sec	59,8920	4618	4549	-422
T-52 sec	59,9953	3176	3090	1502	T+40 sec	59,8773	4618	4540	-480
T-48 sec	59,9910	4618	4608	-44	T+44 sec	59,8677	4618	4526	-549
T-44 sec	59,9960	4618	4606	-34	T+48 sec	59,8740	4618	4535	-555
T-40 sec	60,0007	4618	4607	-14	T+52 sec	59,8780	4618	4535	-543
T-36 sec	60,0120	4618	4610	9	T+56 sec	59,8837	4618	4527	-522
T-32 sec	60,0187	4618	4607	65	T+60 sec	59,8870	4618	4531	-513
T-28 sec	60,0180	4618	4605	88	T+2 min	59,9170	4618	4546	-392
T-24 sec	60,0100	4618	4604	77	T+3 min	60,0230	4618	4574	148
T-20 sec	60,0000	4618	4604	30	T+4 min	60,0200	4618	4593	122
T-16 sec	60,0020	4618	4603	2	T+5 min	60,0070	4618	4597	41
T-12 sec	60,0020	4618	4597	15	T+6 min	59,9960	4618	4605	6
T-08 sec	59,9980	4618	4600	5	T+7 min	59,9740	4618	4600	-106
T-04 sec	59,9947	4618	4604	-14	T+8 min	59,9770	4618	4696	-117
T=0 sec	59,9980	4618	4602	-29	T+9 min	60,0050	4618	4716	88
T+04 sec	60,0007	4618	4607	-3	T+10 min	59,9950	4618	4703	-20
T+08 sec	59,9800	4618	4503	9	T+11 min	60,0300	4618	4700	87
T+12 sec	59,4020	4618	4482	-1423	T+12 min	60,0080	4618	4670	39
T+16 sec	59,4953	4618	4545	-2969	T+13 min	60,0290	4618	4634	148
T+20 sec	59,7570	4618	4550	-2078	T+14 min	60,0340	4618	4617	161
T+24 sec	59,8620	4618	4548	-966	T+15 min	60,0450	4618	4603	158
T+28 sec	59,9167	4618	4550	-471					

Report No. ATR_HQTE_2009_10_01_16_ABITIBI_868 MW Date: 10-01-09 Time: 15:06:09

QUÉBEC

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

Cause: A human error during the dismantling of a disturbance recorder in Abitibi substation (in order to replace it) caused the tripping of line 7093 and the operation of the automatic generation-rejection control (RPTC).

Generation Loss: 868 MW Percent of Loss to First Contingency: 86,8 %
 Load Loss: _____ MW Maximum Interchange Deviation: 130 MW

Time to return ACE to initial (T-4) value: 03:37 minutes

Time to return ACE to zero: 03:41 minutes

Runback? (Y/N) N

Included in DCS? (Y/N) Y

Freq. (@T-4) 60,0067 Freq. (after) 59,9993 Freq. Dev. -0,0074

Reviewed by Area? (Y/N) N

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

Comments: When he isolated a protection system on line 7093 for testing purposes, a technician forgot to put a switch in OFF position. Line 7092 was withdrawn, so only line 7094 was in operation.

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	59,8867	4758	4636	-474
T-56 sec					T+36 sec	59,8730	4758	4609	-512
T-52 sec					T+40 sec	59,8650	4758	4610	-563
T-48 sec	60,0090	4758	4671	21	T+44 sec	59,8553	4758	4612	-594
T-44 sec	60,0157	4758	4670	47	T+48 sec	59,8630	4758	4605	-615
T-40 sec	60,0230	4758	4675	79	T+52 sec	59,8710	4758	4613	-586
T-36 sec	60,0240	4758	4679	114	T+56 sec	59,8723	4758	4599	-546
T-32 sec	60,0240	4758	4673	111	T+60 sec	59,8710	4758	4602	-559
T-28 sec	60,0167	4758	4671	109	T+2 min	59,8600	4758	4589	-628
T-24 sec	59,9970	4758	4667	58	T+3 min	59,9510	4758	4612	-176
T-20 sec	59,9827	4758	4665	-31	T+4 min	60,0270	4758	4639	82
T-16 sec	59,9747	4758	4658	-91	T+5 min	59,9810	4758	4645	-68
T-12 sec	59,9740	4758	4663	-124	T+6 min	59,9980	4758	4661	-27
T-08 sec	59,9913	4758	4665	-101	T+7 min	60,0040	4758	4667	-25
T-04 sec	60,0067	4758	4669	-16	T+8 min	59,9910	4758	4678	-1
T=0 sec	60,0090	4758	4672	39	T+9 min	60,0190	4758	4672	72
T+04 sec	60,0077	4758	4661	41	T+10 min	59,9800	4758	4668	-71
T+08 sec	59,8213	4758	4538	28	T+11 min	60,0060	4758	4674	-26
T+12 sec	59,4490	4758	4566	-1977	T+12 min	59,9940	4758	4670	-30
T+16 sec	59,6263	4758	4611	-2517	T+13 min	60,0010	4758	4668	-76
T+20 sec	59,8020	4758	4614	-1423	T+14 min	59,9900	4758	4670	-6
T+24 sec	59,8640	4758	4615	-824	T+15 min	60,0120	4758	4726	53
T+28 sec	59,8853	4758	4607	-511					

QUÉBEC

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

Cause: Tripping of a 735-kV line (7072) at Tilly substation, due to an inappropriate setting implemented on the differential protection system of a 735-13,8kV power transformer (T2) at La Grande-4 GS.

Generation Loss: 622 MW Percent of Loss to First Contingency: 62,2 %
 Load Loss: _____ MW Maximum Interchange Deviation: 95 MW

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

Time to return ACE to zero: 03:43 minutes

Runback? (Y/N) N

Included in DCS? (Y/N) N

Freq. (@T-4)
60,0310

Freq. (after)
59,9880

Freq. Dev.
-0,0430

Reviewed by Area? (Y/N) N

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

Comments: The problem occurred when unit 3 was connected to T2 (to witch units 4 and 5 were connected) before maintenance works.

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	59,8947	4398	4324	-542
T-56 sec					T+36 sec	59,8960	4398	4309	-435
T-52 sec	59,9977	2899	2934	1494	T+40 sec	59,8933	4398	4318	-450
T-48 sec	60,0090	4398	4369	55	T+44 sec	59,8990	4398	4316	-466
T-44 sec	60,0057	4398	4372	35	T+48 sec	59,9100	4398	4322	-429
T-40 sec	60,0070	4398	4372	24	T+52 sec	59,9260	4398	4319	-374
T-36 sec	60,0140	4398	4375	37	T+56 sec	59,9303	4398	4321	-299
T-32 sec	60,0153	4398	4372	62	T+60 sec	59,9300	4398	4326	-314
T-28 sec	60,0213	4398	4377	74	T+2 min	59,9080	4398	4321	-406
T-24 sec	60,0230	4398	4378	104	T+3 min	59,9330	4398	4321	-282
T-20 sec	60,0210	4398	4377	102	T+4 min	60,0160	4398	4344	110
T-16 sec	60,0190	4398	4376	90	T+5 min	60,0340	4398	4363	207
T-12 sec	60,0220	4398	4382	86	T+6 min	60,0090	4398	4380	60
T-08 sec	60,0263	4398	4382	101	T+7 min	59,9790	4398	4361	-96
T-04 sec	60,0310	4398	4382	124	T+8 min	60,0240	4398	4370	134
T=0 sec	60,0380	4398	4386	141	T+9 min	59,9730	4398	4352	-78
T+04 sec	60,0407	4398	4354	181	T+10 min	60,0180	4398	4368	78
T+08 sec	59,9200	4398	4286	176	T+11 min	60,0090	4398	4364	20
T+12 sec	59,5860	4398	4307	-1333	T+12 min	59,9880	4398	4358	-39
T+16 sec	59,7060	4398	4321	-1930	T+13 min	59,9830	4398	4360	-49
T+20 sec	59,8510	4398	4291	-1138	T+14 min	59,9900	4398	4370	-29
T+24 sec	59,8590	4398	4301	-705	T+15 min	59,9870	4398	4358	-23
T+28 sec	59,8710	-2423	-2632	-577					

Report No. ATR_HQTE_2009_10_27_13_GENTILLY 2_622 MW Date: 10-27-09 Time: 12:11:35
QUÉBEC

Origin: Generation loss at Gentilly 2 GS (unit 2).

Cause: When the circuit breaker 230-42 closed at Becancour GS (for synchronization test on unit 42), a differential protection operated to trip two bars (B2, B4) at Gentilly 2 Substation due to a problem on an output signal of a SNEMO SMD5-A Relay.

Generation Loss: 622 MW Percent of Loss to First Contingency: 56,9 %
 Load Loss: _____ MW Maximum Interchange Deviation: 82 MW

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

Time to return ACE to zero: 01:59 minutes

Runback? (Y/N) N

Included in DCS? (Y/N) N

Freq. (@T-4) 60,0143 Freq. (after) 60,0238 Freq. Dev. 0,0094

Reviewed by Area? (Y/N) N

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

Comments: At the time of this event, the First Contingency was 1094 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	59,9523	4035	4089	-79
T-56 sec					T+36 sec	59,9100	4035	4087	-327
T-52 sec					T+40 sec	59,9020	4035	4088	-469
T-48 sec	60,0610	4035	4129	265	T+44 sec	59,9007	4035	4074	-485
T-44 sec	60,0757	4035	4134	318	T+48 sec	59,9200	4035	4096	-456
T-40 sec	60,0717	4035	4134	376	T+52 sec	59,9453	4035	4091	-364
T-36 sec	60,0570	4035	4133	329	T+56 sec	59,9557	4035	4092	-234
T-32 sec	60,0557	4035	4138	275	T+60 sec	59,9500	4035	4093	-247
T-28 sec	60,0450	4035	4138	262	T+2 min	59,9830	4035	4108	3
T-24 sec	60,0300	4035	4141	200	T+3 min	60,0180	4035	4109	71
T-20 sec	60,0173	4035	4138	128	T+4 min	60,0220	4035	4110	111
T-16 sec	60,0113	4035	4136	76	T+5 min	60,0060	4035	4108	48
T-12 sec	60,0110	4035	4136	50	T+6 min	59,9800	4035	4108	-47
T-08 sec	60,0103	4035	4136	52	T+7 min	60,0210	4035	4120	74
T-04 sec	60,0143	4035	4138	52	T+8 min	60,0340	4035	4125	163
T=0 sec	60,0070	4035	4136	76	T+9 min	60,0290	4035	4134	121
T+04 sec	59,9870	4035	4124	18	T+10 min	60,0020	4035	4132	3
T+08 sec	59,8937	4035	4089	-89	T+11 min	59,9800	4035	4134	-102
T+12 sec	59,6430	4035	4070	-1182	T+12 min	60,0050	4035	4127	65
T+16 sec	59,7150	4035	4086	-1911	T+13 min	59,9890	4035	4129	-48
T+20 sec	59,8937	4035	4056	-1293	T+14 min	60,0000	4035	4125	0
T+24 sec	59,9600	4035	4082	-448	T+15 min	60,0130	4035	4126	61
T+28 sec	59,9787	4035	4093	-106					

Report No. ATR_HQTE_2009_11_17_21_La Grande 2A_1230 MW Date: 11-17-09 Time: 20:42:10
QUÉBEC

Origin: Generation loss at La Grande 2A GS (units 21, 22, 23 and 24).

Cause: Units tripped when line 3163 Radisson-La Grande 2A was put on-potential after a refection of protection systems, because of a fire in a junction box caused by a bad cable connection.

Generation Loss: 1230 MW Percent of Loss to First Contingency: 114 %
 Load Loss: _____ MW Maximum Interchange Deviation: 157 MW

Time to return ACE to initial (T-4) value: 03:37 minutes
 Time to return ACE to zero: 03:40 minutes

			Runback? (Y/N)	<u>N</u>
			Included in DCS? (Y/N)	<u>N</u>
Freq. (@T-4)	Freq. (after)	Freq. Dev.	Reviewed by Area? (Y/N)	<u>N</u>
<u>59,9993</u>	<u>60,0198</u>	<u>0,0204</u>	Reviewed by CO-1? (Y/N)	<u>N</u>

Comments: The four units were back in service 14 minutes later.
Line 3163 was put back in the system on 11/23/09.

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	59,8577	3333	3303	-711
T-56 sec					T+36 sec	59,8340	3333	3304	-733
T-52 sec	60,0010	2216	2276	1190	T+40 sec	59,7993	3333	3298	-805
T-48 sec	59,9990	3333	3387	40	T+44 sec	59,7763	3333	3300	-995
T-44 sec	59,9997	3333	3387	-5	T+48 sec	59,8070	3333	3311	-977
T-40 sec	60,0117	3333	3385	8	T+52 sec	59,8150	3333	3304	-895
T-36 sec	60,0210	3333	3387	79	T+56 sec	59,8097	3333	3313	-868
T-32 sec	60,0130	3333	3387	95	T+60 sec	59,8050	3333	3310	-896
T-28 sec	60,0077	3333	3387	55	T+2 min	59,9070	3333	3332	-387
T-24 sec	60,0050	3333	3390	37	T+3 min	59,9600	3333	3359	-218
T-20 sec	59,9927	3333	3378	9	T+4 min	60,0240	3333	3374	112
T-16 sec	59,9900	3333	3383	-49	T+5 min	59,9880	3333	3385	-46
T-12 sec	59,9950	3333	3381	-47	T+6 min	60,0250	3333	3380	76
T-08 sec	59,9967	3333	3380	-23	T+7 min	60,0400	3333	3390	213
T-04 sec	59,9993	3333	3379	-13	T+8 min	60,0110	3333	3384	47
T=0 sec	60,0030	3333	3379	0	T+9 min	60,0200	3333	3383	122
T+04 sec	59,9990	3333	3367	18	T+10 min	60,0290	3333	3390	159
T+08 sec	59,5617	3333	3222	-12	T+11 min	60,0480	3333	3392	219
T+12 sec	59,2440	3333	3245	-3406	T+12 min	60,0310	3333	3402	154
T+16 sec	59,4787	3333	3297	-3644	T+13 min	60,0230	3333	3400	122
T+20 sec	59,6950	3333	3261	-2194	T+14 min	60,0300	3333	3410	162
T+24 sec	59,7660	3333	3286	-1449	T+15 min	59,9950	3333	3401	-28
T+28 sec	59,8327	3333	3294	-998					

Report No. ATR_HQTE_2009_12_10_16_ABITIBI_2037 MW Date: 12-10-09 Time: 15:09:31

QUÉBEC

Origin: Generation rejection at La Grande 2 GS (units 2, 3, 4, 13, 14, 15 and 16).

Cause: A technician who was working on the control cabinet of the disconnecting switch 708B80 caused an on-load opening of that switch when his tool touched the opening button.

Generation Loss: 2037 MW Percent of Loss to First Contingency: 204 %
 Load Loss: _____ MW Maximum Interchange Deviation: 367 MW

Time to return ACE to initial (T-4) value: 14:35 minutes
 Time to return ACE to zero: 14:38 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) Freq. (after) Freq. Dev.
59,9907 59,9338 -0,0569

Comments: The generation rejection occurred when Line 7081 tripped, 329 ms after Line 7082, due to the sparkover of the spark-gap of the series compensator CXC81, which seems Inadvertent.
Line 7081 was put on-load at 15h18 and line 7082 at 15h44.

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	59,8257	2465	2384	-1113
T-56 sec					T+36 sec	59,8200	2465	2386	-896
T-52 sec					T+40 sec	59,7693	2465	2382	-902
T-48 sec	59,9990	2465	2490	-4	T+44 sec	59,7053	2465	2395	-1211
T-44 sec	60,0027	2465	2494	-1	T+48 sec	59,7120	2465	2381	-1437
T-40 sec	60,0053	2465	2490	18	T+52 sec	59,7253	2465	2384	-1441
T-36 sec	60,0100	2465	2492	31	T+56 sec	59,7470	2465	2384	-1354
T-32 sec	60,0120	2465	2493	59	T+60 sec	59,7500	2465	2391	-1315
T-28 sec	60,0100	2465	2493	65	T+2 min	59,7480	2465	2383	-1279
T-24 sec	60,0000	2465	2491	48	T+3 min	59,8490	2465	2401	-802
T-20 sec	59,9957	2465	2494	-8	T+4 min	59,9120	2465	2438	-472
T-16 sec	59,9950	2465	2499	-26	T+5 min	59,7430	2465	2421	-1416
T-12 sec	59,9910	2465	2496	-29	T+6 min	59,7550	2465	2388	-1204
T-08 sec	59,9920	2465	2499	-48	T+7 min	59,7860	2465	2389	-1206
T-04 sec	59,9907	2465	2492	-44	T+8 min	59,7010	2465	2389	-1549
T=0 sec	59,9920	2465	2493	-57	T+9 min	59,6870	2465	2381	-1682
T+04 sec	59,9840	2465	2480	-37	T+10 min	59,7640	2465	2403	-1235
T+08 sec	59,7527	2465	2298	-96	T+11 min	59,7620	2465	2400	-1244
T+12 sec	58,8800	2465	2124	-3839	T+12 min	59,8940	2465	2435	-626
T+16 sec	59,0720	2465	2311	-6180	T+13 min	59,8780	2465	2455	-699
T+20 sec	59,4907	2465	2409	-4394	T+14 min	59,8660	2465	2491	-702
T+24 sec	59,6580	2465	2376	-2345	T+15 min	60,0970	2465	2583	417
T+28 sec	59,7527	2465	2373	-1499					

Report No. ATR_HQTE_2009_12_15_10_ALBANEL_2714 MW Date: 12-15-09 Time: 09:31:35

QUÉBEC

Origin: Generation rejection at LG4 GS (1269 MW), Brisay GS (380 MW), LA-2 GS (288 MW) and LA-1 GS (777 MW).

Cause: An incorrect operation of the MURGE system caused the disconnection of all the power lines at Albanel power station. MHTO SPS correctly disconnected the Tilly-Laforge 1-Laforge 2-Brisay subnet.

Generation Loss: 2714 MW Percent of Loss to First Contingency: 255,32 %
 Load Loss: 2446 MW Maximum Interchange Deviation: 88 MW

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

Freq. (@T-4) Freq. (after) Freq. Dev. Runback? (Y/N) N
60,0127 59,9910 -0,0217 Included in DCS? (Y/N) N
 Reviewed by Area? (Y/N) N
 Reviewed by CO-1? (Y/N) N

Comments: The RPTC SPS correctly detected the loss of three 735kV circuits and automatically disconnected 2714 MW of generation and 2446 MW of loads. The system was back to normal limits 25 minutes after the initial line trip. The interchanges were not impacted.

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	59,9723	2924	2765	179
T-56 sec					T+36 sec	59,9600	2924	2782	-130
T-52 sec					T+40 sec	59,9533	2924	2778	-224
T-48 sec	60,0070	2924	2796	56	T+44 sec	59,9750	2924	2782	-248
T-44 sec	60,0113	2924	2795	45	T+48 sec	60,0070	2924	2792	-67
T-40 sec	60,0140	2924	2796	69	T+52 sec	60,0390	2924	2780	70
T-36 sec	60,0120	2924	2800	77	T+56 sec	60,0093	2924	2784	234
T-32 sec	60,0130	2924	2806	68	T+60 sec	60,0080	2924	2786	91
T-28 sec	60,0163	2924	2808	79	T+2 min	60,0680	2924	2823	325
T-24 sec	60,0140	2924	2808	93	T+3 min	60,0130	2924	2809	119
T-20 sec	60,0143	2924	2809	77	T+4 min	59,9860	2924	2883	-99
T-16 sec	60,0183	2924	2807	83	T+5 min	59,9790	2924	2930	-120
T-12 sec	60,0230	2924	2802	110	T+6 min	60,0390	2924	2936	188
T-08 sec	60,0173	2924	2807	118	T+7 min	60,0020	2924	2932	57
T-04 sec	60,0127	2924	2803	94	T+8 min	59,9920	2924	2922	-38
T=0 sec	60,0040	2924	2802	64	T+9 min	59,9890	2924	2920	-55
T+04 sec	59,9960	2924	2794	6	T+10 min	60,0060	2924	2925	78
T+08 sec	59,8413	2924	2715	-29	T+11 min	59,9760	2924	2902	-132
T+12 sec	59,6300	2924	2760	-1710	T+12 min	59,9770	2924	2914	-108
T+16 sec	59,7567	2924	2748	-1919	T+13 min	59,9860	2924	2916	-78
T+20 sec	59,9317	2924	2798	-1070	T+14 min	59,9970	2924	2910	-107
T+24 sec	60,0450	2924	2776	-81	T+15 min	60,0040	2924	2901	36
T+28 sec	60,0370	2924	2766	330					

QUÉBEC

Origin: Generation loss at Churchill Falls GS (unit 1).

Cause: Unit tripped on 861A, 861B lockouts. The cause was faulty 64A1 relay (stator ground relay).

Generation Loss: 506 MW Percent of Loss to First Contingency: 42,95 %
 Load Loss: _____ MW Maximum Interchange Deviation: 115 MW

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

Time to return ACE to zero: 00:51 minutes

Runback? (Y/N) N

Included in DCS? (Y/N) N

Freq. (@T-4) 59,9927 Freq. (after) 59,9880 Freq. Dev. -0,0047

Reviewed by Area? (Y/N) N

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

Comments: Unit 8 was in the process of being shut down and contributed 25 MW when unit 1 tripped for a total loss of 531 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	59,9280	3360	3337	-481
T-56 sec					T+36 sec	59,9250	3360	3342	-441
T-52 sec	59,9920	3360	3380	-34	T+40 sec	59,9423	3360	3338	-451
T-48 sec	59,9900	3360	3388	-55	T+44 sec	59,9630	3360	3270	-322
T-44 sec	59,9887	3360	3380	-62	T+48 sec	59,9990	3360	3311	-124
T-40 sec	59,9893	3360	3380	-70	T+52 sec	60,0150	3360	3313	31
T-36 sec	59,9930	3360	3384	-64	T+56 sec	60,0193	3360	3324	119
T-32 sec	59,9957	3360	3381	-36	T+60 sec	60,0160	3360	3316	94
T-28 sec	59,9910	3360	3383	-29	T+2 min	60,0210	3360	3302	114
T-24 sec	59,9850	3360	3383	-67	T+3 min	60,0230	3360	3283	190
T-20 sec	59,9833	3360	3381	-94	T+4 min	60,0060	3360	3265	30
T-16 sec	59,9827	3360	3378	-104	T+5 min	60,0070	3317	3233	40
T-12 sec	59,9850	3360	3376	-103	T+6 min	60,0000	3317	3234	26
T-08 sec	59,9913	3360	3383	-81	T+7 min	60,0260	3317	3179	180
T-04 sec	59,9927	3360	3385	-46	T+8 min	60,0380	3317	3183	231
T=0 sec	59,9010	3360	3338	-46	T+9 min	60,0410	3317	3199	255
T+04 sec	59,6810	3360	3314	-775	T+10 min	60,0320	3317	3198	209
T+08 sec	59,6510	3360	3337	-2248	T+11 min	60,0060	3317	3190	47
T+12 sec	59,7580	3360	3327	-1724	T+12 min	60,0030	3317	3194	6
T+16 sec	59,8127	3360	3317	-1361	T+13 min	60,0050	3317	3187	16
T+20 sec	59,8573	3360	3333	-1048	T+14 min	59,9960	3317	3174	-30
T+24 sec	59,8890	3360	3339	-813	T+15 min	60,0110	3317	3189	51
T+28 sec	59,9143	-2423	-2632	-615					