

1 Q. With reference to NP-NLH-010 from the 2016 Standby Fuel Deferral Application,  
2 please provide the noted information for all periods of standby fuel use during  
3 2016. For reference, the response to NP-NLH-101 stated: "To demonstrate that the  
4 fuel costs associated with the operation of Standby Generation were prudently  
5 incurred, at the end of each quarter, Hydro will provide a daily account of the  
6 generating units start and end times, durations and reason(s) for operation. Hydro  
7 will also provide a monthly summary of energy by unit, fuel consumption and cost.  
8 To demonstrate the operation of Standby Generation for low hydrology, Hydro also  
9 proposes to provide its weekly generation guidelines. Hydro already provides,  
10 though the quarterly report to the Board, a report on system hydrology, which  
11 details the hydrological conditions, including storage levels and inflows for the  
12 quarter."

13  
14  
15 A. Please refer to Hydro's response to IC-NLH-004, Attachments 1 to 6 for a daily  
16 account of the standby generating units start and end times, durations, and  
17 reason(s) for operation. The areas of operation in the tables are not necessarily  
18 mutually exclusive, for example, the operation of the Holyrood Gas Turbine (GT) as  
19 a backup during the loss of a Holyrood unit will also provide for Island spinning  
20 and/or Avalon reserves support. During a Holyrood Total Plant Outage (TPO), when  
21 all thermal units are planned to be shut, the Holyrood GT is operated in order to  
22 maintain Avalon reserves. Please note, for multi-unit plants, such as the diesel  
23 plants or the Hardwoods and Stephenville gas turbines, a period of operation is a  
24 time in which at least one unit was on-line and generating.

25  
26 Please refer to IC-NLH-004, Attachments 7 and 8, for monthly summaries of energy  
27 by unit, fuel consumption and cost.

1 Please refer to IC-NLH-004, Attachments 9 to 13 for the generation guidelines  
2 issued during the period when standby generation was operated above what would  
3 have otherwise been required for reliability requirements, to provide additional  
4 support for low hydrology (February 1, 2016 to February 26, 2016). Operation of  
5 standby units outside of this period, although at the minimum loading levels  
6 required for reliability, also provided for the dual benefit of reservoir support as it  
7 resulted in energy injection into the system.

**2015**

<b>Hardwoods Gas Turbine Start Time</b>	<b>Hardwoods Gas Turbine Stop Time</b>	<b>Operation Time (Hours)</b>	<b>Reason for Operation</b>
1/1/2015 6:11	1/1/2015 19:15	13.1	Backup due to the loss of a major generating unit
1/3/2015 6:15	1/4/2015 21:35	39.3	Support of spinning reserve
1/6/2015 6:41	1/6/2015 20:38	14.0	Support of spinning reserve
1/7/2015 16:32	1/7/2015 21:08	4.6	Support of spinning reserve
1/8/2015 10:51	1/8/2015 19:27	8.6	Support of spinning reserve
1/9/2015 6:23	1/9/2015 11:01	4.6	Planned generation outages
1/11/2015 16:49	1/11/2015 20:01	3.2	Support of spinning reserve
1/12/2015 8:07	1/12/2015 10:21	2.2	Backup due to the loss of a major generating unit
1/13/2015 15:33	1/13/2015 20:06	4.5	Support of spinning reserve
1/14/2015 6:49	1/14/2015 10:45	3.9	Support of spinning reserve
1/14/2015 16:05	1/14/2015 18:16	2.2	Support of spinning reserve
1/17/2015 13:14	1/17/2015 17:38	4.4	Support of spinning reserve
1/22/2015 9:29	1/22/2015 12:54	3.4	Support of spinning reserve
1/23/2015 9:45	1/23/2015 12:52	3.1	Testing
1/27/2015 15:12	1/27/2015 21:17	6.1	Support of spinning reserve
2/4/2015 6:55	2/4/2015 8:09	1.2	Support of spinning reserve
2/5/2015 6:46	2/5/2015 9:08	2.4	Support of spinning reserve
2/5/2015 10:21	2/5/2015 16:47	6.4	Testing
2/9/2015 6:31	2/9/2015 12:02	5.5	Support of spinning reserve
2/9/2015 15:53	2/9/2015 20:56	5.0	Support of spinning reserve
2/10/2015 6:55	2/10/2015 13:35	6.7	Support of spinning reserve
2/11/2015 8:32	2/11/2015 18:29	9.9	Support of spinning reserve
2/12/2015 6:47	2/12/2015 18:54	12.1	Support of spinning reserve
2/18/2015 11:19	2/18/2015 17:08	5.8	Testing
2/19/2015 11:38	2/19/2015 15:42	4.1	Testing
2/21/2015 10:23	2/21/2015 16:02	5.7	Testing
2/24/2015 16:50	2/24/2015 20:15	3.4	Support of spinning reserve
2/25/2015 6:36	2/25/2015 8:41	2.1	Support of spinning reserve
2/28/2015 6:37	2/28/2015 9:42	3.1	Backup due to the loss of a major generating unit
2/28/2015 10:28	2/28/2015 23:17	12.8	Backup due to the loss of a major generating unit
3/1/2015 6:25	3/1/2015 12:22	6.0	Backup due to the loss of a major generating unit
3/1/2015 16:35	3/1/2015 18:23	1.8	Backup due to the loss of a major generating unit
3/3/2015 15:08	3/3/2015 23:11	8.0	Backup due to the loss of a major generating unit
3/4/2015 6:11	3/4/2015 7:52	1.7	Backup due to the loss of a major generating unit
3/4/2015 9:27	3/4/2015 18:14	8.8	Backup due to the loss of a major generating unit
3/5/2015 11:25	3/5/2015 11:32	0.1	Testing
3/6/2015 4:10	3/6/2015 13:58	9.8	Support of spinning reserve
3/7/2015 4:02	3/7/2015 8:09	4.1	Support of spinning reserve
3/7/2015 12:57	3/7/2015 19:07	6.2	Support of spinning reserve

**2015**

<b>Hardwoods Gas Turbine Start Time</b>	<b>Hardwoods Gas Turbine Stop Time</b>	<b>Operation Time (Hours)</b>	<b>Reason for Operation</b>
3/8/2015 7:38	3/8/2015 8:33	0.9	Support of spinning reserve
3/9/2015 17:00	3/9/2015 20:51	3.8	Support of spinning reserve
3/10/2015 7:49	3/10/2015 8:46	0.9	Support of spinning reserve
3/10/2015 18:07	3/10/2015 20:53	2.8	Support of spinning reserve
3/12/2015 6:04	3/12/2015 11:57	5.9	Backup due to the loss of a major generating unit
3/12/2015 17:01	3/12/2015 21:26	4.4	Backup due to the loss of a major generating unit
3/13/2015 3:25	3/13/2015 12:17	8.9	Backup due to the loss of a major generating unit
3/13/2015 16:49	3/13/2015 20:38	3.8	Support of spinning reserve
3/14/2015 6:38	3/14/2015 9:27	2.8	Support of spinning reserve
3/16/2015 9:21	3/16/2015 13:20	4.0	Backup due to the loss of a major generating unit
3/17/2015 16:29	3/17/2015 16:34	0.1	Testing
3/25/2015 15:58	3/25/2015 16:08	0.2	Testing
4/2/2015 6:36	4/2/2015 8:13	1.6	Planned Avalon Peninsula transmission outages
4/13/2015 7:22	4/13/2015 8:03	0.7	Backup due to the loss of a major generating unit
4/16/2015 7:24	4/16/2015 12:49	5.4	Support of spinning reserve
4/16/2015 16:29	4/16/2015 18:19	1.8	Support of spinning reserve
4/21/2015 7:11	4/21/2015 8:41	1.5	Support of spinning reserve
4/22/2015 7:31	4/22/2015 8:45	1.2	Support of spinning reserve
5/18/2015 16:41	5/18/2015 18:07	1.4	Support of spinning reserve
5/18/2015 20:59	5/18/2015 21:49	0.8	Support of spinning reserve
7/28/2015 15:24	7/28/2015 15:49	0.4	Testing
7/28/2015 18:42	7/28/2015 18:45	0.0	Testing
7/31/2015 15:16	7/31/2015 18:09	2.9	Testing
8/1/2015 19:22	8/1/2015 22:27	3.1	Planned generation outages
8/2/2015 13:00	8/2/2015 13:52	0.9	Planned generation outages
8/2/2015 18:03	8/2/2015 23:01	5.0	Planned generation outages
8/11/2015 11:45	8/11/2015 13:01	1.3	Planned generation outages
8/11/2015 20:35	8/11/2015 20:43	0.1	Planned generation outages
8/12/2015 8:42	8/12/2015 9:53	1.2	Planned generation outages
9/8/2015 11:08	9/8/2015 13:31	2.4	Planned Avalon Peninsula transmission outages
9/8/2015 20:06	9/8/2015 22:31	2.4	Planned Avalon Peninsula transmission outages
9/15/2015 9:56	9/15/2015 11:15	1.3	Testing
9/27/2015 8:04	9/27/2015 15:51	7.8	Backup due to the loss of a major generating unit
10/9/2015 16:08	10/9/2015 16:13	0.1	Testing
10/21/2015 15:06	10/21/2015 15:08	0.0	Testing
10/23/2015 20:10	10/23/2015 20:15	0.1	Testing
11/1/2015 17:36	11/1/2015 18:26	0.8	Support of spinning reserve
11/2/2015 16:29	11/2/2015 18:58	2.5	Support of spinning reserve
11/3/2015 10:47	11/3/2015 11:07	0.3	Testing

**2015**

<b>Hardwoods Gas Turbine Start Time</b>	<b>Hardwoods Gas Turbine Stop Time</b>	<b>Operation Time (Hours)</b>	<b>Reason for Operation</b>
11/3/2015 19:13	11/3/2015 19:32	0.3	Planned Avalon Peninsula transmission outages
11/3/2015 20:07	11/3/2015 23:01	2.9	Planned Avalon Peninsula transmission outages
11/4/2015 13:27	11/4/2015 13:38	0.2	Testing
11/4/2015 17:12	11/4/2015 18:23	1.2	Planned Avalon Peninsula transmission outages
11/5/2015 16:00	11/5/2015 18:50	2.8	Planned Avalon Peninsula transmission outages
11/11/2015 7:26	11/11/2015 12:01	4.6	Planned Avalon Peninsula transmission outages
11/17/2015 17:00	11/17/2015 18:26	1.4	Support of spinning reserve
11/18/2015 16:00	11/18/2015 21:57	6.0	Support of spinning reserve
11/19/2015 8:54	11/19/2015 10:24	1.5	Support of spinning reserve
11/20/2015 7:23	11/20/2015 9:54	2.5	Support of spinning reserve
11/20/2015 16:29	11/20/2015 17:39	1.2	Support of spinning reserve
11/23/2015 17:31	11/23/2015 17:36	0.1	Testing
11/27/2015 11:29	11/27/2015 11:44	0.2	Testing
11/27/2015 13:57	11/27/2015 19:04	5.1	Testing
11/30/2015 15:42	11/30/2015 16:09	0.5	Support of spinning reserve
11/30/2015 16:53	11/30/2015 21:04	4.2	Support of spinning reserve
12/1/2015 7:28	12/1/2015 8:18	0.8	Support of spinning reserve
12/2/2015 11:29	12/2/2015 14:13	2.7	Backup due to the loss of a major generating unit
12/3/2015 12:49	12/3/2015 13:00	0.2	Testing
12/4/2015 16:39	12/4/2015 18:18	1.6	Support of spinning reserve
12/9/2015 12:07	12/9/2015 16:03	3.9	Backup due to the loss of a major generating unit
12/10/2015 7:13	12/10/2015 8:21	1.1	Backup due to the loss of a major generating unit
12/14/2015 16:35	12/14/2015 18:20	1.8	Backup due to the loss of a major generating unit
12/15/2015 16:35	12/15/2015 18:39	2.1	Backup due to the loss of a major generating unit
12/16/2015 16:12	12/16/2015 18:07	1.9	Backup due to the loss of a major generating unit
12/24/2015 16:15	12/24/2015 17:55	1.7	Support of spinning reserve
12/28/2015 10:40	12/28/2015 14:49	4.1	Support of spinning reserve
12/29/2015 8:17	12/29/2015 21:17	13.0	Support of spinning reserve
12/30/2015 16:35	12/30/2015 20:55	4.3	Support of spinning reserve
12/31/2015 6:48	12/31/2015 12:03	5.3	Support of spinning reserve
12/31/2015 18:07	12/31/2015 20:45	2.6	Support of spinning reserve

**2016**

Hardwoods Gas Turbine Start Time	Hardwoods Gas Turbine Stop Time	Operation Time (Hours)	Reason for Operation
1/2/2016 7:41	1/2/2016 13:09	5.5	Support of spinning reserve
1/2/2016 15:43	1/2/2016 18:48	3.1	Support of spinning reserve
1/5/2016 7:14	1/5/2016 10:30	3.3	Backup due to the loss of a major generating unit
1/5/2016 16:52	1/5/2016 18:29	1.6	Backup due to the loss of a major generating unit
1/6/2016 2:00	1/9/2016 0:19	70.3	Backup due to the loss of a major generating unit
1/9/2016 8:21	1/9/2016 14:32	6.2	Backup due to the loss of a major generating unit
1/9/2016 15:51	1/9/2016 22:41	6.8	Backup due to the loss of a major generating unit
1/10/2016 9:04	1/10/2016 20:00	10.9	Backup due to the loss of a major generating unit
1/11/2016 6:52	1/11/2016 10:48	3.9	Backup due to the loss of a major generating unit
1/11/2016 14:50	1/11/2016 19:27	4.6	Backup due to the loss of a major generating unit
1/12/2016 16:53	1/12/2016 19:54	3.0	Backup due to the loss of a major generating unit
1/13/2016 7:17	1/13/2016 22:44	15.5	Backup due to the loss of a major generating unit
1/14/2016 16:00	1/14/2016 21:04	5.1	Backup due to the loss of a major generating unit
1/15/2016 8:47	1/15/2016 9:20	0.6	Backup due to the loss of a major generating unit
1/15/2016 16:35	1/15/2016 18:22	1.8	Backup due to the loss of a major generating unit
1/18/2016 16:05	1/18/2016 18:30	2.4	Backup due to the loss of a major generating unit
1/19/2016 7:15	1/19/2016 20:59	13.7	Backup due to the loss of a major generating unit
1/21/2016 7:40	1/21/2016 8:32	0.9	Backup due to the loss of a major generating unit
1/21/2016 17:08	1/21/2016 18:30	1.4	Backup due to the loss of a major generating unit
1/22/2016 5:47	1/22/2016 11:01	5.2	Backup due to the loss of a major generating unit
1/22/2016 16:09	1/22/2016 18:58	2.8	Backup due to the loss of a major generating unit
1/23/2016 16:11	1/23/2016 18:57	2.8	Backup due to the loss of a major generating unit
1/24/2016 16:47	1/24/2016 19:20	2.5	Backup due to the loss of a major generating unit
1/25/2016 7:16	1/25/2016 10:18	3.0	Backup due to the loss of a major generating unit
1/26/2016 6:00	1/26/2016 12:13	6.2	Backup due to the loss of a major generating unit
1/26/2016 16:36	1/26/2016 16:56	0.3	Backup due to the loss of a major generating unit
1/29/2016 15:06	1/29/2016 22:32	7.4	Backup due to the loss of a major generating unit
1/30/2016 17:09	1/30/2016 19:17	2.1	Backup due to the loss of a major generating unit
1/31/2016 7:40	1/31/2016 21:38	14.0	Backup due to the loss of a major generating unit
2/1/2016 16:47	2/3/2016 22:31	53.7	Backup due to the loss of a major generating unit
2/3/2016 23:48	2/6/2016 9:16	57.5	Backup due to the loss of a major generating unit
2/6/2016 11:38	2/7/2016 5:59	18.3	Backup due to the loss of a major generating unit
2/7/2016 12:27	2/9/2016 23:01	58.6	Backup due to the loss of a major generating unit
2/9/2016 23:52	2/10/2016 21:49	22.0	Backup due to the loss of a major generating unit
2/11/2016 0:58	2/12/2016 11:09	34.2	Backup due to the loss of a major generating unit
2/12/2016 13:15	2/12/2016 15:13	2.0	Backup due to the loss of a major generating unit
2/13/2016 15:53	2/13/2016 21:00	5.1	Backup due to the loss of a major generating unit
2/14/2016 9:38	2/14/2016 10:37	1.0	Backup due to the loss of a major generating unit
2/15/2016 6:27	2/15/2016 22:43	16.3	Backup due to the loss of a major generating unit
2/16/2016 6:03	2/16/2016 13:37	7.6	Backup due to the loss of a major generating unit

**2016**

<b>Hardwoods Gas Turbine Start Time</b>	<b>Hardwoods Gas Turbine Stop Time</b>	<b>Operation Time (Hours)</b>	<b>Reason for Operation</b>
2/16/2016 15:52	2/16/2016 20:08	4.3	Backup due to the loss of a major generating unit
2/19/2016 15:56	2/19/2016 20:56	5.0	Backup due to the loss of a major generating unit
2/20/2016 8:12	2/20/2016 9:58	1.8	Backup due to the loss of a major generating unit
2/21/2016 9:40	2/21/2016 12:15	2.6	Backup due to the loss of a major generating unit
2/23/2016 7:11	2/23/2016 8:44	1.5	Backup due to the loss of a major generating unit
2/23/2016 17:53	2/23/2016 22:28	4.6	Backup due to the loss of a major generating unit
2/24/2016 5:50	2/26/2016 9:20	51.5	Backup due to the loss of a major generating unit
2/29/2016 6:19	2/29/2016 9:04	2.8	Support of spinning reserve
3/4/2016 6:43	3/4/2016 10:59	4.3	Support of spinning reserve
3/4/2016 18:00	3/4/2016 20:36	2.6	Support of spinning reserve
3/7/2016 6:55	3/7/2016 8:30	1.6	Support of spinning reserve
3/7/2016 18:54	3/7/2016 20:51	2.0	Support of spinning reserve
3/9/2016 6:04	3/9/2016 8:58	2.9	Support of spinning reserve
3/12/2016 8:55	3/12/2016 11:30	2.6	Support of spinning reserve
3/13/2016 11:03	3/13/2016 12:31	1.5	Support of spinning reserve
3/20/2016 20:11	3/20/2016 21:29	1.3	Support of spinning reserve
3/23/2016 12:14	3/23/2016 14:34	2.3	Support of spinning reserve
3/23/2016 16:41	3/23/2016 21:48	5.1	Support of spinning reserve
3/24/2016 6:19	3/24/2016 9:18	3.0	Support of spinning reserve
3/24/2016 20:09	3/24/2016 22:50	2.7	Support of spinning reserve
3/25/2016 6:25	3/25/2016 11:28	5.1	Support of spinning reserve
3/26/2016 16:01	3/26/2016 19:17	3.3	Support of spinning reserve
4/5/2016 7:36	4/5/2016 9:32	1.9	Support of spinning reserve
4/6/2016 7:23	4/6/2016 10:26	3.0	Support of spinning reserve
4/7/2016 7:11	4/7/2016 8:52	1.7	Support of spinning reserve
4/18/2016 16:26	4/18/2016 20:22	3.9	Support of spinning reserve
4/20/2016 12:00	4/20/2016 22:07	10.1	Support of spinning reserve
4/22/2016 7:18	4/22/2016 13:57	6.7	Support of spinning reserve
4/22/2016 16:33	4/22/2016 19:11	2.6	Support of spinning reserve
4/26/2016 10:48	4/26/2016 12:37	1.8	Support of spinning reserve
5/6/2016 8:30	5/6/2016 9:46	1.3	Support of spinning reserve
5/13/2016 7:48	5/13/2016 11:06	3.3	Support of spinning reserve
5/26/2016 20:01	5/26/2016 21:55	1.9	Support of spinning reserve
5/28/2016 14:09	5/28/2016 21:53	7.7	Support of spinning reserve
6/8/2016 18:59	6/8/2016 23:29	4.5	Support of spinning reserve
6/9/2016 9:24	6/9/2016 14:44	5.3	Support of spinning reserve
6/18/2016 8:57	6/18/2016 13:08	4.2	Support of spinning reserve
7/6/2016 16:40	7/6/2016 18:52	2.2	Support of spinning reserve
7/7/2016 11:52	7/7/2016 12:52	1.0	Support of spinning reserve
7/8/2016 9:01	7/8/2016 10:34	1.5	Support of spinning reserve

**2016**

Hardwoods Gas Turbine Start Time	Hardwoods Gas Turbine Stop Time	Operation Time (Hours)	Reason for Operation
7/11/2016 11:58	7/11/2016 21:50	9.9	Support of spinning reserve
7/12/2016 14:21	7/12/2016 14:25	0.1	Testing
7/12/2016 16:20	7/12/2016 22:00	5.7	Support of spinning reserve
7/13/2016 8:10	7/13/2016 15:22	7.2	Support of spinning reserve
8/30/2016 14:11	8/30/2016 15:29	1.3	Testing
8/30/2016 18:02	8/30/2016 18:10	0.1	Testing
8/31/2016 12:58	8/31/2016 13:01	0.0	Testing
8/31/2016 13:56	8/31/2016 13:58	0.0	Testing
8/31/2016 16:06	8/31/2016 16:09	0.1	Testing
9/1/2016 11:01	9/1/2016 11:23	0.4	Testing
9/10/2016 7:09	9/10/2016 19:52	12.7	Planned Avalon Peninsula transmission outages
9/24/2016 19:26	9/24/2016 21:21	1.9	Planned Avalon Peninsula transmission outages
9/25/2016 10:00	9/25/2016 13:04	3.1	Planned Avalon Peninsula transmission outages
9/25/2016 19:24	9/25/2016 21:50	2.4	Planned Avalon Peninsula transmission outages
9/26/2016 16:37	9/26/2016 17:00	0.4	Testing
9/27/2016 11:01	9/27/2016 11:11	0.2	Testing
9/27/2016 12:39	9/27/2016 12:47	0.1	Testing
10/3/2016 19:05	10/3/2016 21:15	2.2	Support of spinning reserve
10/4/2016 7:08	10/4/2016 9:01	1.9	Support of spinning reserve
10/11/2016 9:25	10/11/2016 9:29	0.1	Testing
10/11/2016 22:14	10/11/2016 22:17	0.0	Testing
10/12/2016 14:32	10/12/2016 14:39	0.1	Testing
10/16/2016 19:20	10/16/2016 20:45	1.4	Support of spinning reserve
10/22/2016 14:24	10/22/2016 14:28	0.1	Testing
10/22/2016 17:02	10/22/2016 17:06	0.1	Testing
10/26/2016 14:03	10/26/2016 14:07	0.1	Testing
10/26/2016 21:16	10/26/2016 21:18	0.0	Testing
10/28/2016 7:22	10/28/2016 11:01	3.7	Support of spinning reserve
11/4/2016 11:32	11/4/2016 11:38	0.1	Testing
11/7/2016 7:16	11/7/2016 8:26	1.2	Support of spinning reserve
11/9/2016 7:14	11/9/2016 18:09	10.9	Support of spinning reserve
11/10/2016 16:38	11/10/2016 18:08	1.5	Support of spinning reserve
11/22/2016 17:22	11/22/2016 17:28	0.1	Testing
11/24/2016 17:17	11/24/2016 17:37	0.3	Testing
12/1/2016 17:13	12/1/2016 17:57	0.7	Testing
12/2/2016 10:30	12/2/2016 11:08	0.6	Testing
12/2/2016 16:50	12/2/2016 17:29	0.7	Testing
12/5/2016 9:10	12/5/2016 9:24	0.2	Testing
12/5/2016 10:30	12/5/2016 12:07	1.6	Testing
12/5/2016 16:31	12/5/2016 17:01	0.5	Testing



**2016**

<b>Hardwoods Gas Turbine Start Time</b>	<b>Hardwoods Gas Turbine Stop Time</b>	<b>Operation Time (Hours)</b>	<b>Reason for Operation</b>
12/6/2016 9:16	12/6/2016 18:08	8.9	Testing
12/7/2016 16:54	12/7/2016 19:05	2.2	Testing
12/8/2016 7:00	12/8/2016 18:49	11.8	Backup due to the loss of a major generating unit
12/12/2016 16:17	12/12/2016 17:47	1.5	Support of spinning reserve
12/12/2016 19:12	12/12/2016 19:43	0.5	Testing
12/14/2016 7:34	12/14/2016 10:16	2.7	Support of spinning reserve
12/14/2016 16:35	12/14/2016 19:30	2.9	Support of spinning reserve
12/16/2016 16:30	12/16/2016 21:36	5.1	Support of spinning reserve
12/17/2016 17:04	12/17/2016 22:41	5.6	Support of spinning reserve
12/26/2016 16:36	12/26/2016 17:23	0.8	Support of spinning reserve
12/27/2016 13:06	12/27/2016 18:46	5.7	Support of spinning reserve

**2015**

Stephenville Gas Turbine Start Time	Stephenville Gas Turbine Stop Time	Operation Time (Hours)	Reason for Operation
1/3/2015 12:35	1/4/2015 21:23	32.8	Support of spinning reserve
1/6/2015 5:56	1/6/2015 11:27	5.5	Support of spinning reserve
1/6/2015 16:05	1/6/2015 21:56	5.9	Support of spinning reserve
1/7/2015 16:05	1/7/2015 18:55	2.8	Support of spinning reserve
1/8/2015 15:44	1/8/2015 18:49	3.1	Support of spinning reserve
1/9/2015 6:05	1/9/2015 11:22	5.3	Planned generation outages
1/12/2015 9:34	1/12/2015 10:07	0.6	Backup due to the loss of a major generating unit
1/13/2015 15:43	1/13/2015 19:22	3.6	Support of spinning reserve
1/14/2015 6:58	1/14/2015 9:42	2.7	Support of spinning reserve
1/14/2015 15:57	1/14/2015 18:27	2.5	Support of spinning reserve
1/22/2015 9:53	1/22/2015 12:47	2.9	Support of spinning reserve
1/23/2015 9:43	1/23/2015 12:45	3.0	Testing
1/27/2015 15:26	1/27/2015 19:10	3.7	Support of spinning reserve
1/29/2015 16:22	1/29/2015 17:40	1.3	Testing
1/31/2015 7:22	1/31/2015 17:00	9.6	Planned transmission outages off Avalon
2/5/2015 10:04	2/5/2015 17:54	7.8	Testing
2/9/2015 12:31	2/9/2015 21:43	9.2	Support of spinning reserve
2/10/2015 6:58	2/10/2015 12:46	5.8	Support of spinning reserve
2/11/2015 8:47	2/11/2015 18:24	9.6	Support of spinning reserve
2/12/2015 12:05	2/12/2015 14:28	2.4	Support of spinning reserve
2/18/2015 11:24	2/18/2015 17:04	5.7	Testing
2/24/2015 16:07	2/24/2015 20:12	4.1	Support of spinning reserve
2/25/2015 6:49	2/25/2015 12:55	6.1	Support of spinning reserve
2/28/2015 6:05	2/28/2015 9:15	3.2	Backup due to the loss of a major generating unit
2/28/2015 17:12	2/28/2015 20:23	3.2	Backup due to the loss of a major generating unit
3/1/2015 6:07	3/1/2015 9:42	3.6	Backup due to the loss of a major generating unit
3/1/2015 18:40	3/1/2015 21:14	2.6	Backup due to the loss of a major generating unit
3/2/2015 5:58	3/2/2015 10:35	4.6	Backup due to the loss of a major generating unit
3/3/2015 18:45	3/3/2015 21:45	3.0	Backup due to the loss of a major generating unit
3/4/2015 6:11	3/4/2015 7:15	1.1	Backup due to the loss of a major generating unit
3/4/2015 7:40	3/4/2015 13:41	6.0	Backup due to the loss of a major generating unit
3/4/2015 17:05	3/4/2015 17:59	0.9	Testing
3/4/2015 20:16	3/4/2015 20:51	0.6	Testing
3/6/2015 4:02	3/6/2015 8:18	4.3	Support of spinning reserve
3/6/2015 8:52	3/6/2015 9:00	0.1	Support of spinning reserve
3/6/2015 9:03	3/6/2015 9:10	0.1	Support of spinning reserve
3/6/2015 11:39	3/6/2015 11:44	0.1	Testing
3/7/2015 4:03	3/7/2015 8:08	4.1	Support of spinning reserve
3/12/2015 6:00	3/12/2015 8:56	2.9	Backup due to the loss of a major generating unit
5/27/2015 15:28	5/27/2015 16:10	0.7	Testing

**2015**

<b>Stephenville Gas Turbine Start Time</b>	<b>Stephenville Gas Turbine Stop Time</b>	<b>Operation Time (Hours)</b>	<b>Reason for Operation</b>
5/28/2015 9:41	5/28/2015 9:59	0.3	Testing
5/29/2015 7:50	5/29/2015 8:38	0.8	Testing
5/29/2015 17:26	5/29/2015 17:36	0.2	Testing
6/12/2015 9:45	6/12/2015 11:39	1.9	Testing
6/12/2015 12:01	6/12/2015 16:32	4.5	Testing
6/17/2015 17:05	6/17/2015 17:08	0.0	Testing
6/19/2015 17:23	6/19/2015 17:33	0.2	Testing
6/19/2015 19:13	6/19/2015 20:20	1.1	Testing
7/28/2015 8:58	7/28/2015 9:19	0.3	Testing
7/28/2015 9:55	7/28/2015 10:18	0.4	Testing
7/28/2015 10:56	7/28/2015 11:40	0.7	Testing
7/30/2015 11:28	7/30/2015 12:25	0.9	Testing
7/31/2015 16:21	7/31/2015 17:17	0.9	Testing
8/12/2015 20:07	8/12/2015 21:00	0.9	Testing
8/28/2015 11:12	8/28/2015 12:04	0.9	Testing
8/28/2015 12:54	8/28/2015 13:58	1.1	Testing
8/31/2015 9:35	8/31/2015 10:42	1.1	Testing
11/7/2015 16:43	11/7/2015 16:58	0.2	Testing
11/7/2015 17:29	11/7/2015 17:50	0.3	Testing
11/9/2015 15:40	11/9/2015 18:15	2.6	Testing
11/9/2015 18:35	11/9/2015 18:39	0.1	Testing
11/10/2015 11:08	11/10/2015 11:45	0.6	Testing
11/10/2015 13:10	11/10/2015 15:39	2.5	Testing
11/13/2015 10:22	11/13/2015 10:29	0.1	Testing
11/13/2015 17:31	11/13/2015 17:58	0.5	Testing
11/14/2015 17:30	11/14/2015 17:40	0.2	Testing
11/17/2015 7:40	11/17/2015 10:50	3.2	Support of spinning reserve
11/17/2015 12:49	11/17/2015 19:10	6.3	Support of spinning reserve
11/19/2015 7:10	11/19/2015 17:48	10.6	Planned transmission outages off Avalon
11/20/2015 7:39	11/20/2015 17:13	9.6	Support of spinning reserve
12/1/2015 10:01	12/1/2015 14:40	4.6	Planned transmission outages off Avalon
12/24/2015 12:04	12/24/2015 12:57	0.9	Testing
12/29/2015 16:22	12/29/2015 17:58	1.6	Support of spinning reserve

**2016**

Stephenville Gas Turbine Start Time	Stephenville Gas Turbine Stop Time	Operation Time (Hours)	Reason for Operation
1/8/2016 17:03	1/8/2016 18:06	1.0	Support of spinning reserve
1/9/2016 16:39	1/9/2016 18:12	1.5	Support of spinning reserve
1/10/2016 13:47	1/10/2016 13:52	0.1	Testing
1/11/2016 22:16	1/11/2016 22:22	0.1	Testing
1/13/2016 11:40	1/13/2016 20:14	8.6	Backup due to the loss of a major generating unit
1/26/2016 6:47	1/26/2016 10:26	3.7	Backup due to the loss of a major generating unit
2/2/2016 8:10	2/2/2016 16:59	8.8	Backup due to the loss of a major generating unit
2/3/2016 5:29	2/3/2016 18:02	12.5	Backup due to the loss of a major generating unit
2/4/2016 7:52	2/4/2016 18:16	10.4	Backup due to the loss of a major generating unit
2/5/2016 8:16	2/5/2016 16:07	7.8	Backup due to the loss of a major generating unit
2/6/2016 8:36	2/6/2016 16:17	7.7	Backup due to the loss of a major generating unit
2/7/2016 13:35	2/12/2016 0:49	107.2	Backup due to the loss of a major generating unit
2/12/2016 1:27	2/12/2016 15:19	13.9	Backup due to the loss of a major generating unit
2/13/2016 16:55	2/13/2016 20:39	3.7	Backup due to the loss of a major generating unit
2/15/2016 5:55	2/15/2016 21:22	15.4	Backup due to the loss of a major generating unit
2/16/2016 5:45	2/16/2016 18:17	12.5	Backup due to the loss of a major generating unit
2/24/2016 6:50	2/24/2016 14:10	7.3	Backup due to the loss of a major generating unit
3/4/2016 9:44	3/4/2016 10:02	0.3	Testing
3/10/2016 11:18	3/10/2016 11:20	0.0	Testing
3/26/2016 15:12	3/26/2016 19:19	4.1	Support of spinning reserve
5/28/2016 14:07	5/28/2016 21:29	7.4	Support of spinning reserve
7/29/2016 16:22	7/29/2016 21:28	5.1	Testing
7/30/2016 8:54	7/30/2016 11:48	2.9	Testing
8/18/2016 20:13	8/18/2016 20:35	0.4	Testing
8/19/2016 6:10	8/19/2016 6:33	0.4	Testing
8/19/2016 7:25	8/19/2016 7:49	0.4	Testing
9/23/2016 14:07	9/23/2016 15:44	1.6	Testing
9/26/2016 13:53	9/26/2016 19:44	5.9	Planned transmission outages off Avalon
9/27/2016 7:15	9/27/2016 20:59	13.7	Planned transmission outages off Avalon
9/28/2016 7:16	9/28/2016 20:45	13.5	Planned transmission outages off Avalon
9/29/2016 7:14	9/29/2016 16:53	9.7	Planned transmission outages off Avalon
10/13/2016 13:18	10/13/2016 19:28	6.2	Planned generation outages
12/2/2016 18:56	12/2/2016 18:58	0.0	Testing
12/3/2016 7:49	12/3/2016 8:14	0.4	Testing
12/3/2016 10:48	12/3/2016 11:05	0.3	Testing
12/8/2016 9:08	12/8/2016 9:17	0.1	Testing
12/8/2016 12:50	12/8/2016 13:11	0.4	Testing
12/9/2016 14:24	12/9/2016 17:32	3.1	Testing
12/10/2016 10:07	12/10/2016 11:08	1.0	Testing
12/10/2016 14:20	12/10/2016 19:58	5.6	Testing

**2016**

<b>Stephenville Gas Turbine Start Time</b>	<b>Stephenville Gas Turbine Stop Time</b>	<b>Operation Time (Hours)</b>	<b>Reason for Operation</b>
12/14/2016 7:20	12/14/2016 9:44	2.4	Support of spinning reserve
12/15/2016 11:44	12/15/2016 13:01	1.3	Testing
12/17/2016 16:45	12/17/2016 18:32	1.8	Support of spinning reserve
12/21/2016 14:26	12/21/2016 15:35	1.1	Testing
12/23/2016 8:20	12/23/2016 8:42	0.4	Testing
12/27/2016 16:49	12/27/2016 18:10	1.4	Support of spinning reserve

**2015**

St. Anthony Diesel Plant Start Time	St. Anthony Diesel Plant End Time	Operation Time (Hours)	Reason for Operation
1/2/2015 14:52	1/2/2015 15:18	0.4	Testing
1/3/2015 15:30	1/3/2015 22:08	6.6	Backup due to the loss of a major generating unit
1/4/2015 16:44	1/4/2015 21:38	4.9	Backup due to the loss of a major generating unit
1/23/2015 13:47	1/23/2015 14:54	1.1	Testing
3/4/2015 7:22	3/4/2015 12:18	4.9	Backup due to the loss of a major generating unit
3/6/2015 15:16	3/6/2015 15:42	0.4	Testing
3/17/2015 14:49	3/17/2015 15:22	0.6	Testing
4/7/2015 10:43	4/7/2015 11:47	1.1	Testing
4/8/2015 11:38	4/8/2015 17:18	5.7	Planned transmission outages off Avalon
7/25/2015 4:49	7/25/2015 6:30	1.7	Planned transmission outages off Avalon
7/28/2015 5:35	7/28/2015 13:15	7.7	Planned transmission outages off Avalon
8/13/2015 4:19	8/13/2015 12:37	8.3	Planned transmission outages off Avalon
8/16/2015 8:14	8/16/2015 16:54	8.7	Planned transmission outages off Avalon
10/3/2015 5:18	10/3/2015 13:59	8.7	Planned transmission outages off Avalon
10/20/2015 9:03	10/20/2015 17:50	8.8	Planned transmission outages off Avalon
10/28/2015 8:57	10/28/2015 16:19	7.4	Planned transmission outages off Avalon
11/17/2015 8:30	11/17/2015 13:40	5.2	Planned transmission outages off Avalon
12/8/2015 10:01	12/8/2015 10:58	0.9	Testing
12/10/2015 18:18	12/10/2015 19:04	0.8	Testing
12/17/2015 17:45	12/17/2015 18:15	0.5	Testing
12/24/2015 10:08	12/24/2015 11:10	1.0	Planned transmission outages off Avalon

**2016**

St. Anthony Diesel Plant Start Time	St. Anthony Diesel Plant End Time	Operation Time (Hours)	Reason for Operation
1/13/2016 9:10	1/13/2016 11:46	2.6	Testing
1/15/2016 11:00	1/15/2016 11:38	0.6	Testing
1/29/2016 13:14	1/29/2016 15:13	2.0	Testing
2/3/2016 5:13	2/3/2016 9:15	4.0	Backup due to the loss of a major generating unit
2/24/2016 10:35	2/24/2016 10:46	0.2	Testing
3/4/2016 11:12	3/4/2016 13:20	2.1	Testing
3/14/2016 15:33	3/14/2016 15:36	0.0	Testing
3/15/2016 11:45	3/15/2016 11:50	0.1	Testing
3/16/2016 8:06	3/16/2016 15:53	7.8	Planned transmission outages off Avalon
3/17/2016 5:46	3/17/2016 22:12	16.4	Planned transmission outages off Avalon
3/22/2016 22:13	3/25/2016 20:00	69.8	Backup due to the loss of area transmission line
3/28/2016 18:06	3/28/2016 19:44	1.6	Planned transmission outages off Avalon
3/28/2016 19:57	3/28/2016 21:13	1.3	Planned transmission outages off Avalon
5/5/2016 13:01	5/5/2016 14:30	1.5	Testing
5/26/2016 12:59	5/26/2016 13:29	0.5	Testing
7/29/2016 6:08	7/29/2016 6:58	0.8	Backup due to the loss of area transmission line
7/29/2016 7:27	7/29/2016 10:09	2.7	Backup due to the loss of area transmission line
7/29/2016 10:14	7/29/2016 12:48	2.6	Backup due to the loss of area transmission line
8/2/2016 13:04	8/2/2016 13:12	0.1	Testing
8/2/2016 13:21	8/2/2016 13:27	0.1	Testing
9/6/2016 13:59	9/6/2016 15:42	1.7	Testing
8/22/2016 11:05	8/22/2016 12:55	1.8	Testing
8/30/2016 15:05	8/30/2016 15:26	0.4	Testing
9/2/2016 13:55	9/2/2016 14:32	0.6	Testing
9/7/2016 13:25	9/7/2016 13:49	0.4	Planned transmission outages off Avalon
9/11/2016 6:28	9/11/2016 6:42	0.2	Planned transmission outages off Avalon
9/11/2016 6:48	9/11/2016 16:36	9.8	Planned transmission outages off Avalon
10/7/2016 9:22	10/7/2016 13:51	4.5	Testing
10/15/2016 15:51	10/15/2016 17:02	1.2	Testing
10/16/2016 6:21	10/16/2016 13:00	6.7	Planned transmission outages off Avalon
10/17/2016 9:37	10/17/2016 10:24	0.8	Testing
10/18/2016 15:24	10/18/2016 15:27		Testing
10/24/2016 14:01	10/24/2016 14:15		Testing
11/17/2016 13:19	11/17/2016 14:37	1.3	Planned transmission outages off Avalon
11/24/2016 9:46	11/24/2016 14:31	4.7	Planned transmission outages off Avalon
11/27/2016 22:53	11/27/2016 23:24	0.5	Backup due to the loss of area transmission line
11/27/2016 23:39	11/28/2016 18:26	18.8	Backup due to the loss of area transmission line

		2015											
Line No.	Unit	January	February	March	April	May	June	July	August	September	October	November	December
1	Holyrood GT												
2	Energy (kWh)	335,000	1,829,000	8,384,000	3,074,846	1,558,000	50,152	19,000	7,194,000	1,834,000	118,000	12,769,000	8,776,000
3	Fuel Consumption (L)	216,873	713,860	3,337,364	1,087,908	504,867	39,608	29,283	2,956,660	750,677	66,363	4,026,224	2,957,576
4	Cost (\$)	-	-	2,809,865	921,223	376,296	221,667	21,879	1,995,283	449,245	43,968	2,624,150	1,943,133
5	Hardwoods GT												
6	Energy	1,512,000	1,080,000	576,000	72,000	-	-	14,400	129,600	144,000	-	576,000	216,000
7	Fuel Consumption (Gal)	150,240	142,876	73,081	9,620	11,878	-	4,194	15,796	21,021	9,286	45,715	78,742
8	Cost (\$)	672,812	543,994	273,328	32,756	40,444	-	12,622	46,970	62,507	26,447	131,319	223,901
9	Stephenville GT												
10	Energy	640,800	820,800	86,400	-	-	86,400	36,000	36,000	21,600	-	438,480	65,520
11	Fuel Consumption (Gal)	81,189	86,025	31,914	(71)	2,048	8,782	4,917	4,493	201	(22)	43,554	11,446
12	Cost (\$)	355,390	355,576	126,879	(285)	8,189	35,126	19,666	17,972	802	(89)	172,684	43,338
13	St. Anthony Diesel												
14	Energy	47,342	2,952	14,436	45,682	-	-	51,071	95,390	-	160,748	35,975	8,256
15	Fuel Consumption (L)	15,663	981	4,904	14,181	129	-	15,416	29,086	311	49,619	12,483	2,072
16	Cost (\$)	14,009	209	4,055	11,727	(9)	-	12,469	23,525	227	35,018	9,026	1,879
17	Hawkes Bay Diesel												
18	Energy	13,513	28,575	23,918	2,310	2,373	1,029	-	-	-	3,586	3,167	1,428
19	Fuel Consumption (L)	4,351	8,484	6,409	812	836	320	124	286	(35)	1,323	919	531
20	Cost (\$)	4,146	7,330	5,614	716	714	56	106	244	(30)	1,130	785	453



		2016											
Line No.	Unit	January	February	March	April	May	June	July	August	September	October	November	December
1	Holyrood GT												
2	Energy (kWh)	40,585,000	40,145,000	5,543,000	6,801,000	664,000	47,000	-	-	3,403,000	915,000	1,431,000	13,372,000
3	Fuel Consumption (L)	14,372,884	14,043,370	2,121,413	2,585,302	285,509	31,006	125	(4,623)	1,408,437	378,739	594,866	4,650,062
4	Cost (\$)	8,146,933	7,911,127	1,188,424	1,478,796	157,093	17,093	70	(2,581)	789,573	212,322	343,629	3,080,556
5	Hardwoods GT												
6	Energy	3,240,000	7,848,000	432,000	504,000	72,000	144,000	144,000	-	72,000	72,000	72,000	648,000
7	Fuel Consumption (Gal)	353,306	679,713	51,807	52,682	16,498	13,198	20,858	2,488	7,366	7,187	6,475	72,774
8	Cost (\$)	1,004,612	1,738,906	130,796	133,251	41,728	33,383	52,757	6,292	18,631	18,178	16,378	191,158
9	Stephenville GT												
10	Energy	110,160	4,713,880	21,114	-	36,742	-	61,960	9,706	238,417	42,934	-	209,876
11	Fuel Consumption (Gal)	12,504	426,045	14,054	(10,945)	2,911	103	(244)	11,843	27,482	12,581	733	21,002
12	Cost (\$)	46,964	1,371,543	45,498	(35,456)	9,362	331	(785)	38,092	88,391	40,466	2,356	68,247
13	St. Anthony Diesel												
14	Energy	20,863	21,377	386,150	1,166	1,253	965	13,149	3,632	74,072	55,684	104,661	-
15	Fuel Consumption (L)	7,886	7,023	125,357	304	25	25	5,726	1,182	24,010	16,704	32,035	(185)
16	Cost (\$)	5,651	4,913	77,863	196	258	73	3,556	734	14,909	10,285	20,902	(134)
17	Hawkes Bay Diesel												
18	Energy	4,290	18,834	290,369	233	561	-	1,323	11,230	1,372	7,177	67,057	14,854
19	Fuel Consumption (L)	1,442	5,134	79,263	172	-	-	188	3,125	5,280	3,880	18,133	3,988
20	Cost (\$)	1,231	4,383	53,313	120	2,293	609	127	2,103	3,553	14,594	12,237	2,755



**February 1, 2016 - Generation Guidelines - File #: 01.50/24**

**Mike Dyson** to: Alvin Crant, Andrew Martin, Art Bursey, Bob Butler, Clarence Payne, Daniel A King, Dennis Hartley, Des Crawley, Elfatih Mohamed, Energy

02/01/2016 03:07 PM

## Generation Guidelines for February 1, 2016

Changes since the previous guidelines are in red.

### Notes / Objectives:

Keep generation high at Upper Salmon and Cat Arm to support the Long Pond water level .

Decrease Hinds Lake output to preserve long-term capability over the winter months .

Reduce generation at Granite to balance Victoria and Meelpaeg Reservoirs .

Thermal generation shall follow the guidelines outlined below based on the current outlook of low reservoir storage, low snowpack, and low inflows.

Burnt Canal requires a minimum of 42.5m<sup>3</sup>/s to provide a stable ice cover on the canal .

### 1. GENERATION PRIORITIES

<b>Granite Canal</b>	<b>Operate at Economic Low of 30 MW.</b> (Minimum of 12 hours per day is required as per SOSP-006.)
<b>Upper Salmon</b>	<b>Operate Fixed at 84 MW for 24 hours per day.</b> If required, cycle unit to establish ice cover as per Instruction T-085 (Frazil Ice).
<b>Bay d'Espoir</b>	<b>Operate to supply the balance of load .</b>
<b>Cat Arm</b>	<b>Operate two units at Economic Low of 65 MW.</b>
<b>Hinds Lake</b>	<b>Operate at Economic Low of 60 MW for 12 hours per day.</b>
<b>Paradise River</b>	Plant is operating normally.
<b>Star Lake</b>	Plant is operating normally.
<b>Exploits Generation</b>	Exploits Generation has been requested to minimize generation within dam safety, fisheries, and other operational constraints .
<b>Non-Utility (Wind)</b>	St Lawrence: All 9 units in operation, production will vary. Fermeuse: All 9 units in operation, production will vary.
<b>Deer Lake Power</b>	Operating normally.

### Avalon and Holyrood Guidelines

<b>Holyrood Unit - Status</b>	<p>When 2 units are available at Holyrood, the total Holyrood + Standby output shall be 400 MW.</p> <p>When 3 units are available at Holyrood,</p>
-------------------------------	--

	<p>the total Holyrood + Standby output shall be 460 MW.</p> <p><u>Note:</u> 3 units considered available when Unit 2 is available at 70 MW.</p> <p>Thermal generation to follow above guideline based on current outlook of low reservoir storage, low snowpack, and low inflows.</p>
<b>Holyrood Unit - Avalon Load Thresholds and Comments</b>	<p>Three-unit operation &gt; 730 MW Two-unit operation &gt; 570 MW One-unit operation &gt; 325 MM</p>
<b>Other Avalon related Generation</b>	<p>When Avalon Load forecasts indicate a need to operate Holyrood units or operate units at greater than minimum, ECC should request NP to maximize hydraulic generation on the Avalon.</p>

2. **PRIORITY OF GENERATION SHUTDOWN OR LOAD REDUCTION** -

1	Reduce Bay d'Espoir to one small unit and Unit 7.
2	Reduce Bay d'Espoir to two small units and Unit 7 in sync condense.
3	Shut down Hinds Lake, <b>respecting hours above.</b>
4	Reduce Cat Arm units to 30 MW.
5	Shut down one unit at Cat Arm.
6	
**	<p>Note: Maintain West Coast voltages at acceptable levels (i.e. BBK below 246 KV) while respecting reliability, security and efficiency throughout the system .</p> <p>As examples:</p> <ul style="list-style-type: none"> <li>● Lower unit voltages while adhering to the current generator scheduling guideline and generator capability limits (this may include requests to NUGs and/or customer owned generation).</li> <li>● Remove TL233 from service, while adhering to the single worst case contingency for the West Coast.</li> <li>● Operate an extra unit at Bay d'Espoir to increase the overall MVAR absorption capability of the system .</li> <li>● Hinds Lake Operation as required for West Coast Voltage issues .</li> </ul>

3. **UNDERFREQUENCY LOAD SHEDDING**

--	--

**Follow the maximum unit loading with respect to the Underfrequency Load Shedding Limit guidelines.** When there are reports of lightning or other activity which may cause a trip of TL247 or TL248 the load on TL247 should be reduced to comply with the Underfrequency Load Shedding Limit guideline . Similarly, the load on TL234 should be reduced for troubles in the Upper Salmon area .

#### 4. HYDROLOGY

<b>Victoria Control</b>	Currently there are three gates open at Victoria Control Structure . Gates should be operated ( <b>cycle between 2 and 3 gates</b> ) to keep Granite in the top half of its operating range 311.77 m - 311.92 m and to maintain Burnt Canal above 42.5 m <sup>3</sup> /s (Dec. 1 to Mar. 31) for ice cover.
<b>Burnt Pond</b>	Gates at Burnt are closed.
<b>Granite Bypass</b>	Bypass Gates are closed.
<b>Ebbe Control</b>	Operate as required to keep generation high at Upper Salmon and to keep Upper Salmon intake in its normal winter operating range of 246.31 m to 246.81 m.
<b>North Salmon</b>	Spilling at North Salmon if reservoir level goes above 247.31 m. Gates should be opened in approximately 0.5 m increments until an opening of 2.0 m is achieved. Spill until reservoir reduces to 247.25 m.
<b>West Salmon</b>	Spill at West Salmon Dam if Cold Spring Pond elevation is above 247.31 m. Stop spilling when elevation reduces below 247.31 m. Spill at West Salmon Dam if the intake level is consistently above 246.85 m (based on manual/actual readings).
<b>Upper Salmon</b>	<del>If spill is imminent at either Great Burnt Lake or Cold Spring Pond , Upper Salmon should be operated Fixed at 88 MW. Guidance will be provided from System Operations if this is required .</del>
<b>Long Pond</b>	Spill gates are closed. Spill at Salmon River Spillway if water level in Long Pond goes above 182.73 m. Open with stepped openings. Keep reservoir below 182.75 m.
<b>Hinds Lake</b>	Spill gates are closed.
<b>Fisheries Compensation</b>	Reference System Operations Standard Procedure 002 for further information.

#### 5. CUSTOMER REQUIREMENTS

	Kruger Corner Brook	North Atlantic Come by Chance	Teck Resources Duck Pond	Vale	Praxair
Power On Order	8,000 kW	30,500 kW	500 kW	30,000 kW	5,300 kW

Available Interruptible	2,000 kW	5,000 kW	125 kW	5,000 kW	1,325 kW
Generation Outage	0 kW				
Total	10,000 kW	35,500 kW	625 kW	35,000 kW	6,625 kW



Michael Dyson, P. Eng.  
Operations Hydrotechnical Engineer  
Nalcor Energy - Churchill Falls  
t. 709 778-6617 c. 709 685-6451 f. 709 737-1318  
e. [MikeDyson@nalcorenergy.com](mailto:MikeDyson@nalcorenergy.com)  
w. [nalcorenergy.com](http://nalcorenergy.com)



**February 8, 2016 - Generation Guidelines - File #: 01.50/24** 

**Joanna Barnard** to: Joanna Barnard

02/08/2016 02:40 PM

Alvin Crant, Andrew Martin, Art Burse, Bob Butler, Clarence Payne,  
Cc: Daniel A King, Dennis Hartley, Des Crawley, Elfatih Mohamed,  
Energy Control Centre Staff, Evan Cabot, Jason Tobin, Karl Inkpen,

## Generation Guidelines for February 8, 2016

Changes since the previous guidelines are in red .

### Notes / Objectives:

Keep generation high at Upper Salmon and Cat Arm to support the Long Pond water level .

Keep Hinds Lake at approximately half output to preserve long -term capability over the winter months.

Operate Granite to balance Victoria and Meelpaeg Reservoirs .

**Thermal generation to be maximized based on current outlook of low reservoir storage , low snowpack, and low inflows.**

A request was made this morning to open a second gate at Victoria Control Structure .

Burnt Canal requires a minimum of 42.5m<sup>3</sup>/s to provide a stable ice cover on the canal .

### 1. GENERATION PRIORITIES

<b>Granite Canal</b>	<b>Operate at Economic Low of 30 MW.</b> (Minimum of 12 hours per day is required as per SOSP-006.)
<b>Upper Salmon</b>	<b>Operate Fixed at 84 MW for 24 hours per day.</b> If required, cycle unit to establish ice cover as per Instruction T-085 (Frazil Ice).
<b>Bay d'Espoir</b>	<b>Operate to supply the balance of load .</b>
<b>Cat Arm</b>	<b>Operate two units at Economic Low of 65 MW.</b>
<b>Hinds Lake</b>	<b>Operate at Economic Low of 60 MW for 12 hours per day.</b>
<b>Paradise River</b>	Plant is operating normally.
<b>Star Lake</b>	Plant is operating normally.
<b>Exploits Generation</b>	Exploits Generation has been requested to minimize generation within dam safety, fisheries, and other operational constraints .
<b>Non-Utility (Wind)</b>	St Lawrence: All 9 units in operation, production will vary. Fermeuse: All 9 units in operation, production will vary.
<b>Deer Lake Power</b>	Operating normally.

### Avalon and Holyrood Guidelines

<b>Holyrood Unit - Status</b>	<b>Thermal generation to be maximized based on current outlook of low reservoir storage, low snowpack, and low inflows:</b>
-------------------------------	---

	<p style="color: red;">HRD Unit 1 - 50 MW (while available)                  HRD Unit 2 - 110 MW                  HRD Unit 3 - 150 MW                  HRD CT - minimum 80 MW                  HWD - minimum 35 MW                  SVL - minimum 35 MW</p>
<b>Holyrood Unit - Avalon Load Thresholds and Comments</b>	Three-unit operation > 730 MW Two-unit operation > 570 MW One-unit operation > 325 MM
<b>Other Avalon related Generation</b>	When Avalon Load forecasts indicate a need to operate Holyrood units or operate units at greater than minimum, ECC should request NP to maximize hydraulic generation on the Avalon.

**2. PRIORITY OF GENERATION SHUTDOWN OR LOAD REDUCTION -**

<b>1</b>	<b>Reduce Bay d'Espoir to one small unit and Unit 7.</b>
<b>2</b>	<b>Reduce Bay d'Espoir to two small units and Unit 7 in sync condense.</b>
<b>3</b>	<b>Shut down Hinds Lake, respecting hours above.</b>
<b>4</b>	<b>Reduce Cat Arm units to 30 MW.</b>
<b>5</b>	<b>Shut down one unit at Cat Arm.</b>
<b>6</b>	
<b>**</b>	Note: Maintain West Coast voltages at acceptable levels (i.e. BBK below 246 KV) while respecting reliability, security and efficiency throughout the system .  As examples: <ul style="list-style-type: none"> <li>● Lower unit voltages while adhering to the current generator scheduling guideline and generator capability limits (this may include requests to NUGs and/or customer owned generation).</li> <li>● Remove TL233 from service, while adhering to the single worst case contingency for the West Coast.</li> <li>● Operate an extra unit at Bay d'Espoir to increase the overall MVAR absorption capability of the system.</li> <li>● Hinds Lake Operation as required for West Coast Voltage issues .</li> </ul>

**3. UNDERFREQUENCY LOAD SHEDDING**

**Follow the maximum unit loading with respect to the Underfrequency Load Shedding Limit guidelines.** When there are reports of lightning or other activity which may cause a trip of TL247 or TL248 the load on TL247 should be reduced to comply with the Underfrequency Load Shedding Limit guideline . Similarly, the load on TL234 should be reduced for troubles in the Upper Salmon area .

4. **HYDROLOGY**

<b>Victoria Control</b>	Currently there are two gates open (a request was made this morning to open the second gate) at Victoria Control Structure. Gates should be operated (cycle between 2 and 3 gates) to keep Granite in the top half of its operating range 311.77 m - 311.92 m and to maintain Burnt Canal above 42.5 m <sup>3</sup> /s (Dec. 1 to Mar. 31) for ice cover.
<b>Burnt Pond</b>	Gates at Burnt are closed.
<b>Granite Bypass</b>	Bypass Gates are closed.
<b>Ebbe Control</b>	Operate as required to keep generation high at Upper Salmon and to keep Upper Salmon intake in its normal winter operating range of 246.31 m to 246.81 m.
<b>North Salmon</b>	Spilling at North Salmon if reservoir level goes above 247.31 m. Gates should be opened in approximately 0.5 m increments until an opening of 2.0 m is achieved. Spill until reservoir reduces to 247.25 m.
<b>West Salmon</b>	Spill at West Salmon Dam if Cold Spring Pond elevation is above 247.31 m. Stop spilling when elevation reduces below 247.31 m. Spill at West Salmon Dam if the intake level is consistently above 246.85 m (based on manual/actual readings).
<b>Upper Salmon</b>	<del>If spill is imminent at either Great Burnt Lake or Cold Spring Pond, Upper Salmon should be operated Fixed at 88 MW. Guidance will be provided from System Operations if this is required.</del>
<b>Long Pond</b>	Spill gates are closed. Spill at Salmon River Spillway if water level in Long Pond goes above 182.73 m. Open with stepped openings. Keep reservoir below 182.75 m.
<b>Hinds Lake</b>	Spill gates are closed.
<b>Fisheries Compensation</b>	Reference System Operations Standard Procedure 002 for further information.

5. **CUSTOMER REQUIREMENTS**

	Kruger Corner Brook	North Atlantic Come by Chance	Teck Resources Duck Pond	Vale	Praxair
Power On Order	8,000 kW	30,500 kW	500 kW	30,000 kW	5,300 kW
Available Interruptible	2,000 kW	5,000 kW	125 kW	5,000 kW	1,325 kW
Generation Outage	0 kW				
Total	10,000 kW	35,500 kW	625 kW	35,000 kW	6,625 kW





Joanna Barnard, MASc, PEng, MBA  
System Operations Hydrotechnical Engineer  
System Operations and Integration Support  
Newfoundland and Labrador Hydro - a Nalcor Energy company  
t. 709 737-1433  
e. [JoannaBarnard@nlh.nl.ca](mailto:JoannaBarnard@nlh.nl.ca)  
w. [www.nlh.nl.ca](http://www.nlh.nl.ca)



**February 15, 2016 - Generation Guidelines - File #: 01.50/24**

**Mike Dyson** to: Alvin Crant, Andrew Martin, Art Bursey, Bob Butler, Clarence Payne, Daniel A King, Dennis Hartley, Des Crawley, Elfatih Mohamed, Energy 02/15/2016 03:03 PM

## Generation Guidelines for February 15, 2016

Changes since the previous guidelines are in red.

Notes / Objectives:

Keep generation high at Upper Salmon and Cat Arm to support the Long Pond water level .  
Keep Hinds Lake at approximately half output to preserve long -term capability over the winter months.

Operate Granite to balance Victoria and Meelpaeg Reservoirs .

**Thermal generation to be maximized based on current outlook of low reservoir storage , low snowpack, and low inflows.**

**Request to close both gates at the Victoria Control Structure on Tuesday morning due to forecasted rain event.**

Burnt Canal requires a minimum of 42.5m<sup>3</sup>/s to provide a stable ice cover on the canal .

### 1. GENERATION PRIORITIES

<b>Granite Canal</b>	<b>Operate at Economic Low of 26 MW.</b> (Minimum of 12 hours per day is required as per SOSP-006.)
<b>Upper Salmon</b>	<b>Operate Fixed at 84 MW for 24 hours per day.</b> If required, cycle unit to establish ice cover as per Instruction T-085 (Frazil Ice).
<b>Bay d'Espoir</b>	<b>Operate to supply the balance of load.</b>
<b>Cat Arm</b>	<b>Operate two units at Economic Low of 65 MW.</b>
<b>Hinds Lake</b>	<b>Operate at Economic Low of 60 MW for 12 hours per day.</b>
<b>Paradise River</b>	Plant is operating normally.
<b>Star Lake</b>	Plant is operating normally.
<b>Exploits Generation</b>	Exploits Generation has been requested to minimize generation within dam safety, fisheries, and other operational constraints.
<b>Non-Utility (Wind)</b>	St Lawrence: All 9 units in operation, production will vary. Fermeuse: All 9 units in operation, production will vary.
<b>Deer Lake Power</b>	Operating normally.

### Avalon and Holyrood Guidelines

<b>Holyrood Unit - Status</b>	Thermal generation to be maximized based on current outlook of low reservoir
-------------------------------	--

	<p>storage, low snowpack, and low inflows:  <b>HRD Unit 1</b> - 50 MW (while available).                  Outage starting after evening peak on Tuesday. Scheduled to return to service on February 25<sup>th</sup>.  <b>HRD Unit 2</b> - 110 MW  <b>HRD Unit 3</b> - 150 MW                  HRD CT - minimum 80 MW                  HWD - minimum 30 MW                  SVL - minimum 30 MW</p>
<b>Holyrood Unit - Avalon Load Thresholds and Comments</b>	<p>Three-unit operation &gt; 730 MW                  Two-unit operation &gt; 570 MW                  One-unit operation &gt; 325 MM</p>
<b>Other Avalon related Generation</b>	<p>When Avalon Load forecasts indicate a need to operate Holyrood units or operate units at greater than minimum, ECC should request NP to maximize hydraulic generation on the Avalon.</p>

2. **PRIORITY OF GENERATION SHUTDOWN OR LOAD REDUCTION** -

<b>1</b>	<del>Reduce Bay d'Espoir to one small unit and Unit 7.</del> <b>(This option is currently unavailable. Requested by P&amp;C Engineering that Unit 2 not be shut down due to a start/stop relay.)</b>
<b>2</b>	<b>Reduce Bay d'Espoir to two small units and Unit 7 in sync condense.</b>
<b>3</b>	<b>Shut down Hinds Lake, respecting hours above.</b>
<b>4</b>	<b>Reduce Cat Arm units to 30 MW.</b>
<b>5</b>	<b>Shut down one unit at Cat Arm.</b>
<b>6</b>	
<b>**</b>	<p>Note: Maintain West Coast voltages at acceptable levels (i.e. BBK below 246 KV) while respecting reliability, security and efficiency throughout the system .</p> <p>As examples:</p> <ul style="list-style-type: none"> <li>● Lower unit voltages while adhering to the current generator scheduling guideline and generator capability limits (this may include requests to NUGs and/or customer owned generation).</li> <li>● Remove TL233 from service, while adhering to the single worst case contingency for the West Coast.</li> <li>● Operate an extra unit at Bay d'Espoir to increase the overall MVAR absorption capability of the system .</li> <li>● Hinds Lake Operation as required for West Coast Voltage issues .</li> </ul>

3. **UNDERFREQUENCY LOAD SHEDDING**

**Follow the maximum unit loading with respect to the Underfrequency Load Shedding Limit guidelines.** When there are reports of lightning or other activity which may cause a trip of TL247 or TL248 the load on TL247 should be reduced to comply with the Underfrequency Load Shedding Limit guideline . Similarly, the load on TL234 should be reduced for troubles in the Upper Salmon area .

4. **HYDROLOGY**

<b>Victoria Control</b>	<p>Currently there are two gates open at Victoria Control Structure .  <b>Request that both gates be closed Tuesday morning due to significant rainfall forecasted for Wednesday.</b></p> <p>Gates should be operated (<del>cycle between 2 and 3 gates</del>) to keep Granite in the top half of its operating range 311.77 m - 311.92 m and to maintain Burnt Canal above 42.5 m<sup>3</sup>/s (Dec. 1 to Mar. 31) for ice cover.</p>
<b>Burnt Pond</b>	Gates at Burnt are closed.
<b>Granite Bypass</b>	Bypass Gates are closed.
<b>Ebbe Control</b>	Operate as required to keep generation high at Upper Salmon and to keep Upper Salmon intake in its normal winter operating range of 246.31 m to 246.81 m.
<b>North Salmon</b>	Spilling at North Salmon if reservoir level goes above 247.31 m. Gates should be opened in approximately 0.5 m increments until an opening of 2.0 m is achieved. Spill until reservoir reduces to 247.25 m.
<b>West Salmon</b>	Spill at West Salmon Dam if Cold Spring Pond elevation is above 247.31 m. Stop spilling when elevation reduces below 247.31 m. Spill at West Salmon Dam if the intake level is consistently above 246.85 m (based on manual/actual readings).
<b>Upper Salmon</b>	<del>If spill is imminent at either Great Burnt Lake or Cold Spring Pond , Upper Salmon should be operated Fixed at 88 MW. Guidance will be provided from System Operations if this is required .</del>
<b>Long Pond</b>	Spill gates are closed. Spill at Salmon River Spillway if water level in Long Pond goes above 182.73 m. Open with stepped openings. Keep reservoir below 182.75 m.
<b>Hinds Lake</b>	Spill gates are closed.
<b>Fisheries Compensation</b>	Reference System Operations Standard Procedure 002 for further information.

5. **CUSTOMER REQUIREMENTS**

	Kruger	North Atlantic	Teck Resources	Vale	Praxair
--	--------	----------------	----------------	------	---------

	Corner Brook	Come by Chance	Duck Pond		
Power On Order	8,000 kW	30,500 kW	500 kW	30,000 kW	5,300 kW
Available Interruptible	2,000 kW	5,000 kW	125 kW	5,000 kW	1,325 kW
Generation Outage	0 kW				
<b>Total</b>	<b>10,000 kW</b>	<b>35,500 kW</b>	<b>625 kW</b>	<b>35,000 kW</b>	<b>6,625 kW</b>



**Michael Dyson, P. Eng.**  
 Operations Hydrotechnical Engineer  
 Nalcor Energy - Churchill Falls  
 t. 709 778-6617 c. 709 685-6451 f. 709 737-1318  
 e. [MikeDyson@nalcorenergy.com](mailto:MikeDyson@nalcorenergy.com)  
 w. [nalcorenergy.com](http://nalcorenergy.com)



**February 22, 2016 - Generation Guidelines - File #: 01.50/24** 

**Joanna Barnard** to: Joanna Barnard

02/22/2016 03:26 PM

Alvin Crant, Andrew Martin, Art Burse, Bob Butler, Clarence Payne,  
Cc: Daniel A King, Dennis Hartley, Des Crawley, Elfatih Mohamed,  
Energy Control Centre Staff, Evan Cabot, Jason Tobin, Karl Inkpen,

## Generation Guidelines for February 22, 2016

Changes since the previous guidelines are in red .

### Notes / Objectives:

Keep generation high at Upper Salmon and Cat Arm to support the Long Pond water level .  
Keep Hinds Lake at approximately half output to preserve long -term capability over the winter months.

**Thermal generation to be maximized based on current outlook of low reservoir storage , low snowpack, and low inflows.**

Burnt Canal requires a minimum of  $42.5\text{m}^3/\text{s}$  to provide a stable ice cover on the canal .

**Granite Canal is now bypassing due to rain and snow melt last week and forecast additional rain and possible snow melt late this week .**

### 1. GENERATION PRIORITIES

Granite Canal	<b>Operate Fixed at 40 MW when possible (otherwise at maximum) for 24 hours per day.</b> (Minimum of 12 hours per day is required as per SOSP-006.)
Upper Salmon	<b>Operate Fixed at 84 MW for 24 hours per day.</b> If required, cycle unit to establish ice cover as per Instruction T-085 (Frazil Ice).
Bay d'Espoir	<b>Operate to supply the balance of load .</b>
Cat Arm	<b>Operate two units at Economic Low of 65 MW.</b>
Hinds Lake	<b>Operate at Economic Low of 60 MW for 12 hours per day.</b>
Paradise River	Plant is operating normally.
Star Lake	Plant is operating normally.
Exploits Generation	<b>Exploits Generation is generating on the high side of normal to pass high local inflows.</b>
Non-Utility (Wind)	St Lawrence: All 9 units in operation, production will vary. Fermeuse: All 9 units in operation, production will vary.
Deer Lake Power	Operating normally.

### Avalon and Holyrood Guidelines

Holyrood Unit - Status	Thermal generation to be maximized based on current outlook of low reservoir
------------------------	--

	<p>storage, low snowpack, and low inflows:  <b>HRD Unit 1</b> - 50 MW (while available).  <b>Scheduled return to service now February 29<sup>th</sup>.</b>  <b>HRD Unit 2</b> - 110 MW  <b>HRD Unit 3</b> - 150 MW  HRD CT - minimum 80 MW  HWD - minimum 30 MW  SVL - minimum 30 MW</p>
<b>Holyrood Unit - Avalon Load Thresholds and Comments</b>	<p>Three-unit operation &gt; 730 MW  Two-unit operation &gt; 570 MW  One-unit operation &gt; 325 MM</p>
<b>Other Avalon related Generation</b>	<p>When Avalon Load forecasts indicate a need to operate Holyrood units or operate units at greater than minimum, ECC should request NP to maximize hydraulic generation on the Avalon.</p>

**2. PRIORITY OF GENERATION SHUTDOWN OR LOAD REDUCTION -**

<b>1</b>	<b><del>Reduce Bay d'Espoir to one small unit and Unit 7.</del> (This option is currently unavailable. Requested by P&amp;C Engineering that Unit 2 not be shut down due to a start/stop relay.)</b>
<b>2</b>	<b>Reduce Bay d'Espoir to two small units and Unit 7 in sync condense.</b>
<b>3</b>	<b>Shut down Hinds Lake, respecting hours above.</b>
<b>4</b>	<b>Reduce Cat Arm units to 30 MW.</b>
<b>5</b>	<b>Shut down one unit at Cat Arm.</b>
<b>6</b>	
<b>**</b>	<p>Note: Maintain West Coast voltages at acceptable levels (i.e. BBK below 246 KV) while respecting reliability, security and efficiency throughout the system .</p> <p>As examples:</p> <ul style="list-style-type: none"> <li>● Lower unit voltages while adhering to the current generator scheduling guideline and generator capability limits (this may include requests to NUGs and/or customer owned generation).</li> <li>● Remove TL233 from service, while adhering to the single worst case contingency for the West Coast.</li> <li>● Operate an extra unit at Bay d'Espoir to increase the overall MVAR absorption capability of the system.</li> <li>● Hinds Lake Operation as required for West Coast Voltage issues .</li> </ul>

**3. UNDERFREQUENCY LOAD SHEDDING**

**Follow the maximum unit loading with respect to the Underfrequency Load Shedding Limit guidelines.** When there are reports of lightning or other activity which may cause a trip of TL247 or TL248 the load on TL247 should be reduced to comply with the Underfrequency Load Shedding Limit guideline . Similarly, the load on TL234 should be reduced for troubles in the Upper Salmon area .

**4. HYDROLOGY**

<b>Victoria Control</b>	<b>Currently all gates at Victoria Control Structure are closed .</b> Gates should be operated to keep Granite in the top half of its operating range 311.77 m - 311.92 m and to maintain Burnt Canal above 42.5 m <sup>3</sup> /s (Dec. 1 to Mar. 31) for ice cover.
<b>Burnt Pond</b>	Gates at Burnt are closed .
<b>Granite Bypass</b>	<b>One Bypass Gate is open 2 m .</b>
<b>Ebbe Control</b>	Operate as required to keep generation high at Upper Salmon and to keep Upper Salmon intake in its normal winter operating range of 246.31 m to 246.81 m .
<b>North Salmon</b>	Spilling at North Salmon if reservoir level goes above 247.31 m . Gates should be opened in approximately 0.5 m increments until an opening of 2.0 m is achieved . Spill until reservoir reduces to 247.25 m .
<b>West Salmon</b>	Spill at West Salmon Dam if Cold Spring Pond elevation is above 247.31 m . Stop spilling when elevation reduces below 247.31 m . Spill at West Salmon Dam if the intake level is consistently above 246.85 m (based on manual/actual readings) .
<b>Upper Salmon</b>	<del>If spill is imminent at either Great Burnt Lake or Cold Spring Pond , Upper Salmon should be operated Fixed at 88 MW . Guidance will be provided from System Operations if this is required .</del>
<b>Long Pond</b>	Spill gates are closed . Spill at Salmon River Spillway if water level in Long Pond goes above 182.73 m . Open with stepped openings . Keep reservoir below 182.75 m .
<b>Hinds Lake</b>	Spill gates are closed .
<b>Fisheries Compensation</b>	Reference System Operations Standard Procedure 002 for further information .

**5. CUSTOMER REQUIREMENTS**

	Kruger Corner Brook	North Atlantic Come by Chance	Teck Resources Duck Pond	Vale	Praxair
Power On Order	8,000 kW	30,500 kW	500 kW	30,000 kW	5,300 kW
Available Interruptible	2,000 kW	5,000 kW	125 kW	5,000 kW	1,325 kW



Generation Outage	0 kW				
Total	10,000 kW	35,500 kW	625 kW	35,000 kW	6,625 kW



Joanna Barnard, MASC, PEng, MBA  
System Operations Hydrotechnical Engineer  
System Operations and Integration Support  
Newfoundland and Labrador Hydro - a Nalcor Energy company  
t. 709 737-1433  
e. [JoannaBarnard@nlh.nl.ca](mailto:JoannaBarnard@nlh.nl.ca)  
w. [www.nlh.nl.ca](http://www.nlh.nl.ca)



**February 25, 2016 - Generation Guidelines - File #: 01.50/24 - date correction**



**Joanna Barnard** to: Joanna Barnard

02/25/2016 03:20 PM

Art Burse, Bob Butler, Clarence Payne, Daniel A King, Dennis  
Cc: Hartley, Des Crawley, Elfatih Mohamed, Energy Control Centre Staff,  
Evan Cabot, Jason Tobin, Karl Inkpen, Kevin Goulding, Leveson

My apologies, the date on the last email was incorrect.

## Generation Guidelines for February 25, 2016

Changes since the previous guidelines are in red.

Notes / Objectives:

Keep generation high at Upper Salmon and Cat Arm to support the Long Pond water level .

Increase Hinds Lake generation now level has stopped declining .

Thermal generation to be maximized based on current outlook of low reservoir storage , low snowpack, and low inflows.

Burnt Canal requires a minimum of 42.5m<sup>3</sup>/s to provide a stable ice cover on the canal .

Granite Canal is now bypassing due to rain and snow melt last week and forecast additional rain and possible snow melt late this week .

Spill advisories have been issued for Granite and Burnt .

Spill at Burnt if the reservoir level increases to 314.95 m.

### 1. GENERATION PRIORITIES

<b>Granite Canal</b>	<b>Operate Fixed at 40 MW when possible (otherwise at maximum) for 24 hours per day.</b> (Minimum of 12 hours per day is required as per SOSP-006.)
<b>Upper Salmon</b>	<b>Operate Fixed at 84 MW for 24 hours per day.</b> If required, cycle unit to establish ice cover as per Instruction T-085 (Frazil Ice).
<b>Bay d'Espoir</b>	<b>Operate to supply the balance of load.</b>
<b>Cat Arm</b>	<b>Operate two units at Economic Low of 65 MW.</b>
<b>Hinds Lake</b>	<b>Operate at Economic Low of 60 MW.</b>
<b>Paradise River</b>	Plant is operating normally.
<b>Star Lake</b>	Plant is operating normally.
<b>Exploits Generation</b>	Exploits Generation is generating on the high side of normal to pass high local inflows.
<b>Non-Utility (Wind)</b>	St Lawrence: All 9 units in operation, production will vary. Fermeuse: All 9 units in operation, production will vary.

Deer Lake Power	Operating normally.
-----------------	---------------------

**Avalon and Holyrood Guidelines**

<b>Holyrood Unit - Status</b>	Thermal generation to be maximized based on current outlook of low reservoir storage, low snowpack, and low inflows: <b>HRD Unit 1 - off, scheduled to be online Feb 29.</b> <b>HRD Unit 2 - 110 MW</b> <b>HRD Unit 3 - 150 MW</b> HRD CT - minimum 80 MW HWD - minimum 30 MW SVL - minimum 30 MW
<b>Holyrood Unit - Avalon Load Thresholds and Comments</b>	Three-unit operation > 730 MW Two-unit operation > 570 MW One-unit operation > 325 MM
<b>Other Avalon related Generation</b>	When Avalon Load forecasts indicate a need to operate Holyrood units or operate units at greater than minimum, ECC should request NP to maximize hydraulic generation on the Avalon.

2. **PRIORITY OF GENERATION SHUTDOWN OR LOAD REDUCTION** -

1	<del>Reduce Bay d'Espoir to one small unit and Unit 7.</del> (This option is currently unavailable. Requested by P&C Engineering that Unit 2 not be shut down due to a start/stop relay.)
2	Reduce Bay d'Espoir to two small units and Unit 7 in sync condense.
3	<b>Shut down Hinds Lake.</b>
4	Reduce Cat Arm units to 30 MW.
5	Shut down one unit at Cat Arm.
6	
**	Note: Maintain West Coast voltages at acceptable levels (i.e. BBK below 246 KV) while respecting reliability, security and efficiency throughout the system.  As examples: <ul style="list-style-type: none"> <li>● Lower unit voltages while adhering to the current generator scheduling guideline and generator capability limits (this may include requests to NUGs and/or customer owned generation).</li> <li>● Remove TL233 from service, while adhering to the single worst case contingency for the West Coast.</li> <li>● Operate an extra unit at Bay d'Espoir to increase the overall MVAR</li> </ul>

absorption capability of the system .

- Hinds Lake Operation as required for West Coast Voltage issues .

### 3. UNDERFREQUENCY LOAD SHEDDING

**Follow the maximum unit loading with respect to the Underfrequency Load Shedding Limit guidelines.** When there are reports of lightning or other activity which may cause a trip of TL247 or TL248 the load on TL247 should be reduced to comply with the Underfrequency Load Shedding Limit guideline . Similarly, the load on TL234 should be reduced for troubles in the Upper Salmon area .

### 4. HYDROLOGY

<b>Victoria Control</b>	Currently all gates at Victoria Control Structure are closed . Gates should be operated to keep Granite in the top half of its operating range 311.77 m - 311.92 m and to maintain Burnt Canal above 42.5 m <sup>3</sup> /s (Dec. 1 to Mar. 31) for ice cover.
<b>Burnt Pond</b>	Gates at Burnt are closed. <b>Spill at Burnt if the reservoir level increases to 314.95 m. To minimize downstream effects, open in stepped increments (in the order of 0.5 m per step).</b>
<b>Granite Bypass</b>	<b>One Bypass Gate is open 2 m.</b>
<b>Ebbe Control</b>	Operate as required to keep generation high at Upper Salmon and to keep Upper Salmon intake in its normal winter operating range of 246.31 m to 246.81 m.
<b>North Salmon</b>	Spilling at North Salmon if reservoir level goes above 247.31 m. Gates should be opened in approximately 0.5 m increments until an opening of 2.0 m is achieved. Spill until reservoir reduces to 247.25 m.
<b>West Salmon</b>	Spill at West Salmon Dam if Cold Spring Pond elevation is above 247.31 m. Stop spilling when elevation reduces below 247.31 m. Spill at West Salmon Dam if the intake level is consistently above 246.85 m (based on manual/actual readings).
<b>Upper Salmon</b>	<del>If spill is imminent at either Great Burnt Lake or Cold Spring Pond , Upper Salmon should be operated Fixed at 88 MW. Guidance will be provided from System Operations if this is required .</del>
<b>Long Pond</b>	Spill gates are closed. Spill at Salmon River Spillway if water level in Long Pond goes above 182.73 m. Open with stepped openings. Keep reservoir below 182.75 m.
<b>Hinds Lake</b>	Spill gates are closed.
<b>Fisheries Compensation</b>	Reference System Operations Standard Procedure 002 for further information.

### 5. CUSTOMER REQUIREMENTS

	Kruger Corner Brook	North Atlantic Come by Chance	Teck Resources Duck Pond	Vale	Praxair
Power On Order	8,000 kW	30,500 kW	500 kW	30,000 kW	5,300 kW
Available Interruptible	2,000 kW	5,000 kW	125 kW	5,000 kW	1,325 kW
Generation Outage	0 kW				
Total	10,000 kW	35,500 kW	625 kW	35,000 kW	6,625 kW



**Joanna Barnard, MASc, PEng, MBA**  
 System Operations Hydrotechnical Engineer  
 System Operations and Integration Support  
 Newfoundland and Labrador Hydro - a Nalcor Energy company  
 t. 709 737-1433  
 e. [JoannaBarnard@nlh.nl.ca](mailto:JoannaBarnard@nlh.nl.ca)  
 w. [www.nlh.nl.ca](http://www.nlh.nl.ca)