

1 **Q. 2015 Capital Plan**

2 Provide all available statistics, for the period 2009-2014, regarding any interruptions
3 or reductions from its 127 MW rating, in the supply of power by the Cat Arm
4 generation plant to the Provincial electrical grid, including (if available) the cause
5 for such interruption or reduction.

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8 A. The following table outlines the performance of the Cat Arm Plant from 2009 to
9 2014 (to July 31).

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Cat Arm Plant	Capability Factor (%)	DAFOR (%)	Failure Rate
2009	94.89	0.82	5.55
2010	94.60	1.89	5.12
2011	95.86	0.48	2.35
2012	95.10	0.51	2.10
2013	95.10	0.55	2.33
2014	94.65	0.49	0.56

Capability Factor is defined as unit available time. It is the ratio of the unit's available time to the total number of unit hours.

DAFOR is defined as Derated Adjusted Forced Outage Rate. It is the ratio of equivalent forced outage time to equivalent forced outage time plus the total equivalent operating time.

Failure Rate is defined as the rate at which the generating unit encounters a forced outage. It is calculated by dividing the number of transitions from an Operating state to a forced outage by the total operating time.

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12 IC-NLH-013 Attachment 1 contains a listing of unit derating, forced and planned
13 outages from 2009 to 2014 (to July 31), including causes, for the Cat Arm
14 Generating Plant.

Unit	Start Date	Finish Date	Capacity	Max Cap of Unit	Comment
CAT 1	2009/04/08 13:37	2009/04/08 20:05	0.0	63	Maintenance Outage
CAT 1	2009/04/09 17:12	2009/04/09 19:03	0.0	63	Unit derating - Trashrack Differential Issue (Unit in Synch cond operation)
CAT 1	2009/04/09 23:27	2009/04/10 14:44	0.0	63	Unit derating - Trashrack Differential Issue (Unit in Synch cond operation)
CAT 1	2009/04/17 9:36	2009/04/17 13:46	0.0	63	Maintenance Outage
CAT 1	2009/04/21 14:19	2009/04/21 15:22	0.0	63	Maintenance Outage
CAT 1	2009/06/07 1:05	2009/06/07 3:40	0.0	63	Forced Outage - Governor Problem
CAT 1	2009/06/10 18:39	2009/06/10 20:44	0.0	63	Forced Outage - Governor Problem
CAT 1	2009/07/28 10:34	2009/07/28 17:58	0.0	63	Annual Outage
CAT 1	2009/09/24 16:13	2009/09/24 18:45	0.0	63	Annual Outage
CAT 1	2009/09/28 11:48	2009/10/09 16:19	0.0	63	Annual Outage
CAT 1	2009/10/15 9:20	2009/10/15 13:39	0.0	63	Annual Outage
CAT 1	2009/10/19 5:02	2009/10/22 19:44	0.0	63	Annual Outage
CAT 1	2009/10/24 9:02	2009/10/24 10:16	0.0	63	Annual Outage
CAT 1	2009/10/25 6:56	2009/10/25 9:14	0.0	63	Annual Outage
CAT 1	2009/11/26 8:31	2009/11/26 12:59	0.0	63	Maintenance Outage
CAT 1	2009/11/27 6:52	2009/11/27 16:43	0.0	63	Maintenance Outage
CAT 1	2010/02/16 10:17	2010/02/16 13:31	0.0	63	Annual Outage
CAT 1	2010/06/26 11:36	2010/06/28 18:24	0.0	63	Forced Outage - Turbine Guide Bearing issues
CAT 1	2010/07/06 9:32	2010/07/13 9:57	42.0	63	Forced Outage - Governor Problem - Oil Leak on Needle #3.
CAT 1	2010/07/13 9:57	2010/07/16 11:44	0.0	63	Annual Outage
CAT 1	2010/07/18 17:15	2010/07/18 17:28	0.0	63	Forced Outage - TL 247 tripped due to lightning
CAT 1	2010/07/18 20:00	2010/07/18 20:03	0.0	63	Forced Outage - TL 247 tripped due to lightning
CAT 1	2010/08/17 23:23	2010/08/18 2:27	0.0	63	Forced Outage - TL 247 tripped due to lightning
CAT 1	2010/09/24 0:37	2010/09/24 2:24	0.0	63	Maintenance Outage
CAT 1	2010/09/24 2:24	2010/09/24 8:50	0.0	63	Maintenance Outage
CAT 1	2010/09/30 9:01	2010/09/30 15:26	0.0	63	Forced Outage - Turbine Guide Bearing issues
CAT 1	2010/10/25 9:40	2010/11/04 9:21	0.0	63	Annual Outage
CAT 1	2010/11/20 8:42	2010/11/20 9:53	0.0	63	Forced Outage - Turbine Guide Bearing issues
CAT 1	2010/12/15 9:03	2010/12/15 12:07	0.0	63	Maintenance Outage
CAT 1	2011/01/20 9:50	2011/01/20 13:31	0.0	63	Maintenance Outage
CAT 1	2011/01/25 4:21	2011/01/25 8:26	0.0	63	Forced Outage - Turbine Guide Bearing issues
CAT 1	2011/03/09 0:15	2011/03/11 14:30	0.0	63	Forced Outage - Shear Pin failure
CAT 1	2011/08/20 13:34	2011/08/20 13:43	0.0	63	Forced Outage - TL 247 tripped due to lightning

Unit	Start Date	Finish Date	Capacity	Max Cap of Unit	Comment
CAT 1	2011/10/20 8:39	2011/10/20 10:51	0.0	63	Annual Outage
CAT 1	2011/10/23 7:24	2011/11/09 18:00	0.0	63	Annual Outage
CAT 1	2011/11/13 22:34	2011/11/14 0:55	0.0	63	Forced Outage - Governor Problem
CAT 1	2012/05/22 13:12	2012/05/22 16:29	0.0	63	Forced Outage - Fire Protection system problems
CAT 1	2012/06/04 9:32	2012/06/04 11:56	0.0	63	Annual Outage
CAT 1	2012/11/05 9:54	2012/11/27 11:53	0.0	63	Maintenance Outage
					Forced Outage - Problem in Switchyard at Holyrood Generating Plant/Station Service failed to transfer to emergency diesel supply.
CAT 1	2013/01/11 7:42	2013/01/11 18:19	0.0	63	
CAT 1	2013/03/25 1:00	2013/03/25 4:12	0.0	63	Forced Outage - Governor Problem
CAT 1	2013/06/03 8:11	2013/06/16 13:38	0.0	63	Maintenance Outage
CAT 1	2013/11/06 13:53	2013/11/06 15:30	0.0	63	Maintenance Outage
CAT 1	2013/11/20 7:26	2013/11/20 17:21	0.0	63	Maintenance Outage
CAT 1	2014/01/04 9:05	2014/01/04 12:55	0.0	63	Forced Outage - Related to Sunnyside Event
CAT 1	2014/01/04 15:33	2014/01/04 16:05	0.0	63	Forced Outage - Related to Sunnyside Event
CAT 1	2014/05/14 9:57	2014/05/14 16:59	0.0	63	Maintenance Outage
CAT 1	2014/06/15 7:37	2014/06/26 18:00	0.0	63	Maintenance Outage
CAT 1	2014/07/08 13:00	2014/07/09 11:33	0.0	63	Annual Outage
CAT 2	2009/04/08 11:45	2009/04/08 21:36	0.0	63	Maintenance Outage
CAT 2	2009/04/09 16:57	2009/04/09 18:48	0.0	63	Maintenance Outage
CAT 2	2009/04/09 23:09	2009/04/10 14:58	0.0	63	Maintenance Outage
CAT 2	2009/04/11 6:45	2009/04/11 10:09	0.0	63	Maintenance Outage
CAT 2	2009/04/15 10:30	2009/04/15 13:01	0.0	63	Maintenance Outage
CAT 2	2009/04/17 21:19	2009/04/18 0:10	0.0	63	Forced Outage - Governor Problems
CAT 2	2009/04/18 2:34	2009/04/19 18:01	0.0	63	Forced Outage - Governor Problems
CAT 2	2009/04/20 3:38	2009/04/20 20:01	0.0	63	Forced Outage - Cooling Water Systems
CAT 2	2009/04/21 4:24	2009/04/21 13:50	0.0	63	Forced Outage - Governor Problems
CAT 2	2009/04/22 11:42	2009/04/22 13:56	0.0	63	Maintenance Outage
CAT 2	2009/06/10 18:48	2009/06/10 21:41	0.0	63	Forced Outage - Governor Problems
CAT 2	2009/07/29 8:51	2009/07/29 14:40	0.0	63	Maintenance Outage
CAT 2	2009/08/06 15:37	2009/08/13 8:11	55.0	63	Unit derating - Nozzle Assembly Problem
CAT 2	2009/08/13 8:11	2009/08/13 18:00	0.0	63	Maintenance Outage
CAT 2	2009/10/12 9:07	2009/10/24 19:51	0.0	63	Annual Outage

Unit	Start_Date	Finish_Date	Capacity	Max Cap of Unit	Comment
CAT 2	2009/11/22 2:09	2009/11/22 5:10	0.0	63	Forced Outage - Governor Problems
CAT 2	2009/11/25 9:07	2009/11/25 15:21	0.0	63	Maintenance Outage
CAT 2	2009/11/27 6:21	2009/11/27 16:35	0.0	63	Maintenance Outage
CAT 2	2009/11/30 6:36	2009/11/30 14:36	0.0	63	Forced Outage - Turbine Guide Bearing
CAT 2	2009/12/31 15:12	2009/12/31 21:20	0.0	63	Forced Outage - Governor Problems
CAT 2	2010/02/21 19:34	2010/02/22 0:02	0.0	63	Unit derating - Spherical Valve closed. (Synch Cond operation)
CAT 2	2010/02/22 0:02	2010/02/22 19:04	0.0	63	Forced Outage - Station Power Distribution
CAT 2	2010/02/24 4:12	2010/02/24 6:58	0.0	63	Forced Outage - Turbine Guide Bearing
CAT 2	2010/07/18 17:15	2010/07/18 17:26	0.0	63	Forced Outage - TL 247 tripped due to lightning
CAT 2	2010/07/18 20:00	2010/07/19 1:00	0.0	63	Forced Outage - TL 247 tripped due to lightning
CAT 2	2010/07/25 5:24	2010/07/25 11:03	0.0	63	Forced Outage - Governor Problems
CAT 2	2010/08/17 8:25	2010/08/17 15:24	0.0	63	Annual Outage
CAT 2	2010/08/17 23:23	2010/08/18 2:20	0.0	63	Forced Outage - TL 247 tripped due to lightning
CAT 2	2010/09/13 6:34	2010/09/23 11:04	0.0	63	Annual Outage
CAT 2	2010/09/23 11:53	2010/09/25 15:21	0.0	63	Forced Outage - Nozzle Assembly Problem
CAT 2	2010/09/25 15:21	2010/09/29 15:57	40.0	63	Unit derating - Nozzle Assembly Problem
CAT 2	2010/09/27 14:19	2010/09/29 7:03	40.0	63	Unit derating - Nozzle Assembly Problem (Synch Cond operation)
CAT 2	2010/09/29 7:03	2010/09/29 15:55	0.0	63	Maintenance Outage
CAT 2	2010/09/29 15:39	2010/10/02 13:41	40.0	63	Unit derating - Nozzle Assembly Problem
CAT 2	2010/10/02 13:41	2010/10/04 18:26	0.0	63	Forced Outage - Governor Problems
CAT 2	2010/10/26 7:55	2010/10/28 19:35	0.0	63	Annual Outage
CAT 2	2010/10/31 13:56	2010/10/31 17:44	0.0	63	Forced Outage - Governor Problems
CAT 2	2010/11/04 10:42	2010/11/04 17:19	0.0	63	Annual Outage
CAT 2	2010/11/13 11:38	2010/11/13 13:35	0.0	63	Forced Outage - Governor Problems
CAT 2	2010/11/15 2:29	2010/11/15 4:11	0.0	63	Forced Outage - Governor Problems
CAT 2	2011/08/20 13:34	2011/08/20 13:44	0.0	63	Forced Outage - TL 247 tripped due to lightning
CAT 2	2011/10/18 6:19	2011/10/27 18:55	0.0	63	Annual Outage
CAT 2	2011/11/10 20:41	2011/11/10 23:45	0.0	63	Forced Outage - Governor Problems
CAT 2	2012/08/29 1:14	2012/08/29 20:39	0.0	63	Forced Outage - Governor Problems
CAT 2	2012/10/22 6:13	2012/10/22 12:11	0.0	63	Forced Outage - Governor Problems
CAT 2	2012/10/23 15:41	2012/10/28 1:51	56.0	63	Unit derating - Governor Issues. Needle # 5 disabled
CAT 2	2012/11/19 14:30	2012/11/29 17:38	0.0	63	Annual Outage

Unit	Start Date	Finish Date	Capacity	Max Cap of Unit	Comment
CAT 2	2012/12/20 18:46	2012/12/22 16:29	0.0	63	Forced Outage - Governor Problems
CAT 2	2013/01/09 7:22	2013/01/09 14:54	0.0	63	Annual Outage
CAT 2	2013/01/11 7:42	2013/01/11 18:53	0.0	63	Forced Outage - Problem in Switchyard at Holyrood Generating Plant/Station Service failed to transfer to emergency diesel supply.
CAT 2	2013/02/13 9:40	2013/02/13 15:45	0.0	63	Annual Outage
CAT 2	2013/03/11 11:29	2013/03/11 13:48	0.0	63	Forced Outage - Governor Problems
CAT 2	2013/03/11 13:48	2013/03/12 10:02	55.0	63	Unit derating - Nozzle Assembly Problem
CAT 2	2013/03/12 10:02	2013/03/12 16:23	0.0	63	Maintenance Outage
CAT 2	2013/03/25 1:38	2013/03/25 4:39	0.0	63	Forced Outage - Governor Problems
CAT 2	2013/07/13 18:59	2013/07/16 19:29	0.0	63	Forced Outage - Governor Problems
CAT 2	2013/08/13 9:01	2013/08/13 15:27	0.0	63	Maintenance Outage
CAT 2	2013/09/10 13:37	2013/09/10 17:11	0.0	63	Annual Outage
CAT 2	2013/09/11 11:42	2013/09/11 16:21	0.0	63	Maintenance Outage
CAT 2	2013/10/14 7:59	2013/10/31 9:34	0.0	63	Annual Outage
CAT 2	2013/11/06 12:22	2013/11/06 13:26	0.0	63	Maintenance Outage
CAT 2	2014/01/04 9:05	2014/01/04 12:19	0.0	63	Forced Outage - Related to Sunnyside Event
CAT 2	2014/01/04 15:33	2014/01/04 16:25	0.0	63	Forced Outage - Related to Sunnyside Event
CAT 2	2014/04/03 11:50	2014/04/03 14:45	0.0	63	Maintenance Outage
CAT 2	2014/04/08 9:34	2014/04/08 15:43	0.0	63	Maintenance Outage
CAT 2	2014/04/10 9:59	2014/04/10 13:55	0.0	63	Maintenance Outage
CAT 2	2014/05/11 8:07	2014/05/13 13:54	0.0	63	Forced Outage - Governor Problems
CAT 2	2014/08/18 6:29	2014/08/29 17:17	0.0	63	Maintenance Outage
CAT 2	2014/09/01 9:10	9/1/2014 9:30	0.0	63	Starting Failure - Problem with deflectors opening.