Q. [Production Life] – For each of the Company's generating units, please provide the following:

a. the MW capacity;
b. the date of installation;
c. the variable O&M cost excluding fuel, by year, for the past 10 years;
d. the availability factor, by year, for the past 10 years;
e. the capacity factor, by year, for the past 10 years;
f. the primary fuel source;
g. the temperature and pressure ratings;
h. the annual heat rate for the past 10 years;
i. detailed narrative identifying all significant or major system improvements performed during the past 10 years;
j. a detailed narrative identifying and explaining each of the anticipated significant or major capital improvements during the next 10 years;
k. the number of cold starts per year for the past 10 years; and
l. the outage rate per year for the past 10 years.

A. The information requested parts g, h and k of this Request for Information would not be applicable to the small hydroelectric and emergency mobile generation included in Newfoundland Power's fleet of generating units. Also, parameters such as heat rate, temperature rating, pressure rating and number of cold starts are typically related to thermal units that are base loaded for periods of time during the year. This is not the case for any of Newfoundland Power's diesel or gas turbine generating units and as such this data is not provided in this response.

Table 1 includes the data requested in the following parts of the Request for Information:

a. the MW capacity;
b. the date of installation;
f. the primary fuel source.

Table 1
Selected Generating Unit Data
MW Capacity, Installation Date and Fuel Source

Generating Facility	Unit	MW Capacity	Installation Date	Fuel
Cape Broyle	CAB-G	5.6	1952	Hydro
Fall Pond	FPD-G	0.4	1939	Hydro
Greenhill	GRT-G	20.0	1975	Diesel
Heart's Content	HCT-G	2.6	1960	Hydro
Horse Chops	HCP-G1	7.7	1952	Hydro
Lawn	LWN-G1	0.6	1983	Hydro
Lockston	LOK-G1	1.5	1956	Hydro
Lockston	LOK-G2	1.5	1962	Hydro
Lookout Brook	LBK-G3	2.4	1958	Hydro
Lookout Brook	LBK-G4	2.6	1984	Hydro
Mobile	MOP-G	9.4	1950	Hydro
Morris	MRP-G	1.1	1983	Hydro
New Chelsea	NCH-G	4.3	1956	Hydro
Petty Harbour	PHR-G1	1.6	1910	Hydro
Petty Harbour	PHR-G2	1.6	1986	Hydro
Petty Harbour	PHR-G3	1.8	1924	Hydro
Pierre's Brook	PBK-G	3.4	1930	Hydro
Pitman's Pond	PIT-G	1.0	1960	Hydro
Port aux Basques	PAB-G10	2.7	1969	Diesel
Port Union	PUN-G1	0.3	1917	Hydro
Port Union	PUN-G2	0.3	1917	Hydro
Rattling Brook	RBK-G1	6.4	1959	Hydro
Rattling Brook	RBK-G2	7.0	1959	Hydro
Rocky Pond	ROP-G	3.2	1942	Hydro
Rose Blanche	RBH-G1	6.1	1998	Hydro
Sandy Brook	SBK-G1	6.0	1963	Hydro
Seal Cove	SCV-G1	0.9	1924	Hydro
Seal Cove	SCV-G2	2.6	1924	Hydro
Topsail	TOP-G	2.3	1983	Hydro
Tors Cove	TCV-G1	2.0	1940	Hydro
Tors Cove	TCV-G2	2.0	1940	Hydro
Tors Cove	TCV-G3	2.3	1951	Hydro
Victoria	VIC-G	0.4	1914	Hydro
Wesleyville	WES-G1	14.2	1969	Diesel
West Brook	WBK-G	0.7	1942	Hydro

Table 2 includes the variable O&M cost excluding fuel, by year, for the period 2002 to 2006.

Table 2
Variable O&M Cost by Year
2002 to 2006

Unit	2002	2003	2004	2005	2006
CAB-G	17,791	67,979	29,764	80,493	106,049
FPD-G	2,378	14,072	11,581	16,149	23,982
HCP-G1	93,602	99,005	59,573	122,538	139,235
HCT-G	35,148	53,538	54,178	49,546	55,387
LBK-G3/4	159,647	145,451	180,347	134,640	82,942
LOK-G1/2	79,589	24,197	41,744	66,005	63,211
LWN-G1	6,100	16,439	20,792	18,697	36,093
MOP-G	57,984	79,538	37,688	60,928	92,647
MRP-G	11,083	33,581	38,263	26,412	26,046
NCH-G	45,873	58,825	22,294	74,435	58,525
PBK-G	47,596	42,322	102,697	52,280	126,320
PHR-G1/2/3	64,217	66,744	61,446	68,511	89,637
PIT-G	19,054	34,811	42,894	48,724	19,411
PUN-G1/2	38,640	18,680	40,013	37,214	43,212
RBH-G1	151,726	112,454	111,828	101,054	89,235
RBK-G1/2	119,858	173,796	106,573	154,908	242,490
ROP-G	65,725	63,261	58,536	76,980	105,345
SBK-G1	80,996	72,831	127,592	82,491	79,372
SCV-G1/2	39,435	64,035	53,386	33,733	64,950
TCV-G1/2/3	32,083	68,936	42,145	47,819	56,015
TOP-G	32,276	53,484	32,532	38,020	51,805
VIC-G	20,898	30,985	34,789	40,186	36,924
WBK-G	11,327	29,189	34,050	28,641	44,104
WES-G1	50,255	26,506	61,430	59,239	144,435
GRT-G	82,522	52,249	111,444	148,003	102,756

Table 3 includes the variable O&M cost excluding fuel, by year, for the period 2007 to 2011.

Table 3
Variable O&M Cost by Year
2007 to 2011

Unit	2007	2008	2009	2010	2011
CAB-G	146,150	60,138	82,933	82,056	76,738
FPD-G	22,050	20,906	24,448	20,731	20,999
HCP-G1	121,071	101,320	99,166	120,918	104,282
HCT-G	57,228	27,497	35,723	37,973	79,270
LBK-G3/4	86,523	105,808	98,016	92,001	101,895
LOK-G1/2	57,711	77,858	68,115	65,856	78,155
LWN-G1	23,637	25,613	28,073	19,085	30,853
MOP-G	87,078	94,371	103,378	131,804	90,502
MRP-G	40,107	34,152	38,134	58,961	35,357
NCH-G	40,355	32,835	32,650	43,251	87,330
PBK-G	63,785	105,935	50,812	56,359	53,969
PHR-G1/2/3	108,088	81,931	81,719	85,825	94,922
PIT-G	27,078	9,968	15,864	31,576	21,135
PUN-G1/2	44,541	48,283	67,339	33,126	22,292
RBH-G1	75,191	105,981	86,553	121,176	147,545
RBK-G1/2	111,589	222,428	256,282	208,590	211,757
ROP-G	122,426	92,622	31,960	52,708	45,569
SBK-G1	105,038	134,662	122,180	98,569	69,403
SCV-G1/2	59,439	65,633	52,476	43,447	42,191
TCV-G1/2/3	72,660	79,981	65,971	80,538	75,392
TOP-G	60,815	36,315	66,912	67,060	63,781
VIC-G	33,795	21,424	20,491	26,047	21,722
WBK-G	26,980	31,714	47,704	24,261	40,723
WES-G1	131,362	69,896	72,637	154,218	67,943
GRT-G	123,580	134,507	102,143	89,648	52,378

Table 4 includes the availability factor, by year, for the period 2002 to 2006.

Table 4
Availability Factor by Year[1]
2002 to 2006

Unit	2002[2]	2003	2004	2005	2006
CAB-G		90%	99%	99%	94%
FPD-G		99%	100%	100%	99%
HCP-G1		86%	92%	74%	96%
HCT-G		99%	99%	99%	99%
LBK-G3		100%	96%	94%	99%
LBK-G4		97%	98%	96%	99%
LOK-G1		43%	97%	97%	97%
LOK-G2		68%	98%	99%	98%
LWN-G1		98%	96%	100%	100%
MOP-G		90%	98%	100%	100%
MRP-G		93%	91%	96%	98%
NCH-G		98%	99%	87%	99%
PBK-G		94%	87%	96%	99%
PHR-G1		99%	100%	98%	97%
PHR-G2		82%	99%	95%	97%
PHR-G3		96%	89%	82%	100%
PIT-G		95%	97%	99%	100%
PUN-G1		97%	92%	100%	100%
PUN-G2		98%	99%	100%	100%
RBH-G1		99%	99%	100%	100%
RBK-G1		95%	97%	99%	99%
RBK-G2		97%	97%	98%	97%
ROP-G		91%	96%	87%	100%
SBK-G1		98%	92%	100%	100%
SCV-G1		83%	96%	99%	84%
SCV-G2		70%	99%	99%	99%
TCV-G1		89%	99%	100%	100%
TCV-G2		92%	99%	99%	99%
TCV-G3		57%	98%	99%	100%
TOP-G		90%	98%	99%	96%
VIC-G		99%	93%	100%	94%
WBK-G		88%	98%	97%	97%

[1] Availability factor equals 100% less time for forced outages, maintenance outages and long term outages for capital refurbishment projects.

[2] Availability data was not recorded for the year 2002.

Table 5 includes the availability factor, by year, for the period 2007 to 2011.

Table 5
Availability Factor by Year[3]
2007 to 2011

Unit	2007	2008	2009	2010	2011
CAB-G	94%	99%	98%	98%	96%
FPD-G	99%	95%	97%	96%	100%
HCP-G1	97%	99%	99%	99%	53%
HCT-G	96%	99%	82%	100%	99%
LBK-G3	99%	99%	100%	100%	99%
LBK-G4	94%	98%	89%	68%	99%
LOK-G1	99%	97%	99%	99%	100%
LOK-G2	93%	95%	99%	99%	99%
LWN-G1	99%	92%	99%	100%	100%
MOP-G	99%	98%	100%	91%	99%
MRP-G	99%	95%	98%	91%	87%
NCH-G	98%	94%	100%	99%	99%
PBK-G	98%	98%	100%	95%	100%
PHR-G1	99%	95%	100%	100%	94%
PHR-G2	85%	97%	99%	97%	99%
PHR-G3	96%	97%	99%	100%	98%
PIT-G	96%	98%	94%	92%	47%
PUN-G1[4]	100%	100%	98%	72%	5%
PUN-G2[4]	100%	100%	98%	72%	5%
RBH-G1	100%	99%	100%	99%	100%
RBK-G1	98%	97%	95%	100%	100%
RBK-G2	97%	98%	94%	99%	100%
ROP-G	99%	99%	99%	98%	97%
SBK-G1	99%	99%	99%	99%	57%
SCV-G1	95%	69%	76%	98%	97%
SCV-G2	98%	97%	95%	99%	100%
TCV-G1	98%	81%	98%	97%	100%
TCV-G2	84%	82%	99%	99%	100%
TCV-G3	98%	97%	99%	89%	98%
TOP-G	94%	99%	98%	91%	98%
VIC-G	99%	97%	99%	100%	100%
WBK-G	99%	90%	99%	99%	92%

[3] Same as footnote 1.
[4] The low availability factors for Port Union in 2010 and 2011 are related to damage experienced during Hurricane Igor.

Table 6 includes the capacity factor, by year, for the period 2002 to 2006.

Table 6
Capacity Factor[5] by Year
2002 to 2006

Unit	2002	2003	2004	2005	2006
CAB-G	70.9%	62.3%	69.0%	65.9%	42.3%
FPD-G	28.4%	26.2%	26.3%	29.0%	31.8%
HCP-G1	67.7%	59.4%	66.1%	57.1%	60.6%
HCT-G	43.3%	37.7%	39.6%	44.1%	40.4%
LBK-G3	85.9%	78.4%	65.7%	66.7%	69.0%
LBK-G4	95.7%	73.0%	70.9%	72.1%	73.4%
LOK-G1	37.0%	17.8%	48.6%	40.7%	33.8%
LOK-G2	29.1%	30.1%	35.5%	35.7%	31.2%
LWN-G1	52.6%	48.4%	49.7%	52.2%	54.6%
MOP-G	49.3%	45.9%	48.2%	57.7%	56.4%
MRP-G	74.5%	70.4%	66.0%	74.2%	76.2%
NCH-G	41.0%	44.1%	27.5%	62.1%	45.1%
PBK-G	74.6%	71.8%	71.1%	85.5%	55.2%
PHR-G1	21.1%	12.2%	41.4%	35.8%	23.0%
PHR-G2	32.1%	34.9%	35.9%	67.6%	38.7%
PHR-G3	37.8%	47.3%	43.3%	59.5%	49.8%
PIT-G	35.7%	34.6%	22.7%	51.0%	33.7%
PUN-G1/2	40.0%	34.7%	38.2%	53.3%	44.5%
RBH-G1	49.6%	43.2%	41.7%	45.4%	52.7%
RBK-G1	98.5%	58.3%	52.7%	71.0%	74.2%
RBK-G2	4.1%	19.0%	66.8%	61.8%	64.7%
ROP-G	46.0%	46.8%	48.5%	30.3%	40.4%
SBK-G1	48.4%	51.7%	57.7%	57.2%	60.0%
SCV-G1	22.0%	56.3%	67.4%	83.4%	57.9%
SCV-G2	12.3%	22.0%	24.8%	22.8%	20.1%
TCV-G1	20.2%	43.1%	59.6%	19.3%	12.5%
TCV-G2	60.8%	58.2%	51.9%	84.7%	94.7%
TCV-G3	54.0%	37.9%	33.0%	51.6%	40.8%
TOP-G	56.8%	60.0%	47.2%	73.2%	51.2%
VIC-G	75.4%	81.6%	78.4%	87.8%	91.7%
WBK-G	52.3%	36.1%	41.6%	41.9%	48.7%
WES-G1	0.4%	0.1%	0.1%	0.1%	0.5%
GRT-G	0.5%	0.2%	0.1%	0.1%	0.2%

[5] This capacity factor is calculated using (Annual Generation in MWh) ÷ [(365 days)*(24 hours)*(Capacity in MW)].

Table 7 includes the capacity factor, by year, for the period 2007 to 2011.

Table 7
Capacity Factor by Year
2007 to 2011

Unit	2007	2008	2009	2010	2011
CAB-G	68.7%	48.0%	61.1%	70.3%	69.6%
FPD-G	27.6%	29.3%	27.3%	25.9%	37.4%
HCP-G1	71.0%	58.9%	11.2%	66.9%	51.5%
HCT-G	40.7%	35.5%	31.6%	48.4%	45.1%
LBK-G3	76.0%	66.1%	78.2%	54.1%	78.7%
LBK-G4	78.7%	70.3%	75.7%	22.5%	77.3%
LOK-G1	29.9%	35.8%	36.7%	45.8%	42.5%
LOK-G2	23.9%	34.4%	31.4%	44.7%	38.3%
LWN-G1	50.6%	53.7%	48.9%	35.6%	53.4%
MOP-G	44.4%	60.5%	54.9%	51.4%	56.6%
MRP-G	44.6%	62.3%	61.7%	35.1%	59.0%
NCH-G	40.2%	52.8%	38.4%	62.3%	53.0%
PBK-G	74.0%	82.1%	84.9%	94.9%	87.1%
PHR-G1	15.4%	25.1%	14.6%	13.7%	18.0%
PHR-G2	43.1%	57.4%	54.8%	46.4%	59.7%
PHR-G3	42.5%	53.2%	31.2%	44.0%	47.3%
PIT-G	29.9%	40.8%	28.7%	50.2%	42.2%
PUN-G1/2	42.3%	34.6%	49.4%	54.8%	4.5%
RBH-G1	49.5%	51.5%	46.6%	50.2%	50.4%
RBK-G1	24.0%	63.6%	70.7%	79.6%	89.8%
RBK-G2	22.5%	73.8%	67.7%	73.2%	80.5%
ROP-G	47.1%	47.0%	24.1%	45.2%	53.5%
SBK-G1	48.1%	58.3%	64.8%	59.9%	44.9%
SCV-G1	68.4%	55.2%	55.6%	4.9%	71.1%
SCV-G2	19.6%	29.0%	20.3%	34.3%	26.1%
TCV-G1	19.0%	38.3%	20.4%	19.8%	19.7%
TCV-G2	63.8%	49.9%	64.8%	77.2%	68.9%
TCV-G3	55.1%	60.8%	47.7%	44.1%	60.3%
TOP-G	63.0%	63.3%	55.8%	72.7%	64.6%
VIC-G	79.3%	92.7%	78.0%	99.6%	99.0%
WBK-G	40.1%	37.7%	39.3%	39.6%	36.1%
WES-G1	0.1%	0.1%	0.3%	0.6%	0.3%
GRT-G	0.1%	0.2%	0.2%	0.0%	0.0%

Table 8 includes the total number of outages, including forced outages, maintenance outages, planned outages and system outages, by year for the period 2002 to 2006.

Table 8
Outage Rate by Year
2002 to 2006

Unit	2002[6]	2003	2004	2005	2006
CAB-G		42	22	25	15
FPD-G		15	28	8	14
HCP-G1		38	23	36	33
HCT-G		29	24	20	23
LBK-G3		12	13	12	7
LBK-G4		25	20	11	10
LOK-G1		12	15	18	12
LOK-G2		5	17	10	12
LWN-G1		24	26	12	19
MOP-G		13	19	9	7
MRP-G		44	51	30	33
NCH-G		12	6	37	26
PBK-G		43	29	24	20
PHR-G1		11	7	20	11
PHR-G2		29	13	34	9
PHR-G3		15	7	32	6
PIT-G		17	19	21	10
PUN-G1		7	9	5	2
PUN-G2		6	5	4	2
RBH-G1		13	10	14	13
RBK-G1		22	11	18	19
RBK-G2		27	25	22	16
ROP-G		25	33	11	16
SBK-G1		24	41	16	10
SCV-G1		15	23	18	29
SCV-G2		21	12	10	8
TCV-G1		15	10	4	7
TCV-G2		16	15	10	10
TCV-G3		11	15	9	8
TOP-G		25	22	35	41
VIC-G		18	21	15	17
WBK-G		51	49	37	31

[6] Outage data was not recorded for the year 2002.

Table 9 includes the outage rate, by year, for the period 2007 to 2011.

Table 9
Outage Rate by Year
2007 to 2011

Unit	2007	2008	2009	2010	2011
CAB-G	39	21	14	21	14
FPD-G	11	12	10	20	9
HCP-G1	29	14	14	18	19
HCT-G	19	14	27	21	18
LBK-G3	8	19	11	11	17
LBK-G4	12	18	18	17	14
LOK-G1	10	15	10	7	5
LOK-G2	9	11	13	14	4
LWN-G1	9	16	13	10	6
MOP-G	17	9	6	15	4
MRP-G	42	59	29	24	32
NCH-G	22	30	21	27	14
PBK-G	17	15	13	21	14
PHR-G1	7	10	3	4	4
PHR-G2	24	18	7	18	11
PHR-G3	23	20	8	13	16
PIT-G	15	11	10	28	9
PUN-G1	1	4	5	1	0
PUN-G2	2	5	4	1	0
RBH-G1	7	8	6	10	8
RBK-G1	9	29	14	4	3
RBK-G2	13	29	12	7	6
ROP-G	40	23	14	22	15
SBK-G1	12	14	13	16	11
SCV-G1	16	20	15	1	9
SCV-G2	11	14	3	12	10
TCV-G1	15	4	4	10	3
TCV-G2	28	30	14	21	3
TCV-G3	16	22	18	22	6
TOP-G	52	37	25	29	26
VIC-G	17	16	7	10	7
WBK-G	26	44	22	38	16

Table 10 identifies all significant or major improvements performed on generating units during the past 10 years as part of the annual capital program.

Table 10
Generating Unit Improvements
2003 to 2012

CBA Year	Generating Unit	Improvement
2004	NCH-G	Replace governor, replace main valve, replace switchgear, protection and control upgrades
2004	TOP-G	Protection and control upgrades
2004	RBK-G1	Rewind generator stator
2005	TCV-G1	Replace governor, protection and control upgrades
2005	TCV-G2	Replace governor, protection and control upgrades
2005	TCV-G3	Protection and control upgrades
2005	CAB-G	Replace main valve
2005	MOP-G	Replace main valve
2006	ROP-G	Switchgear replacement
2006	WES-G1	Gas generator replaced
2006	PHR-G1	Protection and control upgrades
2006	PHR-G2	Replace governor, turbine refurbishment, protection and control upgrades
2006	PHR-G3	Replace governor, protection and control upgrades
2007	RBK-G1	Replace governor, replace main valve, replace switchgear, refurbish exciter, protection and control upgrades

Table 10 (Cont'd)

CBA Year	Generating Unit	Improvement
2007	RBK-G2	Replace governor, replace main valve, replace switchgear, refurbish exciter, protection and control upgrades
2008	PBK-G	Replace governor
2008	CAB-G	Protection and control upgrades
2008	HCT-G	Replace runner
2009	ROP-G	Replace governor, replace main valve, rewind generator stator, protection and control upgrades
2009	HCP-G	Replace governor, protection and control upgrades
2010	LBK-G3	Replace switchgear, replace governor, protection and control upgrades
2010	LBK-G4	Replace switchgear, replace governor, protection and control upgrades
2010	PHR-G1	Replace main valve
2010	SCV-G1	Runner replacement
2011	HCP-G1	Generator stator rewind
2011	PUN-G1	Replace governor, refurbish generator stator winding, refurbish rotor winding, refurbish exciter winding, refurbish switchgear, protection and control upgrades
2011	PUN-G2	Replace governor, replace generator stator winding, replace rotor winding, replace exciter winding, refurbish switchgear, protection and control upgrades
2011	SBK-G1	Upgrade switchgear, replace governor, protection and control upgrades
2012	LOK-G1	Replace switchgear, rewind generator stator, rewind exciter, replace runner and wicket gates, replace governor, protection and control upgrades
2012	LOK-G2	Replace switchgear, protection and control upgrades

Newfoundland Power presents a 5 year capital plan as part of its annual capital budget applications. The Company has not prepared a capital plan beyond the 5 year horizon. Table 11 identifies all significant or major improvements to generating units planned for the next 5 years.

Table 11
Planned Generating Unit Improvements
2013 to 2017

Year	Generating Unit	Planned Improvement
2013	NCH-G	Runner replacement, turbine overhaul and generator stator rewind
2013	PIT-G	Runner replacement, turbine overhaul, protection and control upgrade and replace gate positioner
2014	HCT-G	Generator stator rewind, replace switchgear, protection and control upgrade and refurbish governor
2015	MOP-G	Generator stator rewind, replace switchgear, protection and control upgrade and refurbish governor
2015	PBK-G	Replace switchgear, protection and control upgrade, penstock replacement and surge tank refurbishment
2016	TOP-G	Replace main valve and gate positioner
2016	SCV-G1	Rewind rotor
2016	MRP-G	SCADA automation, protection and control upgrade
2016	TCV-G1	Turbine and wicket gate refurbishment
2017	TCV-G2	Turbine and wicket gate refurbishment
2017	TCV-G3	Turbine and wicket gate refurbishment
2017	CAB-G	Runner replacement