
**2006 Capital Budget Application
Electrical System Handbook**

June 2005

Introductory

Newfoundland Power's annual capital budgets focus on a relatively large number of electrical system assets through which the Company delivers service to its customers. Accordingly, the material filed in support of annual capital budgets is necessarily technical in nature.

This handbook is provided to assist the reader in better understanding the electrical network and how Newfoundland Power's 2006 capital budget relates to that network.

Contents

This handbook is divided into 4 parts.

Part 1 is a listing of Newfoundland Power's generation plants. Proposed capital expenditures in relation to those plants can be found under the Generation-Hydro and Generation-Thermal asset classes in the 2006 capital budget.

Part 2 is a listing of Newfoundland Power's 104 transmission lines. Newfoundland Power's transmission lines typically connect power sources (whether Newfoundland Power generating stations or Newfoundland and Labrador Hydro infeed points) to distribution substations. The listing in Part 2 identifies transmission lines by number and location. For example, transmission line 110L¹ extends from Clarenville to Lockston.

Part 3 is a listing of Newfoundland Power's substation and distribution feeder network. This network includes 136 substations and 302 distribution feeders. Newfoundland Power substations are typically the points at which voltage is transformed from transmission to distribution levels. Each substation has a designation which is an abbreviated 3-letter geographic reference. For example, Newfoundland Power's Stamp's Lane substation in St. John's has designation SLA.

Power is transferred from substations to the consumer via the distribution feeder network. Each Newfoundland Power feeder is designated according to the substation where it originates. For example, SLA-03 is a distribution feeder which originates at the Stamp's Lane substation. At Stamp's Lane substation, there are a total of 12 distribution feeders serving customers in the City of St. John's.

Part 4 is a map displaying the Newfoundland island generation and transmission grid. The map illustrates Newfoundland Power's and Newfoundland and Labrador Hydro's generating, transmission and substation network on the island.

¹ Newfoundland Power transmission lines are designated with a line number followed by the letter 'L' (ie., 110L). Newfoundland and Labrador Hydro transmission lines are designated by the letters 'TL' followed by a number (ie., TL201).

Part 1

Generation Plant Listing

**Newfoundland Power Inc.
Generation Plant Listing**

Hydro

Cape Broyle (CAB)
Fall Pond (FPD)
Heart's Content (HCT)
Horsechops (HCP)
Lawn (LWN)
Lockston (LOK)
Lookout Brook (LBK)
Mobile (MOB)
Morris (MRP)
New Chelsea (NCH)
Petty Harbour (PHR)
Pierre's Brook (PBK)
Pitman's Pond (PIT)
Port Union (PUN)
Rattling Brook (RBK)
Rocky Pond (ROP)
Rose Blanche Brook (RBH)
Sandy Brook (SBK)
Seal Cove (SCV)
Topsail (TOP)
Tors Cove (TCV)
Victoria (VIC)
West Brook (WBK)

Gas Turbines

Greenhill (GRT)
Portable (GBS)
Wesleyville (WES)

Diesel

New Portable (GBS)
Port aux Basques (PAB)
Port Union (PUN)

Part 2

Transmission Line Listing

**Newfoundland Power Inc.
Transmission Line Listing**

Line Number	Location	
	From	To
3L	Goulds (GOU)	Petty Harbour (PHR)
4L	Goulds (GOU)	St. John's Main (SJM)
5L	Hardwoods (HWD)	Broad Cove (BCV)
11L	Mobile (MOB)	Tors Cove Plant (TCV)
12L	King's Bridge (KBR)	Memorial (MUN)
13L	St. John's Main (SJM)	Stamp's Lane (SLA)
14L	Memorial (MUN)	Stamp's Lane (SLA)
15L	Stamp's Lane (SLA)	Molloy's Lane (MOL)
16L	King's Bridge (KBR)	Pepperell (PEP)
17L	Goulds (GOU)	Big Pond (BIG)
18L	Goulds (GOU)	Glendale (GDL)
19L	Hardwoods (HWD)	Molloy's Lane (MOL)
20L	Mobile (MOB)	Cape Broyle (CAB)
21L	Horsechops Tap	Horsechops Plant (HCP)
22L	Morris Plant Tap	Morris Plant (MRP)
23L	Mobile (MOB)	Pierre's Brook Plant (PBK)
24L	Big Pond (BIG)	Mobile (MOB)
25L	Goulds (GOU)	St. John's Main (SJM)
30L	Ridge Road (RRD)	King's Bridge (KBR)
31L	Oxen Pond (OXF)	Stamp's Lane (SLA)
32L	Oxen Pond (OXF)	Ridge Road (RRD)
34L	Oxen Pond (OXF)	Virginia Waters (VIR)
35L	Oxen Pond (OXF)	Kenmount (KEN)
38L	Duff's (DUF)	Seal Cove (SCV)
39L	Duff's (DUF)	Bay Roberts (BRB)
40L	Carbonear (CAR)	Victoria (VIC)
41L	Carbonear (CAR)	Heart's Content (HCT)

**Newfoundland Power Inc.
Transmission Line Listing**

Line Number	Location	
	From	To
43L	Heart's Content (HCT)	New Chelsea (NCH)
48L	Bay Roberts (BRB)	Blaketown (BLK)
49L	Hardwoods (HWD)	Chamberlains (CHA)
51L	Chamberlains (CHA)	Kelligrews (KEL)
52L	Kelligrews (KEL)	Seal Cove (SCV)
53L	Golden Eagle Tap	Golden Eagle
54L	Kenmount (KEN)	Hardwoods (HWD)
55L	Blaketown (BLK)	Clarke's Pond (CLK)
56L	Bay Roberts (BRB)	Carbonear (CAR)
57L	Bay Roberts (BRB)	Harbour Grace (HGR)
58L	Oxen Pond (OXF)	Virginia Waters (VIR)
59L	Virginia Waters (VIR)	Pulpit Rock (PUL)
64L	Blaketown (BLK)	Western Avalon (WAV)
65L	New Chelsea (NCH)	Old Perlican (OPL)
66L	Cape Broyle (CAB)	Fermeuse (FER)
67L	Oxen Pond (OXF)	Ridge Road (RRD)
68L	Harbour Grace (HGR)	Carbonear (CAR)
69L	Kenmount (KEN)	Stamp's Lane (SLA)
70L	Oxen Pond (OXF)	Stamp's Lane (SLA)
72L	Hardwoods (HWD)	Goulds (GOU)
73L	Hardwoods (HWD)	Glendale (GDL)
74L	Virginia Waters (VIR)	Pepperell (PEP)
79L	Hardwoods (HWD)	Chamberlains (CHA)
80L	Blaketown (BLK)	Heart's Content (HCT)
86L	Western Avalon (WAV)	Blaketown (BLK)
94L	Blaketown (BLK)	Riverhead (RVH)
95L	Riverhead (RVH)	Trepassey (TRP)

**Newfoundland Power Inc.
Transmission Line Listing**

Line Number	Location	
	From	To
100L	Sunnyside (SUN)	Clarenville (CLV)
101L	Grand Falls (GFS)	Rattling Brook (RBK)
102L	Gander (GAN)	Rattling Brook (RBK)
103L	Notre Dame Junction (NDJ)	Lewisporte (LEW)
104L	Roycefield Tap	Roycefield Mine (RFD)
105L	Grand Falls (GFS)	Sandy Brook Plant (SBK)
108L	Gander (GAN)	Gander Bay (GBY)
109L	Sunnyside (SUN)	Clarenville (CLV)
110L	Clarenville (CLV)	Lockston (LOK)
111L	Lockston (LOK)	Catalina (CAT)
114L	Gander Bay (GBY)	Summerford (SUM)
115L	Gambo (GAM)	Hare Bay (HBS)
116L	Hare Bay (HBS)	Wesleyville (WES)
117L	Catalina (CAT)	Bonavista (BVA)
121L	Alexander Bay (ALX)	Glovertown (GLV)
123L	Clarenville (CLV)	Catalina (CAT)
124L	Clarenville (CLV)	Gambo (GAM)
130L	Grand Falls (GFS)	Stony Brook (STY)
132L	Grand Falls (GFS)	Bishop's Falls (BFS)
133L	Stony Brook (STY)	Bishop's Falls (BFS)
134L	Bishop's Falls (BFS)	Botwood (BOT)
136L	Cobb's Pond (COB)	Bishop's Falls (BFS)
140L	Summerford (SUM)	Twillingate (TWG)
142L	Cobb's Pond (COB)	Clarke's Head Tap
144L	Cobb's Pond (COB)	Gander (GAN)
146L	Gander (GAN)	Gambo (GAM)
300L	Linton Lake (LLK)	Marystown (MSY)

**Newfoundland Power Inc.
Transmission Line Listing**

Line Number	Location	
	From	To
301L	Greenhill (GRH)	Salt Pond (SPO)
302L	Salt Pond (SPO)	Laurentian (LAU)
305L	Laurentian (LAU)	Greenhill (GRH)
308L	Marystown (MSY)	Salt Pond (SPO)
351L	Massey Drive (MAS)	Walbournes (WAL)
352L	Massey Drive (MAS)	Walbournes (WAL)
353L	Walbournes (WAL)	Frenchman's Cove (FRN)
356L	Massey Drive (MAS)	Humber (HUM)
357L	Massey Drive (MAS)	Bayview (BVS)
358L	Bayview (BVS)	Gillams (GIL)
359L	Humber (HUM)	Bayview (BVS)
363L	Baie Verte Junction (BVJ)	Seal Cove Road (SCR)
400L	Bottom Brook Plant (BBK)	Wheelers (WHE)
401L	Stephenville (STV)	Gallants (GAL)
402L	Gallants (GAL)	Berry Head (BHD)
403L	St. George's (STG)	Lookout Brook Plant (LBK)
404L	Wheelers (WHE)	Bottom Brook (BBK)
405L	Harmon (HAR)	Stephenville (STV)
406L	Harmon (HAR)	Gallants (GAL)
407L	Stephenville (STV)	St. George's (STG)
410L	Berry Head (BHD)	Lower Cove Mine (LCV)
416L	Grand Bay (GBS)	Long Lake (LGL)
417L	Grand Bay (GBS)	Port aux Basques (PAB)

Part 3

Substation/Feeder Listing

**Newfoundland Power Inc.
Substation/Feeder Listing**

<u>Substation</u>		
<u>Designation</u>	<u>Name</u>	<u>Feeder Number</u>
ABC	Abrahams Cove	ABC-01, 02
ALX	Alexander Bay	-
AUS	Argentia - USN	-
BRB	Bay Roberts	BRB-01, 02, 03, 04, 05
BLA	Bay L'Argent	BLA-01
BVJ	Baie Verte Junction	BVJ-01
BVM	Baie Verte Mines	-
BVS	Bayview	BVS-01, 02, 03, 04
BHD	Berry Head	BHD-01
BIG	Big Pond	BIG-01, 02
BFS	Bishop's Falls	BFS-01, 02
BLK	Blaketown	BLK-01, 02
BVA	Bonavista	BVA-01, 02, 03
BBK	Bottom Brook Plant	-
BOT	Botwood	BOT-01, 02, 03
BOY	Boyd's Cove	-
BCV	Broad Cove	BCV-01, 02, 03, 04
BUC	Buchans	BUC-01, 02
CAB	Cape Broyle	CAB-01
CAR	Carbonear	CAR-01, 02, 03, 04
CAT	Catalina	CAT-01, 02, 03
CHA	Chamberlains	CHA-01, 02, 03
CLV	Clareville	CLV-01, 02, 03
CLK	Clarke's Pond	CLK-02, 03, 04
COB	Cobb's Pond	COB-01, 02, 03
COL	Colliers	COL-01, 02

**Newfoundland Power Inc.
Substation/Feeder Listing**

<u>Substation</u>		
<u>Designation</u>	<u>Name</u>	<u>Feeder Number</u>
DLK	Deer Lake	DLK-01, 03, 04
DOY	Doyle's	DOY-01
DUN	Dunville	DUN-01, 02
FPD	Fall Pond Plant	-
FER	Fermeuse	FER-01
FRN	Frenchman's Cove	FRN-01, 02
GAL	Gallants	GAL-01, 03, 04, 05
GAM	Gambo	GAM-01, 02
GAN	Gander	GAN-01, 02, 03, 04
GBY	Gander Bay	GBY-01, 02, 03
GAR	Garnish	GAR-01
GIL	Gilliams	GIL-01, 02
GDL	Glendale	GDL-01, 02, 03, 04, 05, 06
GLN	Glenwood	GLN-01
GLV	Glovertown	GLV-01, 02
GOU	Goulds	GOU-01, 02, 03
GBS	Grand Bay	GBS-01, 02
GBE	Grand Beach	GBE-01
GFS	Grand Falls	GFS-01, 03, 04, 05, 06, 07, 08, 09, 10,
GRH	Greenhill	GRH-01, 02, 03
GPD	Greenspond	GPD-01
HGR	Harbour Grace	HGR-01, 02, 03
HWD	Hardwoods	HWD-01, 02, 03, 04, 06, 07, 08
HBS	Hare Bay	HBS-01, 02

**Newfoundland Power Inc.
Substation/Feeder Listing**

<u>Substation</u>		
<u>Designation</u>	<u>Name</u>	<u>Feeder Number</u>
HAR	Harmon	HAR-01, 02
HCT	Heart's Content	HCT-01
HOL	Holyrood	HOL-01, 02
HCP	Horsechops Plant	-
HOW	Howley	HOW-01
HUM	Humber	HUM-01, 04, 07, 08, 09
IND	Indian Cove	-
ILC	Upper Island Cove	ILC-01, 02
ISL	Islington	ISL-01
JON	Jonathan's Pond	JON-T1
KEL	Kelligrews	KEL-01, 02
KEN	Kenmount	KEN-02, 03, 04
KBR	King's Bridge	KBR-01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12
LAU	Laurentian	LAU-01, 02
LWN	Lawn	-
LET	Lethbridge	LET-01
LEW	Lewisporte	LEW-01, 02, 03, 04
LLK	Linton Lake	LLK-01, 02, 03
LOK	Lockston	LOK-01
LGL	Long Lake	LGL-01, 02
LBK	Lookout Brook Plant	-
MMT	Marble Mountain	MMT-01
MSY	Marystown	MSY-01, 02, 03, 04
MAS	Massey Drive	-

**Newfoundland Power Inc.
Substation/Feeder Listing**

<u>Substation</u>		
<u>Designation</u>	<u>Name</u>	<u>Feeder Number</u>
MUN	Memorial	-
MIL	Milton	MIL-01, 02
MOB	Mobile	MOB-01, 02
MOL	Molloy's Lane	MOL-01, 02, 03, 04, 05, 06, 08, 09
MKS	Monkstown	MKS-01, 02
MRP	Morris Plant	-
MUS	Musgrave Harbour	-
NCH	New Chelsea	NCH-01, 02, 03
NHR	New Harbour	NHR-01, 02
QTZ	Newlite Enterprises	QTZ-01
NWB	Northwest Brook	NWB-01, 02
NDJ	Notre Dame Junction	-
OPL	Old Perlican	OPL-01, 02, 03
OSP	Oxen Pond	OSP-01
PAS	Pasadena	PAS-01, 02
PEP	Pepperell	PEP-01, 02, 03, 04
PHR	Petty Harbour	PHR-01
PBK	Pierre's Brook Plant	-
PIT	Pitman's Pond Plant	-
PJN	Placentia Junction	PJN-01
PBD	Port Blandford	PBD-01
PUN	Port Union	-
PAB	Port aux Basques	PAB-03, 05
PRC	Princeton Pond	-
PUL	Pulpit Rock	PUL-01, 02, 03

**Newfoundland Power Inc.
Substation/Feeder Listing**

<u>Substation</u>		
<u>Designation</u>	<u>Name</u>	<u>Feeder Number</u>
RBK	Rattling Brook	RBK-01
RRD	Ridge Road	RRD-02, 03, 04, 05, 06, 07, 08, 09, 10
RVH	Riverhead	RVH-01, 02
ROB	Robinsons	ROB-01, 02
ROP	Rocky Pond Plant	-
RBH	Rose Blanche Plant	-
RFD	Roycefield Mine	-
SPO	Salt Pond	SPO-01, 02, 03
SBK	Sandy Brook Plant	-
SCV	Seal Cove	SCV-01, 02
SCR	Seal Cove Road	SCR-01, 02
SPR	Springdale	SPR-01, 02, 03, 04
SPF	Springfield	SPF-01, 02, 03
SCT	St. Catherine's	SCT-01, 02
STG	St. George's	STG-01, 02
SJD	St. John's Diesel	-
SJM	St. John's Main	SJM-01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13, 14
SLA	Stamp's Lane	SLA-01, 02, 03, 05, 06, 07, 08, 09, 10, 11, 12, 13
STX	Stephenville Crossing	STX-01
STV	Stephenville	-
SUM	Summerford	SUM-01, 02
SMV	Summerville	SMV-01
SUN	Sunnyside	SUN-01, 03

**Newfoundland Power Inc.
Substation/Feeder Listing**

<u>Substation</u>		
<u>Designation</u>	<u>Name</u>	<u>Feeder Number</u>
TNS	Terra Nova	TNS-01
TOP	Topsail Plant	-
TCV	Tors Cove Plant	-
TRP	Trepassey	TRP-01, 02
TRN	Trinity	TRN-01, 02
TWG	Twillingate	TWG-01, 02, 03
VIC	Victoria	VIC-01, 02
VIR	Virginia Waters	VIR-01, 02, 03, 04, 05, 06, 07
WAL	Walbournes	WAL-01, 02, 04, 05, 06, 07
WBC	Webbers Cove	WBC-01
WES	Wesleyville	WES-01, 02, 03
WBK	West Brook Plant	-
WAV	Western Avalon	WAV-01, 02
WHE	Wheelers	-

Part 4

Island Generation and Transmission Grid Map

