

1 Q. **Governance**

2 Provide all 5- and 20-year capital plans, starting with the one for which the first year
3 addressed was 2011.

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6 A. Please see PUB-NLH-415 Attachment 1 for the five-year capital plans from 2011 to
7 2015. Please see PUB-NLH-415 Attachment 2 for the 20-year capital plans for 2011
8 to 2014. The 20-year plan has not been updated since 2014.

	Expended to 2010	2011	2012	2013 (\$000)	2014	2015	Total
GENERATION	3,271	21,334	27,652	22,586	12,956	7,504	95,302
TRANSMISSION AND RURAL OPERATIONS	5,076	35,236	31,877	30,626	35,613	44,204	182,632
GENERAL PROPERTIES	526	7,488	9,630	11,455	10,926	11,676	51,702
CONTINGENCY FUND	0	1,000	1,000	1,000	1,000	1,000	5,000
TOTAL CAPITAL BUDGET	<u>8,873</u>	<u>65,058</u>	<u>70,159</u>	<u>65,667</u>	<u>60,496</u>	<u>64,384</u>	<u>334,636</u>

PUB-NLH-415, Attachment 1
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	Expended to 2010	2011	2012	2013 (\$000)	2014	2015	Total
<u>GENERATION</u>							
Hydraulic Plant	0	3,856	4,372	3,742	9,862	2,636	24,467
Thermal Plant	1,705	14,134	19,735	18,607	1,359	3,442	58,982
Gas Turbines	1,566	2,986	3,367	183	1,687	1,413	11,201
Tools and Equipment	0	358	179	54	47	14	652
TOTAL GENERATION	3,271	21,334	27,652	22,586	12,956	7,504	95,302
<u>TRANSMISSION AND RURAL OPERATIONS</u>							
Terminal Stations	3,092	9,607	9,621	8,222	6,398	10,531	47,470
Transmission	141	4,154	3,486	5,762	8,170	9,408	31,122
Distribution	1,656	14,721	14,008	9,851	11,659	14,593	66,487
Generation	187	3,841	1,386	2,915	6,716	5,870	20,915
Properties	0	356	438	990	882	1,672	4,337
Metering	0	637	216	730	1,161	568	3,313
Tools and Equipment	0	1,919	2,723	2,157	627	1,561	8,988
TOTAL TRANSMISSION AND RURAL OPERATIONS	5,076	35,236	31,877	30,626	35,613	44,204	182,632
<u>GENERAL PROPERTIES</u>							
Information Systems	526	2,034	3,926	2,215	2,322	1,856	12,879
Telecontrol	0	2,697	1,693	3,490	1,672	5,315	14,867
Transportation	0	2,351	3,319	3,341	4,264	1,455	14,729
Administrative	0	407	693	2,409	2,668	3,051	9,227
TOTAL GENERAL PROPERTIES	526	7,488	9,630	11,455	10,926	11,676	51,702
CONTINGENCY FUND	0	1,000	1,000	1,000	1,000	1,000	5,000
TOTAL CAPITAL BUDGET	8,873	65,058	70,159	65,667	60,496	64,384	334,636

PROJECT DESCRIPTION	Expended to 2010	2011	2012	2013 (\$000)	2014	2015	Total
<u>HYDRAULIC PLANT</u>							
Replace Static Excitation System - Upper Salmon, Holyhood, and Hinds Lake		1,214	1,528	1,367			4,109
Upgrade Burnt Dam Spillway Structure- Bay d'Espoir		258	692	994	959		2,903
Upgrade Access Road - Various Sites		998	115		1,446	107	2,667
Upgrade Intake Gate Controls - Bay d'Espoir		352	468				820
Upgrade Generating Station Service Water System - Cat Arm		360	440				800
Purchase Hydrometeorological Stations - Various Sites		113	402	285			800
Upgrade Public Safety Around Dams and Waterways - Bay d'Espoir		49	50	51	53	54	258
Purchase Spare Disconnect - Bay d'Espoir		176					176
Replace Automatic Transfer Switches - Bay d'Espoir and Hinds Lake		156					156
Replace Fire Alarm System - Hinds Lake		109					109
Install Compressor for Frazil Ice Removal - Upper Salmon		69					69
Upgrade Unit 2 and 4 Generator Bearing - Bay d'Espoir			156			185	341
Replace Microscada Computers - Granite Canal			187				187
Replace Cooling Water Rotary Strainer - Upper Salmon			114				114
Install Gates RR Pond - Granite Canal			84				84
Replace Cooling Water Pumps 2 and 4 in Powerhouse 1 - Bay d'Espoir			69				69
Install Unit 1 Governor Oil Filtration System - Upper Salmon			67				67
Refurbish Turbines - Snook's Arm and Venam's Bight				156	611		767
Install Automated Fuel Monitoring System - Upper Salmon				247	237		483
Replace Chart Recorders - Various Sites				273			273
Replace Jet Fuel Tank at Burnt Dam - Bay d'Espoir				219			219
Upgrade Unit Relay Protection - Paradise River				151			151
Rewind Stator Units 4, 1 and 3 - Bay d'Espoir					4,609		4,609
Upgrade Victoria Structure - Bay d'Espoir					450	461	911
Upgrade Station Service Water System - Various Sites					606		606

PROJECT DESCRIPTION	Expended to 2010	2011	2012	2013 (\$000)	2014	2015	Total
<u>HYDRAULIC PLANT (cont'd.)</u>							
Replace Units 1 - 6 Autogreasing Systems - Bay d'Espoir					210	190	400
Install Automatic Sprinkler System - Bay d'Espoir					303		303
Automate Generator Deluge Systems Units 1 - 7 - Bay d'Espoir					265		265
Install New Fall Arrest Systems on Surge Tanks 1 - 3 - Bay d'Espoir					113		113
Install Dyn Air Gap Monitoring System on Units - Upper Salmon and Hinds Lake						679	679
Install Protective Coating on Surge Tank - Bay d'Espoir						615	615
Install Trash/Safety Booms - Granite Canal and Hinds Lake						345	345
TOTAL HYDRAULIC PLANT	0	3,856	4,372	3,742	9,862	2,636	24,467
<u>THERMAL PLANT</u>							
Upgrade Stack Breaching Units 1, 2, and 3 - Holyrood		3,553	3,623	3,710			10,886
Refurbish Fuel Storage Facility - Holyrood		2,638	2,853				5,491
Complete Condition Assessment Phases 2, 3 and 4 - Holyrood		1,672	752	757			3,182
Replace Programmable Logic Controllers - Holyrood	1,208	747	902				2,857
Upgrade Forced Draft Fan Ductwork Unit 1 - Holyrood		843	860	880			2,582
Upgrade Hydrogen System - Holyrood		1,192	800				1,992
Replace Steam Seal Regulator Units 1 and 2 - Holyrood	335	389	438				1,162
Replace Pumphouse Motor Control Centres - Holyrood	50	999					1,049
Upgrade Synchronous Condenser Unit 3 - Holyrood		484	406				890
Replace Relay Panels Unit 3 - Holyrood		277	554				831
Replace Boiler Blowdown Tanks - Holyrood		750					750
Upgrade Electrical Equipment - Holyrood		188	206	285			679

PROJECT DESCRIPTION	Expended to 2010	2011	2012	2013 (\$000)	2014	2015	Total
<u>THERMAL PLANT (cont'd.)</u>							
Replace Fire Pump Diesel - Holyrood	112	195					307
Install Weatherhoods for Vent Fans - Holyrood		208					208
Upgrade Marine Terminal - Holyrood			6,747	11,382			18,129
Upgrade Fuel Oil Heat Tracing - Holyrood			976	1,009			1,985
Install Backup System for Raw Water Supply and Clarifiers - Holyrood			496				496
Implement Energy Efficiency Initiatives - Holyrood			122	125			247
Install Unit 3 CR Condensate Drains and HP Heater Trip Level - Holyrood				245			245
Replace Condensate Polisher Annunciator Panels Units 1 and 2 - Holyrood				215			215
Upgrade Cranes and Hoists - Holyrood					550		550
Purchase Critical Spare 4kV Motors - Holyrood					421		421
Install Economizer Recirculation Lines Units 1 and 2 - Holyrood					220		220
Install Main Fuel Oil Tank Farm Lighting - Holyrood					168		168
Replace Waste Water Basin Building - Holyrood						981	981
Replace Rectifying Transformer - Unit 1 - Holyrood						839	839
Upgrade Facilities to Reduce Business Continuity Risk - Holyrood						651	651
Install Variable Speed Drives - Holyrood						436	436
Install Turbine Lube Oil Conditioners - Holyrood						339	339
Upgrade Powerhouse Door and Siding - Holyrood						131	131
Rewind Generators 1 and 2 - Holyrood						65	65
TOTAL THERMAL PLANT	1,705	14,134	19,735	18,607	1,359	3,442	58,982

PROJECT DESCRIPTION	Expended to 2010	2011	2012	2013 (\$000)	2014	2015	Total
<u>GAS TURBINES</u>							
Upgrade Gas Turbine Plant Life Extension - Hardwoods	1,305	1,324	3,367				5,995
Overhaul Gas Turbine - Holyrood		1,291					1,291
Upgrade Glycol System - Stephenville	261	299					560
Upgrade Gas Turbine Operator Console - Stephenville		72					72
Construct Gas Turbine Equipment Enclosure - Holyrood				183			183
Upgrade Gas Turbine Plant Life Extension - Stephenville					1,392	1,413	2,805
Replace Gas Turbine Radiator - Holyrood					295		295
TOTAL GAS TURBINE PLANTS	1,566	2,986	3,367	183	1,687	1,413	11,201
<u>TOOLS AND EQUIPMENT</u>							
Purchase Tools and Equipment Less than \$50,000	0	280	92	54	47	14	487
Install Handheld Pendant to Overhead Crane - Bay d'Espoir			87				87
Purchase Laser Alignment Equipment - Holyrood		79					79
TOTAL TOOLS AND EQUIPMENT	0	358	179	54	47	14	652
TOTAL GENERATION	3,271	21,334	27,652	22,586	12,956	7,504	95,302
<u>TERMINAL STATIONS</u>							
Upgrade Terminal Stations to 25kV - Labrador City	2,983	3,500	3,507				9,990
Upgrade Power Transformers - Various Sites		866	880	4,596	899	1,213	8,453
Replace Disconnects - Various Sites		295	886	835	793	831	3,640
Replace Compressed Air System - Various Sites	79	781	564	614	917	524	3,478
Perform Grounding Upgrades - Various Sites		321	324	329	337	345	1,657

PROJECT DESCRIPTION	Expended to 2010	2011	2012	2013 (\$000)	2014	2015	Total
<u>TERMINAL STATIONS (cont'd.)</u>							
Replace Instrument Transformers - Various Sites		199	203	207	213	482	1,304
Replace Insulators - Various Sites		401	411	420			1,232
Upgrade Substation - Wabush		459	626				1,086
Upgrade Air Blast Circuit Breakers - Various Sites		334	336	341			1,011
Upgrade Station Reliability and Safety - Rocky Harbour		435	360				795
Replace 69kV SF6 Breakers - St. Anthony Airport		490	290				780
Replace Breaker, Structures and Disconnects - Hawke's Bay		687					687
Replace 230 kV Circuit Breaker - Sunnyside		41	590				631
Upgrade Trailer Mobile Substation - Bishop's Falls	30	468					498
Replace Surge Arresters - Various Sites		75	76	78	80	81	389
Install Alternate Station Services - Stony Brook and Massey Drive		86	109				195
Replace Digital Fault Recorder - Bay d'Espoir		169					169
Voisey's Bay Nickel - Long Harbour Power Supply	3,605	8,327	2,123				14,055
Cost Recovery - Vale Inco	(3,605)	(8,327)	(2,123)				(14,055)
Terminal Stations Compressor Replacement Program - Various Sites			116	119	121	124	480
Perform Site Work to Accommodate Mobile Transformer - Various Sites			187	289			476
Upgrade 230 kV Breaker Controls - Various Sites			45	46	48	49	188
Install B1C1 Annunciation and Alarms - Goose Bay			58				58
Upgrade Transformer Differential Circuit - Grandy Brook			52				52
Upgrade Terminal Station and Replace Oil Filled Breaker B1L29 - Wiltondale				347	577		924
Install Additional 230kV Transformer - Oxen Pond					485	4,006	4,491
Install 20 MVAR Reactor - Bottom Brook					1,026	1,578	2,604
Install Station Alarm Breakouts - Various Sites					580	479	1,059
Replace Oil Filled Breakers L27T1 and L26L27 - Berry Hill					253	304	557
Install Transformer Fans - Conne River					70		70
Upgrade Control Building - South Brook and Doyles						516	516
TOTAL TERMINAL STATIONS	3,092	9,607	9,621	8,222	6,398	10,531	47,470

PROJECT DESCRIPTION	Expended to 2010	2011	2012	2013 (\$000)	2014	2015	Total
<u>TRANSMISSION</u>							
Perform Wood Pole Line Management Program - Various Sites		2,019	1,967	3,392	4,145	4,003	15,526
Upgrade Lines - Various Sites	141	1,055		640	1,739	920	4,494
Construct Transmission Line Equipment Off-Loading Areas - Various Sites		791	661	784	456		2,691
Replace Guy Wires - TL-215		289	318	350	530		1,487
Replace Insulators - TL-206			541	597	660	972	2,769
Reroute Remote Section of Line - Various Sites					641	2,455	3,096
Upgrade Angle Structures - TL-259						662	662
Conduct LIDAR Surveys - Various Sites						254	254
Replace Dampers - TL-247						143	143
TOTAL TRANSMISSION	141	4,154	3,486	5,762	8,170	9,408	31,122
<u>DISTRIBUTION</u>							
Provide Service Extensions - All Service Areas		3,385	3,453	3,537	3,620	3,697	17,692
Upgrade Distribution Systems - All Service Areas		2,499	2,548	2,610	2,672	2,729	13,058
Upgrade Distribution Systems - Various Sites	218	2,086			3,549	5,446	11,299
Voltage Conversion - Labrador City	1,089	3,501	3,841	970			9,400
Upgrade Distribution Feeders - Various Sites	267	1,132	2,115	1,921	483	1,977	7,894
Replace Poles - Various Sites		956	652		976	623	3,207
Replace Recloser Control Panels - Various Sites		232	205	192	146		776
Upgrade L2 Voltage Conversion to 25kV - Gaultois	82	511					593
Replace Substation Infrastructure - Burgeo		128	368				496
Install Voltage Regulators - Conne River and L'Anse au Loup		293					293
Replace Submarine Cable - Pilley's Island to Long Island			826	621			1,446
Construct Storage Building - Springdale and Change Islands					213	121	334
TOTAL DISTRIBUTION	1,656	14,721	14,008	9,851	11,659	14,593	66,487

PROJECT DESCRIPTION	Expended to 2010	2011	2012	2013 (\$000)	2014	2015	Total
<u>GENERATION</u>							
Perform Arc Flash Remediation - Various Sites		430	380	391	402	413	2,016
Replace Fuel Storage Facility - Postville		2,007					2,007
Replace Generating Units - Various Sites	187	871			18	435	1,511
Install Sequence of Events Monitor in Diesel Plant - Port Hope Simpson		155	160	164			478
Replace Mini Hydro Turbine - Roddickton		87	235				322
Replace Fuel Storage Tank - Francois		131					131
Upgrade Fuel Storage - Norman Bay		114					114
Upgrade Plant Overhead Crane Lifting System - Mary's Harbour		47					47
Install Automatic Oil Filling System - Various Sites			186	214			400
Install Engine Starting System - Various Sites			109	111	113		333
Install Plant Coolant Common Filling System - Various Sites			106	109	113		328
Upgrade Station Service - Grey River			154				154
Insulate Diesel Plant - St. Anthony			55				55
Construct New Diesel Plant - Charlottetown				1,524	3,590	1,607	6,722
Increase Generation - Various Sites				19	1,013	1,952	2,985
Extend Diesel Plant - Mary's Harbour and Port Hope Simpson				225	277		501
Upgrade Generation Transformer - Cartwright				23	258		282
Install Intermediate Tank - Nain				135			135
Upgrade Fuel Storage - Rigolet					750		750
Install 9000 Litre Bulk Fuel Tank for Trailer - Williams Harbour					74		74
Recore Secondary Radiator - Mary's Harbour					55		55
Install Engine Fuel Additive Injection System - Williams Harbour					54		54
Construct Fuel Storage Tank - Nain						760	760
Install Nox Monitors - Various Sites						596	596
Upgrade Fuel Storage - Little Bay Islands						106	106
TOTAL GENERATION	187	3,841	1,386	2,915	6,716	5,870	20,915

PROJECT DESCRIPTION	Expended to 2010	2011	2012	2013 (\$000)	2014	2015	Total
<u>PROPERTIES</u>							
Legal Survey of Primary Distribution Line Right of Way - Various Sites		79	155	160	164	88	646
Install Fall Protection Equipment - Various Sites		198	203	207			608
Install Waste Oil Storage Tank - St. Lewis		79	80				159
Install Pole Storage Ramps - Various Sites				462	473	484	1,418
Upgrade Warehouse Lighting - Bishop's Falls				113			113
Upgrade Classroom and Boardroom - Bishop's Falls				49			49
Replace Accommodations at Ebbegunbaeg - Bay d'Espoir					245		245
Replace Warehouse - Bay d'Espoir						1,100	1,100
TOTAL PROPERTIES	<u>0</u>	<u>356</u>	<u>438</u>	<u>990</u>	<u>882</u>	<u>1,672</u>	<u>4,337</u>
<u>METERING</u>							
Install Automatic Meter Reading - Various Sites		451	88	599	1,027	431	2,597
Purchase Meters, Equipment and Tanks - Various Sites		186	129	131	134	137	717
TOTAL METERING	<u>0</u>	<u>637</u>	<u>216</u>	<u>730</u>	<u>1,161</u>	<u>568</u>	<u>3,313</u>
<u>TOOLS AND EQUIPMENT</u>							
Replace Off-Road Track Vehicles - Bishop's Falls and Fogo		494	1,484	1,631		850	4,460
Replace Light Duty Mobile Equipment - Various Sites		757	852	308	315	322	2,554
Purchase Tools and Equipment Less than \$50,000		256	183	147	99	86	770
Purchase Excavators - Various Sites		361	136		142		639
Purchase Portable Dissolved Gas Analysis Unit - Bishop's Falls		52					52
Purchase High Voltage Breaker Timing Sets - Various Sites			69	70	72		210
Replace Bulldozer - Unit No. 7657 - Bishop's Falls						303	303
TOTAL TOOLS AND EQUIPMENT	<u>0</u>	<u>1,919</u>	<u>2,723</u>	<u>2,157</u>	<u>627</u>	<u>1,561</u>	<u>8,988</u>
TOTAL TRANSMISSION AND RURAL OPERATIONS	<u>5,076</u>	<u>35,236</u>	<u>31,877</u>	<u>30,626</u>	<u>35,613</u>	<u>44,204</u>	<u>182,632</u>

PROJECT DESCRIPTION	Expended to 2010	2011	2012	2013 (\$000)	2014	2015	Total
<u>INFORMATION SYSTEMS</u>							
<u>SOFTWARE APPLICATIONS</u>							
<u>New Infrastructure</u>							
Perform Minor Application Enhancements - Hydro Place		121	122	125	128	131	627
Cost Recoveries		(39)	(39)	(40)	(41)	(42)	(200)
Upgrade Work Protection Safety Code Application - Hydro Place			332				332
Cost Recoveries			(100)				(100)
<u>Upgrade of Technology</u>							
Corporate Application Environment - Upgrade Microsoft Products	751	675	678				2,104
Cost Recoveries	(225)	(203)	(203)				(631)
Replace iSeries Computer and Upgrade Operating System - Hydro Place		643					643
Cost Recoveries		(206)					(206)
Upgrade JD Edwards - Hydro Place			1,451				1,451
Cost Recoveries			(464)				(464)
Upgrade Energy Management Systems - Hydro Place			285	290	355	195	1,124
Upgrade Microsoft Project - Hydro Place			313				313
Cost Recoveries			(100)				(100)
Upgrade Microsoft Office Products - Hydro Place				336	344	460	1,140
Cost Recoveries				(108)	(110)	(147)	(365)
Upgrade Business Intelligence Toolset Software - Hydro Place				170			170
Cost Recoveries				(54)			(54)
Upgrade Lotus Notes - Hydro Place					520		520
Cost Recoveries					(160)		(160)
TOTAL SOFTWARE APPLICATIONS	526	992	2,274	720	1,036	596	6,143

PROJECT DESCRIPTION	Expended to 2010	2011	2012	2013 (\$000)	2014	2015	Total
<u>COMPUTER OPERATIONS</u>							
<u>Infrastructure Replacement</u>							
Replace Personal Computers - Various Sites		404	449	526	527	493	2,397
Replace Peripheral Infrastructure - Various Sites		258	332	355	262	478	1,685
Upgrade Enterprise Storage Capacity - Hydro Place		227	261	266	241	92	1,087
Cost Recoveries		(73)	(83)	(80)	(72)	(28)	(336)
<u>New Infrastructure</u>							
Develop Learning Management System Courses - Hydro Place		123	137	140	143		543
Cost Recoveries		(40)	(44)	(45)	(46)		(174)
SAN Volume Control - Hydro Place			182				182
Cost Recoveries			(55)				(55)
Blue Coat Upgrade - Hydro Place			79				79
Cost Recoveries			(25)				(25)
TriGeo Upgrade - Hydro Place			31				31
Cost Recoveries			(10)				(10)
<u>Upgrade of Technology</u>							
Upgrade Server Technology Program - Hydro Place		209	571	490	341	317	1,929
Cost Recoveries		(67)	(171)	(157)	(109)	(92)	(596)
TOTAL COMPUTER OPERATIONS	<u>0</u>	<u>1,042</u>	<u>1,652</u>	<u>1,495</u>	<u>1,286</u>	<u>1,260</u>	<u>6,736</u>
TOTAL INFORMATION SYSTEMS	<u>526</u>	<u>2,034</u>	<u>3,926</u>	<u>2,215</u>	<u>2,322</u>	<u>1,856</u>	<u>12,879</u>

PROJECT DESCRIPTION	Expended to 2010	2011	2012	2013 (\$000)	2014	2015	Total
<u>TELECONTROL</u>							
<u>NETWORK SERVICES</u>							
<u>Infrastructure Replacement</u>							
Replace Radomes - Various Sites		196	166	160	164	168	854
Replace MDR 6000 Microwave Radio (West) - Various Sites		72	683				755
Purchase Tools and Equipment Less than \$50,000		86	87	89	92	94	447
Refurbish Microwave Site - Deer Lake		207					207
Install Fibre Optic Cable Deer Lake to Berry Hill - TL226			210	1,905			2,115
Replace Remote Terminal Units - Various Sites			88	87	85	330	590
Replace Mobile Radio System Churchill Falls to Happy Valley				57	554		612
Replace Power Line Carrier Bottom Brook to Doyles - TL214				431			431
Upgrade Powerhouse Phone Services - Paradise River				99			99
Replace MDR 4000 Microwave Radio (East and West) - Various Sites					202	2,894	3,097
<u>Network Infrastructure</u>							
Replace Battery Banks and Chargers - Various Sites		978	241	282	289	296	2,086
Replace Network Communications Equipment - Various Sites		737	120	126	142	146	1,270
Install Substation Communications Management - Various Sites				204			204
<u>Upgrade of Technology</u>							
Install Tower Ice Protection - Various Sites		294					294
Upgrade Site Facilities - Various Sites		48	49	50	51	52	249
Replace Telephone Keypad - Wabush		80					80
Install Wireless Networking - Various Sites			49				49
Upgrade IP Scada Network - Various Sites					93	359	452
Replace PLC - Berry Hill to Peter's Barron - TL227						708	708
Build Remote Computer Link Between Cat Arm Governors and Bay d'Espoir						268	268
TOTAL TELECONTROL	0	2,697	1,693	3,490	1,672	5,315	14,867

PROJECT DESCRIPTION	Expended to 2010	2011	2012	2013 (\$000)	2014	2015	Total
<u>TRANSPORTATION</u>							
Replace Vehicles and Aerial Devices - Hydro System - Various Sites		2,351	3,319	3,341	4,264	1,455	14,729
TOTAL TRANSPORTATION	0	2,351	3,319	3,341	4,264	1,455	14,729
<u>ADMINISTRATION</u>							
Remove Safety Hazards - Various Sites		252	259	265	272		1,048
Purchase Tools and Equipment Less than \$50,000		79	125	70	77	74	424
Replace Humidifiers in Air Handling Units - Hydro Place		76					76
Perform Upgrades as Determined in Building Condition Study - Hydro Place			150	166	246	159	722
Replace AC Units - Hydro Place			159				159
Upgrade Hydro Place Systems and Exterior - Hydro Place				1,908	2,073	2,818	6,799
TOTAL ADMINISTRATION	0	407	693	2,409	2,668	3,051	9,227
TOTAL GENERAL PROPERTIES	526	7,488	9,630	11,455	10,926	11,676	51,702

	Expended to 2011	2012	2013	2014	2015	2016	Total
				(\$000)			
GENERATION	8,374	28,971	33,490	30,931	30,971	26,005	158,742
TRANSMISSION AND RURAL OPERATIONS	15,627	43,287	73,392	95,990	109,101	97,870	435,267
GENERAL PROPERTIES	3,421	7,765	11,606	17,035	13,118	15,734	68,678
MAJOR OVERHAULS AND INSPECTIONS	0	6,840	1,882	6,731	1,047	6,365	22,863
CONTINGENCY FUND	0	1,000	1,000	1,000	1,000	1,000	5,000
TOTAL CAPITAL BUDGET	<u>27,422</u>	<u>87,862</u>	<u>121,369</u>	<u>151,686</u>	<u>155,237</u>	<u>146,973</u>	<u>690,550</u>

	Expended to 2011	2012	2013	2014	2015	2016	Total
	(\$000)						
GENERATION							
Hydraulic Plant	1,200	11,033	11,424	10,090	10,473	4,884	49,104
Thermal Plant	4,546	14,375	17,558	16,289	18,272	20,450	91,489
Gas Turbines	2,629	3,367	4,344	4,528	2,142	650	17,660
Tools and Equipment	0	196	164	24	84	21	488
TOTAL GENERATION	8,374	28,971	33,490	30,931	30,971	26,005	158,742
TRANSMISSION AND RURAL OPERATIONS							
Terminal Stations	8,399	14,149	12,695	15,687	14,090	8,020	73,041
Transmission	289	5,829	36,498	53,816	72,219	72,643	241,295
Distribution	5,636	17,416	14,947	14,539	15,748	13,726	82,012
Generation	516	2,681	3,257	9,989	4,598	2,539	23,581
Properties	0	566	2,340	777	686	190	4,558
Metering	292	628	962	581	153	157	2,774
Tools and Equipment	494	2,019	2,692	600	1,606	595	8,006
TOTAL TRANSMISSION AND RURAL OPERATIONS	15,627	43,287	73,392	95,990	109,101	97,870	435,267
GENERAL PROPERTIES							
Information Systems	999	2,347	2,922	2,561	1,845	2,909	13,583
Telecontrol	72	2,686	1,988	8,693	6,510	8,119	28,068
Transportation	2,351	2,350	4,116	3,143	1,359	3,657	16,975
Administrative	0	381	2,580	2,638	3,405	1,049	10,052
TOTAL GENERAL PROPERTIES	3,421	7,765	11,606	17,035	13,118	15,734	68,678
MAJOR OVERHAULS AND INSPECTIONS							
Major Overhauls and Inspections	0	6,840	1,882	6,731	1,047	6,365	22,863
TOTAL MAJOR OVERHAULS AND INSPECTIONS	0	6,840	1,882	6,731	1,047	6,365	22,863
CONTINGENCY FUND							
	0	1,000	1,000	1,000	1,000	1,000	5,000
TOTAL CAPITAL BUDGET	27,422	87,862	121,369	151,686	155,237	146,973	690,550

PROJECT DESCRIPTION	Expended						Total
	to 2011	2012	2013	2014	2015	2016	
				(\$000)			
HYDRAULIC PLANT							
Rewind Stators Units 1, 3 and 4 - Bay d'Espoir		4,954	5,054	3,635			13,643
Replace Static Excitation System - Upper Salmon, Hinds Lake and Holyrood	487	2,403	1,219				4,109
Upgrade Burnt Dam Spillway - Bay d'Espoir		1,703	994	959			3,656
Automate Generator Deluge Systems - Bay d'Espoir			479	300	478		1,257
Upgrade Public Safety Around Dams and Waterways - Bay d'Espoir		48	250	256	261	265	1,080
Replace Powerhouse Emergency Diesel Generator - Bay d'Espoir		611	283				894
Upgrade Intake Gate Controls - Bay d'Espoir	352	468					820
Upgrade Generating Station Service Water System - Cat Arm	360	440					800
Purchase Hydrometeorological Stations - Various Sites			332	285			616
Replace Fuel Tank at Burnt Dam - Bay d'Espoir		208					208
Replace Rip Rap - Bay d'Espoir		199					199
Install Automated Fuel Monitoring System - North Salmon Spillway			173				173
Install Protective Coating on Surge Tanks - Bay d'Espoir			615	615	631		1,861
Replace Units 1-6 Autogreasing Systems - Bay d'Espoir			210	190	191		591
Upgrade Generator Bearings - Bay d'Espoir			200	189	170		559
Install Automatic Sprinkler System in Office Area - Bay d'Espoir			303				303
Upgrade Units 1 to 6 S/V By Pass Valves - Bay d'Espoir			100	100	100		300
Replace Surge Tanks Cathodic Protection Systems - Bay d'Espoir			100	100	100		300
Replace Site Pumphouse and Pumping Station - Bay d'Espoir			200				200
Replace Microscada Computers - Granite Canal			187				187
Upgrade Unit 2 Generator Bearing - Bay d'Espoir			161				161
Replace Bridge 5 on Granite Canal Access Road - Granite Canal			115				115
Replace Turbine/Generator Flow Measuring Devices - Upper Salmon			114				114
Install Gates RR Pond - Granite Canal			84				84
Purchase LP Screw Compressor Set - Bay d'Espoir			75				75
Replace Cooling Water Pumps 2 and 4 in Powerhouse 1 - Bay d'Espoir			69				69
Replace Fall Arrest System on Surge Tank 2 - Bay d'Espoir			50				50
Replace Emergency Diesel Fuel Tank - Paradise River			40				40
Install Waste Oil Storage Tank for PCB's - Bay d'Espoir			16				16

PROJECT DESCRIPTION	Expended to 2011	2012	2013	2014	2015	2016	Total
				(\$000)			
<u>THERMAL PLANT</u>							
Rewind Generator Units 1 and 2 - Holyrood		112	1,108	4,886	5,796		11,901
Upgrade Marine Terminal - Holyrood		5,860					5,860
Upgrade Stack Breaching Units 2 and 3 - Holyrood		1,505			1,900		3,405
Replace Programmable Logic Controllers - Holyrood	2,230	902					3,132
Replace Fuel Oil Heat Tracing - Holyrood		1,474	1,414				2,888
Install Plant Operator Training Simulator - Holyrood		1,028	1,073				2,101
Upgrade Hydrogen System - Holyrood	1,192	800					1,992
Upgrade Forced Draft Fan Ductwork Units 2 and 3 - Holyrood		929	880				1,808
Install Backup System for Raw Water Supply and Clarifiers - Holyrood			904				904
Upgrade Synchronous Condenser Unit 3 - Holyrood	484	406					889
Replace Relay Panels Unit 3 - Holyrood	277	554					831
Upgrade Electrical Equipment - Holyrood	188	206	285				679
Replace Steam Seal Regulator Unit 2 - Holyrood	175	438					613
Replace Beta Attenuation Monitoring Analyzers - Holyrood		161					161
Refurbish Fuel Storage Facility - - Holyrood			2,853				2,853
Modify Control Room - - Holyrood			1,250	1,250			2,500
Install Variable Speed Drives on 6 FD Fans - Holyrood			1,950				1,950
Upgrade Governors on Units 1, 2 and 3 - Holyrood			1,000				1,000
Replace Waste Water Basin Building - Holyrood			981				981
Upgrade Lunch Room, Fitness Room and Women's Washroom - Holyrood			750				750
Upgrade Plant Access Road - Holyrood			600				600
Upgrade Fuel Oil Day Tank - Holyrood			500				500
Install Nitrogen Generator on Boilers - Holyrood			450				450
Purchase Critical Spare 4kV Motors - Holyrood			421				421
Upgrade Vibration Monitoring Equipment Units 1, 2 and 3 - Holyrood			300				300
Upgrade Fire Protection (Out Buildings) - Holyrood			272				272
Install Unit 3 CR Condensate Drains and HP Heater Trip Level - Holyrood			248				248
Replace Condensate Polisher Annunciator Panels Units 1 and 2 - Holyrood			221				221
install Visible Isolation for 600 V HVAC System Admin Area - Holyrood			100				100

PROJECT DESCRIPTION	Expended						Total
	to 2011	2012	2013	2014	2015	2016	
				(\$000)			
<u>GAS TURBINES</u>							
Upgrade Gas Turbine Plant Life Extension - Hardwoods	2,629	3,367					5,995
Upgrade Gas Turbine Plant Life Extension - Stephenville			1,413	3,516	1,392		6,321
Upgrade Gas Turbine PLC - Happy Valley			1,703				1,703
Replace Gas Turbine Exhaust Stack - Holyrood			750				750
Replace Gas Turbine Radiator - Holyrood			295				295
Construct Gas Turbine Outside Fuel Pumps & Distribution Enclosure - Hardwoods			183				183
Replace Gas Turbine Air Intake Structure - Holyrood				629			629
Install Sprinkler System at Gas Turbine - Holyrood				214			214
Refurbish Gas Turbine Building Enclosure - Holyrood				169			169
Refurbish Power Turbine Clutch - Holyrood					500		500
Install Diesel Automation and Charger System - Happy Valley					250		250
Upgrade Engine - Holyrood						500	500
Replace Compressors and Dryers - Holyrood						100	100
Replace Storage Tank - Holyrood						50	50
TOTAL GAS TURBINE PLANTS	2,629	3,367	4,344	4,528	2,142	650	17,660
<u>TOOLS AND EQUIPMENT</u>							
Purchase Tools and Equipment Less than \$50,000		196	77	24	84	21	402
Install Handheld Pendant to Overhead Crane - Bay d'Espoir			87				87
TOTAL TOOLS AND EQUIPMENT	0	196	164	24	84	21	488
TOTAL GENERATION	8,374	28,971	33,490	30,931	30,971	26,005	158,742

PROJECT DESCRIPTION	Expended	2012	2013	2014	2015	2016	Total
	to 2011						
(\$000)							
TERMINAL STATIONS							
Upgrade Circuit Breakers - Various Sites		1,677	2,714	2,879	3,366	3,640	14,277
Install Additional 230kV Transformer - Oxen Pond		3,535	3,354	3,650			10,540
Upgrade Power Transformers - Various Sites		1,246	1,217	1,270	4,983	1,306	10,023
Upgrade Terminal Stations to 25kV -Labrador City	6,483	3,507					9,990
Replace Instrument Transformers - Various Sites		452	442	453	458	462	2,267
Replace Insulators - Various Sites		412	402	411	422	431	2,078
Replace Disconnects - Various Sites		352	330	325	332	328	1,668
Perform Grounding Upgrades - Various Sites	321	324	329	337	345		1,657
Upgrade Substation - Wabush	459	626					1,086
Upgrade Station Reliability and Safety - Rocky Harbour	435	360					795
Replace 69 KV SF6 Breakers - St. Anthony Airport	490	290					780
Upgrade Compressed Air System - Bay d'Espoir	84	564					648
Replace 230 KV Circuit Breaker - Sunnyside	41	590					631
Replace Surge Arrestors - Various Sites		76	74	76	78	79	382
Replace Compressed Air Piping and Install Dew Point Monitor - Buchans		28	278				307
Install Alternate Station Services - Stony Brook and Massey Drive	86	109					195
Install 20 MVAR Reactor - Bottom Brook			1,026	1,578			2,604
Reconfigure T.S. to Install New 138/69 kV Transformer for TL241 Tie - Happy Valley			60	2,000			2,060
Replace Compress Air Piping and Install DP Monitoring - Sunny Side and Bottom Brook			487	524			1,010
Upgrade Terminal Station - Wiltondale			347	457			804
Replace Optimho Relays on East Coast - Various Sites			200	200	200	200	800
Replace Telecontrol Building and Upgrade Equipment - Daniel's Harbour			600				600
Terminal Stations Compressor Replacement Program - Various Sites			116	119	121	124	480
Perform Site Work to Accommodate Mobile Transformer - Various Sites			187	289			476
Replace Compressed Air Piping and Install New Dryer - Stony Brook			165	165			331
Install Online Vibration Monitoring System - Corner Brook Frequency Converter			200				200
Upgrade 230 kV Breaker Controls - Various Sites			45	46	48	49	188
Install Transformer Fans - Conne River			70				70
Upgrade Transformer Differential Circuit on T1 - Grandy Brook			52				52

PROJECT DESCRIPTION	Expended						Total
	to 2011	2012	2013	2014	2015	2016	
				(\$000)			
TERMINAL STATIONS (cont'd.)							
Upgrade Control Building for Staff Working Spaces - South Brook and Doyles				516	516		1,032
Install Drainage to Stop Surface Flooding - Indian River				391	391		782
Upgrade Control Wiring Phase 1 to TS1 - Bay d'Espoir					450	450	900
Replace Telecontrol Building and Upgrade Equipment - Daniel's Harbour					600		600
Upgrade T12 - Bay d'Espoir					500		500
Replace 66kV S/S Cable Feed to Plant - Holyrood					400		400
Install Remote Control Sectionalizer TL251(2)(3) - Hampden					300		300
Install 2nd AC Station Service - Howley					200		200
Upgrade DC Station Service - Oxen Pond					150		150
Install Telephone System - Bottom Waters					150		150
Upgrade Terminal Station for Mobile Substation - Rocky Harbour					80		80
Upgrade Control Wiring Phase 1 to Terminal Station 1 - Bay d'Espoir						450	450
Extend Control Building Washroom - Indian River						200	200
Upgrade Station Access Road - Cat Arm						200	200
Upgrade Terminal Station for Mobile Substation - Cow Head						100	100
TOTAL TERMINAL STATIONS	8,399	14,149	12,695	15,687	14,090	8,020	73,041
TRANSMISSION							
Upgrade Transmission Line Corridor - Bay d'Espoir to Western Avalon		2,632	30,195	46,525	63,199	66,825	209,376
Perform Wood Pole Line Management Program - Various Sites		2,519	3,682	4,344	4,316	4,118	18,980
Upgrade Transmission Line Access Trails - Various Sites		313	308	319	328	332	1,599
Replace Guy Wires - TL215	289	318	350	530			1,487
Install Ice Monitoring Equipment - Various Sites		47					47
Relocate Sections of Remote Lines - Various Sites			317	1,075	1,704		3,096
Construct Transmission Line Equipment Off-Loading Areas - Various Sites			784	456			1,240
Upgrade Angle Structures - TL259			662				662
Replace Aircraft Markers at Grand Lake Crossing - TL228			200				200
Upgrade Transmission Lines - Various Sites				314	2,672	868	3,855
Conduct LIDAR Surveys - Various Sites				254		500	754
TOTAL TRANSMISSION	289	5,829	36,498	53,816	72,219	72,643	241,295

PROJECT DESCRIPTION	Expended	2012	2013	2014	2015	2016	Total
	to 2011						
GENERATION							
Upgrade Fuel Storage - Various Sites		465	750	356	100	600	2,271
Perform Arc Flash Remediation - Various Sites	430	380	391	402	413		2,016
Increase Generation Capacity - Mary's Harbour		1,489					1,489
Replace Mini Hydro Turbine - Roddickton	87	235					322
Perform FEED for Diesel Plant Remediation - Various Sites		110					110
Construct New Diesel Plant - Charlottetown			1,524	3,590	1,607		6,722
Increase Generation - Various Sites			66	2,900			2,966
Replace Diesel Units - Various Sites			65	795	624	470	1,954
Increase Generation by Installing New Unit - l'Anse au Loup			90	800			890
Install Engine Fuel Additive Injection System - William's Harbour			100	200	340		640
Install Sequence of Events Monitor in Diesel Plants - Various Sites			160	164			324
Overhaul 2 Diesel Units - Gulf Pond Hill			56				56
Recore Secondary Radiator - Mary's Harbour			55				55
Install Nox Monitors at 2 Sites - Various Sites				596	300		896
Install Automatic Oil Filling System - Various Sites				186	214		400
Upgrade Bulk Storage Tanks - Various Sites					200	200	400
Upgrade Generator Transformer - Cartwright					23	258	282
Build Roadway for Freight Delivery - Norman Bay					250		250
Install Engine Starting System - Various Sites					109	111	220
Upgrade Station Service - Grey River					154		154
Install Intermediate Tank - Nain					135		135
Install 9000 Litre Bulk Fuel Tank for Trailer - William's Harbour					74		74
Insulate Diesel Plant - St. Anthony					55		55
Replace Main Breaker and Extend Plant - Little Bay Islands						400	400
Replace Radiators on Unit 2081 - Rigolet						300	300
Upgrade Lighting System - Cartwright and Hopedale						200	200
TOTAL GENERATION	516	2,681	3,257	9,989	4,598	2,539	23,581

PROJECT DESCRIPTION	Expended	2012	2013	2014	2015	2016	Total
	to 2011						
				(5000)			
PROPERTIES							
Legal Survey of Primary Distribution Line Right of Ways - Various Sites		198	189	190	192	190	958
Install Fall Protection Equipment - Various Sites		199	207				406
Upgrade Structures to Mechanical Workshop - St. Anthony		87					87
Install Waste Oil Storage Tank - L'Anse au Loup		82					82
Install Pole Storage Ramps - Various Sites			473	484	494		1,451
Replace Warehouse - Bay d'Espoir			1,100				1,100
Replace Accommodations at Ebbegunbaeg - Bay d'Espoir			245				245
Upgrade Warehouse Lighting - Bishop's Falls			81				81
Upgrade Classroom and Boardroom in Main Office - Bishop's Falls			45				45
Construct Steel Storage Building - Makkovik				104			104
TOTAL PROPERTIES	0	566	2,340	777	686	190	4,558
METERING							
Install Automated Meter Reading - Various Sites	292	438	714	431			1,875
Purchase Meters, Equipment and Metering Tanks - Various Sites		190	147	150	153	157	797
Refurbish 5-Position Test Console - Various Sites			102				102
TOTAL METERING	292	628	962	581	153	157	2,774
TOOLS AND EQUIPMENT							
Replace Off Road Track Vehicles - Various Sites	494	1,092	2,027		850		4,464
Replace Light Duty Mobile Equipment - Various Sites		401	308	315	322	462	1,808
Purchase Tools and Equipment Less than \$50,000		406	212	143	131	133	1,025
Replace Excavator - Various Sites		120		142			262
Purchase High Voltage Breaker Timing Sets - Various Sites			69				69
Purchase Infrared Cameras - Bishop's Falls			76				76
Replace Bulldozer - Bishop's Falls					303		303
TOTAL TOOLS AND EQUIPMENT	494	2,019	2,692	600	1,606	595	8,006
TOTAL TRANSMISSION AND RURAL OPERATIONS	15,627	43,287	73,392	95,990	109,101	97,870	435,267

PROJECT DESCRIPTION	Expended to 2011	2012	2013	2014	2015	2016	Total
				(\$000)			
<u>INFORMATION SYSTEMS</u>							
<u>SOFTWARE APPLICATIONS</u>							
<u>New Infrastructure</u>							
Perform Minor Application Enhancements - Hydro Place		123	125	128	131	135	642
Cost Recoveries		(42)	(40)	(41)	(42)	(43)	(208)
Implement Work Protection Safety Code Application - Hydro Place		116	250	250			616
<u>Upgrade of Technology</u>							
Corporate Application Environment - Upgrade Microsoft Products	1,426	678					2,104
Cost Recoveries	(428)	(203)					(631)
Upgrade JD Edwards - Hydro Place		284	588				872
Cost Recoveries		(97)	(200)				(296)
Upgrade Energy Management System - Hydro Place		118	290	355	195	195	1,152
Upgrade Microsoft Project - Hydro Place		91					91
Cost Recoveries		(31)					(31)
Upgrade Creditron System (Treasury) - Hydro Place		38					38
Upgrade Microsoft Office Products - Hydro Place			336	344	460	460	1,600
Cost Recoveries			(108)	(110)	(147)	(147)	(512)
Upgrade Business Intelligence Toolset Software - Hydro Place			170				170
Cost Recoveries			(54)				(54)
Upgrade Lotus Notes - Hydro Place				520			520
Cost Recoveries				(167)			(167)
Upgrade Security Configuration Auditing - Hydro Place						129	129
Upgrade Corporate Application Environment - Hydro Place						1,000	1,000
TOTAL SOFTWARE APPLICATIONS	999	1,075	1,357	1,280	596	1,728	7,034

PROJECT DESCRIPTION	Expended	2012	2013	2014	2015	2016	Total
	to 2011						
				(5000)			
<u>COMPUTER OPERATIONS</u>							
<u>Infrastructure Replacement</u>							
Replace Personal Computers - Various Sites		491	526	527	493	350	2,385
Replace Peripheral Infrastructure - Various Sites		328	355	262	478	191	1,614
Upgrade Enterprise Storage Capacity - Hydro Place		306	266	241	92	700	1,606
Cost Recoveries		(104)	(85)	(77)	(30)	(224)	(520)
Blue Coat Upgrade - Hydro Place			79				79
Cost Recoveries			(25)				(25)
TriGeo Upgrade - Hydro Place			31				31
Cost Recoveries			(10)				(10)
<u>New Infrastructure</u>							
Develop Learning Management System Courses - Hydro Place			140	143			283
Cost Recoveries			(45)	(46)			(90)
<u>Upgrade of Technology</u>							
Upgrade Server Technology Program - Hydro Place		203	490	341	317	241	1,592
Cost Recoveries		(31)	(157)	(109)	(101)	(77)	(475)
Upgrade Computer Room - Hydro Place		122					122
Cost Recoveries		(42)					(42)
TOTAL COMPUTER OPERATIONS	0	1,273	1,565	1,281	1,249	1,181	6,548
TOTAL INFORMATION SYSTEMS	999	2,347	2,922	2,561	1,845	2,909	13,583

PROJECT DESCRIPTION	Expended to 2011 (\$000)	2012	2013	2014	2015	2016	Total
<u>TELECONTROL</u>							
<u>NETWORK SERVICES</u>							
<u>Infrastructure Replacement</u>							
Replace MDR 6000 Microwave Radio (West) - Various Sites	72	683					755
Replace Radomes - Various Sites		172	160	164	168		664
Purchase Tools and Equipment Less than \$50,000		85	89	92	94	98	458
Upgrade Communication Services - Paradise River		98					98
Replace MDR 4000 Microwave Radio (West) - Various Sites			202	1,963			2,165
Install Fiber Optic Cable Deer Lake to Berry Hill - TL226			210	1,905			2,115
Replace Remote Terminal Units - Various Sites			87	85	330	220	723
Replace Mobile Radio System Churchill Falls to Happy Valley			57	554			612
Replace Power Line Carrier Bottom Brook to Doyles - TL214			431				431
Replace MDR 4000 Microwave Radio (East) - Various Sites				931	1,200		2,131
Refurbish Microwave Sites - Various Sites				1,830			1,830
Expand West Coast Microwave - Various Sites				433		5,600	6,033
Replace Microwave Radio - Various Sites						1,992	1,992
Refurbish Microwave Towers - Various Sites						105	105
Install Fiber Optics - Stony Brook						50	50
<u>Network Infrastructure</u>							
Replace Battery Banks and Chargers - Various Sites		881	282	289	296		1,747
Replace Network Communications Equipment - Various Sites		522	126	142	146		935
Install Substation Communications Management - Various Sites			204				204
<u>Upgrade of Technology</u>							
Replace Telephone Systems - Port Saunders and Whitbourne		199	90	90	90		469
Upgrade Site Facilities - Various Sites		47	50	51	52	54	253
Upgrade Communications System - Cat Arm				70	1,900		1,970
Upgrade IP Scada Network - Various Sites				93	359		452
Replace PLC - Plum Point and Bear Cove					900		900
Replace PLC (Berry Hill to Peters Barron) - TL227					708		708
Build Remote Computer Link Between Cat Arm Governors and Bay d'Espoir					268		268
TOTAL TELECONTROL	72	2,686	1,988	8,693	6,510	8,119	28,068

PROJECT DESCRIPTION	Expended to 2011	2012	2013	2014	2015	2016	Total
				(\$000)			
TRANSPORTATION							
Replace Vehicles and Aerial Devices Hydro System - Various Sites	2,351	2,350	4,116	3,143	1,359	3,657	16,975
TOTAL TRANSPORTATION	2,351	2,350	4,116	3,143	1,359	3,657	16,975
ADMINISTRATION							
Remove Safety Hazards - Various Sites		249	244	250	257	263	1,264
Purchase Tools and Equipment Less than \$50,000		132	94	69	71	136	501
Upgrade Systems and Exterior - Hydro Place			1,908	2,073	2,818	500	7,299
Perform Upgrades as Determined in Building Condition Study - Hydro Place			166	246	159		571
Replace AC Unit 12A and Unit 14 - Hydro Place			168				168
Upgrade Outside Property - Various Sites					100	100	200
Upgrade Fire System - Bishop's Falls						50	50
TOTAL ADMINISTRATION	0	381	2,580	2,638	3,405	1,049	10,052
TOTAL GENERAL PROPERTIES	3,421	7,765	11,606	17,035	13,118	15,734	68,678
MAJOR OVERHAULS AND INSPECTIONS							
Overhaul Diesel Units - Various Sites		974	995	1,019	1,047	1,065	5,099
Overhaul Turbine Units 1, 2 and 3 - Holyrood		4,193		4,800		5,300	14,293
Condition Assessment and Life Extension Phase 2 - Holyrood		1,216	887	912			3,015
Overhaul Turbine/Generator Units - Granite Canal and Upper Salmon		457					457
TOTAL MAJOR OVERHAULS AND INSPECTIONS	0	6,840	1,882	6,731	1,047	6,365	22,863

	Expended						Total
	2012	2013	2014	2015	2016	2017	
	(\$000)						
GENERATION	4,221.4	22,888.9	39,903.9	38,697.9	39,344.5	16,967.7	162,024.3
TRANSMISSION AND RURAL OPERATIONS	15,728.4	34,052.7	63,450.8	85,035.1	85,851.5	123,279.1	407,397.6
GENERAL PROPERTIES	1,898.8	8,203.2	7,327.6	10,491.2	9,904.3	9,926.0	47,751.1
ALLOWANCE FOR UNFORESEEN EVENTS		1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	5,000.0
TOTAL CAPITAL BUDGET	<u>21,848.6</u>	<u>66,144.8</u>	<u>111,682.3</u>	<u>135,224.2</u>	<u>136,100.3</u>	<u>151,172.8</u>	<u>622,173.0</u>

	Expended						Total
	2012	2013	2014	2015	2016	2017	
	(\$000)						
<u>GENERATION</u>							
Hydraulic Plant	2,425.3	12,903.0	13,089.2	13,441.2	5,824.4	8,342.1	56,025.2
Thermal Plant	1,796.1	9,831.2	23,731.9	23,399.1	28,068.5	8,604.1	95,430.9
Gas Turbines	0.0	61.4	3,059.3	1,773.6	5,329.7	0.0	10,224.0
Tools and Equipment	0.0	93.3	23.5	84.0	121.9	21.5	344.2
TOTAL GENERATION	4,221.4	22,888.9	39,903.9	38,697.9	39,344.5	16,967.7	162,024.3
<u>TRANSMISSION AND RURAL OPERATIONS</u>							
Terminal Stations	673.6	8,164.4	12,005.4	15,225.1	10,474.9	15,483.1	62,026.5
Transmission	606.8	2,816.8	6,538.3	36,859.2	53,027.9	84,960.7	184,809.7
Distribution	12,776.1	15,737.1	26,631.0	20,380.9	12,633.9	13,470.4	101,629.4
Generation	809.8	3,409.0	14,289.2	10,858.9	6,901.4	6,101.6	42,369.9
Properties	0.0	1,033.6	1,060.0	463.1	1,166.2	2,434.3	6,157.2
Metering	379.6	1,077.6	971.3	498.3	199.1	199.0	3,324.9
Tools and Equipment	482.5	1,814.2	1,955.6	749.6	1,448.1	630.0	7,080.0
TOTAL TRANSMISSION AND RURAL OPERATIONS	15,728.4	34,052.7	63,450.8	85,035.1	85,851.5	123,279.1	407,397.6
<u>GENERAL PROPERTIES</u>							
Information Systems	187.4	2,799.4	2,126.8	3,263.0	1,401.8	2,545.5	12,323.9
Telecontrol	0.0	2,070.2	2,444.1	3,644.8	3,987.7	3,881.6	16,028.4
Transportation	1,711.4	2,521.1	2,433.5	2,751.0	2,497.4	2,114.0	14,028.4
Administrative	0.0	812.5	323.2	832.4	2,017.4	1,384.9	5,370.4
TOTAL GENERAL PROPERTIES	1,898.8	8,203.2	7,327.6	10,491.2	9,904.3	9,926.0	47,751.1
ALLOWANCE FOR UNFORESEEN EVENTS		1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	5,000.0
TOTAL CAPITAL BUDGET	21,848.6	66,144.8	111,682.3	135,224.2	136,100.3	151,172.8	622,173.0

PROJECT DESCRIPTION	Expended							Total
	2012	2013	2014	2015	2016	2017		
				(\$000)				
HYDRAULIC PLANT								
Replace Stator Windings Units 1, 3 and 4 - Bay d'Espoir		5,663.5	5,821.1					11,484.6
Replace Static Excitation Systems - Upper Salmon, Hinds Lake and Holyrood	1,813.9	2,295.2						4,109.1
Overhaul Turbine/Generator Units - Various Sites		428.1	349.0	508.5	319.0	365.0		1,969.6
Upgrade Burnt Dam Spillway - Bay d'Espoir		885.8	1,046.5					1,932.3
Automate Generator Deluge Systems - Bay d'Espoir		532.0	471.2	751.3				1,754.5
Upgrade Generator Bearings - Bay d'Espoir		480.9	745.8	427.5				1,654.2
Upgrade Public Safety Around Dams and Waterways - Bay d'Espoir		298.1	306.1	315.2	322.6	328.0		1,570.0
Replace Emergency Diesel Generator - Bay d'Espoir	611.4	282.7						894.1
Replace Units 1 to 6 Auto Greasing Systems - Bay d'Espoir		260.1	195.2	196.7				652.0
Install Automatic Fuel Monitoring System - Upper Salmon		192.7	270.3					463.0
Upgrade Units 1 to 6 By-Pass Valves - Bay d'Espoir		141.9	109.0	108.9				359.8
Replace Automatic Transfer Switches - Hinds Lake		314.7						314.7
Replace MicroSCADA Computers - Granite Canal		297.4						297.4
Replace Fall Arrest System on Surge Tank 1 and 2 - Bay d'Espoir		153.0	118.9					271.9
Replace North End Equipment Door - Bay d'Espoir		265.5						265.5
Replace Cooling Water Pumps - Bay d'Espoir		175.4						175.4
Purchase Low Pressure Screw Compressor Set - Bay d'Espoir		97.3						97.3
Install Waste Oil Storage Tank for PCB's - Bay d'Espoir		48.9						48.9
Replace Emergency Diesel Fuel Tank - Paradise River		46.3						46.3
Upgrade Water Flow Control Structure RR Pond - Granite Canal		43.5						43.5
Upgrade Victoria Structure - Bay d'Espoir			513.6	969.5				1,483.1
Replace Interior Coating Surge Tanks- Bay d'Espoir			500.0	1,141.4	1,150.8	734.7		3,526.9
Upgrade Access Roads - Various Sites			1,251.6	1,505.6		776.8		3,534.0
Refurbish Turbines - Snook's Arm and Venam's Bight			375.4	850.9				1,226.3
Upgrade Breakwater (Shoreline Protection) - Cat Arm			664.8					664.8
Replace Turbine/Generator Flow Measuring Devices - Upper Salmon			127.8					127.8
Increase Height on Earth Dam - Paradise River			80.2					80.2
Install Unit 1 Governor Oil Filtration System - Upper Salmon			72.8					72.8
Replace West Salmon Emergency Lift System - Upper Salmon			69.9					69.9
Replace Penstock and Auxiliaries - Venam's Bight				4,712.9				4,712.9
Upgrade Site Facilities - Bay d'Espoir				780.2	912.7			1,692.9
Install Hydrometeorological Stations - Various Sites				378.3	321.2			699.5
Replace Site Pumphouse, Pumps and Controls - Bay d'Espoir				268.4				268.4
Replace Slip Ring Assembly - Hinds Lake				252.8				252.8
Upgrade Unit Relay Protection - Paradise River				164.3				164.3
Install Infrared Viewports - Various Sites				108.8		112.9		221.7

PROJECT DESCRIPTION	Expended						Total
	2012	2013	2014	2015	2016	2017	
				(\$000)			
HYDRAULIC PLANT (cont'd.)							
Pilot Asset Health Monitoring Template - Upper Salmon					598.7	194.4	793.1
Install New Vent Chambers Units 1 to 6 - Bay d'Espoir					647.4		647.4
Refurbish Generation Unit - Venam's Bight					463.5		463.5
Replace Rectifier Transformer Unit 1 - Bay d'Espoir					384.8		384.8
Upgrade Station Service Water System - Upper Salmon					344.0		344.0
Purchase Generator Bearing Cooler Sets - Various Sites					239.4		239.4
Purchase Turbine Bearing Cooler Set - Cat Arm					65.8		65.8
Upgrade Jockey Pumps - Upper Salmon and Hinds Lake					54.5		54.5
Replace Spherical Valve Control System - Cat Arm						883.0	883.0
Replace Diesel Generator 2 at Victoria Control Structure - Bay d'Espoir						638.1	638.1
Upgrade North Salmon River Spillway - Bay d'Espoir						469.5	469.5
Upgrade EBBE Control Structure - Bay d'Espoir						456.5	456.5
Replace Rectifier Transformer Unit 2 - Bay d'Espoir						430.7	430.7
Upgrade Powerhouse 1 and 2 Station Service - Bay d'Espoir						429.8	429.8
Upgrade Powerhouse Equipment Doors - Various						382.2	382.2
Replace 6 Slip Rings Units 1 to 6 - Bay d'Espoir						341.3	341.3
Replace Main Generator Bearing - Upper Salmon						300.0	300.0
Install Automated Fuel Monitoring at Paradise River - Bay d'Espoir						267.4	267.4
Upgrade Domestic Water System - Cat Arm						242.6	242.6
Install Partial Discharge Monitors - Paradise River						197.0	197.0
Upgrade Unit 5 Generator Bearing - Bay d'Espoir						190.0	190.0
Upgrade Sump Level System Powerhouse 2 - Bay d'Espoir						185.0	185.0
Replace Shaft Seal System - Upper Salmon						150.0	150.0
Replace Plant High Pressure Compressor 1 - Upper Salmon						142.7	142.7
Install Permanent Monitoring Vibration System Unit 7 - Bay d'Espoir						124.5	124.5
TOTAL HYDRAULIC PLANT	2,425.3	12,903.0	13,089.2	13,441.2	5,824.4	8,342.1	56,025.2

PROJECT DESCRIPTION	Expended						Total
	2012	2013	2014	2015	2016	2017	
				(\$000)			
<u>THERMAL PLANT</u>							
Rewind Generators Units 1 and 2 - Holyrood	112.2	1,107.6	4,885.7	5,795.7			11,901.2
Overhaul Steam Turbine Generators - Holyrood			4,500.4		4,810.1		9,310.5
Overhaul Turbine Valves - Holyrood		993.9		1,218.0		1,456.2	3,668.1
Install Variable Frequency Drives on Forced Draft Fans - Holyrood		697.6	2,659.7				3,357.3
Upgrade Fuel Oil Heat Tracing - Holyrood	1,474.3	1,413.9					2,888.2
Complete Condition Assessment Phase 2 (Year 2) - Holyrood		1,170.2	1,004.7				2,174.9
Upgrade Governor Controls on Units 1 and 2 - Holyrood		1,455.5					1,455.5
Install Backup System for Raw Water Supply and Clarifier - Holyrood		955.6					955.6
Overhaul Boiler Feed Pumps - Holyrood		178.5	177.9	182.6	186.0	188.1	913.1
Upgrade Electrical Equipment - Holyrood	209.6	212.1					421.7
Upgrade Fuel Oil Day Tank - Holyrood		584.2					584.2
Overhaul Extraction Pumps - Holyrood		101.5	85.3	175.0	88.9	89.9	540.6
Upgrade Vibration Monitoring Equipment Units - Holyrood		519.9					519.9
Install Cold-Rehead Condensate Drains and High Pressure Heater Trip Level Unit 3 - Holyrood		50.0	448.1				498.1
Install Fire Protection Upgrades - Holyrood		267.2					267.2
Overhaul Cooling Water Pumps - Holyrood			85.3		88.9	89.9	264.1
Replace Condensate Polisher Annunciator Panels - Holyrood		123.5					123.5
Refurbish Fuel Storage Facility - Holyrood			3,211.3				3,211.3
Upgrade Powerhouse Roofing - Holyrood			460.3	389.5	374.7	358.3	1,582.8
Complete Eng. Review to Determine System for SYN CND, Units 1 and 2 - Holyrood			1,425.2				1,425.2
Upgrade Excitation Systems Units 1 and 2 - Holyrood			536.9	682.4			1,219.3
Replace Plant Elevators - Holyrood			1,192.7				1,192.7
Replace Powerhouse Overhead Crane Doors - Holyrood			337.7	355.4	363.4		1,056.5
Replace Waste Water Basin Building - Holyrood			1,004.2				1,004.2
Replace Fuel Oil Heat Exchanger Units 1 and 2 - Holyrood			750.0				750.0
Replace Economizer Inlet Valves Units 1 and 2 - Holyrood			500.0				500.0
Replace Compressors - Holyrood			282.0	288.1			570.1
Upgrade 129 Volt DC Plant Wide Distribution System - Holyrood			184.5				184.5

PROJECT DESCRIPTION	Expended						Total
	2012	2013	2014	2015	2016	2017	
				(\$000)			
<u>THERMAL PLANT (cont'd.)</u>							
Convert Units 1 and 2 to Synchronous Condensing System - Holyrood				13,500.0	13,500.0		27,000.0
Upgrade Quarry Brook Dam Equipment - Holyrood				395.1			395.1
Install Fire Protection (Out Buildings) - Holyrood				314.0			314.0
Replace 258 Volt DC Distribution Panels and Breakers - Holyrood				103.3			103.3
Rewind Generator 3 and Install Rotor Flux Probe - Holyrood					8,402.4		8,402.4
Replace UPS 1 , 2, 3 and 4 - Holyrood					254.1	266.7	520.8
Replace Unit Substations AT-A, AT-B, AT-C						3,000.0	3,000.0
Upgrade Forced Draft Fan Ductwork Unit 3 - Holyrood						1,827.7	1,827.7
Upgrade Plant Access Road - Holyrood						807.8	807.8
Replace Stage 2 Diesel - Holyrood						443.2	443.2
Install Visible Isolation for 600 V HVAC System Admin Area - Holyrood						76.3	76.3
TOTAL THERMAL PLANT	1,796.1	9,831.2	23,731.9	23,399.1	28,068.5	8,604.1	95,430.9

PROJECT DESCRIPTION	Expended						Total
	2012	2013	2014	2015	2016	2017	
	(\$000)						
<u>GAS TURBINES</u>							
Upgrade Gas Turbine PLC - Happy Valley		61.4	1,128.6				1,190.0
Upgrade Gas Turbine Plant Life Extension - Stephenville			1,930.7	1,564.7	5,329.7		8,825.1
Install Diesel Automation and Charger System - Happy Valley				208.9			208.9
TOTAL GAS TURBINE PLANTS	0.0	61.4	3,059.3	1,773.6	5,329.7	0.0	10,224.0
<u>TOOLS AND EQUIPMENT</u>							
Purchase Tools and Equipment Less than \$50,000 - Hydraulic		82.8	12.8	73.0	10.0	10.0	188.6
Install Handheld Pendant to Overhead Crane - Bay d'Espoir					100.7		100.7
Purchase Tools and Equipment Less than \$50,000 - Thermal		10.5	10.7	11.0	11.2	11.5	54.9
TOTAL TOOLS AND EQUIPMENT	0.0	93.3	23.5	84.0	121.9	21.5	344.2
TOTAL GENERATION	4,221.4	22,888.9	39,903.9	38,697.9	39,344.5	16,967.7	162,024.3

PROJECT DESCRIPTION	Expended						Total
	2012	2013	2014	2015	2016	2017	
	(\$000)						
TERMINAL STATIONS							
Upgrade Circuit Breakers - Various Sites		2,785.3	3,621.0	4,050.6	3,750.1	3,973.2	18,180.2
Upgrade Power Transformers - Various Sites		1,621.1	1,667.2	4,719.4	1,750.6	1,780.8	11,539.1
Replace Instrument Transformers - Various Sites		593.2	552.8	538.4	1,511.7	471.9	3,668.0
Replace Disconnects - Various Sites		492.6	480.5	501.1	583.6	626.8	2,684.6
Replace Compressed Air Systems - Various Sites	28.4	581.3	2,143.3	417.1		500.0	3,670.1
Perform Grounding Upgrades - Various Sites	645.2	329.0	337.1	345.4	338.2	341.5	2,336.4
Install Online Vibration Monitoring System - Corner Brook Frequency Converter		382.8					382.8
Upgrade Terminal Station - Wiltondale		697.7	1,173.3				1,871.0
Replace Optimho Relays on TL242 - Holyrood to Hardwoods		189.2	227.1	250.6			666.9
Replace Surge Arrestors - Various Sites		121.3	114.5	88.0	149.8	122.2	595.8
Replace Insulators - Various Sites		187.1	287.9				475.0
Install Transformer Fans - Conne River		114.9					114.9
Replace 230 kV Breaker Controls - Bottom Brook		68.9					68.9
Install 20 MVAR Reactor - Bottom Brook			1,210.2	2,515.6			3,725.8
Replace Telecontrol Building and Upgrade Equipment - Daniels Harbour			57.0	765.5			822.5
Terminal Stations Compressor Replacement Program - Various Sites			133.5	132.9	139.5	142.5	548.4

PROJECT DESCRIPTION	Expended						Total
	2012	2013	2014	2015	2016	2017	
	(\$000)						
TERMINAL STATIONS (cont'd.)							
Perform Site Work to Accommodate Mobile Transformer - Various Sites				292.8	350.3		643.1
Replace 66kV S/S Cable Feed to Plant - Holyrood				223.2			223.2
Install 2nd AC Station Service - Howley				101.5			101.5
Upgrade Transformer Differential Circuit on T1 - Grandy Brook				68.4			68.4
Upgrade Control Building for Staff Working Spaces - South Brook and Doyles					445.7	759.2	1,204.9
Upgrade Control Wiring Phase 1 and 2 to Terminal Station 1 - Bay d'Espoir				214.6	490.9		705.5
Extend Control Building Washroom - Indian River					405.6		405.6
Install Remote Control Sectionalizer TL251(2)(3) - Hampden					334.0		334.0
Upgrade Terminal Station for Mobile Substation - Cow Head					224.9		224.9
Install New Transformer - Massey Drive and Hardwoods						3,060.0	3,060.0
Construct 138kV Terminal Station - Hawkes Bay						2,280.0	2,280.0
Upgrade T12 - Bay d'Espoir						500.0	500.0
Install Transformer Online Gas Monitoring - Bay d'Espoir						300.0	300.0
Replace Station Lighting - Bay d'Espoir						250.0	250.0
Upgrade DC Station Service - Bay d'Espoir						200.0	200.0
Upgrade Terminal Station for Mobile Substation - Howley and Daniel's Harbour						175.0	175.0
TOTAL TERMINAL STATIONS	673.6	8,164.4	12,005.4	15,225.1	10,474.9	15,483.1	62,026.5

PROJECT DESCRIPTION	Expended						Total
	2012	2013	2014	2015	2016	2017	
	(\$000)						
TRANSMISSION							
Perform Wood Pole Line Management Program - Various Sites		2,466.7	2,595.1	2,934.6	3,010.1	2,787.0	13,793.5
Replace Guy Wires - TL215	606.8	350.1	530.0				1,486.9
Upgrade Transmission Line Corridor - Bay d'Espoir and Western Avalon			2,621.8	30,232.4	41,587.2	66,699.9	141,141.3
Upgrade Transmission Lines - Various Sites			106.9	3,236.5		1,292.7	4,636.1
Upgrade Angle Structures - TL259			684.5				684.5
Reroute Remote Section of Line - TL215				111.9	2,312.4		2,424.3
Rebuild 5 km in Park - TL229				111.9	2,312.4		2,424.3
Replace Aircraft Markers at Grand Lake Crossing - TL228				231.9			231.9
Replace Transmission Lines - Various Sites					525.8	12,747.8	13,273.6
Relocate Remote Section of Line - TL220					2,115.7		2,115.7
Construct Transmission Line Equipment Off-Loading Areas - Various Sites					887.8	506.4	1,394.2
Conduct LIDAR Surveys - Various Sites					276.5	283.9	560.4
Upgrade Tower Foundation - Various Sites						500.0	500.0
Replace Dampers - TL247						143.0	143.0
TOTAL TRANSMISSION	606.8	2,816.8	6,538.3	36,859.2	53,027.9	84,960.7	184,809.7

PROJECT DESCRIPTION	Expended						Total
	2012	2013	2014	2015	2016	2017	
	(\$000)						
<u>DISTRIBUTION</u>							
Provide Service Extensions - All Service Areas		5,006.0	5,134.0	5,276.0	5,393.0	5,498.0	26,307.0
Upgrade Distribution Systems - All Service Areas		2,790.0	2,861.0	2,941.0	3,007.0	3,063.0	14,662.0
Voltage Conversion - Labrador City	8,430.8	969.5					9,400.3
Upgrade Distribution Systems - Various Sites		1,940.1	3,995.5				5,935.6
Additions for Load - Distribution Systems - Various Sites		3,114.7	294.9	112.6	1,316.1	1,000.0	5,838.3
Upgrade L2 Distribution Feeder - Glenburnie	2,960.1	596.6					3,556.7
Upgrade Distribution Lines - Bay d'Espoir, Parsons Pond and Plum Point	1,385.2	1,110.5					2,495.7
Replace Recloser Control Panels - Various Sites		209.7	175.0				384.7
Upgrade Distribution System - Various Sites			8,364.3	4,587.2	2,201.0	2,955.0	18,107.5
Additions for Load - Labrador South Interconnection - Various Sites			5,370.0	7,464.1			12,834.1
Automate Reclosers - Various Sites			436.3				436.3
Convert Section of Robert's Arm (L3) to 25 kV - South Brook					569.6		569.6
Survey Lines - Various Sites					147.2		147.2
Build Line to Connect New Refinery - Sunny Side						300.0	300.0
Construct Storage Building - Springdale						259.8	259.8
Install Mobile Diesel Quick Connect/Disconnect - Various Sites						178.8	178.8
Construct heated Storage Building - Change Islands						141.8	141.8
Implement G.I.S. - Various Sites						74.0	74.0
TOTAL DISTRIBUTION	12,776.1	15,737.1	26,631.0	20,380.9	12,633.9	13,470.4	101,629.4

PROJECT DESCRIPTION	Expended						Total
	2012	2013	2014	2015	2016	2017	
	(\$000)						
GENERATION							
Additions for Load Isolated Generation Stations - Various Sites		2,040.2	12,402.5	7,183.3	3,830.0	1,000.0	26,456.0
Overhaul Diesel Units - Various Sites		977.8	999.3	1,026.4	1,051.2	1,069.7	5,124.4
Perform Arc Flash Remediation - Various Sites	809.8	391.0	401.8	413.1			2,015.7
Replace Diesel Units - Various Sites			118.7	1,603.8	1,325.5	2,220.0	5,268.0
Replace Fuel tanks - Ramea			366.9				366.9
Upgrade Fuel Storage - Various Sites				218.5	125.3		343.8
Upgrade Unit 2044 - St. Lewis				267.9			267.9
Install Intermediate Tank - Nain				145.9			145.9
Install Sequence of Events Monitor in Diesel Plants - Various Sites					280.6	288.5	569.1
Upgrade Lighting System - Cartwright and Hopedale					157.9		157.9
Upgrade Station Service - Grey River					130.9		130.9
Replace Radiators - L'Anse au Loup						500.0	500.0
Build Roadway for Freight Delivery - Norman Bay						307.2	307.2
Install Nox Monitors at 2 Sites - Various Sites						302.7	302.7
Install Sectionalizing for Cold Load Pickup - Port Hope Simpson						250.0	250.0
Replace Underground Glycol Line - Francois						100.0	100.0
Insulate Diesel Plant - St. Anthony						63.5	63.5
TOTAL GENERATION	809.8	3,409.0	14,289.2	10,858.9	6,901.4	6,101.6	42,369.9

PROJECT DESCRIPTION	Expended						Total
	2012	2013	2014	2015	2016	2017	
	(\$000)						
PROPERTIES							
Install Additional Washrooms - Various Sites		250.9	257.2	263.7	270.2	277.0	1,319.0
Legal Survey of Primary Distribution Right of Ways - Various Sites		156.2	196.9	199.4	197.3	197.3	947.1
Install Automatic Fire Sprinkler System - Bay d'Espoir		429.9					429.9
Install Fall Protection Equipment - Various Sites		196.6	222.9				419.5
Replace Accommodations at Ebbegunbaeg - Bay d'Espoir			383.0				383.0
Install Pole Storage Ramps - Various Sites					603.8	507.2	1,111.0
Upgrade Warehouse Lighting - Bishop's Falls					94.9		94.9
Replace Warehouse - Bay d'Espoir						1,228.0	1,228.0
Construct Steel Storage Building - Makkovik						147.4	147.4
Upgrade Classroom and Boardroom in Main Office - Bishop's Falls						77.4	77.4
TOTAL PROPERTIES	0.0	1,033.6	1,060.0	463.1	1,166.2	2,434.3	6,157.2
METERING							
Install Automated Meter Reading - Various Sites	379.6	685.6	772.7	299.5			2,137.4
Purchase Meters, Equipment and Metering Tanks - Various Sites		199.5	198.6	198.8	199.1	199.0	995.0
Purchase 10 Position Meter Calibration Test Console - Hydro Place		192.5					192.5
TOTAL METERING	379.6	1,077.6	971.3	498.3	199.1	199.0	3,324.9
TOOLS AND EQUIPMENT							
Replace Off Road Track Vehicles - Various Sites	482.5	812.4	1,054.1	1.1	406.6		2,756.7
Replace Light Duty Mobile Equipment - Various Sites		476.5	343.3	498.2	489.3	494.8	2,302.1
Purchase Tools and Equipment Less than \$50,000		525.3	204.0	162.0	132.3	135.2	1,158.8
Purchase High Voltage Breaker Timing Sets - Various Sites			85.9	88.3	90.8		265.0
Purchase Track Mounted Backyard RBD - Bishop's Falls			158.1				158.1
Replace Excavator - Unit No. 7833 - St. Anthony			110.2				110.2
Replace Bulldozer - Unit No. 7657 - Bishop's Falls					329.1		329.1
TOTAL TOOLS AND EQUIPMENT	482.5	1,814.2	1,955.6	749.6	1,448.1	630.0	7,080.0
TOTAL TRANSMISSION AND RURAL OPERATIONS	15,728.4	34,052.7	63,450.8	85,035.1	85,851.5	123,279.1	407,397.6

PROJECT DESCRIPTION	Expended						Total
	2012	2013	2014	2015	2016	2017	
	(\$000)						
<u>INFORMATION SYSTEMS</u>							
<u>SOFTWARE APPLICATIONS</u>							
<u>New Infrastructure</u>							
Perform Minor Application Enhancements - Hydro Place		126.8	139.7	142.6	147.4	150.0	706.5
Cost Recoveries		(45.7)	(40.9)	(41.8)	(47.4)	(50.0)	(225.8)
<u>Upgrade of Technology</u>							
Upgrade Energy Management System - Hydro Place		129.9	387.7	212.5	212.7	215.0	1,157.8
Upgrade Microsoft Products - Hydro Place		656.7	455.1	465.2			1,577.0
Cost Recoveries		(236.4)	(163.8)	(167.5)			(567.7)
Upgrade JD Edwards - Hydro Place	284.0	587.6					871.6
Cost Recoveries	(96.6)	(199.8)					(296.4)
Upgrade Business Intelligence Software - Hydro Place		576.9					576.9
Cost Recoveries		(207.7)					(207.7)
Upgrade Lotus Notes - Hydro Place				584.0			584.0
Cost Recoveries				(183.7)			(183.7)
Upgrade Customer Care System - Hydro Place				299.7			299.7
Upgrade Security Configuration Auditing - Hydro Place					140.8		140.8
Upgrade Showcase Suite - Hydro Place					192.4		192.4
Cost Recoveries					(65.4)		(65.4)
Upgrade Corporate Application Environment - Hydro Place						1,073.1	1,073.1
TOTAL SOFTWARE APPLICATIONS	187.4	1,388.3	777.8	1,311.0	580.5	1,388.1	5,633.1

PROJECT DESCRIPTION	Expended						Total
	2012	2013	2014	2015	2016	2017	
	(\$000)						
<u>COMPUTER OPERATIONS</u>							
<u>Infrastructure Replacement</u>							
Replace Personal Computers - Hydro Place		463.9	575.0	537.8	382.3	365.0	2,324.0
Replace Peripheral Infrastructure - Hydro Place		309.9	285.9	521.9	208.5	194.0	1,520.2
Upgrade Enterprise Storage Capacity - Hydro Place		194.9	335.6	309.8	182.0	300.0	1,322.3
Cost Recoveries		(70.2)	(114.1)	(103.5)	(61.9)	(96.0)	(445.7)
Replace ECC Map Board - Hydro Place			52.9	311.1			364.0
<u>Upgrade of Technology</u>							
Upgrade Server Technology Program - Hydro Place		499.4	323.8	568.1	167.2	580.0	2,138.5
Cost Recoveries		(131.8)	(110.1)	(193.2)	(56.8)	(185.6)	(677.5)
Upgrade Computer Room Air Conditioner - Hydro Place		130.0					130.0
Cost Recoveries		(46.8)					(46.8)
Replace Helpdesk Service Manager Application - Hydro Place		96.5					96.5
Cost Recoveries		(34.7)					(34.7)
TOTAL COMPUTER OPERATIONS	0.0	1,411.1	1,349.0	1,952.0	821.3	1,157.4	6,690.8
TOTAL INFORMATION SYSTEMS	187.4	2,799.4	2,126.8	3,263.0	1,401.8	2,545.5	12,323.9

PROJECT DESCRIPTION	Expended						Total
	2012	2013	2014	2015	2016	2017	
	(\$000)						
<u>TELECONTROL</u>							
<u>NETWORK SERVICES</u>							
<u>Infrastructure Replacement</u>							
Replace MDR4000 Microwave Radio (West) - Various Sites		539.0	706.9				1,245.9
Replace Radomes - Various Sites		336.0	178.7	183.2	192.0	196.0	1,085.9
Purchase Tools and Equipment Less than \$50,000		45.6	46.4	47.6	48.7	49.7	238.0
Replace Mobile Radio System Churchill Falls to Happy Valley			58.7	624.5			683.2
Replace Power Line Carrier Bottom Brook to Doyles - TL214			482.8				482.8
Replace Communication Shelter - Gull Pond Hill			254.0				254.0
Replace MDR4000 Microwave Radio (East) - Various Sites					984.9	1,471.1	2,456.0
Replace Microwave Radio - Various Sites					2,172.6		2,172.6
Install Fiber Optics - Stony Brook					54.5		54.5
Expand East Coast Microwave - Various Sites						725.0	725.0
Replace Remote Computer Link - Cat Arm						307.0	307.0
<u>Network Infrastructure</u>							
Replace Battery Banks and Chargers - Various Sites		782.0	314.8	322.9	302.0	305.0	2,026.7
Replace Network Communications Equipment - Various Sites		182.4	155.0	158.6	174.0	180.0	850.0
Install Substation Communications Management - Various Sites						237.8	237.8
<u>Upgrade of Technology</u>							
Upgrade Site Facilities - Various Sites		49.8	55.6	57.0	59.0	50.0	271.4
Replace Telephone Systems - Various Sites		135.4	98.1	98.0			331.5
Replace Program Logic Controllers - Various Sites				1,753.3			1,753.3
Upgrade IP Scada Network - Various Sites			93.1	399.7			492.8
Build Communication Shelters - Various Sites						360.0	360.0
TOTAL TELECONTROL	0.0	2,070.2	2,444.1	3,644.8	3,987.7	3,881.6	16,028.4

PROJECT DESCRIPTION	Expended						
	2012	2013	2014	2015	2016	2017	Total
	(\$000)						
TRANSPORTATION							
Replace Vehicles and Aerial Devices Hydro System - Various Sites	1,711.4	2,521.1	2,433.5	2,751.0	2,497.4	2,114.0	14,028.4
TOTAL TRANSPORTATION	1,711.4	2,521.1	2,433.5	2,751.0	2,497.4	2,114.0	14,028.4
ADMINISTRATION							
Remove Safety Hazards - Various Sites		250.5	257.3	264.4	271.8	279.4	1,323.4
Purchase Tools and Equipment Less than \$50,000		89.9	65.9	68.0	131.0	71.1	425.9
Front End Engineering Design - Hydro Place		472.1					472.1
Replace Cooling Tower and Auxiliaries - Hydro Place				500.0			500.0
Replace Roof - Hydro Place					1,400.0		1,400.0
Replace AC Unit 12A and Unit 14 - Hydro Place					214.6		214.6
Upgrade Fire System - Bishop's Falls						799.6	799.6
Upgrade Outside Property - Various Sites						234.8	234.8
TOTAL ADMINISTRATION	0.0	812.5	323.2	832.4	2,017.4	1,384.9	5,370.4
TOTAL GENERAL PROPERTIES	1,898.8	8,203.2	7,327.6	10,491.2	9,904.3	9,926.0	47,751.1

	Expended to 2013	2014	2015	2016	2017	2018	Total
	(\$000)						
GENERATION	8,082.9	73,388.2	72,320.5	23,711.3	14,411.2	13,173.2	205,087.3
TRANSMISSION AND RURAL OPERATIONS	11,515.7	70,418.1	126,841.1	128,338.1	117,049.9	118,686.6	572,849.5
GENERAL PROPERTIES	2,261.6	6,643.0	8,846.6	11,151.5	12,093.4	7,581.4	48,577.5
CONTINGENCY FUND		1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	5,000.0
TOTAL CAPITAL BUDGET	21,860.2	151,449.3	209,008.2	164,200.9	144,554.5	140,441.2	831,514.3

*The Following Budget Proposals have not been included as part of this application since they will be filed separately later this year. However, they have been added to this Five-Year Plan as well as Section H.

	Expended to 2013	2014	2015	2016	2017	2018	Total
Add Nominal 60 MW Gas Turbine - Holyrood	7,323.9	46,410.0	45,710.7				99,444.6
Install 230 KV Transmission Line - Bay d'Espoir to Western Avalon		6,370.8	74,626.5	62,602.1	60,758.6	63,642.0	268,000.0

	Expended to 2013	2014	2015	2016	2017	2018	Total
	(\$000)						
<u>GENERATION</u>							
Hydraulic Plant	0.0	10,501.3	16,167.7	5,979.9	8,892.1	8,911.5	50,452.5
Thermal Plant	697.6	12,157.2	7,351.8	15,163.3	5,497.6	3,500.0	44,367.5
Gas Turbines	7,385.3	50,533.6	48,580.2	2,546.9	0.0	750.0	109,796.0
Tools and Equipment	0.0	196.1	220.8	21.2	21.5	11.7	471.3
TOTAL GENERATION	8,082.9	73,388.2	72,320.5	23,711.3	14,411.2	13,173.2	205,087.3
<u>TRANSMISSION AND RURAL OPERATIONS</u>							
Terminal Stations	5,933.6	26,652.0	11,843.5	16,160.9	13,885.3	16,435.4	90,910.7
Transmission	350.1	10,656.7	78,996.8	72,209.7	76,381.8	78,747.1	317,342.2
Distribution	1,940.1	16,146.6	21,687.9	22,527.9	14,088.8	13,988.0	90,379.3
Generation	2,431.2	12,985.3	12,127.4	14,541.3	9,384.7	8,242.0	59,711.9
Properties	156.2	647.0	936.0	1,259.7	2,527.7	574.5	6,101.1
Metering	287.7	814.7	539.5	197.6	198.6	199.4	2,237.5
Tools and Equipment	416.8	2,515.8	710.0	1,441.0	583.0	500.2	6,166.8
TOTAL TRANSMISSION AND RURAL OPERATIONS	11,515.7	70,418.1	126,841.1	128,338.1	117,049.9	118,686.6	572,849.5
<u>GENERAL PROPERTIES</u>							
Information Systems	420.3	1,869.2	2,951.9	1,701.8	2,853.5	1,507.0	11,303.7
Telecontrol	539.0	1,961.8	2,045.1	4,934.2	5,740.3	2,816.9	18,037.3
Transportation	1,302.3	2,488.3	3,016.5	2,497.4	2,114.0	2,700.8	14,119.3
Administrative	0.0	323.7	833.1	2,018.1	1,385.6	556.7	5,117.2
TOTAL GENERAL PROPERTIES	2,261.6	6,643.0	8,846.6	11,151.5	12,093.4	7,581.4	48,577.5
<u>CONTINGENCY FUND</u>							
		1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	5,000.0
TOTAL CAPITAL BUDGET	21,860.2	151,449.3	209,008.2	164,200.9	144,554.5	140,441.2	831,514.3

PROJECT DESCRIPTION	Expended to 2013	2014	2015	2016	2017	2018	Total
(\$000)							
HYDRAULIC PLANT							
Refurbish Surge Tanks - Bay d'Espoir		2,265.0	1,141.4	1,150.8	734.7		5,291.9
Rewind Stator Unit 3 - Bay d'Espoir		4,343.9					4,343.9
Overhaul Turbine/Generator Units - Various Sites		485.0	508.5	319.0	365.0	400.0	2,077.5
Upgrade Public Safety Around Dams and Waterways - Bay d'Espoir		352.8	361.7	370.1	378.0	385.6	1,848.2
Upgrade Victoria Control Structure - Bay d'Espoir		495.1	969.5				1,464.6
Automate Generator Deluge Systems Units 3 and 6 - Bay d'Espoir		612.0	751.3				1,363.3
Upgrade Burnt Dam Spillway - Bay d'Espoir		110.2	1,201.9				1,312.1
Install Automated Fuel Monitoring System - Various Sites		193.2			267.4	500.0	960.6
Upgrade Generator Bearings - Bay d'Espoir		18.9	396.0		190.0	200.0	804.9
Upgrade Shoreline Protection - Cat Arm		55.3	708.1				763.4
Upgrade North Cut-Off Dam Access Road - Bay d'Espoir		631.7					631.7
Replace Generator Bearing Coolers Units 4 and 5 - Bay d'Espoir		199.0	189.6	193.8			582.4
Replace Automatic Greasing Systems - Bay d'Espoir		233.4	196.7				430.1
Replace Spherical By Pass Valve Assemblies Units 1 and 2 - Bay d'Espoir		57.5	96.3				153.8
Replace Fall Arrest on Surge Tank 1 - Bay d'Espoir		142.8					142.8
Replace Turbine/Generator Cooling Water Flow Meters - Upper Salmon		139.7					139.7
Raise Height of Earth Dam - Paradise River		98.7					98.7
Replace Engine on Emergency Lift System - West Salmon Spillway		67.1					67.1
Replace Penstock and Auxiliaries - Venam's Bight			4,712.9				4,712.9
Refurbish Site Facilities - Bay d'Espoir			780.2	912.7			1,692.9
Refurbish Access Road(Topping and Culverts and Bin Wall) - Cat Arm			1,505.6				1,505.6
Refurbish Generation Unit - Snooks Arm			375.4	850.9			1,226.3
Install Hydrometeorological Stations - Various Sites			378.3	321.2			699.5
Replace ABB Exciter Unit 2 - Cat Arm			600.0				600.0
Replace Station Service Breakers - Cat Arm			500.0				500.0
Replace Site Pumphouse, Pumps and Controls - Bay d'Espoir			268.4				268.4
Replace Slip Ring Assembly - Hinds Lake			252.8				252.8
Install Infrared Viewports - Various Sites			108.8		112.9		221.7
Refurbish Unit Relay Protection - Paradise River			164.3				164.3
Replace Rectifier Transformer Unit 1 - Bay d'Espoir				75.0	740.5	433.9	1,249.4
Pilot Asset Health Monitoring Template - Upper Salmon				598.7	194.4	103.8	896.9
Install New Vent Chambers Units 1 to 6 - Bay d'Espoir				75.0	572.4		647.4
Refurbish Generation Unit - Venam's Bight				463.5			463.5
Refurbish Station Service Water Systems - Upper Salmon				344.0			344.0
Purchase Generator Bearing Cooler Sets - Various Sites				239.4			239.4
Purchase Turbine Bearing Cooler Set - Cat Arm				65.8			65.8
Replace Spherical Valve Control System - Cat Arm					883.0		883.0

PROJECT DESCRIPTION	Expended to 2013	2014	2015	2016	2017	2018	Total
	(\$000)						
HYDRAULIC PLANT (cont'd.)							
Replace Diesel Generator 2 at Victoria Control Structure - Bay d'Espoir					638.1		638.1
Refurbish Road Between Powerhouse and NS Spillway - Upper Salmon					556.5		556.5
Refurbish Salmon River Spillway - Bay d'Espoir					469.5		469.5
Refurbish EBBE Control Structure - Bay d'Espoir					456.5		456.5
Upgrade Powerhouse 1 and 2 Station Service - Bay d'Espoir					429.8		429.8
Replace 6 Slip Rings Unit 1 to 6 - Bay d'Espoir					341.3		341.3
Replace Main Generator Bearing - Upper Salmon					300.0		300.0
Upgrade Domestic Water System - Cat Arm					242.6		242.6
Replace Road Culverts - Granite Canal					220.3		220.3
Install Partial Discharge Monitors - Paradise River					197.0		197.0
Upgrade Sump Level System Powerhouse 2 - Bayd'Espoir					185.0		185.0
Replace Shaft Seal System - Upper Salmon					150.0		150.0
Replace Plant HP Compressor 1 - Upper Salmon					142.7		142.7
Install Permanent Monitoring Vibration System unit 7 - Bay d'Espoir					124.5		124.5
Refurbish Generator Rotor - Hinds Lake						1,701.5	1,701.5
Install Dynamic Air Gap Monitoring System - Upper Salmon and Hinds Lake						1,160.0	1,160.0
Resurface All On Site Roads - Bay d'Espoir						800.0	800.0
Make Improvements to Powerhouse 1 Ventilation - Bay d'Espoir						739.5	739.5
Replace Main Roof on Powerhouse 1 - Bay d'Espoir						534.3	534.3
Refurbish Relay Protection Units 5 to 7 - Bay d'Espoir						434.4	434.4
Replace Dry Air Compressor 1 and 2 Powerhouse 1 - Bay d'Espoir						320.6	320.6
Replace Sump Pumps 1 and 2 in Powerhouse 1 - Bay d'Espoir						317.9	317.9
Replace Underground Oily Water Separator - Bay d'Espoir						300.0	300.0
Replace Firewater Pumps - Upper Salmon						280.0	280.0
Replace Cooling Water Pumps Unit 7 - Bay d'Espoir						150.0	150.0
Install New Septic System - Snooks Arm						150.0	150.0
TOTAL HYDRAULIC PLANT		10,501.3	16,167.7	5,979.9	8,892.1	8,911.5	50,452.5

PROJECT DESCRIPTION	Expended to 2013	2014	2015	2016	2017	2018	Total
				(\$000)			
<u>THERMAL PLANT</u>							
Overhaul Steam Turbine/Generator Unit 2 - Holyrood		5,147.0					5,147.0
Install Variable Speed Drives on 6 Forced Draft Fans - Holyrood	697.6	2,659.7					3,357.3
Complete Condition Assessment Phase 2 - Holyrood		1,476.8					1,476.8
Upgrade Underground Plant Drainage System - Holyrood		112.6	1,342.9				1,455.5
Upgrade Waste Water Basin Building - Holyrood		136.7	981.0				1,117.7
Upgrade Excitation Systems Units 1 and 2 - Holyrood		654.3	456.6				1,110.9
Install Fire Protection Upgrades - Holyrood		56.6	312.5			250.0	619.1
Upgrade Plant Elevators - Holyrood		533.2					533.2
Upgrade Vibration Monitoring System - Holyrood		524.9					524.9
Replace Economizer Inlet Valves - Holyrood		192.0	329.1				521.1
Install Cold-Reheat Condensate Drains and High Pressure Heater Trip Level Unit 3 - Holyrood		49.8	467.4				517.2
Overhaul Boiler Feed Pump East Unit 3 - Holyrood		194.9					194.9
Replace DC Distribution Panels and Breakers - Holyrood		174.2					174.2
Overhaul Cooling Water Pump East Unit 1 - Holyrood		98.4					98.4
Overhaul Extraction Pump South Unit 1 - Holyrood		96.8					96.8
Upgrade Continuous Opacity Monitors - Holyrood		49.3					49.3
Overhaul Turbine Valves Unit 1 - Holyrood			1,218.0				1,218.0
Upgrade Powerhouse Roofing - Holyrood			456.1	385.6	373.6		1,215.3
Replace Powerhouse Overhead Doors - Holyrood			330.1	347.3			677.4
Upgrade Quarry Brook Dam Equipment - Holyrood			395.1				395.1
Upgrade Fire Protection(Outbuildings)- Holyrood			314.0				314.0
Replace Compressor #2 - Holyrood			288.1				288.1
Overhaul Boiler Feed Pump East Unit 1 - Holyrood			182.6				182.6
Replace DC Distribution Panels and Breakers - Holyrood			103.3				103.3
Overhaul Extraction Pump North Unit 1 - Holyrood			87.5				87.5
Overhaul Extraction Pump South Unit 3 - Holyrood			87.5				87.5
Rewind Generator Rotor and Install Rotor Flux Probe Unit 3 - Holyrood				8,402.4			8,402.4
Overhaul Steam Turbine/Generator Unit 3 - Holyrood				4,810.1			4,810.1
Upgrade Cranes and Hoists - Holyrood				600.0			600.0
Upgrade UPS 1 and 2 - Holyrood				254.1			254.1
Overhaul Boiler Feed Pump West Unit 1 - Holyrood				186.0			186.0

PROJECT DESCRIPTION	Expended to 2013	2014	2015	2016 (\$000)	2017	2018	Total
THERMAL PLANT (cont'd.)							
Overhaul Cooling Water Pump East Unit 2 - Holyrood				88.9			88.9
Overhaul Extraction Pump North Unit 2 - Holyrood				88.9			88.9
Replace Unit Switchgear and Transformers - Holyrood- Holyrood					1,705.9		1,705.9
Overhaul Turbine Valves Unit 2 - Holyrood					1,456.2		1,456.2
Upgrade Plant Access Road - Holyrood					807.8		807.8
Replace Stage 2 Diesel - Holyrood					443.2		443.2
Upgrade UPS 3 and 4 - Holyrood					266.7		266.7
Overhaul Boiler Feed Pump Unit 2 - Holyrood					188.1		188.1
Overhaul Cooling Water Pump Unit 3 - Holyrood					89.9		89.9
Overhaul Extraction Pump Unit 3 - Holyrood					89.9		89.9
Install Visible Isolation for 600 V HVAC System Admin Area - Holyrood					76.3		76.3
Install New Raw Water Line - Holyrood						2,000.0	2,000.0
Install New Lube Oil / Seal Oil Systems - Holyrood						1,000.0	1,000.0
Revisit Condition Assessment Level 1 - Holyrood						250.0	250.0
TOTAL THERMAL PLANT	697.6	12,157.2	7,351.8	15,163.3	5,497.6	3,500.0	44,367.5

PROJECT DESCRIPTION	Expended to 2013	2014	2015	2016 (\$000)	2017	2018	Total
<u>GAS TURBINES</u>							
Add Nominal 60 MW Gas Turbine - Holyrood	7,323.9	46,410.0	45,710.7				99,444.6
Upgrade Gas Turbine Controls - Happy Valley	61.4	1,128.6					1,190.0
Upgrade Gas Turbine Plant Life Extension - Stephenville		2,995.0	2,660.6	2,546.9			8,202.5
Install Diesel Automation and Charger System - Happy Valley			208.9				208.9
Refurbish Generator and Exciter Winding - Happy Valley						750.0	750.0
TOTAL GAS TURBINE PLANTS	7,385.3	50,533.6	48,580.2	2,546.9	0.0	750.0	109,796.0
<u>TOOLS AND EQUIPMENT</u>							
Purchase Tools and Equipment Less than \$50,000		146.2	50.0	21.2	21.5	11.7	250.6
Install Handheld Pendant to Overhead Crane - Bay d'Espoir		49.9	170.8				220.7
TOTAL TOOLS AND EQUIPMENT		196.1	220.8	21.2	21.5	11.7	471.3
TOTAL GENERATION	8,082.9	73,388.2	72,320.5	23,711.3	14,411.2	13,173.2	205,087.3

PROJECT DESCRIPTION	Expended to 2013	2014	2015	2016	2017	2018	Total
				(\$000)			
<u>TERMINAL STATIONS</u>							
Install New Transformer - Oxen Pond	3,823.6	15,310.4					19,134.0
Replace Instrument Transformers - Various Sites	593.2	552.8	538.4	1,511.7	471.9		3,668.0
Replace Compressed Air Systems - Various Sites	303.0	2,105.9			200.0	500.0	3,108.9
Upgrade Terminal Station - Wiltondale	697.7	1,173.3					1,871.0
Perform Grounding Upgrades - Various Sites	329.0	337.1	345.4	338.2	341.5		1,691.2
Replace Insulators - Various Sites	187.1	287.9					475.0
Upgrade Circuit Breakers - Various Sites		3,695.4	1,642.5	3,750.1	3,973.2	4,000.0	17,061.2
Upgrade Power Transformers - Various Sites		1,904.4	4,719.4	1,750.6	1,780.8	1,800.0	11,955.2
Replace Disconnect Switches - Various Sites		815.9	953.1	958.4	1,040.3	981.0	4,748.7
Upgrade Terminal Station Foundations - Various Sites		197.9	300.0	300.0	300.0	300.0	1,397.9
Replace Surge Arresters - Various Sites		181.9	186.1	250.7	148.7	195.4	962.8
Replace Optimho Relays on TL203 - Western Avalon to Sunnyside		89.1	96.9				186.0
Install 20 MVAR Reactor - Bottom Brook			1,241.7	2,572.8			3,814.5
Upgrade Terminal Station Protection and Control - Various Sites			631.0	631.0	631.0	631.0	2,524.0
Install Fire Protection in 230 kV Stations - Various Sites			70.0	650.0	650.0	650.0	2,020.0
Install Transformer On line Gas Monitoring - Various Sites			200.0	550.0	350.0		1,100.0
Replace Telecontrol Building and Upgrade Equipment - Daniels Harbour			55.9	752.8			808.7
Perform Site Work to Accommodate Mobile Transformer - Various Sites			100.0	350.3	192.8		643.1
Replace 66kV S/S Cable Feed to Plant - Holyrood			223.2				223.2
Upgrade Control Wiring Phase 1 to Terminal Station 1 - Bay d'Espoir			70.0	144.6			214.6
Install Support Structures C2 Capacitor Bank - Hardwoods			150.0				150.0
Replace Station Lighting - Bay d'Espoir			150.0				150.0
Install 2nd AC Station Service - Howley			101.5				101.5
Upgrade Transformer Differential Circuit on T1 - Grandy Brook			68.4				68.4
Upgrade Control Building for Staff Working Spaces - South Brook and Doyles				445.7	759.2		1,204.9
Upgrade Control Wiring Phase 2 to Terminal Station 1 - Bay d'Espoir				100.0	390.9		490.9
Upgrade Control Building - Indian River				405.6			405.6

PROJECT DESCRIPTION	Expended to 2013	2014	2015	2016	2017	2018	Total
	(\$000)						
TERMINAL STATIONS (cont'd.)							
Install Remote Control Sectionalizer TL251(2)(3) - Hampden				334.0			334.0
Upgrade Terminal Station for Mobile Substation - Cow Head				224.9			224.9
Terminal Stations Compressor Replacement Program - Various Sites				139.5			139.5
Construct 138 kV Terminal Station - Hawkes Bay					2,280.0	5,013.0	7,293.0
Upgrade DC Station Service - Bay d'Espoir					200.0		200.0
Upgrade Terminal Station for Mobile Substation - Howley and Daniels Harbour					175.0		175.0
Replace Outside Service - Holyrood						750.0	750.0
Install 66 kV Breaker By-Pass Switches - Various Sites						515.0	515.0
Install Drainage to Stop Surface Flooding - Various Sites						500.0	500.0
Upgrade Access Road with New Topping - Buchans						250.0	250.0
Upgrade Station Service for Oil Reclaimer - Oxen Pond						200.0	200.0
Upgrade Station Service - Sunnyside						150.0	150.0
TOTAL TERMINAL STATIONS	5,933.6	26,652.0	11,843.5	16,160.9	13,885.3	16,435.4	90,910.7

PROJECT DESCRIPTION	Expended to 2013	2014	2015	2016 (\$000)	2017	2018	Total
TRANSMISSION							
Replace Guy Wires Doyles to Grand Bay - TL215	350.1	530.0					880.1
Install 230 KV Transmission Line - Bay d'Espoir to Western Avalon		6,370.8	74,626.5	62,602.1	60,758.6	63,642.0	268,000.0
Perform Wood Pole Line Management Program - Various Sites		2,564.2	2,872.0	2,954.2	2,759.5	2,791.4	13,941.3
Refurbish Anchors and Footings TL202 and TL206 - Bay d'Espoir to Sunnyside		1,191.7	988.2				2,179.9
Upgrade Transmission Lines - Various Sites			430.1	4,176.9	1,107.7	2,437.7	8,152.4
Replace Aircraft Markers at Grand Lake Crossing - TL228			80.0	715.4			795.4
Replace Transmission Lines - Various Sites				525.8	10,327.8	9,876.0	20,729.6
Construct Transmission Line Equipment Off-Loading Areas - Various Sites				887.8	506.4		1,394.2
Install 138 kV Transmission Line Cross Braces - Various Sites				71.0	637.9		708.9
Conduct LIDAR Surveys - Various Sites				276.5	283.9		560.4
TOTAL TRANSMISSION	350.1	10,656.7	78,996.8	72,209.7	76,381.8	78,747.1	317,342.2

PROJECT DESCRIPTION	Expended to 2013	2014	2015	2016	2017	2018	Total
				(\$000)			
<u>DISTRIBUTION</u>							
Upgrade Distribution Systems - Various Sites	1,940.1	6,495.3	5,182.1	3,211.4	2,219.0	2,379.0	21,426.9
Provide Service Extensions - All Service Areas		6,170.0	6,290.0	5,895.0	5,490.0	5,650.0	29,495.0
Upgrade Distribution Systems - All Service Areas		3,370.0	3,440.0	3,310.0	3,180.0	3,250.0	16,550.0
Replace Recloser Control Panels - Various Sites		111.3	84.4				195.7
Additions for Load Growth - Labrador South Interconnection - Various Sites			5,501.3	7,634.2			13,135.5
Replace Submarine Cable - Various Sites			45.0	400.8		850.0	1,295.8
Convert Section of Triton (L5) to 25kV - South Brook			521.1				521.1
Purchase Spare Transformer - Paradise River			50.0	450.0			500.0
Replace Hendrix Insulators - Farewell Head			500.0				500.0
Implement Geographical Information System - Various Sites			74.0				74.0
Additions for Load - Distribution Systems - Various Sites				1,056.9	2,045.4	1,000.0	4,102.3
Convert Section of Robert's Arm (L3) to 25 kV - South Brook				569.6			569.6
Extend Three Phase to St. Paul's - Cow Head					474.0		474.0
Construct Storage Buildings - Change Islands and Springdale					401.6		401.6
Install Mobile Diesel Quick Connect/Disconnect - Various Sites					178.8		178.8
Replace Transformer - Sally's Cove					100.0		100.0
Replace T1 2.5 MVA Transformer - Conne River						800.0	800.0
Replace L4 #4 Copper Wire Primary - Farewell Head						59.0	59.0
TOTAL DISTRIBUTION	1,940.1	16,146.6	21,687.9	22,527.9	14,088.8	13,988.0	90,379.3

PROJECT DESCRIPTION	Expended	2014	2015	2016	2017	2018	Total
	to 2013						
(\$000)							
GENERATION							
Additions for Load Growth - Isolated Generation Stations - Various Sites	2,040.2	9,999.1	5,583.8	7,562.6	4,125.9	1,200.0	30,511.6
Perform Arc Flash Remediation - Various Sites	391.0	401.8	413.1				1,205.9
Overhaul Diesel Engines - Various Sites		823.5	1,436.1	1,470.4	1,503.4	1,535.7	6,769.1
Replace Diesel Units - Various Sites		208.9	534.9	1,645.5	1,380.0	1,270.0	5,039.3
Inspect Fuel Storage Tanks - Various Sites		495.0	1,183.6	498.0	511.9	526.4	3,214.9
Install Fire Protection in Diesel Plant - Various Sites		107.1	992.2	500.0	500.0	500.0	2,599.3
Upgrade Diesel Plant Production Data Collection Equipment - Various Sites		268.9	269.8	280.7			819.4
Upgrade Ventilation Systems - Various Sites		263.0	50.0	100.0	100.0	100.0	613.0
Replace Fuel Tanks - Ramea and Port Hope Simpson		234.2	229.5				463.7
Construct Storage Facility - Postville		183.8					183.8
Perform Plant Improvements as Per 2012 FEED Project - Various Sites			500.0	1,700.0	250.0	250.0	2,700.0
Replace Programmable Logic Controllers - Various Sites			100.0	250.0	250.0	250.0	850.0
Upgrade Fuel Storage - Various Sites			514.4	125.3			639.7
Purchase Accommodations Trailers - Postville and Makkovik			120.0	120.0			240.0
Install Automatic Fuel Shut Off Valves - St Anthony			200.0				200.0
Upgrade Lighting System - Cartwright and Hopedale				157.9			157.9
Upgrade Station Service - Grey River				130.9			130.9
Replace Radiators - Various Sites					500.0	500.0	1,000.0
Install Fire Detection System - Norman Bay					100.0		100.0
Replace Underground Glycol Line - Francois					100.0		100.0
Insulate Diesel Plant - St Anthony					63.5		63.5
Install Unit Fuel Metering - Various Sites						600.0	600.0
Upgrade and Add Site Fencing - Lanse Au Loup and Port Hope Simpson						450.0	450.0
Build Roadway for Freight Delivery - Norman Bay						307.2	307.2
Install Nox Monitors at 2 Sites - Various Sites						302.7	302.7
Install Sectionalizing for Cold Load Pickup - Port Hope Simpson						250.0	250.0
Replace Diesel Plant - Rigolet						200.0	200.0
TOTAL GENERATION	2,431.2	12,985.3	12,127.4	14,541.3	9,384.7	8,242.0	59,711.9

PROJECT DESCRIPTION	Expended to 2013	2014	2015	2016	2017	2018	Total
	(\$000)						
PROPERTIES							
Legal Survey of Primary Distribution Line Right of Ways - Various Sites	156.2	196.8	197.8	197.3	197.4	197.3	1,142.8
Install Additional Washrooms - Various Sites		251.0	257.3	263.7	270.3	277.2	1,319.5
Install Fall Protection Equipment - Various Sites		199.2					199.2
Upgrade Line Depots - Various Sites			100.0	100.0	100.0	100.0	400.0
Replace Accomodations/Septic System at EBBE - Bay d'Espoir			380.9				380.9
Install Pole Storage Ramps - Various Sites				603.8	507.2		1,111.0
Upgrade Warehouse Lighting - Bishops Falls				94.9			94.9
Replace Warehouse - Bay d'Espoir					1,228.0		1,228.0
Construct Steel Storage Building - Makkovik					147.4		147.4
Upgrade Classroom and Boardroom in Main Office - Bishop Falls					77.4		77.4
TOTAL PROPERTIES	156.2	647.0	936.0	1,259.7	2,527.7	574.5	6,101.1
METERING							
Install Automated Meter Reading - Various Sites	287.7	615.7	340.2				1,243.6
Purchase Meters, Equipment and Metering Tanks - Various Sites		199.0	199.3	197.6	198.6	199.4	993.9
TOTAL METERING	287.7	814.7	539.5	197.6	198.6	199.4	2,237.5
TOOLS AND EQUIPMENT							
Replace Off Road Track Vehicles - Various Sites	416.8	1,322.8	1.1	406.6		410.0	2,557.3
Replace Light Duty Mobile Equipment - Various Sites		579.1	498.2	489.3	494.8		2,061.4
Purchase Tools & Equipment Less than \$50,000 - Various Sites		553.3	210.7	216.0	88.2	90.2	1,158.4
Purchase Portable Vibration Testing Equipment - Various Sites		60.6					60.6
Replace Bulldozer - Bishop Falls				329.1			329.1
TOTAL TOOLS AND EQUIPMENT	416.8	2,515.8	710.0	1,441.0	583.0	500.2	6,166.8
TOTAL TRANSMISSION AND RURAL OPERATIONS	11,515.7	70,418.1	126,841.1	128,338.1	117,049.9	118,686.6	572,849.5

PROJECT DESCRIPTION	Expended to 2013	2014	2015	2016 (\$000)	2017	2018	Total
INFORMATION SYSTEMS							
SOFTWARE APPLICATIONS							
<u>New Infrastructure</u>							
Perform Minor Application Enhancements - Hydro Place		138.6	142.6	147.4	150.0	155.0	733.6
Cost Recoveries		(51.3)	(41.8)	(47.4)	(50.0)	(52.0)	(242.5)
<u>Upgrade of Technology</u>							
Upgrade Microsoft Office Products - Hydro Place	656.7	455.1	465.2	470.0	480.0	485.0	3,012.0
Cost Recoveries	(236.4)	(163.8)	(167.5)	(170.0)	(172.0)	(175.0)	(1,084.7)
Upgrade Energy Management System - Hydro Place		187.9	212.5	212.7	215.0		828.1
Upgrade Lotus Notes - Hydro Place			584.0				584.0
Cost Recoveries			(183.7)				(183.7)
Upgrade Customer Care System - Hydro Place			299.7				299.7
Upgrade Security Configuration Auditing - Hydro Place				140.8			140.8
Upgrade Showcase Suite - Hydro Place				192.4			192.4
Cost Recoveries				(65.4)			(65.4)
Upgrade Corporate Application Environment - Hydro Place					1,073.1		1,073.1
TOTAL SOFTWARE APPLICATIONS	420.3	566.5	1,311.0	880.5	1,696.1	413.0	5,287.4

PROJECT DESCRIPTION	Expended to 2013	2014	2015	2016	2017	2018	Total
				(\$000)			
<u>COMPUTER OPERATIONS</u>							
<u>Infrastructure Replacement</u>							
Replace Personal Computers - Various Sites		489.8	537.8	382.3	365.0	370.0	2,144.9
Replace Peripheral Infrastructure - Hydro Place		200.7	521.9	208.5	194.0	220.0	1,345.1
Upgrade Enterprise Storage Capacity - Hydro Place		517.8	309.8	182.0	300.0	400.0	1,709.6
Cost Recoveries		(191.6)	(103.5)	(61.9)	(96.0)	(148.0)	(601.0)
<u>Upgrade of Technology</u>							
Upgrade Server Technology Program - Hydro Place		328.0	568.1	167.2	580.0	400.0	2,043.3
Cost Recoveries		(42.0)	(193.2)	(56.8)	(185.6)	(148.0)	(625.6)
TOTAL COMPUTER OPERATIONS		1,302.7	1,640.9	821.3	1,157.4	1,094.0	6,016.3
TOTAL INFORMATION SYSTEMS	420.3	1,869.2	2,951.9	1,701.8	2,853.5	1,507.0	11,303.7

PROJECT DESCRIPTION	Expended to 2013	2014	2015	2016 (\$000)	2017	2018	Total
<u>TELECONTROL</u>							
<u>NETWORK SERVICES</u>							
<u>Infrastructure Replacement</u>							
Replace MDR4000 Microwave Radio (West) - Various Sites	539.0	706.9					1,245.9
Replace Radomes - Various Sites		324.9	183.2	192.0	196.0	196.0	1,092.1
Purchase Tools and Equipment Less than \$50,000		46.4	46.4	47.6	48.7	49.7	238.8
Replace Mobile Radio System - Happy Valley			55.9	593.3			649.2
Construct Storage Facility - Deer Lake			410.2				410.2
Refurbish Microwave Shelter - Sandy Brook			90.0				90.0
Replace Power Line Carriers - Various Sites				2,321.0	2,942.0	1,720.0	6,983.0
Replace MDR 4000 Microwave Radio (East) - Various Sites				539.0	920.0		1,459.0
Replace Standby Generator - Sandy Brook				237.3			237.3
Refurbish Microwave Shelters - Mary March Hill and Blue Grass Hill					90.0	90.0	180.0
Replace GPS Clocks - Various Sites					52.8		52.8
Replace MDR 6000 Microwave Radio (East) - Various Sites						86.2	86.2
<u>Network Infrastructure</u>							
Replace Battery Banks and Chargers - Various Sites		267.0	398.0	302.0	305.0	250.0	1,522.0
Replace Network Communications Equipment - Various Sites		91.0	158.6	174.0	180.0	185.0	788.6
Install Substation Communications Management - Various Sites					237.8		237.8
<u>Upgrade of Technology</u>							
Upgrade IP SCADA Network - Various Sites		254.2	238.7				492.9
Replace Telephone Systems - Stephenville		139.9	98.1				238.0
Upgrade Site Facilities - Various Sites		49.8	48.0	48.0	48.0		193.8
Replace Wescom Scanner - Corner Brook		81.7					81.7
Replace WIFI Network - Various Sites			120.0				120.0
Replace GDC Metroplex - Stoney Brook			90.0				90.0
Replace DTI Phone Turrets in Energy Control Center - Hydro Place			60.0				60.0
Replace Wescom Transceivers - Various Sites			48.0				48.0
Replace PBX Phone Systems - Various Sites				480.0	360.0	240.0	1,080.0
Build Communications Shelters - Various Sites					360.0		360.0
TOTAL TELECONTROL	539.0	1,961.8	2,045.1	4,934.2	5,740.3	2,816.9	18,037.3

PROJECT DESCRIPTION	Expended to 2013	2014	2015	2016 (\$000)	2017	2018	Total
<u>TRANSPORTATION</u>							
Replace Vehicles and Aerial Devices - Various Sites	1,302.3	2,488.3	3,016.5	2,497.4	2,114.0	2,700.8	14,119.3
TOTAL TRANSPORTATION	1,302.3	2,488.3	3,016.5	2,497.4	2,114.0	2,700.8	14,119.3
<u>ADMINISTRATION</u>							
Remove Safety Hazards - Various Sites		257.8	265.1	272.5	280.1		1,075.5
Purchase Office Equipment		65.9	68.0	131.0	71.1		336.0
Replace Cooling Tower and Auxiliaries - Hydro Place			500.0				500.0
Replace Roof - Hydro Place				1,400.0			1,400.0
Replace AC Unit 12A and Unit 14 - Hydro Place				214.6			214.6
Upgrade Fire System - Bishop Falls					799.6	556.7	1,356.3
Upgrade Outside Property - Various Sites					234.8		234.8
TOTAL ADMINISTRATION	0.0	323.7	833.1	2,018.1	1,385.6	556.7	5,117.2
TOTAL GENERAL PROPERTIES	2,261.6	6,643.0	8,846.6	11,151.5	12,093.4	7,581.4	48,577.5

	Expended to 2014	2015	2016	2017 (\$000)	2018	2019	Total
GENERATION	111,096.2	27,805.1	36,063.2	23,853.4	12,222.0	12,111.4	223,151.3
TRANSMISSION AND RURAL OPERATIONS	59,127.7	237,042.6	266,384.9	182,786.8	144,767.0	45,844.5	935,953.5
GENERAL PROPERTIES	3,041.9	8,401.6	10,192.1	15,730.3	11,719.3	7,747.8	56,833.0
CONTINGENCY FUND		1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	5,000.0
TOTAL CAPITAL BUDGET	173,265.8	274,249.3	313,640.2	223,370.5	169,708.3	66,703.7	1,220,937.8
Projects Filed Separately therefore not Included in the 2015 Capital Budget Application:¹							
Construct Labrador West Transmission Line	37,484.2	163,145.3	128,962.6				
Purchase and Install 100 MW Combustion Turbine - Holyrood	109,677.0	9,323.0					
Construct 230 kV Transmission Line - Bay d'Espoir to Western Avalon	2,412.6	18,964.7	77,225.6	110,064.0	82,991.0		
Replace Transformer - Sunnyside	7,197.8	1,226.4					
Replace Excitation Transformers - Bay d'Espoir	636.7	360.0					
Replace Air Compressor - Holyrood	247.6	61.1					
Voltage Conversion - Labrador City	808.9	1,237.8					
Total Projects filed separately		194,318.3					
Total 2015 Capital Budget Application (as per Schedule A)		79,931.0					

¹ Includes projects already filed but not yet approved as well as projects soon to be filed.

	Expended to 2014	2015	2016	2017	2018	2019	Total
	(\$000)						
<u>GENERATION</u>							
Hydraulic Plant	823.3	10,193.3	12,023.6	14,931.2	8,911.5	8,699.7	55,582.6
Thermal Plant	546.0	4,854.1	21,242.2	8,863.2	3,250.0	2,750.0	41,505.5
Gas Turbines	109,677.0	12,462.6	2,739.5	0.0	0.0	600.0	125,479.1
Tools and Equipment	49.9	295.1	57.9	59.0	60.5	61.7	584.1
TOTAL GENERATION	111,096.2	27,805.1	36,063.2	23,853.4	12,222.0	12,111.4	223,151.3
<u>TRANSMISSION AND RURAL OPERATIONS</u>							
Terminal Stations	14,255.5	20,912.6	19,185.8	14,326.5	19,376.6	17,452.4	105,509.4
Transmission	41,088.5	185,928.8	211,530.9	127,612.3	98,330.9	4,629.2	669,120.6
Distribution	1,291.4	17,945.1	18,307.0	22,297.8	13,108.0	18,536.0	91,485.3
Generation	1,978.6	7,728.0	11,703.3	13,767.0	11,675.7	3,328.7	50,181.3
Properties	156.8	2,313.6	3,543.0	3,815.1	1,484.5	1,515.6	12,828.6
Metering	356.9	1,096.3	599.7	199.6	200.0	197.1	2,649.6
Tools and Equipment	0.0	1,118.2	1,515.2	768.5	591.3	185.5	4,178.7
TOTAL TRANSMISSION AND RURAL OPERATIONS	59,127.7	237,042.6	266,384.9	182,786.8	144,767.0	45,844.5	935,953.5
<u>GENERAL PROPERTIES</u>							
Information Systems	711.6	2,680.0	3,349.1	3,182.7	2,819.9	2,825.2	15,568.5
Telecontrol	521.2	1,273.0	3,017.0	7,235.4	2,815.9	2,122.7	16,985.2
Transportation	1,809.1	3,468.1	2,400.1	3,251.3	5,315.2	2,582.5	18,826.3
Administrative	0.0	980.5	1,425.9	2,060.9	768.3	217.4	5,453.0
TOTAL GENERAL PROPERTIES	3,041.9	8,401.6	10,192.1	15,730.3	11,719.3	7,747.8	56,833.0
<u>CONTINGENCY FUND</u>							
		1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	5,000.0
TOTAL CAPITAL BUDGET	173,265.8	274,249.3	313,640.2	223,370.5	169,708.3	66,703.7	1,220,937.8

PROJECT DESCRIPTION	Expended						Total
	to 2014	2015	2016	2017	2018	2019	
	(\$'000)						
HYDRAULIC PLANT							
Refurbish Burnt Dam Spillway Structure - Bay d'Espoir	110.2	1,201.9					1,312.1
Upgrade Generator Bearings - Bay d'Espoir	18.9	410.7	633.3	190.0	200.0		1,452.9
Replace Spherical By Pass Valves - Bay d'Espoir	57.5	96.3					153.8
Upgrade Public Safety Around Dams and Waterways - Various Sites		483.9	370.1	378.0	385.6	315.5	1,933.1
Replace Automatic Greasing Systems Units 2 and 4 - Bay d'Espoir		254.4					254.4
Automate Generator Deluge Systems Units 3, 5 and 6 - Bay d'Espoir		645.2					645.2
Replace Generator Bearing Coolers - Bay d'Espoir		153.8	193.8				347.6
Replace Interior Coating on Surge Tanks - Bay d'Espoir		1,629.3	425.0	437.2			2,491.5
Install Infrared View Ports - Various Sites		83.7	113.1	112.9			309.7
Replace Site Pump House and Associated Equipment - Bay d'Espoir		22.7	522.5				545.2
Refurbish Access Road - Cat Arm		990.0					990.0
Refurbish Unit Relay Protection - Paradise River		8.7	79.7				88.4
Install Hydrometeorological Stations - Various Sites		377.9	321.2				699.1
Overhaul Turbine/Generator - Various Sites		304.4	478.2	365.0	400.0	408.2	1,955.8
Refurbish Generation Unit - Various Sites		352.9	2,052.8				2,405.7
Replace Station Service Breakers - Cat Arm		644.9	363.4				1,008.3
Replace ABB Exciter Unit 2 - Cat Arm		845.9					845.9
Upgrade Equipment Doors - Various Sites		348.5					348.5
Refurbish Salmon River Spillway - Bay d'Espoir		745.6	556.8	469.5		400.0	2,171.9
Refurbish Intakes - Bay d'Espoir		72.6	262.3				334.9
Replace Excitation Transformers - Bay d'Espoir	636.7	360.0					996.7
Install New Vent Chambers, Units 1 to 6 - Bay d'Espoir			75.0				75.0
Install Exterior Protective Coating on Surge Tanks - Various Sites			725.8	734.7			1,460.5
Refurbish Station Service Water System - Upper Salmon			344.0				344.0
Purchase Generator Bearing Cooler Sets - Cat Arm and Hinds Lake			239.4	572.4			811.8
Purchase 1 Turbine Bearing Cooler Set - Cat Arm			65.8				65.8
Pilot Asset Health Monitoring Template - Upper Salmon			598.7	194.4	103.8		896.9
Replace Penstock and Auxiliaries - Venams Bight			387.9	4,409.2			4,797.1
Upgrade Shoreline Protection - Cat Arm			708.4				708.4
Replace Control Room/Communications Room AC - Hinds Lake			150.0				150.0
Replace Generator Cooling Water Piping - Hinds Lake			153.7				153.7
Refurbish Site Facilities - Bay d'Espoir			797.4	933.0			1,730.4
Refurbish Structures - Various Sites			981.8	456.5		1,355.6	2,793.9
Purchase Spare Transformer - Paradise River		160.0	348.5				508.5
Replace Diesel Generator 2 at Victoria Control Structure - Bay d'Espoir				638.1			638.1
Upgrade Powerhouse 1 and 2 Station Service - Bay d'Espoir				429.8			429.8
Install Permanent Monitoring Vibration System Unit 7 - Bay d'Espoir				124.5			124.5
Upgrade Sump Level System Powerhouse 2 - Bay d'Espoir				185.0			185.0
Replace 6 Slip Rings Assemblies - Various Sites				601.0			601.0

PROJECT DESCRIPTION	Expended to 2014 (\$000)	2015	2016	2017	2018	2019	Total
HYDRAULIC PLANT (cont'd.)							
Install Automated Fuel Monitoring - Various Sites				267.4	500.0		767.4
Upgrade Roads - Various Sites				776.8	800.0	498.5	2,075.3
Replace Spherical Valve Control System - Cat Arm				883.0			883.0
Install Partial Discharge Monitors - Paradise River				197.0			197.0
Replace Rectifier Transformers - Various Sites			75.0	740.5	433.9		1,249.4
Replace Plant HP Compressor 1 - Upper Salmon				142.7			142.7
Replace Shaft Seal System - Upper Salmon				150.0			150.0
Upgrade Domestic Water System - Cat Arm				242.6			242.6
Replace Main Generator Bearing - Upper Salmon				300.0			300.0
Replace Dry Air Compressor 1 and 2 Powerhouse 1 - Bay d'Espoir					320.6		320.6
Replace Main Roof on Powerhouse 1 - Bay d'Espoir					534.3		534.3
Make Improvements to Powerhouse 1 Ventilation - Bay d'Espoir					739.5		739.5
Refurbish Relay Protection Units 5 to 7 - Bay d'Espoir					434.4		434.4
Replace Underground Oily Water Separator - Bay d'Espoir					300.0		300.0
Replace Sump Pumps - Various Sites					317.9	109.9	427.8
Replace Cooling Water Pumps Unit 7 - Bay d'Espoir					150.0		150.0
Replace Firewater Pumps - Upper Salmon					280.0		280.0
Install Dynamic Air Gap Monitoring System - Upper Salmon and Hinds Lake					1,160.0		1,160.0
Refurbish Generator Rotor - Hinds Lake					1,701.5		1,701.5
Install New Septic System - Snooks Arm					150.0		150.0
Replace PH #1 Wet Air Compressors 3 and 4 - Bay d'Espoir						500.4	500.4
Replace Data Acquisition System Units 1-7 (include AHM) - Bay d'Espoir						174.6	174.6
Replace Plant HP Compressor 2 - Upper Salmon						275.1	275.1
Replace Units 1-7 Flow Measuring Devices - Bay d'Espoir						251.1	251.1
Replace Unit Relay Protection - Upper Salmon						275.8	275.8
Replace Dual Fuel Tank - Bay d'Espoir						75.0	75.0
Upgrade Units 1- 6 Gen. Floor Annunciator (Year 1 of 4) (Unit 1) - Bay d'Espoir						249.9	249.9
Replace T/G Cooling Water Pump and Strainer - Hinds Lake						120.0	120.0
Replace Drainage Pumps - Hinds Lake						90.1	90.1
Purchase Set of Turbine Head Cover and Bottom Ring Bushings - Hinds Lake						250.0	250.0
Major Overhaul Oper. rings, wicket gates, linkages and head covers - Bay d'Espoir						750.0	750.0
Replace Exciters on 2 Units - Bay d'Espoir						1,400.0	1,400.0
Replace Site Domestic Water Piping - Bay d'Espoir						350.0	350.0
Stabilize PH Slope (Phase 1) - Cat Arm						400.0	400.0
Refurbish Draft Tube Deck Phase 1 - Bay d'Espoir						450.0	450.0
TOTAL HYDRAULIC PLANT	823.3	10,193.3	12,023.6	14,931.2	8,911.5	8,699.7	55,582.6

PROJECT DESCRIPTION	Expended to 2014	2015	2016	2017 (\$000)	2018	2019	Total
<u>THERMAL PLANT</u>							
Replace Economizer Inlet Valves, Units 1 and 2 - Holyrood	192.0	329.1					521.1
Install Cold-Reheat Condensate Drains and High Pressure Heater Trip Level Unit 3 - Holyrood	49.8	467.4					517.2
Install Fire Protection Upgrades - Holyrood	56.6	312.5					369.1
Upgrade Powerhouse Roofing - Holyrood		1,047.8	1,280.0	1,239.2			3,567.0
Replace DC Distribution Panels and Breakers - Holyrood		127.9					127.9
Upgrade Fire Protection (Main Warehouse) - Holyrood		46.2	197.6				243.8
Upgrade Quarry Brook Dam Equipment - Holyrood		498.7					498.7
Overhaul Turbine Valves - Holyrood		1,577.5		1,456.2			3,033.7
Upgrade Waste Water Basin Building - Holyrood			3,470.1				3,470.1
Replace Air Compressor - Holyrood	247.6	61.1					308.7
Rewind Unit 3 Generator Rotor and Install Rotor Flux Probe - Holyrood			8,402.4				8,402.4
Upgrade Cranes and Hoists - Holyrood			600.0				600.0
Install Auxiliary Boiler - Holyrood			500.0	2,500.0			3,000.0
Upgrade UPS - Holyrood			254.1	266.7			520.8
Upgrade Underground Plant Drainage System - Holyrood			1,364.1				1,364.1
Overhaul Steam Turbine Generators - Holyrood			4,810.1				4,810.1
Overhaul Cooling Water Pump - Holyrood			88.9	89.9			178.8
Overhaul Extraction Pump - Holyrood		189.6	88.9	89.9			368.4
Overhaul Boiler Feed Pump - Holyrood		196.3	186.0	188.1			570.4
Upgrade Plant Access Road - Holyrood				807.8			807.8
Install Visible Isolation for 600 V HVAC System Admin Area - Holyrood				76.3			76.3
Replace Stage 2 Diesel - Holyrood				443.2			443.2
Replace 600 V Switchgear and Transformers Unit 3 - Holyrood				1,705.9			1,705.9
Revisit Condition Assessment Level 1 - Holyrood					250.0		250.0
Install New Raw Water Line - Holyrood					2,000.0		2,000.0
Install New Lube Oil / Seal Oil Systems Unit 3 - Holyrood					1,000.0		1,000.0
Replace Stage 1 4169 kV Breakers - Holyrood						1,000.0	1,000.0
Replace 258 V DC Battery Charger and Batteries Unit 3 - Holyrood						750.0	750.0
Upgrade MCC for Sync Condenser Unit 3 - Holyrood						1,000.0	1,000.0
TOTAL THERMAL PLANT	546.0	4,854.1	21,242.2	8,863.2	3,250.0	2,750.0	41,505.5

PROJECT DESCRIPTION	Expended to 2014	2015	2016	2017 (\$000)	2018	2019	Total
GAS TURBINES							
Upgrade Gas Turbine Plant Life Extension - Stephenville		2,655.2	2,525.4				5,180.6
Perform Alternator Inspection - Happy Valley		484.4					484.4
Purchase and Install 100 MW Combustion Turbine - Holyrood	109,677.0	9,323.0					119,000.0
Install Diesel Automation and Charger System - Happy Valley			214.1				214.1
Install Infrared Scanning Ports - Hardwoods						250.0	250.0
Refurbish Bus Duct - Hardwoods						150.0	150.0
Upgrade Control System - Hardwoods						100.0	100.0
Overhaul Engine - Happy Valley						100.0	100.0
TOTAL GAS TURBINE PLANTS	109,677.0	12,462.6	2,739.5	0.0	0.0	600.0	125,479.1
TOOLS AND EQUIPMENT							
Install Handheld Pendant to Overhead Crane - Bay d 'Espoir	49.9	170.8					220.7
Purchase Tools and Equipment \$50,000		124.3	57.9	59.0	60.5	61.7	363.4
TOTAL TOOLS AND EQUIPMENT	49.9	295.1	57.9	59.0	60.5	61.7	584.1
TOTAL GENERATION	111,096.2	27,805.1	36,063.2	23,853.4	12,222.0	12,111.4	223,151.3

PROJECT DESCRIPTION	Expended to 2014	2015	2016	2017	2018	2019	Total
	(\$'000)						
<u>TERMINAL STATIONS</u>							
Perform Grounding Upgrades - Various Sites	1,311.3	345.4	338.2	341.5		300.0	2,636.4
Replace Instrument Transformers - Various Sites	1,146.0	538.4	1,511.7	471.9	1,100.4	650.1	5,418.5
Upgrade Circuit Breakers - Various Sites	3,695.4	10,510.4	5,452.7	3,973.2	4,000.0	4,137.0	31,768.7
Replace Disconnects - Various Sites	815.9	1,153.2	642.9	1,040.3	983.3	990.3	5,625.9
Replace Transformer - Sunnyside	7,197.8	1,226.4					8,424.2
Replace Optimho Relays on East Coast - Various Sites	89.1	96.9					186.0
Replace Surge Arrestors - Various Sites		198.1	250.7	148.7	195.4	202.6	995.5
Upgrade Power Transformers - Various Sites		4,440.4	7,002.3	1,988.9	2,036.8	2,085.1	17,553.5
Upgrade Terminal Station Foundations - Various Sites		302.3	310.7	319.4	328.2	337.3	1,597.9
Upgrade Control Wiring to Terminal Stations - Bay d 'Espoir		301.0	100.0	390.9			791.9
Perform Site Work for Mobile Substation - Various Sites		489.3	350.3	192.8			1,032.4
Upgrade Transformer Differential Protection - Grandy Brook		154.0					154.0
Supply and Install Fire Protection in 230 kV Station - Various Sites		67.6	424.3	650.0	650.0	650.0	2,441.9
Upgrade Terminal Station Protection and Control - Various Sites		172.7	307.2	631.0	631.0		1,741.9
Install Transformer On line Gas Monitoring - Various Sites		700.5	975.7				1,676.2
Install Support Structures C2 Capacitor Bank - Hardwoods		199.3					199.3
Replace Station Lighting - Bay d 'Espoir		16.7	160.3				177.0
Upgrade Control Building - Indian River			405.6				405.6
Upgrade Terminal Station for Mobile Substation - Various Sites			224.9	175.0		250.0	649.9
Install Remote Control Sectionalizer TL251(2)(3) - Hampden			334.0				334.0
Replace Terminal Station Compressors - Corner Brook			139.5				139.5
Replace Telecontrol Building and Upgrade Equipment - Daniels Harbour			57.0	769.5			826.5
Replace 66 kV S/S Cable Feed to Plant - Holyrood			197.8				197.8
Replace Compressed Air Systems - Western Avalon				200.0	500.0		700.0
Construct 138 kV Terminal Station - Hawkes Bay				2,280.0	5,013.0		7,293.0
Replace Transformer - Sally's Cove				100.0			100.0
Upgrade Control Building for Staff Working Spaces - Various Sites				453.4	773.5		1,226.9
Upgrade Station Service for Oil Reclaimer - Oxen Pond					200.0		200.0
Replace Outside Service - Holyrood					750.0		750.0
Install Drainage to Stop Surface Flooding - Various Sites					500.0		500.0
Upgrade Station Service - Sunnyside					150.0		150.0
Upgrade Access Road with New Topping - Buchans					250.0		250.0
Install 66 kV Breaker By-Pass Switches - Various Sites					515.0		515.0
Replace T1 2.5 MVA Transformer - Conne River					800.0		800.0

PROJECT DESCRIPTION	Expended to 2014 (\$000)	2015	2016	2017	2018	2019	Total
TERMINAL STATIONS (cont'd.)							
Upgrade Protection and Control - Various Sites						500.0	500.0
Replace Equipment Foundations - Various Sites						500.0	500.0
Upgrade Transformers - Various Sites						2,000.0	2,000.0
Replace Transformer - Various Sites						2,600.0	2,600.0
Install Fire Barriers Between T10 and T12 and Between T10 and T11 - Bay d'Espoir						400.0	400.0
Install Data Acquisition and Trending - Corner Brook						500.0	500.0
Install Alternate Station Service - Grand Falls						100.0	100.0
Purchase New Mobile Substation - Bishops Falls						100.0	100.0
Construct Fire Separation Wall Between Power Transformers - Happy Valley						400.0	400.0
Replace Capacitor Banks - Various Sites						400.0	400.0
Upgrade DC Station Service - Various Sites				200.0		100.0	300.0
Replace Insulators - Various Sites						250.0	250.0
TOTAL TERMINAL STATIONS	14,255.5	20,912.6	19,185.8	14,326.5	19,376.6	17,452.4	105,509.4

PROJECT DESCRIPTION	Expended to 2014	2015	2016	2017	2018	2019	Total
	(\$000)						
TRANSMISSION							
Refurbish Anchors and Footings TL202 and TL206 - Bay d'Espoir to Sunnyside	1,191.7	988.2					2,179.9
Perform Wood Pole Line Management Program - Various Sites		2,830.6	2,903.9	2,706.8	2,734.2	2,833.4	14,008.9
Replace Transmission Line - TL218			525.8	5,651.8	8,540.0		14,717.6
Construct Transmission Line Equipment Off-Loading Areas - Various Sites			887.8	506.4			1,394.2
Install 138 kV Transmission Line Cross Braces - Various Sites			71.0	637.9			708.9
Upgrade Transmission Lines - Various Sites			332.3	6,894.0	3,773.7	235.6	11,235.6
Replace Aircraft Markers at Grand Lake Crossing - TL228			621.9	867.5			1,489.4
Conduct LIDAR Surveys - Various Sites				283.9	292.0	560.2	1,136.1
Construct 230 kV Transmission Line - Bay d'Espoir to Western Avalon	2,412.6	18,964.7	77,225.6	110,064.0	82,991.0		291,657.9
Construct Labrador West Transmission Line	37,484.2	163,145.3	128,962.6				329,592.1
Upgrade Tower Foundations - Various Sites						1,000.0	1,000.0
TOTAL TRANSMISSION	41,088.5	185,928.8	211,530.9	127,612.3	98,330.9	4,629.2	669,120.6

PROJECT DESCRIPTION	Expended to 2014	2015	2016	2017	2018	2019	Total
	(\$000)						
DISTRIBUTION							
Replace Recloser Control Panels - Various Sites	111.3	84.4					195.7
Provide Service Extensions - All Service Areas		6,080.0	6,200.0	5,850.0	5,960.0	6,080.0	30,170.0
Upgrade Distribution Systems - All Service Areas		3,340.0	3,170.0	3,240.0	3,310.0	3,370.0	16,430.0
Replace Hendrix Insulators - Farewell Head		500.0					500.0
Relocate Voltage Regulator - Hawkes Bay		166.4					166.4
Construct 2nd Distribution Feeder - Nain		1,050.3					1,050.3
Convert Section of Robert's Arm (L3) to 25 kV - South Brook			569.6				569.6
Automate Reclosers - Various Sites			46.3	409.5			455.8
Additions for Load Growth - Labrador South Interconnection - Various Sites			5,628.5	7,782.0			13,410.5
Implement Geographical Information System - Various Sites			90.6				90.6
Upgrade Distribution Systems - Various Sites	370.2	5,486.2	1,297.9	4,542.3	2,379.0	3,805.0	17,880.6
Additions for Load Growth - Distribution Systems - Various Sites			1,304.1		1,000.0		2,304.1
Voltage Conversion - Labrador City	809.9	1,237.8					2,047.7
Extend Three Phase to St. Paul's - Cow Head				474.0			474.0
Replace Submarine Cable - Various Sites					400.0	4,750.0	5,150.0
Replace L4 #4 Copper Wire Primary - Farewell Head					59.0	531.0	590.0
TOTAL DISTRIBUTION	1,291.4	17,945.1	18,307.0	22,297.8	13,108.0	18,536.0	91,485.3

PROJECT DESCRIPTION	Expended to 2014	2015	2016	2017	2018	2019	Total
	(\$000)						
<u>GENERATION</u>							
Perform Arc Flash Remediation - Various Sites	1,602.6	413.1					2,015.7
Inspect Fuel Storage Tanks - Various Sites		1,761.1	780.1	802.3	824.6	847.7	5,015.8
Overhaul Diesel Units - Various Sites		1,199.2	1,470.4	1,503.4	1,535.7		5,708.7
Install Disconnect Switches for Mobile Generator - Various Sites		10.0	189.3				199.3
Replace Diesel Units - Various Sites		170.3	1,760.8	1,380.0	1,270.0		4,581.1
Purchase Diesel Plant Production Data Equipment - Various Sites	268.9	269.8	280.7				819.4
Upgrade Ventilation Systems - Various Sites		175.9	317.3				493.2
Upgrade Building Exterior - Makkovik		309.5					309.5
Replace Programmable Logic Controllers - Various Sites		366.9	346.0	245.1			958.0
Increase Fuel Storage - Rigolet		1,666.8					1,666.8
Increase Generation Capacity - Makkovik		272.6		397.1	461.7		1,131.4
Upgrade Fuel Storage - Little Bay Islands			125.3				125.3
Upgrade Station Service - Grey River			130.9				130.9
Upgrade Lighting System - Various Sites			157.9				157.9
Install Fire Protection in Diesel Plants - Various Sites	107.1	1,112.8	1,126.2	500.0	500.0		3,346.1
Purchase Accommodations Trailers - Various Sites			120.0				120.0
Perform Plant Improvements as Per 2012 FEED Project - Various Sites			1,700.0	250.0	250.0		2,200.0
Additions for Load Growth - Labrador South Generation			3,198.4	7,546.8	4,023.8		14,769.0
Replace Underground Glycol Line - Francois				100.0			100.0
Insulate Diesel Plant - St. Anthony				63.5			63.5
Install Fire Detection System - Norman Bay				100.0			100.0
Replace Human Machine Interface - Various Sites				200.0	200.0	200.0	600.0
Install Mobile Diesel Quick Connect/Disconnect - Various Sites				178.8			178.8
Install Unit Fuel Metering - Various Sites					600.0		600.0
Install Sectionalizing for Cold Load Pickup - Port Hope Simpson					250.0		250.0
Install Nox Monitors at 2 Sites - Various Sites					302.7		302.7
Build Roadway for Freight Delivery - Norman Bay					307.2		307.2
Upgrade Site Facilities - Various Sites					450.0		450.0
Replace Radiators - Various Sites				500.0	500.0		1,000.0
Replace Diesel Plant - Rigolet					200.0	2,000.0	2,200.0
Install Sequence of Events Monitor in Diesel Plants - Various Sites						281.0	281.0
TOTAL GENERATION	1,978.6	7,728.0	11,703.3	13,767.0	11,675.7	3,328.7	50,181.3

PROJECT DESCRIPTION	Expended	2015	2016	2017	2018	2019	Total
	to 2014						
(\$000)							
<u>PROPERTIES</u>							
Legal Survey of Primary Distribution Lines and Right of Ways - Various Sites	156.8	198.9	40.3				396.0
Install Fall Protection Equipment - Various Sites		198.9	198.2	198.7	198.8	198.9	993.5
Install Additional Washrooms - Various Sites		259.3	265.2	271.1	277.2	283.2	1,356.0
Replace Accommodations and Septic System - Ebbegunbaeg		489.4	1,061.4				1,550.8
Upgrade Line Depots - Various Sites		953.3	960.1	983.7	1,008.5	1,033.5	4,939.1
Upgrade HVAC System - Port Saunders		137.0					137.0
Reshingle Roof - Stephenville		76.8					76.8
Upgrade Warehouse Lighting - Bishops Falls			94.9				94.9
Install Pole Storage Ramps - Various Sites			603.8	507.2			1,111.0
Perform Condition Assessment of Buildings - Various Sites			319.1				319.1
Upgrade Classroom and Boardroom in Main Office - Bishops Falls				77.4			77.4
Construct Storage Buildings - Various Sites				549.0			549.0
Replace Warehouse - Bay d'Espoir				1,228.0			1,228.0
TOTAL PROPERTIES	156.8	2,313.6	3,543.0	3,815.1	1,484.5	1,515.6	12,828.6
<u>METERING</u>							
Install Automated Meter Reading - Various Sites	356.9	900.1	401.8				1,658.8
Purchase Meters, Equipment and Tanks - Various Sites		196.2	197.9	199.6	200.0	197.1	990.8
TOTAL METERING	356.9	1,096.3	599.7	199.6	200.0	197.1	2,649.6
<u>TOOLS AND EQUIPMENT</u>							
Purchase Tools and Equipment Less than \$50,000		622.7	299.0	273.7	181.3	185.5	1,562.2
Replace Light Duty Mobile Equipment - Various Sites		494.4	489.3	494.8			1,478.5
Replace Off Road Track Vehicle Unit No. 7861 - Stephenville		1.1	397.8				398.9
Replace Bulldozer Unit No. 7657 - Bishops Falls			329.1				329.1
Replace Off Road Track Vehicle Unit No. 7565 - Stephenville					410.0		410.0
TOTAL TOOLS AND EQUIPMENT	0.0	1,118.2	1,515.2	768.5	591.3	185.5	4,178.7
TOTAL TRANSMISSION AND RURAL OPERATIONS	59,127.7	237,042.6	266,384.9	182,786.8	144,767.0	45,844.5	935,953.5

PROJECT DESCRIPTION	Expended to 2014	2015	2016	2017	2018	2019	Total
	(\$000)						
<u>INFORMATION SYSTEMS</u>							
<u>SOFTWARE APPLICATIONS</u>							
<u>New Infrastructure</u>							
Perform Minor Application Enhancements - Hydro Place		329.5	338.9	348.3	358.0	368.0	1,742.7
Cost Recoveries		(141.6)	(145.7)	(149.7)	(153.9)	(158.2)	(749.1)
<u>Upgrade of Technology</u>							
Upgrade Microsoft Office Products - Hydro Place	1,111.8	465.2	1,116.6	1,141.1	1,166.1	1,192.5	6,193.3
Cost Recoveries	(400.2)	(167.5)	(480.1)	(490.7)	(501.4)	(512.8)	(2,552.7)
Upgrade Energy Management Systems - Hydro Place		194.9	200.5	206.0	231.5	217.8	1,050.7
Replace Customer Care System - Hydro Place		134.9					134.9
Upgrade Lotus Notes - Hydro Place		635.4					635.4
Cost Recoveries		(273.1)					(273.1)
Upgrade Citrix - Hydro Place			262.2				262.2
Cost Recoveries			(97.0)				(97.0)
Upgrade Sharepoint/ Document Repository - Hydro Place			91.6				91.6
Cost Recoveries			(33.9)				(33.9)
Upgrade Meter Reading Software - Hydro Place			134.3				134.3
Upgrade Safety Reporting System Safety Code - Hydro Place			325.8				325.8
Cost Recoveries			(120.5)				(120.5)
Refresh Security Software - Hydro Place			132.5	136.2	140.1	144.2	553.0
Cost Recoveries			(57.0)	(58.6)	(60.2)	(62.0)	(237.8)
Implement Industrial Billing Software MV-PBS - Hydro Place			336.7				336.7
Upgrade ERP System (JDE) - Hydro Place				866.4			866.4
Cost Recoveries				(320.6)			(320.6)
Implement Industrial Billing Software MV90xi - Hydro Place				63.1			63.1
Upgrade Showcase Reporting System				195.3			195.3
Cost Recoveries				(72.3)			(72.3)
Upgrade Business Intelligence and Disclosure Management - Hydro Place					414.1		414.1
Cost Recoveries					(153.2)		(153.2)
Upgrade Database Environment - Hydro Place					209.3		209.3
Cost Recoveries					(77.4)		(77.4)
Refresh Security Card System - Hydro Place					172.2		172.2
Cost Recoveries					(73.7)		(73.7)
Upgrade Electronic Mail System - Hydro Place					592.5	709.5	1,302.0
Cost Recoveries					(219.2)	(305.0)	(524.2)
TOTAL SOFTWARE APPLICATIONS	711.6	1,177.7	2,004.9	1,864.5	2,044.8	1,594.0	9,397.5

PROJECT DESCRIPTION	Expended to 2014	2015	2016	2017 (\$000)	2018	2019	Total
<u>COMPUTER OPERATIONS</u>							
<u>Infrastructure Replacement</u>							
Replace Personal Computers - Various Sites		573.3	600.7	387.2	386.3	568.2	2,515.7
Replace Peripheral Infrastructure - Various Sites		200.5	190.3	177.3	223.5	213.9	1,005.5
Upgrade Enterprise Storage Capacity - Hydro Place		621.3	550.2	553.6	169.2	456.0	2,350.3
Cost Recovery Nalcor		(267.0)	(236.5)	(237.9)	(72.7)	(196.0)	(1,010.1)
<u>Upgrade of Technology</u>							
Upgrade Server Technology Program - Hydro Place		601.3	420.0	768.2	120.7	331.6	2,241.8
Cost Recovery Nalcor		(227.1)	(180.5)	(330.2)	(51.9)	(142.5)	(932.2)
TOTAL COMPUTER OPERATIONS		1,502.3	1,344.2	1,318.2	775.1	1,231.2	6,171.0
TOTAL INFORMATION SYSTEMS	711.6	2,680.0	3,349.1	3,182.7	2,819.9	2,825.2	15,568.5

PROJECT DESCRIPTION	Expended to 2014	2015	2016	2017	2018	2019	Total
	(\$000)						
<u>TELECONTROL</u>							
<u>NETWORK SERVICES</u>							
<u>Infrastructure Replacement</u>							
Purchase Tools and Equipment Less than \$50,000		45.6	46.4	47.6	48.7	49.7	238.0
Replace Radomes - Various Sites			192.0	196.0	196.0	180.0	764.0
Replace Standby Generator - Sandy Brook Hill			237.3				237.3
Replace MDR Microwave Radios - Various Sites			539.0	920.0	86.2	825.0	2,370.2
Refurbish Microwave Shelters - Various Sites			92.1	90.0	90.0		272.1
Replace Power Line Carriers - Various Sites			857.0	4,438.2	1,720.0		7,015.2
Build Communications Shelters - Various Sites				360.0		90.0	450.0
Replace GPS Clocks - Various Sites				52.8			52.8
Replace UPS - Hopedale						300.0	300.0
Refurbish Communication Towers - Various Sites						200.0	200.0
<u>Network Infrastructure</u>							
Replace Battery Banks and Chargers - Various Sites	267.0	398.0	302.0	305.0	250.0	250.0	1,772.0
Replace Network Communications Equipment - Various Sites		169.5	174.0	180.0	185.0	180.0	888.5
Install Substation Communications Management - Various Sites				237.8			237.8
<u>Upgrade of Technology</u>							
Upgrade IP Scada Network - Various Sites	254.2	238.7					492.9
Replace PBX Phone Systems - Various Sites			480.0	360.0	240.0		1,080.0
Replace Telephone Systems - Springdale		132.7					132.7
Replace DTI Phone Turrets in Energy control Center - Hydro Place		44.7					44.7
Replace WIFI Access Points - Various Sites		126.3					126.3
Upgrade Site Facilities - Various Sites		48.3	48.0	48.0		48.0	192.3
Replace Wescom Transceivers - Various Sites			49.2				49.2
Replace GDC Metroplex - Various Sites		69.2					69.2
TOTAL TELECONTROL	521.2	1,273.0	3,017.0	7,235.4	2,815.9	2,122.7	16,985.2

PROJECT DESCRIPTION	Expended to 2014	2015	2016	2017	2018	2019	Total
	(\$000)						
<u>TRANSPORTATION</u>							
Replace Vehicles and Aerial Devices - Various Sites	1,809.1	3,468.1	2,400.1	3,251.3	5,315.2	2,582.5	18,826.3
TOTAL TRANSPORTATION	1,809.1	3,468.1	2,400.1	3,251.3	5,315.2	2,582.5	18,826.3
<u>ADMINISTRATION</u>							
Purchase Office Equipment		68.0	131.0	71.1			270.1
Remove Safety Hazards - Various Sites		194.9	200.3	205.9	211.6	217.4	1,030.1
Replace Cooling Tower and Auxiliaries - Hydro Place		45.7	311.3				357.0
Replace Roof - Hydro Place		671.9	568.7	749.5			1,990.1
Replace AC Unit 12A and Unit 14 - Hydro Place			214.6				214.6
Upgrade Outside Property - Various Sites				234.8			234.8
Upgrade Fire System - Bishops Falls				799.6	556.7		1,356.3
TOTAL ADMINISTRATION	0.0	980.5	1,425.9	2,060.9	768.3	217.4	5,453.0
TOTAL GENERAL PROPERTIES	3,041.9	8,401.6	10,192.1	15,730.3	11,719.3	7,747.8	56,833.0

	Accuracy 10%	Accuracy 25%				Accuracy 50%				Accuracy 50% to order of magnitude											
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	
Generation																					
Hydro plants	3,856	4,372	3,742	9,862	2,636	1,150	2,190	695	515	760	575	810	275	425	510	1,025	150	510	0	0	
Thermal Plant	14,333	19,938	18,814	1,359	3,442	4,700	4,200	2,750	5,100	5,250	3,700	6,750	5,300	2,325	2,850	3,000	4,700	3,650	3,900	0	
Gas Turbines	2,986	3,367	183	1,687	1,413	1,400	250	950	2,450	3,450	3,100	3,325	3,410	3,450	3,250	3,530	2,220	1,600	1,200	0	
Tools and Equipment	358	179	54	47	14	393	393	393	393	393	393	393	393	393	393	393	393	393	393	0	
Transmission and Terminals																					
Terminal Stations	9,607	9,621	8,222	6,398	10,531	7,635	7,480	10,225	10,105	10,535	7,935	8,751	8,280	7,870	7,685	8,205	8,115	8,395	5,395	0	
Transmission	4,233	3,641	5,922	8,334	9,496	8,202	10,407	9,428	8,123	8,591	11,574	12,476	11,370	18,594	16,250	15,201	16,072	17,556	23,434	25,786	
Metering	637	216	730	1,161	568	33	33	33	33	33	33	33	33	33	33	33	33	33	33	0	
Tools and Equipment	1,919	2,723	2,157	627	1,561	1,817	1,150	1,081	1,053	1,552	1,444	1,246	1,074	1,362	3,186	1,280	355	1,106	1,517	0	
Rural Systems																					
Distribution	14,721	14,008	10,312	12,132	15,076	12,587	13,267	14,276	14,307	11,437	11,007	9,559	10,138	7,977	9,955	10,066	9,362	8,730	5,630	0	
Diesel Plants	3,919	1,466	2,915	6,716	5,870	6,242	4,220	5,865	3,960	2,605	2,660	2,190	1,180	1,075	630	2,935	3,940	1,195	0	0	
General Properties																					
Information Systems	2,034	3,926	2,215	2,322	1,856	3,368	4,303	4,682	3,488	2,848	6,700	1,880	6,652	2,203	2,746	1,752	1,752	2,235	1,818	0	
Telecontrol	2,697	1,693	3,490	1,672	5,315	8,139	1,140	2,119	2,000	3,550	6,037	5,762	1,984	3,247	1,805	2,592	1,251	2,931	2,373	0	
Transportation	2,351	3,319	3,341	4,264	1,455	1,668	3,253	2,446	1,544	4,433	2,883	2,705	1,564	2,309	2,638	1,577	0	5,187	1,798	0	
Administrative	407	693	2,570	2,913	4,151	468	318	398	478	618	518	518	418	678	718	468	618	618	318	0	
Contingency Fund	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	
Total Existing Assets	65,058	70,159	65,667	60,496	64,384	58,802	53,604	56,341	54,550	57,055	59,559	57,399	53,071	52,941	53,650	53,058	49,961	55,139	48,809	26,786	
Total for 20 Years Average	1,116,488																				
	55,824																				
Total Holyrood without Lower Churchill	0	0	0	0	0	125,490	235,600	261,450	150,150	22,900	1,425	1,000	0	1,500	50	0	0	2,500	0		
Total for 20 Years Average	802,065																				
	40,103																				

20 Year Sustaining Capital
 (\$000)

	Accuracy 20%	Accuracy 40%				Accuracy 50% to order of magnitude														
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Generation																				
Hydro plants	11,490	11,669	10,090	10,473	4,884	2,190	695	515	760	575	810	275	425	510	1,025	150	510	525	545	550
Thermal Plant	19,983	18,652	22,001	18,272	25,750	4,200	2,750	5,100	5,250	3,700	6,750	5,300	2,325	2,850	3,000	4,700	3,650	3,900	3,620	3,775
Gas Turbines	3,367	4,344	4,528	2,142	650	250	950	2,450	3,450	3,100	3,325	3,410	3,450	3,250	3,530	2,220	1,600	1,200	2,360	2,180
Tools and Equipment	196	164	24	84	21	393	393	393	393	393	393	393	393	393	393	393	393	393	393	393
Transmission and Terminals																				
Terminal Stations	14,149	12,695	15,687	14,090	8,020	7,480	10,225	10,105	10,535	7,935	8,751	8,280	7,870	7,685	8,205	8,115	8,395	5,395	7,560	7,535
Transmission	6,027	36,687	54,006	72,411	72,833	10,407	9,428	8,123	8,591	11,574	12,476	11,370	18,594	16,250	15,201	16,072	17,556	23,434	25,786	19,610
Metering	628	962	581	153	157	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
Tools and Equipment	2,019	2,692	600	1,606	595	1,071	1,672	1,030	1,069	1,904	1,981	2,658	1,605	1,659	1,341	2,190	931	2,855	1,260	493
Rural Systems																				
Distribution	17,416	15,420	15,023	16,242	13,726	13,267	14,276	14,307	11,437	11,007	9,559	10,138	10,452	9,955	10,066	9,362	8,730	9,767	3,970	3,885
Diesel Plants	3,823	4,252	11,112	5,645	3,604	4,220	5,085	4,460	2,605	2,660	2,190	1,180	575	1,247	4,029	3,940	1,595	2,275	2,615	2,890
General Properties																				
Information Systems	2,347	2,922	2,561	1,845	2,909	4,303	4,682	3,488	2,848	6,700	1,880	6,652	2,203	2,746	1,752	1,752	2,235	1,818	2,061	1,924
Telecontrol	2,686	1,988	8,693	6,510	8,119	1,140	2,119	2,000	3,550	6,037	5,762	1,984	3,247	1,805	2,592	1,251	2,931	2,373	2,190	2,267
Transportation	2,350	4,116	3,143	1,359	3,657	2,501	2,009	2,601	4,687	1,735	1,634	3,354	2,290	3,071	2,495	3,718	1,984	1,408	4,371	1,729
Administrative	381	3,807	2,638	3,405	1,049	318	398	478	618	518	518	418	678	718	468	718	618	318	618	718
Contingency Fund	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Total Existing Assets	87,862	121,369	151,686	155,237	146,973	52,773	55,715	56,083	56,827	58,871	57,062	56,445	55,141	53,172	55,130	55,615	52,162	56,694	58,383	48,981
Total for 20 Years Average																				
Total Holyrood without Lower Churchill	0	0	0	0	0	148,090	232,650	261,950	132,900	21,425	1,000	0	1,500	50	0	0	2,500	0	0	0
Total for 20 Years Average	802,065																			
Average	40,103																			

20 Year Sustaining Capital
(\$000)

	Accuracy 20%	Accuracy 40%				Accuracy 50% order of magnitude														
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Generation																				
Hydro plants	13,333	13,472	13,441	5,824	9,570	1,179	515	1,691	575	810	275	425	510	1,025	150	510	525	545	550	455
Thermal Plant	10,028	23,955	23,399	28,069	8,604	11,131	5,100	7,250	3,700	6,750	5,300	2,325	2,850	3,000	4,700	3,650	3,900	3,620	3,775	3,930
Gas Turbines	61	3,059	1,774	5,330	0	1,978	3,263	3,750	3,550	3,125	3,410	3,450	3,250	3,530	2,220	1,600	1,200	2,360	2,180	1,910
Tools and Equipment	93	24	84	122	22	393	393	393	393	393	393	393	393	393	393	393	393	393	393	393
Transmission and Terminals																				
Terminal Stations	8,415	12,263	15,489	10,745	15,760	15,238	10,105	10,535	7,935	8,751	8,280	7,870	7,685	8,205	8,115	8,395	5,395	7,560	7,535	7,400
Transmission	2,973	6,735	37,059	53,225	85,158	108,997	8,123	8,591	11,574	12,476	11,370	18,594	16,250	15,201	16,072	17,556	23,434	25,786	18,282	25,049
Metering	1,078	971	498	199	199	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
Tools and Equipment	1,814	1,956	750	1,448	630	1,672	1,030	1,069	1,904	1,981	2,658	1,605	1,659	1,341	2,190	931	2,855	1,260	558	1,765
Rural Systems																				
Distribution	15,737	26,631	20,381	13,238	13,978	14,276	14,307	12,340	11,895	9,559	10,138	10,452	9,955	10,066	9,362	11,730	10,367	4,691	4,745	4,797
Diesel Plants	3,409	14,289	10,859	6,901	6,249	5,085	4,460	2,605	2,730	2,760	1,180	575	1,247	4,029	3,940	1,595	2,275	2,615	2,890	2,660
General Properties																				
Information Systems	2,799	2,127	3,263	1,402	2,546	4,682	3,488	2,848	6,700	1,880	6,652	2,203	2,746	1,752	1,752	2,235	1,818	2,061	1,924	1,958
Telecontrol	2,070	2,444	3,645	3,988	3,882	2,119	2,000	3,550	6,037	5,762	1,984	3,247	1,805	2,592	1,251	2,931	2,373	2,190	2,267	2,203
Transportation	2,521	2,434	2,751	2,497	2,114	2,419	2,601	4,687	1,735	1,634	3,354	2,290	3,071	2,495	3,718	1,984	1,408	4,371	1,729	2,007
Administrative	813	323	832	2,112	1,462	955	478	618	518	518	418	678	718	468	718	618	318	618	718	318
Contingency Fund	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Total Existing Assets	66,145	111,682	135,224	136,100	151,173	171,324	57,063	61,127	60,446	57,599	56,612	55,308	53,339	55,297	55,781	55,328	57,461	59,271	48,745	56,045
Total for 20 Years	1,560,070																			
Average	78,054																			
Total Holyrood without Lower Churchill	0	0	0	0	0	232,650	261,950	132,900	21,425	1,000	0	1,500	50	0	0	2,500	0	0	0	0
Total for 20 Years	653,975																			
Average	32,699																			

