Q. **Reference: Application**

Further to CA-NLH-001, for the years when Hydro did not spend the entire capital budget amount approved by the Board:

a) Explain why the approved amounts were not spent.

b) Did Hydro fail to meet its mandate in those years? If not, why not? If so, how, and to what extent, were customers impacted?

c) In years when Hydro underspends approved capital budget amounts that were required for it to meet its mandate, does the governing legislation provide the Board with any ability to request an explanation from Hydro for any adverse impacts upon customers arising from this underspending?

A. a) Newfoundland and Labrador Hydro ("Hydro") files with the Board of Commissioners of Public Utilities ("Board"), annually, a capital expenditures and carry-over report, in accordance with the Board's Capital Budget Application Guidelines.[1] Each report includes explanations, as applicable, with respect to variances in capital expenditures relative to the capital budget amount approved by the Board in the reported year. Reports for years ending December 31, 2001 through to December 31, 2020 are attached.

In recent years, expenditures have usually been below budget by more than 10%. This prompted Hydro to conduct analysis to determine the primary drivers of the under-expenditure. Analysis was completed following the 2018, 2019 and 2020 capital programs, and a summary was included in the capital expenditures and carry-over reports for those years.

[1] "Capital Budget Application Guidelines," Board of Commissioners of Public Utilities, rev. October 2007 (originally issued June 2, 2005).

The most recent analysis identified three main causes of under-expenditure in 2020:

- Carryover of work to subsequent years due to impacts of the COVID-19 pandemic;
- Work completed for less than the original budget estimates; and
- Cancelled scopes of work.

Please refer to Section 5 of CA-NLH-002, Attachment 20 for a more complete summary of the analysis. Hydro continues to review its capital budget planning and execution methodologies and uses its underspend analysis to identify trends and potential areas for improvement to reduce capital expenditure variances in future years.

b) In most instances where Newfoundland and Labrador Hydro ("Hydro") did not spend the entire capital budget amount approved by the Board, the underspend was the result of Hydro completing the proposed scope of work for less than the estimated cost or a carry-over of work for execution to the subsequent year. Carry-overs can occur due to variety of factors including change in timing of work due to other system priorities ongoing. In either case—reduced cost or carry-over of work—it is Hydro's view that it is meeting its mandate to deliver service to customers at the lowest possible cost consistent with reliable service. In instances whereby Hydro cancels or defers all or part of a project, such decisions are made through Hydro's established management of change process, which considers the risks and mitigations required as a result of project scope changes in light of Hydro's mandate. For additional information on Hydro's management of change process, please refer to Hydro's response to CA-NLH-033 of this proceeding.

c) The Board has broad discretion to obtain information from a public utility. In particular, the *Public Utilities Act* states that the Board ". . . shall have the right to obtain from a public utility all information necessary to enable the board to fulfil its duties."[2]

[2] Public Utilities Act, RSNL 1990, c P-47, s 16.

NEWFOUNDLAND AND LABRADOR HYDRO
2001 CAPITAL EXPENDITURES
YEAR ENDING DECEMBER 31, 2001

Filed with the Public Utilities Board
February/2002

NEWFOUNDLAND AND LABRADOR HYDRO
2001 CAPITAL EXPENDITURES
For Year Ending December 31, 2001

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NEWFOUNDLAND AND LABRADOR HYDRO
2001 CAPITAL EXPENDITURES
For Year Ending December 31, 2001

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NEWFOUNDLAND & LABRADOR HYDRO

2001 CAPITAL EXPENDITURES - OVERVIEW

FOR THE YEAR ENDING DECEMBER 31, 2001
($,000)

	Annual Budget 2001	4th Quarter Actuals 2001	Total Actual Expenditures 2001	Variance From 2001 Budget
GENERATION	5,483	1,041	3,950	(1,533)
TRANSMISSION	20,742	4,418	16,612	(4,130)
RURAL SYSTEMS	12,475	6,805	11,903	(572)
GENERAL PROPERTIES	16,077	8,070	14,616	(1,461)
CONTINGENCY FUND	1,120	173	420	(700)
TOTAL CAPITAL BUDGET	55,897	20,507	47,501	(8,396)

Original Budget [Order No. P.U. 31 (2000-2001)]	54,681
Carryover Projects 2000 to 2001	1,216
Total Capital Budget	55,897

NEWFOUNDLAND & LABRADOR HYDRO

2001 CAPITAL EXPENDITURES - SUMMARY

FOR THE YEAR ENDING DECEMBER 31, 2001
($,000)

	Annual Budget 2001	4th Quarter Actuals 2001	Total Actual Expenditures 2001	Variance From 2001 Budget	Page Ref
GENERATION					
HYDRO PLANTS					
Construction Projects	1,590	483	1,062	(528)	4
Property Additions	133	1	142	9	4
Tools & Equipment	140	37	127	(13)	4
THERMAL PLANT					
Construction Projects	3,373	415	2,418	(955)	5
Tools & Equipment	82	16	55	(27)	5
GAS TURBINE PLANT					
Construction Projects	165	89	146	(19)	5
TOTAL GENERATION	5,483	1,041	3,950	(1,533)	
TRANSMISSION					
REGIONAL OPERATIONS					
Construction Projects	656	137	433	(223)	6
Tools & Equipment	315	28	334	19	6
SYSTEM SECURITY & RELIABILITY IMPROVEMENTS	19,001	4,132	15,149	(3,852)	7
SYSTEM PERFORMANCE & PROTECTION	770	121	696	(74)	7
TOTAL TRANSMISSION	20,742	4,418	16,612	(4,130)	

NEWFOUNDLAND & LABRADOR HYDRO

2001 CAPITAL EXPENDITURES - SUMMARY

FOR THE YEAR ENDING DECEMBER 31, 2001
($,000)

	Annual Budget 2001	4th Quarter Actuals 2001	Total Actual Expenditures 2001	Variance From 2001 Budget	Page Ref
RURAL SYSTEMS					
REGIONAL OPERATIONS					
Construction Projects	6,743	3,278	7,166	423	8
Property Additions	234	132	237	3	10
Tools & Equipment	228	67	175	(53)	10
NEW POWER PLANTS	3,847	2,765	2,927	(920)	11
MAJOR UPGRADING					
Power Plants	1,204	544	1,270	66	11
METERING	219	19	128	(91)	11
TOTAL RURAL SYSTEMS	12,475	6,805	11,903	(572)	
GENERAL PROPERTIES					
INFORMATION SYSTEMS & TELECOMMUNICATIONS	14,612	7,876	13,472	(1,140)	12
ADMINISTRATIVE	1,465	194	1,144	(321)	13
TOTAL GENERAL PROPERTIES	16,077	8,070	14,616	(1,461)	
CONTINGENCY FUND	1,120	173	420	(700)	14
TOTAL CAPITAL BUDGET	55,897	20,507	47,501	(8,396)	

NEWFOUNDLAND & LABRADOR HYDRO
GENERATION
2001 CAPITAL EXPENDITURES - DETAIL
FOR THE YEAR ENDING DECEMBER 31, 2001
($,000)

PROJECT DESCRIPTION	Annual Budget 2001	4th Quarter Actuals 2001	Total Actual Expenditures 2001	Variance From 2001 Budget	Variance Explanation Reference
HYDRO PLANTS					
CONSTRUCTION PROJECTS					
Replace Halon 1301 Fire Protection Systems for Generation System -00	67	59	76	9	
Replace Halon 1301 Fire Protection Systems for Generation System	570	238	254	(316)	C/O*
Replacement of Piping on Surge Tanks - Bay D' Espoir	416	70	272	(144)	Note 1
Upgrade Controls - Spherical Valve #4 - Bay D'Espoir	187	3	195	8	
Install Fault Recorder - Hinds Lake	154	29	121	(33)	
Replace Battery Charger - Unit No. 7 - Bay D'Espoir	69	28	29	(40)	
Replace Underground Jet Fuel Storage Tank - Bay D'Espoir	48	12	35	(13)	
Replace Bubbler System at Intake No.4 - Bay D' Espoir	25	13	42	17	
Install Monitoring Equipment - Upper Salmon Powerhouse	25	0	0	(25)	
Install Frazil Ice Detection System - Hind's Lake	9	9	13	4	
Install Electronic Security System - Bay D'Espoir	7	7	10	3	
Replace Unit 1 Exciter - Cat Arm	13	15	15	2	
TOTAL CONSTRUCTION PROJECTS	1,590	483	1,062	(528)	
PROPERTY ADDITIONS					
Provide Trailer Extension - Upper Salmon	133	1	142	9	
TOTAL PROPERTY ADDITIONS	133	1	142	9	
TOOLS & EQUIPMENT					
Purchase & Replace Tools & Equipment Less than $50,000	140	37	127	(13)	
TOTAL TOOLS & EQUIPMENT	140	37	127	(13)	

* The C/O indicates Projects carried over to 2002. This does not necessarily mean that the dollar amount indicated is the carryover amount. That information is contained in the Capital Carryover Report.
This includes jobs that could not be completed in 2001 and jobs with cash flow variances on multi-year projects.

NEWFOUNDLAND & LABRADOR HYDRO
GENERATION
2001 CAPITAL EXPENDITURES - DETAIL
FOR THE YEAR ENDING DECEMBER 31, 2001
($,000)

PROJECT DESCRIPTION	Annual Budget 2001	4th Quarter Actuals 2001	Total Actual Expenditures 2001	Variance From 2001 Budget	Variance Explanation Reference
THERMAL PLANT					
CONSTRUCTION PROJECTS					
Purch/Install Water Lance Blowing System for Boiler Unit No. 3 - Holyrood	115	29	138	23	
Replace Exciter - Unit No. 1. Holyrood	27	0	17	(10)	
Install Visible Emission Monitors on Units No 1 to 3 - Holyrood	62	0	57	(5)	
Replace and Install Reheater Inlet on Unit No. 3 - Holyrood	1,342	0	1,107	(235)	Note 2
Replacement of Uninterruputible Power Supply on Unit No. 3 - Holyrood	370	49	287	(83)	Note 3
Purch/Install Lube Oil Filter for Turbine Gen. Bearing - Units No.1 & 2 - HRD	916	327	711	(205)	Note 4
Upgrade Oil Systems for Fire Protection on Unit No.2 - Holyrood	217	0	2	(215)	C/O
Upgrade Oil Systems for Fire Protection on Unit No.1 - Holyrood	205	1	2	(203)	C/O
Purch/Install Turbo Generator Analysis Equip on Unit No. 3 Generator - HRD	119	9	97	(22)	
TOTAL CONSTRUCTION PROJECTS	3,373	415	2,418	(955)	
TOOLS & EQUIPMENT					
Purchase & Replace Tools & Equipment Less than $50,000	82	16	55	(27)	
TOTAL TOOLS & EQUIPMENT	82	16	55	(27)	
GAS TURBINE PLANTS					
CONSTRUCTION PROJECTS					
Replace Air Compressors at Hardwoods Gas Turbine	104	53	93	(11)	
Upgrade Gas Turbine Console - Happy Valley	61	36	53	(8)	
TOTAL CONSTRUCTION PROJECTS	165	89	146	(19)	
TOTAL GENERATION	5,483	1,041	3,950	(1,533)	

NEWFOUNDLAND & LABRADOR HYDRO
TRANSMISSION
2001 CAPITAL EXPENDITURES - DETAIL
FOR THE YEAR ENDING DECEMBER 31, 2001
($,000)

PROJECT DESCRIPTION	Annual Budget 2001	4th Quarter Actuals 2001	Total Actual Expenditures 2001	Variance From 2001 Budget	Variance Explanation Reference
REGIONAL OPERATIONS					
CONSTRUCTION PROJECTS					
CENTRAL REGION - TERMINALS					
Replace Compressed Air System - Bottom Brook Terminal Station	90	0	98	8	
Replace System Air Dryer - Hardwoods Terminal Station	60	0	66	6	
Modify Sump and Drainage - Corner Brook Frequency Converter	83	0	0	(83)	Note 5
Replace Air Compressor - Grand Falls Frequency Converter	74	12	13	(61)	Note 6
Replace Air Compressor - Corner Brook Frequency Converter	73	8	9	(64)	Note 7
Replace System Air Dryer - Grand Falls Frequency Converter	38	0	0	(38)	
Replace Chain Link Fence - Come by Chance T.S.	53	60	66	13	
Upgrade Mobile Substation Protection & Controls	53	20	38	(15)	
Construct New Access Road to Massey Drive Terminal Station	44	18	55	11	
Replace Battery Chargers - Massey Drive Terminal Station	19	6	9	(10)	
Replace Instrument Transformers/Surge Arrestors - Central	69	13	79	10	
TOTAL CONSTRUCTION PROJECTS	656	137	433	(223)	
TOOLS & EQUIPMENT					
CENTRAL REGION					
Replace Heavy Duty All Terrain Vehicle - Stephenville	239	0	239	0	
Purchase & Replace Tools & Equipment Less than $ 50,000	76	28	95	19	
TOTAL TOOLS & EQUIPMENT	315	28	334	19	

NEWFOUNDLAND & LABRADOR HYDRO
TRANSMISSION
2001 CAPITAL EXPENDITURES - DETAIL
FOR THE YEAR ENDING DECEMBER 31, 2001
($,000)

PROJECT DESCRIPTION	Annual Budget 2001	4th Quarter Actuals 2001	Total Actual Expenditures 2001	Variance From 2001 Budget	Variance Explanation Reference
SYSTEM SECURITY & RELIABILITY IMPROVEMENTS					
Replace Poles - TL225 (Deer Lake Powerhouse - Deer Lake Terminal Station)	92	(3)	128	36	
Lightning Performance Improvements - TL202/206 -(Bay D' Espoir to Sunnyside)	2,093	229	1,503	(590)	Note 8
Replacement of Insulators - TL240 - (138Kv Happy Valley - Churchill Falls)	1,929	91	1,083	(846)	Note 9
Upgrade TL227 - (69kv Berry Hill - Daniels Harbour)	1,455	512	1,028	(427)	C/O
Upgrade TL262 - (69kv Daniels Harbour - Peter's Barren)	591	41	269	(322)	C/O
Upgrade TL237 - (230kv Come By Chance - Western Avalon)	11,956	2,952	10,748	(1,208)	Note 10
Replacement of Insulators - TL231 - (230kV Bay D'Espoir - Stoney Brook)	254	165	184	(70)	Note 11
Upgrade TL242 - (Holyrood - Hardwoods)	461	125	172	(289)	C/O
Upgrade TL236 - (Hardwoods - Oxen Pond)	170	20	34	(136)	C/O
TOTAL SECURITY & RELIABILITY IMPROVEMENTS	19,001	4,132	15,149	(3,852)	
SYSTEM PERFORMANCE & PROTECTION					
Provide 66kV Backup Protection - Hardwoods & Oxen Pond	50	0	99	49	
Upgrade 230kV Backup Protection - TL 211, 236, 247 & 248	25	0	47	22	
Purchase/Install 138kV Breaker Failure Protection at DL,SB & SSD	147	1	111	(36)	
Provide Computerized Monitoring System - Oxen Pond Terminal Station	23	0	11	(12)	
Purch/Install Communication Interface to Digital Relays at SSD, B'DE#1 & B'DE#	25	0	19	(6)	
Purchase Metering Spares - Meter Shop - Hydro Place	19	0	22	3	
Upgrade 230kV Backup Protection - TL 207, 237, 242 & 234	288	59	254	(34)	
Purchase/Install Substation Automation Scheme - Oxen Pond T.S.	75	39	62	(13)	
Purchase and Install 230kV Recloser PLC Refit - Stoney Brook T.S.	41	16	32	(9)	
Purchase/Install Underfrequency Relay Upgrade - DLK, BDE & GBK	31	6	23	(8)	
Purchase Metering Spares - Meter Shop - Hydro Place	28	0	0	(28)	
Purchase Earth Resistivity Meter	18	0	16	(2)	
TOTAL SYSTEM PERFORMANCE & PROTECTION	770	121	696	(74)	
TOTAL TRANSMISSION	20,742	4,418	16,612	(4,130)	

NEWFOUNDLAND & LABRADOR HYDRO
RURAL SYSTEMS
2001 CAPITAL EXPENDITURES - DETAIL
FOR THE YEAR ENDING DECEMBER 31, 2001
($,000)

PROJECT DESCRIPTION	Annual Budget 2001	4th Quarter Actuals 2001	Total Actual Expenditures 2001	Variance From 2001 Budget	Variance Explanation Reference
REGIONAL OPERATIONS					
PROPERTY ADDITIONS					
NORTHERN REGION					
Install Air Conditioning - Port Saunders Regional Office	138	124	135	(3)	
Construct Fence Extension - St. Anthony	39	0	53	14	
Install Sewer Hookup - St. Anthony	26	0	23	(3)	
Construct Lube Oil Storage Ramp - Hawkes Bay	5	0	5	0	
Construct Lube Oil Storage Ramp - St. Anthony	5	0	3	(2)	
LABRADOR REGION					
Construct Storage Ramps - Lab West	12	8	9	(3)	
Purchase 0.279 Hectares of Land - Wabush	9	0	9	0	
TOTAL PROPERTY ADDITIONS	234	132	237	3	
TOOLS & EQUIPMENT					
CENTRAL REGION					
Purchase & Replace Tools & Equipment Less than $ 50,000	30	4	29	(1)	
NORTHERN REGION					
Purchase & Replace Tools & Equipment Less than $ 50,000	118	33	98	(20)	
LABRADOR REGION					
Purchase & Replace Tools & Equipment Less than $ 50,000	68	30	48	(20)	
METERING					
Purchase & Replace Tools & Equipment Less than $ 50,000	12	0	0	(12)	
TOTAL TOOLS & EQUIPMENT	228	67	175	(53)	

NEWFOUNDLAND & LABRADOR HYDRO
RURAL SYSTEMS
2001 CAPITAL EXPENDITURES - DETAIL
FOR THE YEAR ENDING DECEMBER 31, 2001
($,000)

PROJECT DESCRIPTION	Annual Budget 2001	4th Quarter Actuals 2001	Total Actual Expenditures 2001	Variance From 2001 Budget	Variance Explanation Reference
NEW POWER PLANTS					
Construct New Diesel Plant - Nain	3,847	2,765	2,927	(920)	C/O
TOTAL NEW POWER PLANTS	3,847	2,765	2,927	(920)	
MAJOR UPGRADING					
POWER PLANTS					
Provide Bulk Fuel Storage - Fuel Metering Program for Centrl, Northern & Lab Pl	183	0	219	36	
Upgrade Diesel Plant - McCallum	986	544	1,051	65	Note 21
Upgrade Diesel Plant - Harbour Deep	35	0	0	(35)	
TOTAL POWER PLANTS	1,204	544	1,270	66	
METERING					
Purchase Meters & Equipment - TRO System	169	19	128	(41)	
Purchase Metering Tanks - TRO System	50	0	0	(50)	Note 22
TOTAL METERING	219	19	128	(91)	
TOTAL RURAL SYSTEMS	12,475	6,805	11,903	(572)	

NEWFOUNDLAND & LABRADOR HYDRO
GENERAL PROPERTIES
2001 CAPITAL EXPENDITURES - DETAIL
FOR THE YEAR ENDING DECEMBER 31, 2001
($,000)

PROJECT DESCRIPTION	Annual Budget 2001	4th Quarter Actuals 2001	Total Actual Expenditures 2001	Variance From 2001 Budget	Variance Explanation Reference
INFORMATION SYSTEMS & TELECOMMUNICATIONS					
SOFTWARE APPLICATIONS					
NEW INFRASTRUCTURE					
Upgrade Lotus Notes Applications	82	1	70	(12)	
Purchase and Install Helpdesk Application	83	0	85	2	
Review, Implement and Supply Network Management Tools	75	0	72	(3)	
Purchase Additional Corporate Applications	205	153	173	(32)	
UPGRADE OF TECHNOLOGY					
JDE Migrate to One World (Equipment Only)	155	145	145	(10)	
TOTAL SOFTWARE APPLICATIONS	600	299	545	(55)	
COMPUTER OPERATIONS					
INFRASTRUCTURE REPLACEMENT					
Purchase Backup Services for Servers and Desktops	170	25	169	(1)	
Upgrade Corporate WAN Infrastructure	134	93	133	(1)	
Replacement of Printers	122	30	98	(24)	
NEW INFRASTRUCTURE					
Provide Six LCD Projectors - Hydro Place	39	39	39	0	
UPGRADE OF TECHNOLOGY					
Upgrade Windows 2000 Servers	155	123	160	5	
Replacement of Desktop Peripherals	18	6	23	5	
TOTAL COMPUTER OPERATIONS	638	316	622	(16)	

NEWFOUNDLAND & LABRADOR HYDRO
GENERAL PROPERTIES
2001 CAPITAL EXPENDITURES - DETAIL
FOR THE YEAR ENDING DECEMBER 31, 2001
($,000)

PROJECT DESCRIPTION	Annual Budget 2001	4th Quarter Actuals 2001	Total Actual Expenditures 2001	Variance From 2001 Budget	Variance Explanation Reference
INFORMATION SYSTEMS & TELECOMMUNICATIONS					
NETWORK SERVICES					
INFRASTRUCTURE REPLACEMENT					
Provide Global Positioning System Time Synchronization	98	7	95	(3)	
Upgrade EMS Hardware for Information Delivery System at E.C.C.	86	0	89	3	
Replace Remote Terminal Unit for Hydro - Phase 1	83	1	76	(7)	
Install Microwave System between Energy Control Centre and Sunnyside	10,573	6,126	10,006	(567)	Note 23
Upgrade Local Area Networks (LANs) - Holyrood, Bishop's Falls & Hydro Place	731	655	733	2	
Replace Datalok Alarm & Monitoring System	434	9	15	(419)	C/O
Upgrade Communications Link between Powerhouse and Intake - Cat Arm	311	259	303	(8)	
Replace Battery System - HLS, HLI, HLC, IRV & Dome Mountain	211	46	221	10	
Replace Mini-Quics System at Deer Lake Station for Cat Arm System	137	25	101	(36)	
Replace Standby Generator Systems - Blue Grass Hill & Mary March Hill	82	21	68	(14)	
Replace Remote Terminal Unit for Hydro - Phase 2	80	14	58	(22)	
Replace Dome Mountain Bldg (Lake Melville Repeater)	70	30	46	(24)	
Construct Building - Springdale Terminal Station	69	6	71	2	
Replace Battery Banks - Energy Management Systems - Energy Control Centre	65	12	56	(9)	
Replace Powerline Carrier Equipment - Transmission System - West Coast	300	28	336	36	
UPGRADE OF TECHNOLOGY					
Upgrade Site Grounding at Telecontrol Site - Phase 2	44	22	31	(13)	
TOTAL NETWORK SERVICES	13,374	7,261	12,305	(1,069)	
TOTAL INFORMATION SYSTEMS & TELECOMMUNICATIONS	14,612	7,876	13,472	(1,140)	
ADMINISTRATIVE					
VEHICLES					
Replace Vehicles - Rural Systems	157	12	155	(2)	
Replace Vehicles	1034	23	743	(291)	C/O
ADMINISTRATION				0	
				0	
Re-Construct Two Storage Ramps - Central Stores - Bishop's Falls	26	0	7	(19)	
Replace Security System - Hydro Place	67	93	93	26	
Purchase Colour Copier - Office Services - Hydro Place	74	0	57	(17)	
Purchase & Replace Admin Office Equip less than $50,000	107	66	89	(18)	
TOTAL ADMINISTRATIVE	1,465	194	1,144	(321)	
TOTAL GENERAL PROPERTIES	16,077	8,070	14,616	(1,461)	

NEWFOUNDLAND & LABRADOR HYDRO
CONTINGENCY FUND
2001 CAPITAL EXPENDITURES - DETAIL
FOR THE YEAR ENDING DECEMBER 31, 2001
($,000)

PROJECT DESCRIPTION	Annual Budget 2001	4th Quarter Actuals 2001	Total Actual Expenditures 2001	Variance From 2001 Budget	Variance Explanation Reference
CONTINGENCY FUND					
Prior Year:					
Preliminary Engineering TI 218/236	62	0	34	(28)	
Upgrade Distribution Line - Green Island Brook	51	0	125	74	Note 24
Purchase Gas Detector Monitor	7	0	6	(1)	
Sub-Total:	120	0	165	45	
Current Year - 2001					
Replacement of Poles TL215 - (69kV Doyles - Port aux Basques)	73	42	42	(31)	
Supply and Install Liner for Tank Farm - Harbour Deep	85	4	75	(10)	
Transfer/Install Diesel Unit #290 (Charlottetown - Williams Harbour)	11	5	6	(5)	
Modifications to Ventilation System - Services Building - Bishop's Falls	68	41	51	(17)	
Replacement of Units 1 & 2 Battery Charger - Holyrood	67	0	0	(67)	C/O
Replacement of Vibration Analyzer - Goose Bay	30	23	23	(7)	
Replace Generator, Unit #561 - Norman Bay	25	0	0	(25)	C/O
Install 450kW Mobile Diesel Unit - Little Bay Islands	58	58	58	0	
Sub-Total:	417	173	255	(162)	
Contingency Fund - Unexpended	583	0	0	(583)	
TOTAL CONTINGENCY FUND	1,120	173	420	(700)	

NEWFOUNDLAND & LABRADOR HYDRO
VARIANCE EXPLANATIONS
(Greater than $50,000)

GENERATION

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1. **Replacement of Piping on Surge Tanks at Bay d'Espoir**

   This project involved removal of existing piping and installation of new piping, heat tracing and insulation of a very high (approximately 300 ft) structure requiring the services of a specialized contractor. Such a contractor was consulted during the budget preparation and assisted in Capital Cost estimate preparation. Competitive tendering in the year 2000 for similar work resulted in the contract price being much lower than the capital cost estimate and this tender also had an option to award for this work in the year 2001 and for the final phase in the year 2002, under the same contract. We have exercised the tender option for this job in the year 2001 and plan the same in the year 2002 for the final phase of the overall replacement program. Favorable weather conditions, a lower tender price, and no unexpected conditions resulted in overall lower cost.

2. **Replace and Install Reheater Inlet on Unit No. 3 at Holyrood**

   This project involved reconfiguration of the surface area of the reheater of Unit No. 3 boiler which required removal and replacement of the reheater tubes to reduce the overall surface area for better steam temperature control. The Contract for this project was awarded to a Contractor (ALSTOM) who has a "partnering agreement" with Hydro. The Contractor was successful in locating a boiler tubes supply source overseas at a much lower cost than budgeted. In addition, as this Contractor is very familiar (due to the partnering agreement) with the Holyrood site, less engineering and project supervision was required than budgeted. The labor rates charged under this agreement are lower than the Construction Union labor rates.

3. **Replacement of Uninterruptible Power Supply on Unit No. 3 at Holyrood**

   Material costs were less than budgeted because of integration of the battery charger and UPS (uninterruptible power supply) equipment.

NEWFOUNDLAND & LABRADOR HYDRO
VARIANCE EXPLANATIONS
(Greater than $50,000)

GENERATION

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4. **Purchase/Install Lube Oil Filter for Turbine Generating Bearing - Units 1 and 2 at Holyrood**

This project involved the purchase and installation of lube oil filters on Units 1 and 2 at Holyrood. Lube oil filters are industry standard to avoid the bearing oil contamination. At the time of original commissioning these filters were not provided. Based on the budget estimate provided by General Electric Canada in 1997, Hydro included $283,000 for Unit 1 in the 2000 Capital Budget and $289,000 for Unit 2 in the 2001 Capital Budget (total $572,000). However, when a formal quote was requested in early 2000, GE Canada quoted a much higher price and longer delivery and GE Canada explained that a budget estimate provided in 1997 was for a much smaller unit than the one required for Holyrood. Hydro realized that the budgeted amount for both units was not enough and there was not enough time to procure and install the lube oil filtering system during the scheduled unit outage in 2000. It was decided to revise and combine the budget for the two units and to purchase and install in 2001. The revised cost quote provided by GE Canada in 2000 was based on a lump sum cost for installation based on assumptions of certain difficulties experienced for such unit installations. However, at Holyrood the installation work went smoothly and the oil cleaning and flushing required was less than anticipated. Thus the full budgeted installation cost and contingency included in the budget was not required.

NEWFOUNDLAND & LABRADOR HYDRO
VARIANCE EXPLANATIONS
(Greater than $50,000)

TRANSMISSION

5. **Modify Sump and Drainage at Corner Brook Frequency Converter**

This capital budget proposal addressed a potential environmental incident, namely, the possibility of an oil spill from the frequency converter into the local drainage system. Following a more detailed investigation, a less expensive solution was identified and completed by using operating resources.

6. **Replace Air Compressor at Grand Falls Frequency Converter**

The budget was based on the purchase of 2 units to be installed by a contractor. Subsequently, it was decided to replace only 1 compressor and install same using Hydro's internal forces.

7. **Replace Air Compressor at Corner Brook Frequency Converter**

The budget was based on the purchase of 2 units to be installed by a contractor. Subsequently, it was decided to replace only 1 compressor and install same using Hydro's internal forces.

8. **Lightning Performance Improvements - TL202/206 - Bay d'Espoir to Sunnyside**

The actual purchase price of the arrestors was substantially less than the estimates received from the manufacturers during the budget preparation.

9. **Replacement of Insulators - TL240 (138kV Happy Valley - Churchill Falls)**

More favorable prices were received for the purchase and installation of the insulators. As well, the insulators were installed in a two-week "blitz" which subsequently reduced the fuel costs in operating the gas turbine.

10. **Upgrade TL237 (230kV Come-By-Chance - Western Avalon)**

As a result of a more favorable construction contract, the overall project cost was lower than the budget.

NEWFOUNDLAND & LABRADOR HYDRO
VARIANCE EXPLANATIONS
(Greater than $50,000)

TRANSMISSION

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11. Replacement of Insulators - TL231 (230kV Bay d'Espoir - Stoney Brook)

Completion of this project by Hydro forces eliminated the requirement for inspection and reduced the need for other project management expenses. Effective use of helicopter resources also reduced the overall project cost.

NEWFOUNDLAND & LABRADOR HYDRO
VARIANCE EXPLANATIONS
(Greater than $50,000)

RURAL SYSTEMS

---

12. Provide Service Extensions - Central

The reason for the increase in expenditures is due to a number of unanticipated large service extensions.

13. Upgrade Distribution Systems - Central

The budget for this item is based on historical averages and this year's activity for upgrading was lower than normal.

14. Replace 300kW Diesel Unit No. 245 at St. Brendan's

The budget estimate was somewhat conservative and based on a 300kW unit. It was later determined that a 275kW unit would meet forecast load requirements.

15. Replace 136kV Diesel Unit No. 278 at McCallum

This project was budgeted as a 2-year program. However, the project was completed in 2001 eliminating the small cashflow requirement for 2002.

16. Replace 250kV Diesel Unit No. 2027 at McCallum

This project was budgeted as a 2-year program. However, the project was completed in 2001 eliminating the small cashflow requirement for 2002.

17. Provide Service Extensions - Northern

The increase is due to an increase in the number of service extensions.

18. Upgrade Distribution Systems - Northern

The budget for this item is based on historical averages and this year's activity for upgrading was lower than normal.

19. Provide Service Extensions - Labrador

The increase is due to an increase in the number of service extensions.

NEWFOUNDLAND & LABRADOR HYDRO
VARIANCE EXPLANATIONS
(Greater than $50,000)

RURAL SYSTEMS

---

20. **Modify for Environmental Issues - North Plant**

More detailed engineering work identified a more cost effective method of addressing the environmental issues associated with the pit and drainage system.

21. **Upgrade Diesel Plant - McCallum**

Miscellaneous mechanical and electrical extras associated with the construction contract led to the small increase in project costs.

22. **Purchase Metering Tanks - TRO System**

There were no new customers added to the system which negated the purchase and installation of a separate metering tank.

NEWFOUNDLAND & LABRADOR HYDRO
VARIANCE EXPLANATIONS
(Greater than $50,000)

GENERAL PROPERTIES

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23. Install Microwave System between Energy Control Centre and Sunnyside

This capital job cost was under budget by approximately $560,000.00. This is because the contract with Alcatel Canada was $300,000.00 less than budgeted. Also, the project was completed in a shorter construction window than originally planned which resulted in further savings in construction costs and in Interest During Construction.

NEWFOUNDLAND & LABRADOR HYDRO
VARIANCE EXPLANATIONS
(Greater than $50,000)

CONTINGENCY FUND

---

24. Upgrade Distribution Line - Green Island Brook

Hydro crews had been mobilized in late 2000 from other areas to complete the project with one or two outages. Severe weather prevented the work from proceeding on time. When work began, only a portion of the work was completed, again due to inclement weather. The remaining work was rescheduled to 2001 and the project was completed as outages were arranged during suitable weather conditions with less impact on customers.

NEWFOUNDLAND AND LABRADOR HYDRO

CAPITAL CONTINGENCY FUND STATUS

For the Period Ended December 31, 2001

($,000)

	PROJECT DESCRIPTION	CONTINGENCY ALLOCATION 2001	ACTUAL TO Dec 31/01	FUTURE COMMITMENTS	Note Reference
(1).	Replacement of Poles TL215 - (69kV Doyles - Port-aux-Basques)	73	42	0	Note 1
(2).	Supply and Install Liner for Tank Farm - Harbour Deep	85	75	0	Note 2
(3).	Transfer and Install Diesel Unit #290 from Charlottetown to Williams Hr.	11	6	0	Note 3
(4).	Modifications to Ventilation System - Services Building - Bishop's Falls	68	51	0	Note 4
(5).	Replacement of Battery Charger Units 1 & 2 - Holyrood	67	0	67	Note 5
(6).	Purchase of Vibration Analyzer - Goose Bay	30	23	0	Note 6
(7).	Replace Generator, Unit 561 - Norman Bay	25	0	25	Note 7
(8).	Install 450kW Mobile Diesel Unit - Little Bay Islands	58	58	0	Note 8
	Unexpended Contingency Fund	583			
	TOTALS:	1,000	255	92	

NEWFOUNDLAND AND LABRADOR HYDRO
CONTINGENCY FUND EXPLANATION

Note 1

Replacement of Poles TL215 (69kV Doyles - Port aux Basques) $72,500

Description of Project:
This project involves the replacement of four (4) wood pole structures on the 28km, 32 year-old 69kV line from Doyles Terminal Station to Grand Bay Terminal Station.

Future Commitments:
There are no future commitments, this project will be completed in 2001.

Reasons for Immediate Expenditure
A wood pole inspection in 2000 assessed 220 poles (50%) on this line and identified twenty (20) poles required replacement by 2002. Four (4) structures were considered a high priority and required immediate replacement. This information was not available in time to have this item included in Hydro's 2001 Capital Budget. The remaining sixteen (16) structures will be included in our 2002 Capital Budget.

NEWFOUNDLAND AND LABRADOR HYDRO
CONTINGENCY FUND EXPLANATION

Note 2

Supply and Install Liner for Tank Farm - Harbour Deep $85,300

Description of Project:
This project involves the supply and installation of a new impervious liner at the Tank Farm at the Harbour Deep Diesel Plant. The intent of this project is to install a new secondary containment system which will meet the regulatory standards to facilitate receiving the required regulatory approval for the facility.

Future Commitments:
There are no future commitments, this project will be completed in 2001.

Reasons for Immediate Expenditure
The fuel storage system at Harbour Deep which was constructed around 1980 did include a secondary containment dyke, however, observations of rainwater retention within the dyke in the fall of 2000 indicated that it would not satisfy regulatory requirements. A subsequent Engineering Department evaluation indicated that the 20 year-old liner is in poor condition and is basically unrepairable.

NEWFOUNDLAND AND LABRADOR HYDRO
CONTINGENCY FUND EXPLANATION

Note 3

Transfer and Install Diesel Unit #290 from Charlottetown to Williams Harbour
$11,285

Description of Project:
This project involves the transfer of a 136kW diesel unit #290 from the Charlottetown Diesel Plant to the Williams Harbour Diesel Plant.

Future Commitments:
There are no future commitments, this project will be completed in 2001.

Reasons for Immediate Expenditure
The 136kW 25 year-old diesel unit # 291 at Williams Harbour failed in service and sustained internal damage. A review of repairing the existing unit was compared to transferring a similar unit from Charlottetown which has become available due to the recent upgrading of generation. The review determined that it is more economical to transfer the unit from Charlottetown.

NEWFOUNDLAND AND LABRADOR HYDRO
CONTINGENCY FUND EXPLANATION

Note 4

Modification to Ventilation System – Services Building Bishop's Falls $68,400

Description of Project:
This project involves modifications to improve the ventilation system at the Heavy Equipment/Vehicle Maintenance Shop and Machine Shop in the Services Building, Bishop's Falls.

Future Commitments:
There are no future commitments, this project will be completed in 2001.

Reasons for Immediate Expenditure:
A review was done by a consultant and their report on the poor air quality was registered with Hydro's Occupational Health and Safety Committee on December 15, 2000. The quality of the air in this workplace required immediate action to meet acceptable standards for worker health and safety An air quality assessment done in January of 2001 confirmed the need for system improvements.

NEWFOUNDLAND AND LABRADOR HYDRO
CONTINGENCY FUND EXPLANATION

Note 5

Replacement of Units 1 and 2 Battery Charger - Holyrood $66,000

Description of Project:
This project involves the replacement of units 1 and 2 battery chargers at Holyrood which are used to supply critical emergency DC lube oil pumps and DC turning gear motors.

Future Commitments:
There are no future commitments, this project was intended to be completed in 2001, however, delivery by vendor was delayed to early February, 2002.

Reasons for Immediate Expenditure:
The existing battery chargers have had several control card and hardware failures since they were installed in 1998. The chargers were not considered reliable enough for further operation. A decision was made to replace the chargers rather than repair them.

NEWFOUNDLAND AND LABRADOR HYDRO
CONTINGENCY FUND EXPLANATION

Note 6

Replacement of Vibration Analyzer - Goose Bay $30,000

Description of Project:
This project involves the replacement of vibration and balancing equipment which is used to do analysis and balancing of rotating equipment such as diesel generating sets, fans, pumps, etc.

Future Commitments:
There are no future commitments, this project will be completed in 2001.

Reasons for Immediate Expenditure:
The existing vibration analyzer has been broken and because of its age and older technology a decision was made to purchase a replacement unit instead of repairing the existing unit.

NEWFOUNDLAND AND LABRADOR HYDRO
CONTINGENCY FUND EXPLANATION

Note 7

Replace Generator Unit 561 - Norman Bay $25,000

Description of Project:
This project involves the replacement of a 30kW generator on unit 561 in Norman Bay.

Future Commitments:
This project will be completed in 2002.

Reasons for Immediate Expenditure:
The 30kW AC generator suffered an in-service failure.

The repair cost will exceed the cost of the new generator, therefore it is more economical to replace the generator. The diesel operation in Norman Bay is currently supplying the load, as designed, with the two remaining units which are needed to meet the peak load. Loss of one of these two units will cause an impact on customer supply.

Due to winter climatic conditions and restricted access by boat, delivery is planned to be made by helicopter.

NEWFOUNDLAND AND LABRADOR HYDRO
CONTINGENCY FUND EXPLANATION

Note 8

Install 450kW Mobile Diesel Unit - Little Bay Islands $58,000

Description of Project:
This project involves, the disconnection and transportation of a diesel generating unit 2035 (450kW) and associated equipment from the Roddickton Woodchip Plant to Bishop's Falls The unit 2035 and associated equipment was then installed in trailer V8847 at Bishop's Falls and then transported and set-up at the Diesel Plant in Little Bay Islands.

Future Commitments:
There are no future commitments, this project will be completed in 2001.

Reasons for Immediate Expenditure
Additional generation was required in Little Bay Islands to satisfy load requirements as a result of process expansion by Eveleigh's Seafoods Inc.

Reusing the diesel unit from the decommissioned Roddickton Wood Chip plant was the most economical solution to meeting this new requirement for load.

NEWFOUNDLAND AND LABRADOR HYDRO

2002 CAPITAL EXPENDITURES

YEAR ENDING DECEMBER 31, 2002

Filed with the Public Utilities Board
February/2003

NEWFOUNDLAND AND LABRADOR HYDRO
2002 CAPITAL EXPENDITURES
For Year Ending December 31, 2002

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NEWFOUNDLAND & LABRADOR HYDRO

2002 CAPITAL EXPENDITURES - OVERVIEW

FOR THE QUARTER ENDING DECEMBER 31, 2002
($,000)

	Annual Budget 2002	4th Quarter Actuals 2002	Total Actual Expenditures 2002	Variance From 2002 Budget
GENERATION	6,635	3,452	4,765	(1,870)
TRANSMISSION	17,734	3,853	16,203	(1,531)
RURAL SYSTEMS	8,348	3,511	9,095	747
GENERAL PROPERTIES	6,055	3,189	5,424	(631)
CONTINGENCY FUND - 2001	92	7	77	(15)
ALLOWANCE FOR UNFORSEEN EVENTS	1,000	0	0	(1,000)
PROJECTS APPROVED BY PUB	4,539	4,293	4,441	(98)
NEW PROJECTS LESS THAN $ 50,000 APPROVED BY HYDRO	257	202	212	(45)
TOTAL CAPITAL BUDGET	44,660	18,507	40,217	(4,443)

+62 +356 +50 = 5,233

+442 +8 = 16,653

+15 +73 +3570 +20 +17 +25 +12 +4 +30 +46 = 12907

29,560

Approved P.U. 30 (2001-2002)	27,138
Approved P.U. 31 (2001-2002)	731
Approved P.U. 1 (2002-2003)	466
Approved P.U. 20 (2002-2003)	503
Approved P.U. 7 (2002-2003)	8,896
Approved P.U. 28 (2002-2003) - Aliant Poles	3,570
Carryover Projects 2001 to 2002	3,099
New Projects Under $50,000 approved by Hydro	257
Total Approved Capital Budget	44,660

NEWFOUNDLAND & LABRADOR HYDRO

2002 CAPITAL EXPENDITURES - OVERVIEW

FOR THE QUARTER ENDING DECEMBER 31, 2002
($,000)

	Annual Budget 2002	4th Quarter Actuals 2002	Total Actual Expenditures 2002	Variance From 2002 Budget	Page Ref
GENERATION					
HYDRO PLANTS					
Construction Projects	4,779	2,738	3,876	(903)	4
Property Additions	164	135	136	(28)	4
Tools & Equipment	323	259	320	(3)	4
THERMAL PLANT					
Construction Projects	1,292	303	382	(910)	5
Tools & Equipment	77	17	51	(26)	5
TOTAL GENERATION	6,635	3,452	4,765	(1,870)	
TRANSMISSION					
REGIONAL OPERATIONS					
Construction Projects	71	12	64	(7)	6
Property Additions	69	12	87	18	6
Tools & Equipment	207	46	177	(30)	6
SYSTEM SECURITY & RELIABILITY IMPROVEMENTS	16,945	3,579	15,592	(1,353)	7
SYSTEM PERFORMANCE & PROTECTION	442	204	283	(159)	7
TOTAL TRANSMISSION	17,734	3,853	16,203	(1,531)	

NEWFOUNDLAND & LABRADOR HYDRO

2002 CAPITAL EXPENDITURES - OVERVIEW

FOR THE QUARTER ENDING DECEMBER 31, 2002
($,000)

	Annual Budget 2002	4th Quarter Actuals 2002	Total Actual Expenditures 2002	Variance From 2002 Budget	Page Ref
RURAL SYSTEMS					
REGIONAL OPERATIONS					
Construction Projects	6,645	2,868	6,955	310	9
Property Additions	38	1	16	(22)	10
Tools & Equipment	199	22	154	(45)	10
NEW POWER PLANTS	1,201	463	1,785	584	11
MAJOR UPGRADING					
Power Plants	59	0	0	(59)	11
METERING	206	157	185	(21)	11
TOTAL RURAL SYSTEMS	8,348	3,511	9,095	747	
GENERAL PROPERTIES					
INFORMATION SYSTEMS & TELECOMMUNICATIONS	3,765	2,290	3,498	(267)	13
ADMINISTRATIVE	2,290	899	1,926	(364)	13
TOTAL GENERAL PROPERTIES	6,055	3,189	5,424	(631)	
CONTINGENCY FUND	92	7	77	(15)	14
ALLOWANCE FOR UNFORSEEN EVENTS	1,000	0	0	(1,000)	14
PROJECTS APPROVED BY PUB ORDER	4,539	4,293	4,441	(98)	14
PROJECTS APPROVED FOR LESS THAN $ 50,000	257	202	212	(45)	14
TOTAL CAPITAL BUDGET	44,660	18,507	40,217	(4,443)	

NEWFOUNDLAND & LABRADOR HYDRO
GENERATION
2002 CAPITAL EXPENDITURES - DETAIL
FOR THE QUARTER ENDING DECEMBER 31, 2002
($,000)

PROJECT DESCRIPTION	Annual Budget 2002	4th Quarter Actuals 2002	Total Actual Expenditures 2002	Variance From 2002 Budget	Variance Explanation Reference
HYDRO PLANTS					
CONSTRUCTION PROJECTS					
Replace Halon 1301 Fire Protection Systems for Generation System	58	23	89	31	
Replace Halon 1301 Fire Protection Systems for Generation System	697	262	335	(362)	Note 1
Replace Unit 1 Exciter - Cat Arm	863	390	585	(278)	Note 2
Install 25 kV Distribution Line - Ebbegunbaeg	1,555	908	1,273	(282)	Note 3
Replace Governor Controls - Upper Salmon	606	463	595	(11)	
Replace Piping on Surge Tank 3 - Bay D' Espoir	326	194	300	(26)	
Upgrade Controls on Spherical Valve #5 - Bay D'Espoir	153	4	172	19	
Install Fault Recorder - Upper Salmon Generating Station	127	64	64	(63)	C/O
Install Intake Stoplogs - Paradise River	158	141	151	(7)	
Replace Control Cables - Bay D' Espoir	131	215	230	99	Note 4
Replace Sump Pump No. 2 at Powerhouse No. 1 - Bay D'Espoir	46	34	35	(11)	
Purchase Security Surveillance System - Bay D'Espoir	35	23	23	(12)	
Replace Trash Rack Differential System - Bay D'Espoir Intake	15	15	15	0	
Install Frazil Ice Detection System - Intake #4 - Bay D'Espoir	9	2	9	0	
TOTAL CONSTRUCTION PROJECTS	4,779	2,738	3,876	(903)	
PROPERTY ADDITIONS					
Replace Ventilation System at Powerhouse No.1 - Bay D' Espoir	164	135	136	(28)	
TOTAL PROPERTY ADDITIONS	164	135	136	(28)	
TOOLS & EQUIPMENT					
Purchase Track Machine - Cat Arm	177	180	180	3	
Purchase & Replace Tools & Equipment Less than $50,000	146	79	140	(6)	
TOTAL TOOLS & EQUIPMENT	323	259	320	(3)	

NEWFOUNDLAND & LABRADOR HYDRO
GENERATION
2002 CAPITAL EXPENDITURES - DETAIL
FOR THE QUARTER ENDING DECEMBER 31, 2002
($,000)

PROJECT DESCRIPTION	Annual Budget 2002	4th Quarter Actuals 2002	Total Actual Expenditures 2002	Variance From 2002 Budget	Variance Explanation Reference
THERMAL PLANT					
CONSTRUCTION PROJECTS					
Upgrade Oil Systems for Fire Protection on Unit No.2 - Holyrood	40	1	38	(2)	
Upgrade Oil Systems for Fire Protection on Unit No.1 - Holyrood	40	3	41	1	
Purchase and Install Continuous Emission Monitoring	801	128	132	(669)	C/O
Upgrade Oil Systems for Fire Protection on Unit No.3 - Holyrood	225	11	11	(214)	Note 5
Purchase and Install Closed Circuit Surveillance System - Holyrood	152	137	137	(15)	
Replace Turbine Electrohydraulic Control System - Unit No. 1 - Holyrood	34	23	23	(11)	C/O
TOTAL CONSTRUCTION PROJECTS	1,292	303	382	(910)	
TOOLS & EQUIPMENT					
Purchase & Replace Tools & Equipment Less than $50,000	77	17	51	(26)	
TOTAL TOOLS & EQUIPMENT	77	17	51	(26)	
TOTAL CONSTRUCTION PROJECTS	0	0	0	0	
TOTAL GENERATION	6,635	3,452	4,765	(1,870)	

NEWFOUNDLAND & LABRADOR HYDRO
TRANSMISSION
2002 CAPITAL EXPENDITURES - DETAIL
FOR THE QUARTER ENDING DECEMBER 31, 2002
($,000)

PROJECT DESCRIPTION	Annual Budget 2002	4th Quarter Actuals 2002	Total Actual Expenditures 2002	Variance From 2002 Budget	Variance Explanatic Referenc
REGIONAL OPERATIONS					
CONSTRUCTION PROJECTS					
CENTRAL REGION - TERMINALS					
Replace Instrument Transformers/Surge Arrestors - Central	71	12	64	(7)	
TOTAL CONSTRUCTION PROJECTS	71	12	64	(7)	
PRPOPERTY ADDITIONS					
CENTRAL REGION					
Pave Parking Area - Bishop's Falls Complex	69	12	87	18	
TOTAL PROPERTY ADDITIONS	69	12	87	18	
TOOLS & EQUIPMENT					
CENTRAL REGION					
Purchase & Replace Tools & Equipment Less than $ 50,000	207	46	177	(30)	
TOTAL TOOLS & EQUIPMENT	207	46	177	(30)	

NEWFOUNDLAND & LABRADOR HYDRO
TRANSMISSION
2002 CAPITAL EXPENDITURES - DETAIL
FOR THE QUARTER ENDING DECEMBER 31, 2002
($,000)

PROJECT DESCRIPTION	Annual Budget 2002	4th Quarter Actuals 2002	Total Actual Expenditures 2002	Variance From 2002 Budget	Variance Explanation Reference
SYSTEM SECURITY & RELIABILITY IMPROVEMENTS					
Upgrade TL227 - (69kv Berry Hill - Daniels Harbour) - 2001	427	(63)	466	39	
Upgrade TL242 - (Holyrood - Hardwoods)	8,814	518	7,580	(1,234)	Note 6
Upgrade TL236 - (Hardwoods - Oxen Pond)	5,246	2,245	5,149	(97)	Note 7
Upgrade TL262 - (69kv Daniels Harbour - Peter's Barren)	420	(29)	457	37	
Upgrade TL227 - (69kv Berry Hill - Daniels Harbour)	496	352	654	158	C/O
Replacement of Insulators - TL226 - (69kV Deer Lake - Berry Hill)	224	232	253	29	
Replacement of Insulators - TL229 - (69kV Wiltondale - Glenburnie)	145	44	87	(58)	Note 8
Replacement of Insulators - TL211 (230kV Massey Drive - Bottom Brook)	570	226	465	(105)	Note 9
Replacement of Insulators - TL228 (230kV Buchans - Massey Drive)	450	51	401	(49)	C/O
Replacement of Poles TL215 - (69kV Doyles - Port aux Basques)	138	3	80	(58)	Note 10
Uprate of TL203- (230kV Sunnyside - Western Avalon)	15	0	0	(15)	C/O
TOTAL SECURITY & RELIABILITY IMPROVEMENTS	16,945	3,579	15,592	(1,353)	
SYSTEM PERFORMANCE & PROTECTION					
Purchase and Install 230kV Recloser PLC Refit (L05L35) - Stony Brook T.S.	42	12	29	(13)	
Purchase and Install Remote Communication Equipment - BUC & STB	51	21	48	(3)	
Purchase and Install Breaker Failure Protection Addition - BBK, WAV & HRD	229	68	97	(132)	Note 11
Purchase and Install Digital Fault Recorder - Stony Brook	92	81	87	(5)	
Purchase Metering Spares - Meter Shop - Hydro Place	28	22	22	(6)	
TOTAL SYSTEM PERFORMANCE & PROTECTION	442	204	283	(159)	
TOTAL TRANSMISSION	17,734	3,853	16,203	(1,531)	

NEWFOUNDLAND & LABRADOR HYDRO
RURAL SYSTEMS
2002 CAPITAL EXPENDITURES - DETAIL
FOR THE QUARTER ENDING DECEMBER 31, 2002
($,000)

PROJECT DESCRIPTION	Annual Budget 2002	4th Quarter Actuals 2002	Total Actual Expenditures 2002	Variance From 2002 Budget	Variance Explanatic Referenc
REGIONAL OPERATIONS					
CONSTRUCTION PROJECTS					
CENTRAL REGION - DISTRIBUTION					
Replace Poles - South Brook and King's Point System	197	(8)	179	(18)	
Provide Service Extensions - Central	331	304	631	300	Note 12
Upgrade Distribution Systems - Central	551	207	429	(122)	Note 13
Replace Insulators - English Harbour West System	669	143	391	(278)	Note 14
Replace Insulators - South Brook System	317	44	284	(33)	
Replace Conductor/Poles - Burgeo	300	27	244	(56)	Note 15
Purchase and Install Voltage Regulators - Barachoix	112	20	88	(24)	
Replace Transformers - Burlington Substation	149	7	79	(70)	Note 16
CENTRAL REGION - GENERATION					
Replace 136kW Diesel Unit No. 278 - McCallum	56	0	0	(56)	Note 17
Replace 250kW Diesel Unit No. 2027 - McCallum	55	0	0	(55)	Note 18
Replace 136kW Diesel Unit No. 279 - Grey River	307	142	170	(137)	Note 19
NORTHERN REGION - DISTRIBUTION					
Provide Service Extensions - Northern	327	200	530	203	Note20
Upgrade Distribution System - Northern	614	283	803	189	Note 21
Upgrade Distribution Lines - St. Anthony Distribution System	206	17	197	(9)	
Relocation of Line - Cook's Harbour	556	174	480	(76)	Note 22
Replace Corroded Transformers - Northern	276	31	209	(67)	Note 23
Upgrade Distribution Line - Goose Cove	87	33	37	(50)	Note 24
NORTHERN REGION - GENERATION					
Replace 136kW Diesel Unit No. 266 - Williams Harbour	11	0	0	(11)	

NEWFOUNDLAND & LABRADOR HYDRO
RURAL SYSTEMS
2002 CAPITAL EXPENDITURES - DETAIL
FOR THE QUARTER ENDING DECEMBER 31, 2002
($,000)

PROJECT DESCRIPTION	Annual Budget 2002	4th Quarter Actuals 2002	Total Actual Expenditures 2002	Variance From 2002 Budget	Variance Explanation Reference
REGIONAL OPERATIONS					
CONSTRUCTION PROJECTS					
LABRADOR REGION - DISTRIBUTION & TERMINALS					
Provide Service Extensions - Labrador	323	413	787	464	Note 25
Upgrade Distribution Systems - Labrador	165	215	443	278	Note 26
Replace Battery Charger & Batteries System - Quartzite Substation - Lab. City	9	6	7	(2)	
LABRADOR REGION - GENERATION					
Replace 300kW Diesel Unit No. 288 - Black Tickle	328	226	298	(30)	
Replace 250kW Diesel Unit No. 293 - Rigolet	310	217	291	(19)	
Upgrade Fuel Storage - Nain	339	132	338	(1)	
Purchase and Install Fire Alarm System - Black Tickle	50	35	40	(10)	
TOTAL CONSTRUCTION PROJECTS	6,645	2,868	6,955	310	

NEWFOUNDLAND & LABRADOR HYDRO
RURAL SYSTEMS
2002 CAPITAL EXPENDITURES - DETAIL
FOR THE QUARTER ENDING DECEMBER 31, 2002
($,000)

PROJECT DESCRIPTION	Annual Budget 2002	4th Quarter Actuals 2002	Total Actual Expenditures 2002	Variance From 2002 Budget	Variance Explanation Reference
REGIONAL OPERATIONS					
PROPERTY ADDITIONS					
NORTHERN REGION					
LABRADOR REGION					
Purchase Approved PCB Storage Container - Happy Valley	20	0	0	(20)	
Construct Storage Shed - Rigolet	18	1	16	(2)	
TOTAL PROPERTY ADDITIONS	38	1	16	(22)	
TOOLS & EQUIPMENT					
CENTRAL REGION					
Purchase & Replace Tools & Equipment Less than $ 50,000	61	10	58	(3)	
NORTHERN REGION					
Purchase & Replace Tools & Equipment Less than $ 50,000	85	0	81	(4)	
LABRADOR REGION					
Purchase & Replace Tools & Equipment Less than $ 50,000	40	12	15	(25)	
METERING					
Purchase & Replace Tools & Equipment Less than $ 50,000	13	0	0	(13)	
TOTAL TOOLS & EQUIPMENT	199	22	154	(45)	

NEWFOUNDLAND & LABRADOR HYDRO
RURAL SYSTEMS
2002 CAPITAL EXPENDITURES - DETAIL
FOR THE QUARTER ENDING DECEMBER 31, 2002
($,000)

PROJECT DESCRIPTION	Annual Budget 2002	4th Quarter Actuals 2002	Total Actual Expenditures 2002	Variance From 2002 Budget	Variance Explanation Reference
NEW POWER PLANTS					
Construct New Diesel Plant - Nain	1,201	463	1,785	584	Note 27
TOTAL NEW POWER PLANTS	1,201	463	1,785	584	
MAJOR UPGRADING					
POWER PLANTS					
Upgrade Diesel Plant - St. Lewis	59	0	0	(59)	Note 28
TOTAL POWER PLANTS	59	0	0	(59)	
METERING					
Purchase Meters & Equipment - TRO System	172	157	185	13	
Purchase Metering Tanks - TRO System	34	0	0	(34)	
TOTAL METERING	206	157	185	(21)	
TOTAL RURAL SYSTEMS	8,348	3,511	9,095	747	

NEWFOUNDLAND & LABRADOR HYDRO
GENERAL PROPERTIES
2002 CAPITAL EXPENDITURES - DETAIL
FOR THE QUARTER ENDING DECEMBER 31, 2002
($,000)

PROJECT DESCRIPTION	Annual Budget 2002	4th Quarter Actuals 2002	Total Actual Expenditures 2002	Variance From 2002 Budget	Variance Explanation Reference
INFORMATION SYSTEMS & TELECOMMUNICATIONS					
SOFTWARE APPLICATIONS					
INFRASTRUCTURE REPLACEMENT					
Acquire Document Management & Imaging System	104	0	0	(104)	C/O
NEW INFRASTRUCTURE					
Purchase Additional Corporate Applications	517	426	441	(76)	C/O
TOTAL SOFTWARE APPLICATIONS	621	426	441	(180)	
COMPUTER OPERATIONS					
INFRASTRUCTURE REPLACEMENT					
Purchase and Install Uninterruptible Power Supply - Computer Room	70	73	73	3	
Replacement of Printers	130	65	133	3	
Purchase of Existing AS400 Computers and Additional Disk Space	143	67	142	(1)	
NEW INFRASTRUCTURE					
Provide Three LCD Projectors - Hydro Place	39	39	39	0	
UPGRADE OF TECHNOLOGY					
Replacement of Desktop Peripherals	18	18	18	0	
TOTAL COMPUTER OPERATIONS	400	262	405	5	

NEWFOUNDLAND & LABRADOR HYDRO
GENERAL PROPERTIES
2002 CAPITAL EXPENDITURES - DETAIL
FOR THE QUARTER ENDING DECEMBER 31, 2002
($,000)

PROJECT DESCRIPTION	Annual Budget 2002	4th Quarter Actuals 2002	Total Actual Expenditures 2002	Variance From 2002 Budget	Variance Explanation Reference
INFORMATION SYSTEMS & TELECOMMUNICATIONS					
NETWORK SERVICES					
INFRASTRUCTURE REPLACEMENT					
Replace Datalok Alarm & Monitoring System	419	373	422	3	
Replace Powerline Carrier Equipment - Transmission System - West Coast	651	235	650	(1)	
Replace Teleprotection - Stony Brook - Grand Falls Frequency Converter	58	3	48	(10)	
Replace UHF Radio - Upper Salmon	556	560	594	38	
Complete Microwave Radio System Interconnection	269	108	208	(61)	C/O
Replace Remote Terminal Unit for Hydro - Phase 3	311	14	311	0	
UPGRADE OF TECHNOLOGY					
Provide Global Positioning System Time Synchronization - Phase 2	211	69	165	(46)	C/O
Install Interactive Voice Response System - Hydro Place	171	169	169	(2)	
Replace Telephone Isolation Equipment - Sunnyside & Western Avalon	52	44	51	(1)	
Upgrade Site Grounding at Telecontrol Site - Phase 3	46	27	34	(12)	
TOTAL NETWORK SERVICES	2,744	1,602	2,652	(92)	
TOTAL INFORMATION SYSTEMS & TELECOMMUNICATIONS	3,765	2,290	3,498	(267)	
ADMINISTRATIVE					
VEHICLES					
Replace Vehicles - 2001	291	0	319	28	
Replace Vehicles - 2002	1,897	874	1,509	(388)	C/O
ADMINISTRATION					
Purchase & Replace Admin Office Equip less than $50,000	102	25	98	(4)	
TOTAL ADMINISTRATIVE	2,290	899	1,926	(364)	
TOTAL GENERAL PROPERTIES	6,055	3,189	5,424	(631)	

NEWFOUNDLAND & LABRADOR HYDRO
OTHER APPROVED FUNDS
2002 CAPITAL EXPENDITURES - DETAIL
FOR THE QUARTER ENDING DECEMBER 31, 2002
($,000)

PROJECT DESCRIPTION	Annual Budget 2002	4th Quarter Actuals 2002	Total Actual Expenditures 2002	Variance From 2002 Budget	Variance Explanation Reference
CONTINGENCY FUND - 2001					
Replacement of Units 1 & 2 Battery Charger - Holyrood	67	7	62	(5)	
Replace Generator, Unit #561 - Norman Bay	25	0	15	(10)	
TOTAL CONTINGENCY FUND - 2001	92	7	77	(15)	
ALLOCATION FOR UNFORSEEN EVENTS					
Allocation for Unforseen Events	1,000	0	0	(1,000)	Note 29
TOTAL ALLOCATION FOR UNFORSEEN EVENTS	1,000	0	0	(1,000)	
PROJECTS APPROVED BY PUB					
Rewind Corner Brook Frequency Converter	466	295	442	(24)	
Replacement of Sewage Disposal System - Holyrood	352	355	356	4	
Replace Diesel Unit #2006 with Unit #2052 - Cartwright	151	73	73	(78)	C/O
Purchase of Poles from Aliant	3,570	3,570	3,570	0	
TOTAL PROJECTS APPROVED BY PUB	4,539	4,293	4,441	(98)	
NEW PROJECTS LESS THAN $ 50,000 APPROVED BY HYDRO					
High Pressure Air Compressors for Bay D'Espoir	44	48	50	6	
Corner Brook Frequency Converter Replace System Air Dryer	6	0	8	2	
Replace SO2 Analyzer	17	20	20	3	
Relocation of Diesel - Bishop's Falls to Davis Inlet	16	17	17	1	
Replacement of Structures on TL251 - Howley to Hampden	47	25	25	(22)	
Install Alternate 69kV Feed to Transformer SST-12 - Holyrood	45	12	12	(33)	C/O
Install Mid Span 2 Pole Structure TL223	6	4	4	(2)	
Relocation of Diesel Unit #2058 - Harbour Deep to Rencontre East	30	30	30	0	
Purchase Two Mobile Diesel Units - Rencontre East	46	46	46	0	
TOTAL NEW PROJECTS LESS THAN $ 50,000 APPROVED BY HYDRO	257	202	212	(45)	

2002 CAPITAL PROJECTS OVER $50,000
VARIANCE EXPLANATIONS

GENERATION:

1. **Replace Halon 1301 Fire Protection Systems for Generation System**

   Competitive tendering for a three (3) year Halon Replacement in was completed 2000. The final phase, Phase III which was completed in 2002. The multi-year contract resulted in contract prices much lower than the original estimate.

2. **Replace Unit 1 Exciter - Cat Arm**

   The approved budget estimate was based on an ABB exciter type Unitrol P with custom designed software. Following a review of the functionality required at Cat Arm, it was decided to modify our plan and use replacement exciter ABB model type Unitrol F with standard software package and its cost is lower than the Unitrol P.

3. **Install 25kV Distribution Line - Ebbegunbaeg**

   As a result of lower internal labour, project management and other costs, the overall project cost was less than budget.

4. **Replace Control Cables - Bay d'Espoir**

   The original scope included the replacement of two (2) control cables between Powerhouse # 1 and Intake # 2 and # 4 with fiber optic cables. Based on further evaluation, and to ensure reliability of the controls, fiber optic cable was also installed between Intake # 2 and Intake # 4. This along with higher fibre optic cable costs resulted in a total project cost higher than the budgeted amount.

5. **Upgrade Oil Systems for Fire Protection on Unit No. 3 - Holyrood**

   The original scope of work envisaged the installation of containment dykes, sprinkler coverage of the seal oil unit and major drainage modifications resulting from insurer's recommendation. This would have resulted in major logistical and safety problems for the maintenance staff. Following discussions with the insurers, the scope was reduced to satisfy the insurer's issues and alleviate safety concerns resulting in significant lower overall cost.

2002 CAPITAL PROJECTS OVER $50,000
VARIANCE EXPLANATIONS

TRANSMISSION:

6. **Upgrade TL242 - (Holyrood - Hardwoods)**

The reason for this variance is lower than expected material cost, construction contract costs and related expenses in this variance.

7. **Upgrade TL236 (Hardwoods - Oxen Pond)**

A slight reduction in material costs resulted in a marginal cost underrun on this project.

8. **Replacement of Insulators - TL229 (69kV Wiltondale - Glenburnie)**

This project was constructed using internal forces; consequently, contract management and inspection costs were not required.

9. **Replacement of Insulators - TL211 (230kV Massey Drive - Bottom Brook)**

As a result of lower internal labour, project management and other costs, the overall project cost was less than budget.

10. **Replacement of Poles TL215 - (69kV Doyles - Port aux Basques)**

This project was constructed using internal forces; consequently, contract management and inspection costs were not required.

11. **Purchase and Install Breaker Failure Protection Addition - BBK, WAV & HRD**

The budget estimate was prepared based on new individual panel installations in each of the three stations involved. When the work was engineered in detail, it was found the relaying could be added using the existing panel space. Also, the scope of work required in each station, was less than estimated.

2002 CAPITAL PROJECTS OVER $50,000
VARIANCE EXPLANATIONS

RURAL SYSTEM:

12. **Provide Service Extensions - Central**

The increase is primarily due to a higher than normal number of service extension requests from customers.

13. **Upgrade Distribution Systems - Central**

Distribution Upgrading for 2002 was less than budgeted due to favorable weather conditions and fewer unforeseen events than in a normal year.

14. **Replace Insulators - English Harbour West System**

This project was budgeted to be done under energized line conditions. However, by using a mobile diesel unit to service the community, construction was completed under de-energized conditions resulting in a much lower contract price.

15. **Replace Conductor/Poles - Burgeo**

This project was constructed using internal forces; consequently contract management and inspection costs were not required.

16. **Replace Transformers - Burlington Substation**

The original budget was based on installing a three-phase transformer on a concrete foundation in the existing station, which would have involved grounding and fencing upgrades. During detailed design, it was decided to install three single-phase transformers on the existing transformer structure which resulted in reduced costs for the project.

17. **Replace 136kW Diesel Unit No. 278 - McCallum**

This project was budgeted as a multi-year project in 2001 and 2002. It was completed ahead of schedule in 2001.

18. **Replace 250kW Diesel Unit No. 2027 - McCallum**

This project was budgeted as a multi-year project in 2001 and 2002. It was completed ahead of schedule in 2001.

2002 CAPITAL PROJECTS OVER $50,000
VARIANCE EXPLANATIONS

RURAL SYSTEM: (cont'd.)

19. **Replace 136kW Diesel Unit No. 279 - Grey River**

Use of an existing generator and switchgear resulted in lower equipment and other related costs.

20. **Provide Service Extensions - Northern**

The increase is primarily due to a higher than normal number of service extension requests from customers.

21. **Upgrade Distribution System - Northern**

The increase is primarily due to an increase in unforeseen distribution upgrading work in 2002, including a severe sleet storm in May, which affected St. Anthony and coastal Labrador. Total cost of that storm was $182,095.

22. **Relocation of Line - Cook's Harbour**

Favourable material prices combined with an improved construction schedule resulted in lower overall project costs.

23. **Replace Corroded Transformers - Northern**

The cost reduction was realized because the units to be replaced were of lower capacity than anticipated. Also, several units were replaced during a single trip resulting in lower installation costs.

24. **Upgrade Distribution Line - Goose Cove**

A favourable construction contract bid and improved construction schedule resulted in lower overall project cost.

25. **Provide Service Extensions - Labrador**

The increase is primarily due to a higher than normal number of service extension requests from customers. Included was the development of a subdivision in Happy Valley for $145,935 and an extension to a new school in Happy Valley for $47,831. These projects were unknown prior to the submission of the 2002 Budget.

2002 CAPITAL PROJECTS OVER $50,000
VARIANCE EXPLANATIONS

RURAL SYSTEM: (cont'd.)

26. **Upgrade Distribution Systems - Labrador**

This increase is primarily due to an increase in unforeseen distribution upgrading work in 2002, including a severe ice storm in Black Tickle at a cost of $130,206.

27. **Construct New Diesel Plant - Nain**

The increase in costs to this project is a result of changes to the design / supply / install contract for the new plant, as well as additional equipment requirements. Also, completion of the project was 10 months later than scheduled. Associated with these changes, additions and delays, are the corresponding additional costs for Hydro's internal engineering, project management, overheads and interest during construction.

28. **Upgrade Diesel Plant - St. Lewis**

The 2002 budget amount was intended to cover preliminary engineering required to define and recommend options for the plant upgrade which was to be done in the following year, 2003. The upgrade has been deferred to coincide with diesel unit replacements for St. Lewis now scheduled for 2006.

2002 CAPITAL PROJECTS OVER $50,000
VARIANCE EXPLANATIONS

OTHER APPROVED FUNDS:

29. **Allowance for Unforeseen Events:**

There were no capital projects during 2002 that met the conditions imposed by the Board in P.U. 7 (2002 - 2003) for inclusion in the expenditure category.

NEWFOUNDLAND AND LABRADOR HYDRO
CAPITAL CARRYOVER REPORT
YEAR ENDING DECEMBER 31, 2003

Filed with the Public Utilities Board
February/2004

NEWFOUNDLAND AND LABRADOR HYDRO
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For Year Ending December 31, 2003

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CARRYOVER EXPLANATION (GREATER THAN $50,000)
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NEWFOUNDLAND & LABRADOR HYDRO

CAPITAL CARRYOVER REPORT - OVERVIEW

YEAR ENDING DECEMBER 31, 2003

($,000)

	Revised Pub App Budget 2003	Actuals 2003	Variance	Carryover Amount
GENERATION	176	191	-15	29
TRANSMISSION & RURAL OPERATIONS	1,329	1,357	-28	-179
GENERAL PROPERTIES	3,864	2,633	1,231	1,231
PROJECTS APPROVED BY PUB	212	68	144	144
NEW PROJECTS LESS THAT $50,000	48	18	30	30
TOTAL	5,629	4,267	1,362	1,255

NEWFOUNDLAND & LABRADOR HYDRO

CAPITAL CARRYOVER REPORT - SUMMARY BY CATEGORY

YEAR ENDING DECEMBER 31, 2003

($,000)

	Revised Pub App Budget 2003	Actuals 2003	Variance	Carryover Amount
GENERATION				
HYDRO PLANTS				
Construction Projects	173	191	-18	26
Tools & Equipment	3	0	3	3
TOTAL GENERATION	176	191	-15	29
TRANSMISSION & RURAL OPERATIONS				
TRANSMISSION	111	401	-290	-290
SYSTEM SECURITY & RELIABILITY IMPROVEMENTS	109	88	21	21
TERMINALS	83	71	12	12
DISTRIBUTION	720	593	127	33
GENERAL				
Tools & Equipment	306	204	102	45
TOTAL TRANSMISSION & RURAL OPERATIONS	1,329	1,357	-28	-179
GENERAL PROPERTIES				
INFORMATION SYSTEMS & TELECOMMUNICATIONS	2,280	1,495	785	785
ADMINISTRATIVE	1,584	1,138	446	446
TOTAL GENERAL PROPERTIES	3,864	2,633	1,231	1,231
OTHER APPROVED FUNDS				
PROJECTS APPROVED BY PUB	212	68	144	144
NEW PROJECTS LESS THAN $50,000 APPROVED BY HYDRO	48	18	30	30
TOTAL OTHER APPROVED FUNDS	260	86	174	174

NEWFOUNDLAND & LABRADOR HYDRO
GENERATION
CAPITAL CARRYOVER REPORT - DETAIL
YEAR ENDING DECEMBER 31, 2003
($,000)

PROJECT DESCRIPTION	Revised Pub App Budget 2003	Actuals 2003	Variance	Carryover Amount	Carryover Explanation Reference
HYDRO PLANTS					
CONSTRUCTION PROJECTS					
Replace Vibration/Data System - BDE	153	179	-26	18	
Replace Gate Hoist No. 2 - Ebbegunbaeg Control Structure	7	2	5	5	
Replace Unit 7 Exciter - Bay D'Espoir	13	10	3	3	
TOTAL CONSTRUCTION PROJECTS	173	191	-18	26	
Tools & Equipment					
Replace Loader/Backhoe - BDE	3	0	3	3	
TOTAL TOOLS & EQUIPMENT	3	0	3	3	
TOTAL GENERATION	176	191	-15	29	

NEWFOUNDLAND & LABRADOR HYDRO
TRANSMISSION & RURAL OPERATIONS
CAPITAL CARRYOVER REPORT - DETAIL
YEAR ENDING DECEMBER 31, 2003
($,000)

PROJECT DESCRIPTION	Revised Pub App Budget 2003	Actuals 2003	Variance	Carryover Amount	Carryover Explanation Reference
TRANSMISSION					
Upgrade TL214 - (138kV Bottom Brook - Doyles)	111	401	-290	-290	NOTE 1
TOTAL TRANSMISSION	111	401	-290	-290	
SYSTEM PERFORMANCE & PROTECTION					
Replace Digital Fault Recorder - Holyrood Terminal Station	76	70	6	6	
Upgrade Breaker Controls - Sunnyside Terminal Station	33	18	15	15	
TOTAL SYSTEM PERFORMANCE & PROTECTION	109	88	21	21	
TERMINALS					
Upgrade Station Service - Long Harbour T.S.	83	71	12	12	
TOTAL TERMINALS	83	71	12	12	
DISTRIBUTION					
Protection Upgrades - Isolated Systems	720	593	127	33	
TOTAL DISTRIBUTION	720	593	127	33	
GENERAL					
Purchase & Replace Tools & Equipment Less than $ 50,000	306	204	102	45	
TOTAL GENERAL	306	204	102	45	
TOTAL TRANSMISSION & RURAL OPERATIONS	1,329	1,357	-28	-179	

NEWFOUNDLAND & LABRADOR HYDRO
GENERAL PROPERTIES
CAPITAL CARRYOVER REPORT - DETAIL
YEAR ENDING DECEMBER 31, 2003
($,000)

PROJECT DESCRIPTION	Revised Pub App Budget 2003	Actuals 2003	Variance	Carryover Amount	Carryover Explanation Reference
INFORMATION SYSTEMS & TELECOMMUNICATIONS					
SOFTWARE APPLICATIONS					
NEW INFRASTRUCTURE					
Replace Enegry Management System - Energy Control Centre	1,214	387	827	827	NOTE 2
NEW INFRASTRUCTURE					
Security Program Centrilized Log Monitoring & Analysis System	57	71	-14	-14	
TOTAL SOFTWARE APPLICATIONS	1,271	458	813	813	
NETWORK SERVICES					
INFRASTRUCTURE REPLACEMENT					
Replace Powerline Carrier Equipment West Coast Transmission System	1,009	1,037	-28	-28	
TOTAL NETWORK SERVICES	1,009	1,037	-28	-28	
TOTAL INFORMATION SYSTEMS & TELECOMMUNICATIONS	2,280	1,495	785	785	
ADMINISTRATIVE					
VEHICLES					
Replace Vehicles - Hydro systems	1,584	1,138	446	446	NOTE 3
TOTAL ADMINISTRATIVE	1,584	1,138	446	446	
TOTAL GENERAL PROPERTIES	3,864	2,633	1,231	1,231	

NEWFOUNDLAND & LABRADOR HYDRO
OTHER APPROVED FUNDS
CAPITAL CARRYOVER REPORT - DETAIL
YEAR ENDING DECEMBER 31, 2003
($,000)

PROJECT DESCRIPTION	Revised Pub App Budget 2003	Actuals 2003	Variance	Carryover Amount	Carryover Explanation Reference
PROJECTS APPROVED BY PUB					
Load Research - Island and Labrador Interconnected Systems	205	62	143	143	NOTE 4
Wind Generation Ramea	98	9	89	89	NOTE 5
Customer Contribution	-98	-9	-89	-89	
Purchase/Install Transformer Addition - Happy Valley Terminal Station	7	6	1	1	
TOTAL PROJECTS APPROVED BY PUB	212	68	144	144	
NEW PROJECTS LESS THAN $50,000 APPROVED BY HYDRO					
Project Review - Replace VHF Mobile Radio System	48	18	30	30	
TOTAL NEW PROJECTS LESS THAN $50,000 APPROVED BY HYDRO	48	18	30	30	
TOTAL OTHER APPROVED PROJECTS	260	86	174	174	

NEWFOUNDLAND & LABRADOR HYDRO
CARRYOVER EXPLANATIONS
(Greater than $50,000)

TRANSMISSION & RURAL OPERATIONS

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1. **Upgrade TL214 - (138kV Bottom Brook - Doyles)**

   The 2003 budget amount was for preliminary engineering. All materials for this project were intended to be purchased in 2004. The increase in 2003 expenditures is a result of materials being charged to this project before the end of the year. These materials were surplus from 2003 projects, that will be re-used on TL214. The transfer before the end of the year was necessary so that the other project could be closed before year-end.

NEWFOUNDLAND & LABRADOR HYDRO
CARRYOVER EXPLANATIONS
(Greater than $50,000)

GENERAL PROPERTIES

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2. **Replace Energy Management System - Energy Control Centre**

The contract will not be awarded until the end of 2004, the original estimate assumed a 2003 award. The total estimated capital cost anticipated upon project completion has not changed.

3. **Replace Vehicles - Hydro Systems**

The 2003 budget was based on established replacement criteria and vehicle requirements. Based on this criteria, all vehicles would have been ordered and delivered in 2003 and there would have been no variance to the budget. However in 2003, the replacement criteria and vehicle requirements was reviewed and revised to better suit the operational needs of the company. Some vehicles were ordered later than was planned and will not be delivered until 2004. The budget variance represents the commitments made in 2003 that are payable in 2004 when the new vehicles are delivered.

NEWFOUNDLAND & LABRADOR HYDRO
CARRYOVER EXPLANATIONS
(Greater than $50,000)

OTHER APPROVED FUNDS

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4. **Load Research - Island Interconnected and Labrador Interconnected Systems**

   The delay in receipt of meters from the supplier results in a 2004 project completion date.

5. **Installation of Interconnection - Wind Generation - Ramea**

   The original plan by the customer, Frontier Energy System Inc., was to have the wind turbine operating in the fall of 2003. This has now been delayed until 2004.

NEWFOUNDLAND AND LABRADOR HYDRO

CAPITAL CARRYOVER REPORT

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CARRYOVER EXPLANATION (GREATER THAN $50,000)
- Generation 5
- General Properties 6
- Other Approved Funds 7

NEWFOUNDLAND & LABRADOR HYDRO

CAPITAL CARRYOVER REPORT - OVERVIEW

YEAR ENDING DECEMBER 31, 2004

($,000)

	Revised Pub App Budget 2004	Actuals 2004	Variance	Carryover Amount
GENERATION	1,631	1,507	124	124
TRANSMISSION & RURAL OPERATIONS	170	176	(6)	29
GENERAL PROPERTIES	7,172	3,338	3,834	1,288
PROJECTS APPROVED BY PUB	758	421	337	337
TOTAL	9,731	5,442	4,289	1,778

NEWFOUNDLAND & LABRADOR HYDRO

CAPITAL CARRYOVER REPORT - SUMMARY BY CATEGORY

YEAR ENDING DECEMBER 31, 2004

($,000)

	Revised Pub App Budget 2004	Actuals 2004	Variance	Carryover Amount
GENERATION				
THERMAL PLANTS				
Construction Projects	1,553	1,499	54	54
Property Additions	78	8	70	70
TOTAL GENERATION	1,631	1,507	124	124
TRANSMISSION & RURAL OPERATIONS				
GENERATION	170	176	(6)	29
TOTAL TRANSMISSION & RURAL OPERATIONS	170	176	(6)	29
GENERAL PROPERTIES				
INFORMATION SYSTEMS & TELECOMMUNICATIONS	6,091	2,461	3,630	1,233
ADMINISTRATIVE	1,081	877	204	55
TOTAL GENERAL PROPERTIES	7,172	3,338	3,834	1,288
OTHER APPROVED FUNDS				
PROJECTS APPROVED BY PUB	758	421	337	337
TOTAL OTHER APPROVED FUNDS	758	421	337	337

NEWFOUNDLAND & LABRADOR HYDRO
CAPITAL CARRYOVER REPORT - DETAIL
YEAR ENDING DECEMBER 31, 2004
($,000)

PROJECT DESCRIPTION	Revised Pub App Budget 2004	Actuals 2004	Variance	Carryover Amount	Carryover Explanation Reference
GENERATION					
THERMAL PLANTS					
CONSTRUCTION PROJECTS					
Upgrade Control Systems - Holyrood	1,553	1,499	54	54	Note 1
TOTAL CONSTRUCTION PROJECTS	1,553	1,499	54	54	
Property Additions					
Upgrade Civil Structures	78	8	70	70	Note 2
TOTAL PROPERTY ADDITIONS	78	8	70	70	
TOTAL GENERATION	1,631	1,507	124	124	
TRANSMISSION & RURAL OPERATIONS					
GENERATION					
Upgrade Generator Relaying - Happy Valley North Plant	170	176	(6)	29	
TOTAL GENERATION	170	176	(6)	29	
TOTAL TRANSMISSION & RURAL OPERATIONS	170	176	(6)	29	

NEWFOUNDLAND & LABRADOR HYDRO
CAPITAL CARRYOVER REPORT - DETAIL
YEAR ENDING DECEMBER 31, 2004
($,000)

PROJECT DESCRIPTION	Revised Pub App Budget 2004	Actuals 2004	Variance	Carryover Amount	Carryover Explanation Reference
GENERAL PROPERTIES					
INFORMATION SYSTEMS & TELECOMMUNICATIONS					
SOFTWARE APPLICATIONS					
Replace Energy Management System - Energy Control Centre	5,120	1,409	3,711	1,314	NOTE 3
TOTAL SOFTWARE APPLICATIONS	5,120	1,409	3,711	1,314	
UPGRADE OF TECHNOLOGY					
Replacement of Operational Data & Voice Network - Phase II	971	1,052	(81)	(81)	NOTE 4
TOTAL NETWORK SERVICES	971	1,052	(81)	(81)	
TOTAL INFORMATION SYSTEMS & TELECOMMUNICATIONS	6,091	2,461	3,630	1,233	
ADMINISTRATIVE					
VEHICLES					
Replace Vehicles - Hydro System - 2004	1,081	877	204	55	NOTE 5
TOTAL ADMINISTRATIVE	1,081	877	204	55	
TOTAL GENERAL PROPERTIES	7,172	3,338	3,834	1,288	
OTHER APPROVED FUNDS					
PROJECTS APPROVED BY PUB					
Upper Salmon Slope Stabilization	102	207	(105)	(105)	NOTE 6
Replacement of Diesel Unit - Hopedale	258	0	258	258	NOTE 7
Increase Generation - Port Hope Simpson	303	132	171	171	NOTE 8
Relocate Mobile Diesel Unit - Roddickton to St. Anthony	95	82	13	13	
TOTAL PROJECTS APPROVED BY PUB	758	421	337	337	
TOTAL OTHER APPROVED PROJECTS	758	421	337	337	

NEWFOUNDLAND & LABRADOR HYDRO
CARRYOVER EXPLANATIONS
(Greater than $50,000)

GENERATION

1. **Upgrade Control System - Holyrood**

   This is a multi-year project. Under Phase I in 2004, the Distributed Control System (DCS) for Units 1 and 2 were successfully replaced and commissioned. Hydro will replace the DCS for Unit 3 and Station Service in 2005. The variance of $54,000 during 2004 is not expected to carry through project completion. The $54,000 is a timing variance in the recording of the expenses for this multi-year $2.6 million project.

2. **Upgrade Civil Structures**

   This is a multi-year project. Under Phase I in 2004, engineering design and the tender to replace the steel liner of Stack No. 2 was prepared. The tender has been issued for Phase II and the tender closing date is February 8, 2005. The variance of $70,000 during 2004 is due to the late arrival of invoices from a consultant.

NEWFOUNDLAND & LABRADOR HYDRO
CARRYOVER EXPLANATIONS
(Greater than $50,000)

GENERAL PROPERTIES

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3. **Replace Energy Management System - Energy Control Centre**

This is a multi-year project. The contract for this project was not awarded until June of 2004, whereas the original estimate assumed a 2003 award. This combined with other changes in the Schedule, has resulted in the transfer of funds to 2005 and 2006. The total estimated capital cost and the project completion date have not changed however, the project budget will be reviewed thoroughly in 2005 and forecast revised as appropriate.

4. **Replacement of Operational Data and Voice Network Phase II**

This is a two-year project. The variance is simply a cashflow difference between 2004 and 2005.

5. **Replace Vehicles - Hydro Systems - 2004**

There was one unit, a cab and chassis with attachments, which was not delivered in 2004 due to problems experienced by the manufacturer.

NEWFOUNDLAND & LABRADOR HYDRO
CARRYOVER EXPLANATIONS
(Greater than $50,000)

OTHER APPROVED FUNDS

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6. **Upper Salmon Slope Stabilization**

This is a multi-year project. Based on the preliminary estimate, the Board approved the above budget amounts for the years 2004 and 2005. Under Phase I in 2004, an engineering study was commissioned to review the concerns with slope stability, evaluate the options and prepare the design and cost estimates. This has been successfully completed and Hydro is now preparing the revised cost estimates and the detailed design and tender. Hydro plans to complete this work during 2005.

Based on the study completed, this repair work will be carried out from a barge, which makes it a complex operation, to carry out the repairs under water to achieve the desired slope accurately. This will have a significant impact on cost and following completion of the revised estimates; the Board will be updated on the project.

7. **Replacement of Diesel Unit - Hopedale**

This was an unbudgeted project made necessary by the failure of a 550kW diesel generating unit at the Hopedale Diesel Plant. Hydro applied to the Board for approval for this project on June 11, 2004 and obtained approval on July 30, 2004 through Board Order #P.U. 28 (2004). The tenders that were received for the replacement unit were not technically acceptable to Hydro, so the tender had to be recalled. There was insufficient time to recall the tender and obtain delivery to Hopedale before the close of the 2004 shipping season. It was therefore decided to re-schedule the project for completion in 2005. A mobile diesel generating unit was temporarily installed to meet the 2004/2005 winter peak. The tender will be recalled in February 2005 and installation will be completed by September 2005.

NEWFOUNDLAND & LABRADOR HYDRO
CARRYOVER EXPLANATIONS
(Greater than $50,000)

OTHER APPROVED FUNDS

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8. Increase Generation - Port Hope Simpson

This was an unbudgeted project made necessary by the failure of a 300kW diesel generating unit at the Port Hope Simpson Diesel Plant. Hydro applied to the Board for approval for this project on March 22, 2004 and obtained approval on May 7, 2004 through Board Order # P.U. 13 (2004). The schedule for the project was for it to be completed in 2004. However, the replacement unit failed the first factory tests. Repairs and retesting caused a delay in delivery to late December such that installation and commissioning had to be re-scheduled to 2005. The project is now scheduled to be completed by the end of February 2005.

NEWFOUNDLAND AND LABRADOR HYDRO
CAPITAL CARRYOVER REPORT
For Year Ending December 31, 2005

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NEWFOUNDLAND & LABRADOR HYDRO
CARRY OVER REPORT
YEAR ENDING DECEMBER 31, 2005
($,000)

OVERVIEW

	Revised PUB App Budget 2005	Actuals 2005	Variance	Carryover Amount
GENERATION	2,057	1,736	321	311
TRANSMISSION & RURAL OPERATIONS	7,423	4,935	2,488	2,588
GENERAL PROPERTIES	6,382	3,962	2,420	2,242
PROJECTS APPROVED BY PUB	1,184	549	635	635
NEW PROJECTS LESS THAN $50,000 APPROVED BY HYDRO	117	11	106	100
TOTAL CAPITAL BUDGET	17,163	11,193	5,970	5,876

NEWFOUNDLAND & LABRADOR HYDRO
CARRY OVER REPORT
YEAR ENDING DECEMBER 31, 2005
($,000)

SUMMARY BY CATEGORY

	Revised PUB App Budget 2005	Actuals 2005	Variance	Carryover Amount
GENERATION				
HYDRO PLANTS				
Construction Projects	115	78	37	37
Tools & Equipment	149	115	34	24
THERMAL PLANT				
Construction Projects	1,793	1,543	250	250
TOTAL GENERATION	2,057	1,736	321	311
TRANSMISSION & RURAL OPERATIONS				
TRANSMISSION	2,588	2,243	345	370
SYSTEM PERFORMANCE & PROTECTION	33	30	3	5
DISTRIBUTION	3,250	1,804	1,446	1,446
GENERATION	1,021	830	191	264
GENERAL				
Tools & Equipment	531	28	503	503
TOTAL TRANSMISSION & RURAL OPERATIONS	7,423	4,935	2,488	2,588
GENERAL PROPERTIES				
INFORMATION SYSTEMS & TELECOMMUNICATIONS	5,199	3,219	1,980	1,969
ADMINISTRATIVE	1,183	743	440	273
TOTAL GENERAL PROPERTIES	6,382	3,962	2,420	2,242
PROJECTS APPROVED BY PUB	1,184	549	635	635
PROJECTS APPROVED FOR LESS THAN $50,000	117	11	106	100
TOTAL CAPITAL BUDGET	17,163	11,193	5,970	5,603

NEWFOUNDLAND & LABRADOR HYDRO
CARRY OVER REPORT
YEAR ENDING DECEMBER 31, 2005
($,000)

DETAIL

PROJECT DESCRIPTION	Revised PUB App Budget 2005	Actuals 2005	Variance	Carryover Amount	Carryover Explan. Ref.
GENERATION					
CONSTRUCTION PROJECTS					
Replace Penstock - Snook's Arm Generating Station	115	78	37	37	
TOTAL CONSTRUCTION PROJECTS	115	78	37	37	
TOOLS & EQUIPMENT					
Purchase Dry Ice Cleaning System - BDE	59	14	45	14	
Purchase & Replace Tools & Equipment Less than $50,000	90	101	(11)	10	
TOTAL TOOLS & EQUIPMENT	149	115	34	24	
THERMAL PLANT					
CONSTRUCTION PROJECTS					
Upgrade Control System - Holyrood	1,088	1,016	72	72	Note 1
Purch/Inst Anti-Fouling System for Cooling Water Sys - HRD	705	527	178	178	Note 2
TOTAL CONSTRUCTION PROJECTS	1,793	1,543	250	250	
TOTAL THERMAL PLANTS	1,793	1,543	250	250	
TOTAL GENERATION	2,057	1,736	321	311	

NEWFOUNDLAND & LABRADOR HYDRO
CARRY OVER REPORT
YEAR ENDING DECEMBER 31, 2005
($,000)

DETAIL

PROJECT DESCRIPTION	Revised PUB App Budget 2005	Actuals 2005	Variance	Carryover Amount	Carryover Explan. Ref.
TRANSMISSION & RURAL OPERATIONS					
Replace Wood Poles - Transmission	2,588	2,243	345	370	Note 3
TOTAL TRANSMISSION	2,588	2,243	345	370	
SYSTEM PERFORMANCE & PROTECTION					
Upgrade Breaker Controls - BBK/MDR Terminal Station	33	30	3	5	
TOTAL SYSTEM PERFORMANCE & PROTECTION	33	30	3	5	
DISTRIBUTION					
Interconnect - Rencontre East	3,250	1,804	1,446	1,446	Note 4
TOTAL DISTRIBUTION	3,250	1,804	1,446	1,446	
GENERATION					
Increase Generation - L'Anse au Loup	392	442	(50)	23	
Installation of Fall Arrest Equipment - Hydro facilities	206	182	24	24	
Upgrade Cooling System - Black Tickle	107	87	20	20	
Install Day Tank and Fuel Meter - Ramea	106	41	65	65	Note 5
Purch.& Inst. Digital Metering - Francois,McCallum,Grey River,Little Bay Isl	90	64	26	26	
Install Intermediate Fuel Storage Tank - Charlottetown	66	13	53	53	Note 6
Modify Heating System - Hopedale	54	1	53	53	Note 7
TOTAL GENERATION	1,021	830	191	264	
GENERAL					
TOOLS & EQUIPMENT					
Purchase Mobile Oil Reclaimation Unit	531	28	503	503	Note 8
TOTAL TOOLS & EQUIPMENT	531	28	503	503	
TOTAL GENERAL	531	28	503	503	
TOTAL TRANSMISSION & RURAL OPERTIONS	7,423	4,935	2,488	2,588	

NEWFOUNDLAND & LABRADOR HYDRO
CARRY OVER REPORT
YEAR ENDING DECEMBER 31, 2005
($,000)

DETAIL

PROJECT DESCRIPTION	Revised PUB App Budget 2005	Actuals 2005	Variance	Carryover Amount	Carryover Explan. Ref.
GENERAL PROPERTIES					
INFORMATION SYSTEMS & TELECOMMUNICATIONS					
SOFTWARE APPLICATIONS					
INFRASTRUCTURE REPLACEMENT					
Replace Energy Management System - Energy Control Centre	3,060	2,108	952	952	Note 9
TOTAL SOFTWARE APPLICATIONS	3,060	2,108	952	952	
COMPUTER OPERATIONS					
INFRASTRUCTURE REPLACEMENT					
End User Infrastructure Evergreen Program - 2005	711	644	67	19	
TOTAL COMPUTER OPERATIONS	711	644	67	19	
NETWORK SERVICES					
INFRASTRUCTURE REPLACEMENT					
Replace VHF Mobile Radio System	1,119	352	767	767	Note 10
Cost Recovery - WST	0	(176)	176	176	
Microwave Site Refurbishing - 2005	294	291	3	40	
Replace Voice and Data Communications - Berry Hill	15	0	15	15	
TOTAL NETWORK SERVICES	1,428	467	961	998	
TOTAL INFORMATION SYSTEMS & TELECOMMUNICATIONS	5,199	3,219	1,980	1,969	
ADMINISTRATIVE					
VEHICLES					
Replace Vehicles - Hydro System - 2005	868	650	218	118	Note 11
ADMINISTRATION					
Electronic Metering Reading	224	35	189	122	Note 12
Upgrade Standby Diesel Fuel System - Hydro Place	91	58	33	33	
TOTAL ADMINISTRATIVE	1,183	743	440	0	
TOTAL GENERAL PROPERTIES	6,382	3,962	2,420	1,969	

NEWFOUNDLAND & LABRADOR HYDRO
CARRY OVER REPORT
YEAR ENDING DECEMBER 31, 2005
($,000)

DETAIL

PROJECT DESCRIPTION	Revised PUB App Budget 2005	Actuals 2005	Variance	Carryover Amount	Carryover Explan. Ref.
OTHER APPROVED FUNDS					
PROJECTS APPROVED BY PUB					
NEW					
Cat Arm Unit 1 Governor Controls Replacement	378	13	365	365	Note 13
Disconnecting Means to 600 Volt MCC Branch Feeders	613	356	257	257	Note 14
Replace Diesel Generator - Holyrood	193	180	13	13	
TOTAL PROJECTS APPROVED BY PUB	1,184	549	635	635	
NEW PROJECTS LESS THAN $50,000 APPROVED BY HYDRO					
Remote Monitoring System - Granite Canal	26	10	16	16	
Electrical Arc Flash Personal Protection Equipment	42	0	42	42	
New Well and Septic System - Springdale Line Depot	49	1	48	42	
TOTAL PROJECTS LESS THAN $50,000 APPROVED BY HYDRO	117	11	106	100	
TOTAL OTHER APPROVED PROJECTS	1,301	560	741	735	

NEWFOUNDLAND & LABRADOR HYDRO
CARRYOVER EXPLANATIONS
(Greater than $50,000)

GENERATION

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1. **Upgrade Control System - Holyrood**

   Due to the planned extended outage of the plant to facilitate the asbestos removal program, further extending the outage to permit all aspects of the control systems upgrade would risk generation and transmission security. Due to the nature of the asbestos removal procedures, work could not generally be done concurrently. The project will be fully completed in 2006.

2. **Purchase/Install Anti-Fouling System for Cooling Water Systems - Holyrood**

   The reason for delay is longer than anticipated delivery of customer designed equipment. The equipment was ordered the end of May with delivery expected by mid-October. Delivery did not actually take place until late December. There will be 4 to 6 weeks installation/commissioning required after that. It is expected to be complete by the end of February. The total estimated capital cost remains unchanged.

NEWFOUNDLAND & LABRADOR HYDRO
CARRYOVER EXPLANATIONS
(Greater than $50,000)

TRANSMISSION & RURAL OPERATIONS

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3. **Replace Wood Poles - Transmission**

Part of the Wood Pole Line Management program was substantial refurbishment work required on TL201 and TL203. Due to reliability problems in providing power to the Avalon Peninsula given a combination of Holyrood operational unit schedules, power demands in St. John's and a line being out for this work, outage availability for the lines were very restricted. This combined with a shortage of line workers resulted in a delay of the refurbishment work for TL201 and TL203 until early in 2006. It is estimated that an extra $25,000 will be required to complete this work.

4. **Interconnect - Recontre East**

The major factor contributing to the extended schedule was the contractor underestimated the degree of difficulty in constructing a distribution line and access route over a section of very rough terrain. Although the contractor made a reasonable effort to perform the work, the duration of the project was extended considerably. It is estimated the project will extend into the first quarter of 2006. The total estimated capital cost remains unchanged.

5. **Install Day Tank and fuel Meter - Ramea**

This project involves the installation of a day tank system and fuel meter in the Ramea Diesel Plant. This will allow for fuel reconciliation to be performed in accordance with the Gasoline and Associated Products regulations. Due to delays in completing other work, this project has been postponed until February 2006, however the total estimated capital cost remains unchanged.

6. **Install Intermediate Fuel Storage Tank - Charlottetown**

This project involves the installation of an intermediate fuel storage tank to allow for transfer of sufficient fuel from the bulk storage to the plant prior to fuel delivery so that the day tank does not require filling during the fuel transfer. Currently, the day tank must be filled during the transfer operation, and this results in it being impossible to perform a fuel reconciliation as required by the Gasoline and Associated Products regulations.

NEWFOUNDLAND & LABRADOR HYDRO
CARRYOVER EXPLANATIONS
(Greater than $50,000)

TRANSMISSION & RURAL OPERATIONS

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6. **Install Intermediate Fuel Storage Tank - Charlottetown (cont'd.)**

Operational problems also occur due to dirt and water being drawn into the engine fuel systems. The requirement for this project was reviewed as a result of the availability of fuel delivery by truck, and the start of the project was delayed as a result. After review, it was decided that the project would proceed and the job cost was raised in late August. This project will now be completed by the end of March 2006.

7. **Modify Heating System - Hopedale**

This project involves modifying the plant hydronic heating system to capture sufficient waste heat from the diesel engines to heat the plant. The existing system configuration cannot utilize the total heat available, and cannot provide sufficient heat for the plant. This project has not been completed due to delays in completing earlier scheduled projects. This project will be completed by the end of February.

8. **Purchase Mobile Oil Reclamation Unit**

A contract was awarded to GE Energy Services of Ohio in 2005 to supply a self-contained mobile oil reclamation unit to facilitate refurbishing the oil of aged power transformers. This reclamation unit was to have been delivered to Hydro in the fall of 2005. Hydro sent two technicians to Ohio to perform an inspection and function testing of this unit in early November 2005, at which time a list of deficiencies was identified. GE are working on the deficiencies which will require some redesign and further inspection and testing before we will take receipt of this equipment. Delivery is now anticipated to be in the spring of 2006.

NEWFOUNDLAND & LABRADOR HYDRO
CARRYOVER EXPLANATIONS
(Greater than $50,000)

GENERAL PROPERTIES

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9. Replace Energy Management System - Energy Control Centre

This is a multi-year project. Payments to the contractor are based on milestones being completed. A couple of milestone dates have been missed as well as scheduled training delays. The total estimated capital cost and the project completion date have not changed.

10. Replace VHF Mobile Radio System

This is a multi-year project. Due to delays associated with completing the Tender Evaluations and the subsequent contract negotiations, it is anticipated that the project will be delayed by approximately 3 months, however the total estimated capital cost has not changed.

11. Replace Vehicles - Hydro System - 2005

Because of a manufacturing delay on the part of the chassis manufacturer, the boom-truck builder could not complete the order for a boom-truck by year-end. This boom-truck has now been received.

12. Electronic Metering Reading

The purchase cost for the electronic metering units have dropped since the initial approval as have the Cdn/US exchange rate. This is reflected in the revised cost.

NEWFOUNDLAND & LABRADOR HYDRO
CARRYOVER EXPLANATIONS
(Greater than $50,000)

/OTHER APPROVED FUNDS

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13. **Cat Arm Unit 1 Governor Controls Replacement**

This is a multi-year project and due to work scheduling conflicts, only the engineering specifications got completed. The total estimated capital cost remains unchanged, however, the completion date is estimated to be October 2006.

14. **Disconnecting Means to 600-Volt MCC Branch Feeders**

The work planned required a number of outages during the year. The limited availability for scheduled outages resulted in this work being delayed until 2006.

NEWFOUNDLAND AND LABRADOR HYDRO
CAPITAL EXPENDITURES
For Year Ending December 31, 2006

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NEWFOUNDLAND & LABRADOR HYDRO
2006 CAPITAL EXPENDITURES
FOR THE QUARTER ENDING DECEMBER 31, 2006
($000)

OVERVIEW

	PUB Approved Budget 2006	4th Quarter Actuals 2006	Total Actual Expend. 2006	Variance From 2006 Budget
GENERATION	10,106	4,616	7,458	(2,648)
TRANSMISSION & RURAL OPERATIONS	19,992	7,579	18,730	(1,262)
GENERAL PROPERTIES	17,229	8,512	14,100	(3,129)
ALLOWANCE FOR UNFORESEEN EVENTS	1,000	(1)	226	(774)
PROJECTS APPROVED BY PUB	471	(174)	488	17
NEW PROJECTS LESS THAN $50,000 APPROVED BY HYDRO	226	170	215	(11)
TOTAL CAPITAL BUDGET	49,024	20,702	41,217	(7,807)

Approved P.U. # 31 (2005) 2006 Capital Budget	42,636
Carryover Projects 2005 to 2006	5,876
Carryover Projects 2005 to 2006	(72)
Approved P.U. # 10 (2006)	184
Approved P.U. # 12 (2006)	174
New Projects under $50,000 Approved by Hydro	226
TOTAL APPROVED CAPITAL BUDGET	49,024

NEWFOUNDLAND & LABRADOR HYDRO
2006 CAPITAL EXPENDITURES
FOR THE QUARTER ENDING DECEMBER 31, 2006
($000)

CATEGORY

	PUB Approved Budget 2006	4th Quarter Actuals 2006	Total Actual Expend. 2006	Variance From 2006 Budget
GENERATION				
NEW GENERATION SOURCE				
Generation Projects	1,937	1,022	1,135	(802)
HYDRO PLANTS				
Construction Projects	3,231	2,569	3,185	(46)
Tools & Equipment	63	11	50	(13)
THERMAL PLANT				
Construction Projects	4,301	866	2,885	(1,416)
Property Additions	275	(3)	0	(275)
Tools & Equipment	57	0	29	(28)
GAS TURBINES				
Construction Projects	242	151	174	(68)
TOTAL GENERATION	10,106	4,616	7,458	(2,648)
TRANSMISSION & RURAL OPERATIONS				
TRANSMISSION	4,207	1,206	3,356	(851)
SYSTEM PERFORMANCE & PROTECTION	297	137	300	3
TERMINALS	858	394	643	(215)
DISTRIBUTION	8,852	2,239	9,094	242
GENERATION	3,731	2,568	3,426	(305)
GENERAL				
Metering	114	19	81	(33)
Properties	134	53	149	15
Tools & Equipment	1,799	963	1,681	(118)
TOTAL TRANSMISSION & RURAL OPERATIONS	19,992	7,579	18,730	(1,262)

NEWFOUNDLAND & LABRADOR HYDRO
2006 CAPITAL EXPENDITURES
FOR THE QUARTER ENDING DECEMBER 31, 2006
($000)

CATEGORY

	PUB Approved Budget 2006	4th Quarter Actuals 2006	Total Actual Expend. 2006	Variance From 2006 Budget
GENERAL PROPERTIES				
INFORMATION SYSTEMS & TELECOMMUNICATIONS	14,461	7,181	11,546	(2,915)
ADMINISTRATIVE	2,768	1,331	2,554	(214)
TOTAL GENERAL PROPERTIES	17,229	8,512	14,100	(3,129)
ALLOWANCE FOR UNFORESEEN EVENTS	1,000	(1)	226	(774)
PROJECTS APPROVED BY PUB	471	(174)	488	17
PROJECTS APPROVED FOR LESS THAN $50,000	226	170	215	(11)
TOTAL CAPITAL BUDGET	49,024	20,702	41,217	(7,592)

NEWFOUNDLAND & LABRADOR HYDRO
2006 CAPITAL EXPENDITURES
FOR THE QUARTER ENDING DECEMBER 31, 2006
($000)

GENERATION

PROJECT DESCRIPTION	PUB Approved Budget 2006	4th Quarter Actuals 2006	Total Actual Expend. 2006	Variance From 2006 Budget	Variance Explan. Ref. No.
NEW GENERATION SOURCE					
GENERATION PROJECTS					
Island Pond Development - Feasibilty Update	998	805	895	(103)	1
Portland Creek Development -Final Feasibility Study	796	217	240	(556)	2
Wind Generation Inventory Study	143	0	0	(143)	3
TOTAL GENERATION PROJECTS	1,937	1,022	1,135	(802)	
HYDRO PLANTS					
CONSTRUCTION PROJECTS					
Replace Penstock - Snook's Arm Generating Station	2,029	1,863	1,941	(88)	4
Replace Unit 1 Governor Controls - Cat Arm	676	640	851	175	5
Upgrade Controls Spherical Valve #6 - Bay d'Espoir	200	5	177	(23)	
Replace Underground Fuel Tanks - Cat Arm Powerhouse	137	35	134	(3)	
Provide Remote Operation By-Pass Fisheries Comp. Valve - Granite Canal	107	22	46	(61)	6
Install Waste Oil Holding Tanks - BDE, USL, HLK & PRV	82	4	36	(46)	
TOTAL CONSTRUCTION PROJECTS	3,231	2,569	3,185	(46)	
TOOLS & EQUIPMENT					
Purchase & Replace Tools & Equipment Less than $50,000	24	0	11	(13)	
Purchase & Replace Tools & Equipment Less than $50,000	39	11	39	0	
TOTAL TOOLS & EQUIPMENT	63	11	50	(13)	
TOTAL HYDRO PLANTS	3,294	2,580	3,235	(59)	

NEWFOUNDLAND & LABRADOR HYDRO
2006 CAPITAL EXPENDITURES
FOR THE QUARTER ENDING DECEMBER 31, 2006
($000)

GENERATION

PROJECT DESCRIPTION	PUB Approved Budget 2006	4th Quarter Actuals 2006	Total Actual Expend. 2006	Variance From 2006 Budget	Variance Explan. Ref. No.
THERMAL PLANT					
CONSTRUCTION PROJECTS					
Upgrade Control System - Holyrood	316	122	561	245	7
Purch/Inst Anti-Fouling System for Cooling Water Systems - Holyrood	178	26	310	132	8
Addition of Disconnecting Means to 600 Volt MCC Branch Feeders - HRD	1,116	309	728	(388)	9
Fire Protection Upgrades - HRD	916	28	28	(888)	10
Replace Warm Air Make-Up Units Steam Coil - HRD	602	91	594	(8)	
HVAC Replacements - Relay, Control & Exciter Rms - HRD	565	146	485	(80)	11
Replace Superheater Unit 2 - Holyrood	319	0	4	(315)	12
Study of Regeneration Waste Treatment - HRD	172	137	137	(35)	
Modify Boiler Protection and Control - HRD	117	7	38	(79)	13
TOTAL CONSTRUCTION PROJECTS	4,301	866	2,885	(1,416)	
PROPERTY ADDITIONS					
Replace Paging System - HRD	275	(3)	0	(275)	14
TOTAL PROPERTY ADDITIONS	275	(3)	0	(275)	
TOOLS & EQUIPMENT					
Purchase & Replace Tools & Equipment Less than $50,000	57	0	29	(28)	
TOTAL TOOLS & EQUIPMENT	57	0	29	(28)	
TOTAL THERMAL PLANTS	4,633	863	2,914	(1,719)	
GAS TURBINES					
CONSTRUCTION PROJECTS					
Replace Automatic Voltage Regulator - Hardwoods	242	151	174	(68)	15
TOTAL GAS TURBINE PLANTS	242	151	174	(68)	
TOTAL THERMAL PLANTS	484	0	29	(28)	
TOTAL GENERATION	10,348	4,465	7,313	(2,608)	

NEWFOUNDLAND & LABRADOR HYDRO
2006 CAPITAL EXPENDITURES
FOR THE QUARTER ENDING DECEMBER 31, 2006
($000)

TRANSMISSION & RURAL OPERATIONS

PROJECT DESCRIPTION	PUB Approved Budget 2006	4th Quarter Actuals 2006	Total Actual Expend. 2006	Variance From 2006 Budget	Variance Explan. Ref. No.
TRANSMISSION					
Replace Wood Poles - Transmission - 2005	370	0	369	(1)	
Replace Wood Poles - Transmission - 2006	2,303	1,150	2,362	59	16
Upgrade Corner Brook Frequency Converter	617	20	186	(431)	17
Replace Insulators TL231 - (230kV Bay d'Espoir - Stoney Brook)	917	36	439	(478)	18
TOTAL TRANSMISSION	4,207	1,206	3,356	(851)	
SYSTEM PERFORMANCE & PROTECTION					
Upgrade Breaker Controls - BBK/MDR Terminal Station	5	0	5	0	
Purch/Install 138Kv & 66Kv Protection Upgrades - Bottom Brook	109	52	118	9	
Replace Data Collection and Monitoring System - Hawke Hill	56	52	64	8	
Install Feeder Backup Protection - Happy Valley	48	13	42	(6)	
Install Feeder MW Telemetry - Happy Valley	40	13	42	2	
Upgrade Breaker Controls - BDE/BUC Terminal Station	39	7	29	(10)	
TOTAL SYSTEM PERFORMANCE & PROTECTION	297	137	300	3	
TERMINALS					
Replace Insulators - Various Stations	307	225	256	(51)	19
Replace Battery Chargers - BDE, DLK, GFC & WAV	90	85	97	7	
Replace Air Compressor and Dryer - Grand Falls Frequency Converter Station	80	9	20	(60)	20
Replace Air Compressors - Holyrood T.S.	80	2	4	(76)	21
Replace Instrument Transformers - Various Stations	78	4	81	3	
Replace Battery Bank - Various Stations (GBK,IRV,BDE)	72	21	69	(3)	
Replace Surge Arrestors - Various Stations	70	6	67	(3)	
Install Transformer Oil Monitoring System - Upper Salmon	53	19	19	(34)	
Install RIGD (Remote Ice Growth Detection) Beam - Various Stations	28	23	30	2	
TOTAL TERMINALS	858	394	643	(215)	

NEWFOUNDLAND & LABRADOR HYDRO
2006 CAPITAL EXPENDITURES
FOR THE QUARTER ENDING DECEMBER 31, 2006
($000)

TRANSMISSION & RURAL OPERATIONS

PROJECT DESCRIPTION	PUB Approved Budget 2006	4th Quarter Actuals 2006	Total Actual Expend. 2006	Variance From 2006 Budget	Variance Explan. Ref. No.
DISTRIBUTION					
Interconnect - Rencontre East	1,446	29	1,533	87	22
Upgrade Distribution Feeders - Various Locations	2,017	578	2,057	40	
Service Extensions	1,984	651	1,972	(12)	
Distribution Upgrades	1,912	538	2,150	238	23
Insulator Replacements	1,020	321	1,041	21	
Distribution Line Pole Replacements	332	114	254	(78)	24
Purchase and Install Voltage Regulator L7 - Happy Valley	122	4	76	(46)	
Install Substation P.T. - Mary's Harbour	19	4	11	(8)	
TOTAL DISTRIBUTION	8,852	2,239	9,094	242	
GENERATION					
Increase Generation - L'Anse au Loup	23	0	(18)	(41)	
Upgrade Cooling System - Black Tickle	20	1	29	9	
Install Day Tank and Fuel Meter - Ramea	65	(9)	67	2	
Purch.& Inst. Digital Metering - Francois, McCallum, Grey River, Little Bay Island	26	0	14	(12)	
Install Intermediate Fuel Storage Tank - Charlottetown	53	2	19	(34)	
Modify Heating System - Hopedale	53	25	106	53	25
Construct New Diesel Plant - St. Lewis	2,227	1,788	2,242	15	
Installation of Fall Arrest Equipment - Hydro facilities	24	31	26	2	
Installation of Fall Arrest Equipment - Hydro facilities	268	108	242	(26)	
Replace Diesel Generating Units - Various Location	663	509	555	(108)	26
Replace Control Panel - Rigolet	135	59	66	(69)	27
Install Nox Monitor - Little Bay Islands	106	25	25	(81)	28
Replace Generating Unit Breakers - Francois,Grey River, Little Bay I	68	29	53	(15)	
TOTAL GENERATION	3,731	2,568	3,426	(305)	

NEWFOUNDLAND & LABRADOR HYDRO
2006 CAPITAL EXPENDITURES
FOR THE QUARTER ENDING DECEMBER 31, 2006
($000)

TRANSMISSION & RURAL OPERATIONS

PROJECT DESCRIPTION	PUB Approved Budget 2006	4th Quarter Actuals 2006	Total Actual Expend. 2006	Variance From 2006 Budget	Variance Explan. Ref. No.
GENERAL					
METERING					
Purchase Meters & Equipment - TRO System 2006	93	19	59	(34)	
Purchase Metering Spares	21	0	22	1	
TOTAL METERING	114	19	81	(33)	
PROPERTIES					
Legal Survey of Distribution Line Right-of-Ways - 2006	50	33	51	1	
Replace Waste Oil Storage Tank - Ramea	29	2	45	16	
Construct Line Material Storage Shed - Black Tickle	28	8	28	0	
Construct Sewage Disposal Field - Charlottetown	17	10	15	(2)	
Construct Storage Ramp - L'Anse au Loup	10	0	10	0	
TOTAL PROPERTIES	134	53	149	15	
TOOLS & EQUIPMENT					
Purchase Mobile Oil Reclaimation Unit	503	583	612	109	29
Replace Off-Road Tracked Vehicles - Various Locations	636	303	554	(82)	30
Purchase & Replace Tools & Equipment Less than $ 50,000	386	24	272	(114)	31
Replace Light Duty Mobile Equipment Less than $ 50,000	274	53	243	(31)	
TOTAL TOOLS & EQUIPMENT	1,799	963	1,681	(118)	
TOTAL GENERAL	2,047	1,035	1,911	(136)	
TOTAL TRANSMISSION & RURAL OPERTIONS	19,992	7,579	18,730	(1,262)	

NEWFOUNDLAND & LABRADOR HYDRO
2006 CAPITAL EXPENDITURES
FOR THE QUARTER ENDING DECEMBER 31, 2006
($000)

GENERAL PROPERTIES

PROJECT DESCRIPTION	PUB Approved Budget 2006	4th Quarter Actuals 2006	Total Actual Expend. 2006	Variance From 2006 Budget	Variance Explan. Ref. No.
INFORMATION SYSTEMS & TELECOMMUNICATIONS					
SOFTWARE APPLICATIONS					
INFRASTRUCTURE REPLACEMENT					
Replace Energy Management System - Energy Control Centre	6,334	2,790	5,453	(881)	32
NEW INFRASTRUCTURE					
Applications Enhancements	946	339	489	(457)	33
Cost Recovery CF(L)Co	(165)	(17)	(77)	88	
Upgrade of Technology					
Corporate Application Environment - 2006	592	207	608	16	
Cost Recovery CF(L)Co	(36)	(19)	(47)	(11)	
Network Management Tools - 2006	48	41	51	3	
TOTAL SOFTWARE APPLICATIONS	7,719	3,341	6,477	(1,242)	
COMPUTER OPERATIONS					
INFRASTRUCTURE REPLACEMENT					
End User Infrastructure Evergreen Program - 2005	19	0	19	0	
NEW INFRASTRUCTURE					
Security - Personal Firewalls	47	32	44	(3)	
Cost Recovery CF(L)Co	(9)	(8)	(8)	1	
Security - Scan, Block & Quarantine	46	43	43	(3)	
Cost Recovery CF(L)Co	(9)	(8)	(8)	1	
Peripheral Infrastructure Replacement - 2006	199	14	196	(3)	
UPGRADE OF TECHNOLOGY					
TOTAL COMPUTER OPERATIONS	293	73	286	(7)	

NEWFOUNDLAND & LABRADOR HYDRO
2006 CAPITAL EXPENDITURES
FOR THE QUARTER ENDING DECEMBER 31, 2006
($000)

GENERAL PROPERTIES

PROJECT DESCRIPTION	PUB Approved Budget 2006	4th Quarter Actuals 2006	Total Actual Expend. 2006	Variance From 2006 Budget	Variance Explan. Ref. No.
INFORMATION SYSTEMS & TELECOMMUNICATIONS					
NETWORK SERVICES					
INFRASTRUCTURE REPLACEMENT					
Replace VHF Mobile Radio System	8,036	2,788	5,131	(2,905)	34
Cost Recovery - WST	(3,416)	0	(1,620)	1,796	
Microwave Site Refurbishing - 2005	40	61	61	21	
Replace Voice and Data Communications - Berry Hill	15	0	4	(11)	
Replace Power Line Carrier TL240 - Churchill Falls - Goose Bay	189	66	81	(108)	35
Microwave Site Refurbishing - Bay D'Espoir Hill & Blue Grass Hill	407	218	251	(156)	36
Replace Battery System - Multiple Sites	404	202	312	(92)	37
Replace Remote Terminal Unit for Hydro	351	214	226	(125)	38
Westcoast Communications System - Study	175	94	95	(80)	39
Replace Telephone Isolation Equipment - Happy Valley	57	0	0	(57)	40
Video Conferencing for Regional Offices - H Valley , P Saunders & Holyrood	49	7	51	2	
Network Infrastructure					
Communications Network Technology	97	80	143	46	
UPGRADE OF TECHNOLOGY					
Upgrade Site Facilities	45	37	48	3	
TOTAL NETWORK SERVICES	6,449	3,767	4,783	(1,666)	
TOTAL INFORMATION SYSTEMS & TELECOMMUNICATIONS	14,461	7,181	11,546	(2,915)	

NEWFOUNDLAND & LABRADOR HYDRO
2006 CAPITAL EXPENDITURES
FOR THE QUARTER ENDING DECEMBER 31, 2006
($000)

GENERAL PROPERTIES

PROJECT DESCRIPTION	PUB Approved Budget 2006	4th Quarter Actuals 2006	Total Actual Expend. 2006	Variance From 2006 Budget	Variance Explan. Ref. No.
ADMINISTRATIVE					
VEHICLES					
Replace Vehicles - Hydro System - 2005	118	0	118	0	
Replace Vehicles - Hydro System - 2006	1733	723	1,571	(162)	41
ADMINISTRATION					
Electronic Metering Reading	122	1	69	(53)	42
Upgrade Standby Diesel Fuel System - Hydro Place	33	10	66	33	
Construct New Warehouse - Port Saunders	431	387	411	(20)	
Replace Storage Ramps - Bishop's Falls	159	154	157	(2)	
Purchase & Replace Admin Office Equip less than $50,000	172	56	162	(10)	
TOTAL ADMINISTRATIVE	2,768	1,331	2,554	(214)	
TOTAL GENERAL PROPERTIES	17,229	8,512	14,100	(3,129)	

NEWFOUNDLAND & LABRADOR HYDRO
2006 CAPITAL EXPENDITURES
FOR THE QUARTER ENDING DECEMBER 31, 2006
($000)

OTHER APPROVED FUNDS

PROJECT DESCRIPTION	PUB Approved Budget 2006	4th Quarter Actuals 2006	Total Actual Expend. 2006	Variance From 2006 Budget	Variance Explan. Ref. No.
ALLOCATION FOR UNFORESEEN EVENTS					
Replace Breaker B7T2 - Hardwoods Terminal Station	100	0	108	8	
Bishop's Falls Main Office Roof - Structural Steel Upgrade	122	(1)	118	(4)	
Allocation for Unforeseen Events	778	0	0	(778)	
TOTAL ALLOCATION FOR UNFORESEEN EVENTS	1,000	(1)	226	(774)	
PROJECTS APPROVED BY PUB					
CARRYOVER					
New Well and Septic System - Springdale Line Depot	42	0	45	3	
Transmission Interconnection - Duck Pond Mine Site	1,232	16	850	(382)	
Contribution	(1,232)	(16)	(850)	382	
Electrical Arc Flash Personal Protection Equipment	42	0	36	(6)	
Remote Monitoring System - Granite Canal	16	0	17	1	
Replace Diesel Generator - Holyrood	13	0	82	69	43
Dome Mountain Service - Coast Guard	172	(7)	184	12	
Contribution	(172)	(172)	(172)	0	
NEW					
Charlottetown Unit # 2060 Engine Replacement	184	5	122	(62)	44
Land Acquisition - Hardwoods Terminal Station	174	0	174	0	
TOTAL PROJECTS APPROVED BY PUB	471	(174)	488	17	
NEW PROJECTS LESS THAN $50,000 APPROVED BY HYDRO					
Meeting Room Furniture - 5th Floor, Hydro Place	22	16	21	(1)	
Office Furniture - 6th Floor, Hydro Place	14	12	35	21	
Replace Fitness Equipment, Hydro Place	7	4	4	(3)	
Replace Air Dryer Towers - BBK Terminal Station	17	14	14	(3)	
Purchase Oil Inspection Kit & AUX SW Angle Protractor	7	0	6	(1)	
Install Oil Water Separators - Various Stations	49	14	14	(35)	
Replace Disconnect Switch B7C1-1, HWD Terminal Station	15	0	11	(4)	
Purchase Two 4160 Volt Grounding Trucks	49	52	52	3	
Replace Radiators T1 - Bottom Waters Terminal Station	46	58	58	12	
TOTAL PROJECTS LESS THAN $50,000 APPROVED BY HYDRO	226	170	215	(11)	

NEWFOUNDLAND & LABRADOR HYDRO
VARIANCE EXPLANATIONS
(Greater than $50,000)

GENERATION

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1. **Island Pond Development - Feasibility Update**

   This project is on budget however there was a delayed start date due to internal labor availability which subsequently resulted in a delayed completion by the consultant. This project is expected to be complete by the end of February, 2007.

2. **Portland Creek Development - Final Feasibility Study**

   The draft report is completed with the final report expected in January. This project is expected to be $276,000 less than the $796,000 due to a scope change resulting in less field investigation work.

3. **Wind Generation Inventory Study - Project Cancelled**

   The Wind Generation Study was proposed in the spring of 2005 to identify potential wind generation sights on the Island which Hydro could add to its portfolio as potential resource options. In late 2005 subsequent to the Capital Budget Proposal Hydro initiated Request for Proposals (RFP) process for the purchase of wind generation from private developers with the intent being that should the RFP identify favorable projects Hydro would reconsider its decision to develop its own wind generation project and delay or cancel its proposed Wind Generation Study. The results of the RFP were encouraging and Hydro is in the process of negotiating Power Purchase Agreements with two proponents for a total of 50 MW of wind generation. Based on the results of the RFP Hydro has decided to cancel the proposed Wind Generation study as there appear to be adequate private sector alternatives available at attractive rates.

4. **Replace Penstock - Snook's Arm Generating Station**

   The Penstock went into service on December 20, 2006. Some design changes were required in order to more appropriately suit site topography and other physical conditions resulting in increased material and construction costs. This project is expected to be complete by July 31, 2007 at a cost of $2,311,000 up from $2,110,000 in the 2006 Capital Budget submission. Work left to be completed includes epoxy coating of welded joints as well as site upgrading and landscaping.

NEWFOUNDLAND & LABRADOR HYDRO
VARIANCE EXPLANATIONS
(Greater than $50,000)

GENERATION

---

5. **Replace Unit 1 Governor Controls - Cat Arm**

The Governor Controls are in-service however contract deficiencies need to be satisfied before final completion. The original proposal was based on replacing only the electronic controls however it was subsequently decided that the replacement of all mechanical parts would ensure a reliable governor control system. This increased the costs from $688,000 to $895,000.

6. **Provide Remote Operation By-Pass Fisheries Comp. Valve - Granite Canal**

This project was to be completed in August of 2006 however changes in personnel as well as scheduling issues have delayed the completion of this project until May 2007. The cost is estimated to be $128,000 up from the $107,000 due to additional labour costs for designing and testing the system.

7. **Upgrade Control System - Holyrood**

This project is in-service however training has to be provided for Hydro personnel in the operation and the design of the system. The overall cost of the project has increased to $3,281,000 due installation problems that resulted in additional motor logic and installation work.

8. **Purch/Inst. Anit-Fouling System for Cooling Water Systems - Holyrood**

This project has been delayed due to both engineering and plant labour availability. The construction is complete awaiting Operations personnel to perform terminations and commissioning. It is expected to be complete by the end of February 2007 at a cost of $853,000. This increase is due to higher than anticipated electrical installation costs.

9. **Addition of Disconnecting Means to 600 Volt MCC Branch Feeders - HRD**

This is a multi-year project expected to be complete by December of 2007. The total estimated capital cost remains unchanged.

10. **Fire Protection Upgrades - HRD**

This is a multi-year project to be completed by the end of 2007. Due to delays in receiving technical clarifications from our insurers for requested fire protection improvements and other work commitments, the bulk of the work will be completed in 2007. The total estimated capital cost remains unchanged.

NEWFOUNDLAND & LABRADOR HYDRO
VARIANCE EXPLANATIONS
(Greater than $50,000)

GENERATION

---

11. HVAC Replacements - Relay, Control & Exciter Rms - HRD

This project came in under budget because labour costs were less than estimated therefore contingency did not have to be utilized.

12. Replace Superheater Unit 2 - Holyrood

This is a multi-year project to be completed in the fall of 2007. The contract has been awarded and the material ordered. The project is estimated to be on time and budget.

13. Modify Boiler Protection and Control - HRD

Late in the project Hydro was informed that the consultant's proposal was patented by another company. The fee to use the patented information is too high so alternate methods are being explored therefore the project has to be delayed to next fall to allow for the next available outage season.

14. Replace Paging System - HRD

This project was cancelled. Public tenders for the scope of work greatly exceeded budgeted dollars. The project will be re-evaluated and submitted at a later date.

15. Replace Automatic Voltage Regulator - Hardwoods

This project came in below cost because the lowest tendered price for the regulator was much less than expected.

NEWFOUNDLAND & LABRADOR HYDRO
VARIANCE EXPLANATIONS
(Greater than $50,000)

TRANSMISSION & RURAL OPERATIONS

---

16. Replace Wood Poles - Transmission - 2006

The additional funding is required due to additional work being identified and carried out in the Central Region. There were also additional fuel costs incurred to operate the various gas turbines in the Central region.

17. Upgrade Corner Brook Frequency Converter

Recent increases in the cost of steel and copper, along with increased demand, have led to significant increases in the cost of power transformers therefore the cost of this project has increased to $862,000 from $617,000. An outage could not be scheduled in 2006 in order to install the new transformer therefore the project is now scheduled to be complete by the end of April 2007.

18. Replace insulators TL231 - (230kV Bay d'Espoir - Stoney Brook)

Project completion has been delayed until April 2007 due to the tendered contract quotes being higher than budgeted. This work will now be completed by Regulated Operations within budget.

19. Replace Insulators - Various Stations

This project was slightly under budget resulting in no contingency being utilized as well as a reduction in overheads and interest.

20. Replace Air Compressor and Dryer - Grand Falls Frequency Converter Station

The delivery of the compressed air dryer was originally scheduled for October 2006 however the manufacturer was unable to meet the delivery date therefore project completion is delayed until the end of April 2007.

21. Replace Air Compressors - Holyrood T.S.

Due to a labour dispute at the manufacturing plant where the compressors are fabricated, delivery was delayed until late December. Installation manpower was not available until the New Year. This project is expected to be completed by the end of February 2007 within budget.

NEWFOUNDLAND & LABRADOR HYDRO
VARIANCE EXPLANATIONS
(Greater than $50,000)

TRANSMISSION & RURAL OPERATIONS

---

22. Interconnect - Rencontre East

Inspection costs and equipment rentals were higher than expected resulting in the increase in costs.

23. Distribution Upgrades

The budgeted amount is an annual allotment based on the average of the annual expenditures for distribution upgrades over the last five years. It is not based on a summary of specific project costs. The variance represents the amount by which the current year's distribution upgrades and corresponding expenditures exceeded the average of the last five years.

24. Distribution Line Pole Replacements

Part of this job was pole replacements for Nain and the tenders received for this job was much higher than anticipated. Therefore this work will be done internally in the first half of the 2007.

25. Modify Heating System - Hopedale

The preliminary design and costing estimate did not include a requirement for the system header to be replaced as well as other standard changes resulting in increased labour, materials, travel and indirect costs.

26. Replace Diesel Generating Units - Various Location

This project includes the replacement of two generating units at Rigolet and one at Black Tickle. The Black Tickle job has been carried over into 2007 because the contractor was unable to deliver the unit before the end of the shipping season. The units at Rigolet are on site and the mechanical installation is complete.

27. Replace Control Panel - Rigolet

The installation of the control panel has been delayed until the replacement of generating units is completed. The total budget remains unchanged.

28. Install Nox Monitor - Little Bay Islands

This project was late getting started due to other work commitments. It will be completed in the first quarter of 2007 on budget.

NEWFOUNDLAND & LABRADOR HYDRO
VARIANCE EXPLANATIONS
(Greater than $50,000)

TRANSMISSION & RURAL OPERATIONS

---

29. Purchase Mobile Oil Reclaimation Unit

There were deficiencies discovered during the factory acceptance testing in Ohio requiring a second factory acceptance testing trip. Start up and commissioning of the equipment on site revealed further deficiencies requiring further analysis and redesign input from Hydro staff. System failure combined with the complexity of the system resulted in more extensive training for staff than anticipated. All of these factors resulted in the total project costs increasing from $531,000 to $634,000.

30. Replace Off-Road Tracked Vehicles - Various Locations

Hydro received exceptionally good pricing on the purchase of three excavators thus allowing the overall expenditure to be reduced.

31. Purchase and Replace Tools and Equipment Less than $50,000

There are approximately 21 separate purchases of tools and equipment under this classification and almost all of them came in under budget.

NEWFOUNDLAND & LABRADOR HYDRO
VARIANCE EXPLANATIONS
(Greater than $50,000)

GENERAL PROPERTIES

---

32. Replace Energy Management System - Energy Control Centre

There was a reduction in software and hardware costs due to minor design changes that occurred after detailed engineering was completed This was followed by additional savings resulting from purchasing support contracts with a third party and reductions in training requirements. These reductions resulted in less contingency and overhead being utilized.

33. Applications Enhancements

This project provided for funding to support the Business Process Improvement Project. Since the business case of the BPI Enabler Product did not get the approval of Senior Management, the funds were no longer required for part of the project thus reducing the overall costs.

34. Replace VHF Mobile Radio System

Based on the cost and scope of the selected tender for the mobile radio system, the original labour, materials and contract budget estimates have decreased since the system will be contractor owned with Hydro and the Department of Transportation and Works as anchor tenants. This project is expected to be completed by the end of March with a total cost of approximately $4.0 million compared to the original estimate of $8 million.

35. Replace Power Line Carrier TL240 - Churchill Falls - Goose Bay

This is the first power line carrier to be replaced since the new Energy Management System came in service. This is more complex and time consuming than with the previous system. It is scheduled to be completed in the first quarter of 2007 at a total cost of $105,000, a reduction of $19,000.

36. Microwave Site Refurbishing - Bay d'Espoir & Blue Grass Hill

Due to limited labour resources, this project will be completed by March 2007. The total budget remains unchanged.

37. Replace Battery Systems - Multiple Sites

Due to an extended delivery time for the batteries combined with limited labour availability, this project will be completed by March 2007 within budget.

NEWFOUNDLAND & LABRADOR HYDRO
VARIANCE EXPLANATIONS
(Greater than $50,000)

GENERAL PROPERTIES

38. Replace Remote Terminal Unit for Hydro

Both the materials and the installation were less than budgeted resulting in less overhead costs and contingency not being utilized.

39. West Coast Communications Systems

The draft report from the consultant was delivered considerably later than originally anticipated. This job is forecast to be complete by the end of March 2007 at a cost of $137,000 down from the $175,000 budgeted.

40. Replace Telephone Isolation Equipment - Happy Valley

The design of the project Replace Power Line Carrier TL 240 - Churchill Falls - Goose Bay was modified from the original proposal to provide a more cost-effective solution; in the process, detailed engineering determined that this project was unnecessary.

41. Replace Vehicles - Hydro System - 2006

This project was under budget due to good tender pricing resulting in less contingency and overhead being utilized.

42. Electronic Metering Reading

The cost for the electronic metering units were less than budgeted.

File No. .....

NEWFOUNDLAND AND LABRADOR HYDRO
Head Office: St. John's, Newfoundland P.O. Box 12400 A1B 4K7
Telephone (709) 737-1400 • Fax (709) 737-1231 • Website: www.nlh.nf.ca

February 29, 2008

Board of Commissioners of Public Utilities
120 Torbay Road
St. John's, Newfoundland

ATTENTION: Ms. Cheryl Blundon
Director Corporate Services & Board
Secretary

Dear Ms. Blundon:

RE: 2007 CAPITAL EXPENDITURES AND CARRYOVER - Year End

Enclosed please find ten (10) copies of a report on Hydro's 2007 Capital Expenditures and Carryover for the Year ended December 31, 2007.

Should you have any questions on the enclosed, please contact the undersigned.

Yours truly,

Geoff P. Young,
Senior Legal Counsel

GPY/mmcd
Encls

NEWFOUNDLAND AND LABRADOR HYDRO

CAPITAL EXPENDITURES AND CARRYOVER REPORT

YEAR ENDING DECEMBER, 2007

BOARD OF COMMISSIONERS OF PUBLIC UTILITIES

HYDRO
THE POWER OF COMMITMENT

NEWFOUNDLAND AND LABRADOR HYDRO
CAPITAL EXPENDITURES AND CARRYOVER REPORT
For Quarter Ending December 31, 2007

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NEWFOUNDLAND & LABRADOR HYDRO
2007 CAPITAL EXPENDITURES
OVERVIEW

FOR THE QUARTER ENDING DECEMBER 31, 2007
($000)

	PUB Approved Budget 2007	4th Quarter Actuals 2007	Total Actual Expend. 2007	Variance From Budget 2007
GENERATION	12,057	4,531	9,366	(2,691)
TRANSMISSION AND RURAL OPERATIONS	21,266	8,158	18,241	(3,025)
GENERAL PROPERTIES	8,391	3,393	6,811	(1,580)
ALLOWANCE FOR UNFORESEEN EVENTS	1,000	150	743	(257)
PROJECTS APPROVED BY PU BOARD	231	202	202	(29)
NEW PROJECTS APPROVED FOR LESS THAN $50,000	359	191	306	(53)
TOTAL CAPITAL BUDGET	43,304	16,625	35,669	(7,635)

2007 Capital Budget Approved by Board Order No. P.U. 35 (2006)	37,684
Carryover Projects 2006 to 2007	5,065
New Projects Approved by Board Order No. P.U. 25 (2007)	231
2007 New Projects Approved for less than $50,000	324
TOTAL APPROVED CAPITAL BUDGET	43,304

NEWFOUNDLAND & LABRADOR HYDRO
2007 CAPITAL EXPENDITURES
OVERVIEW

FOR THE QUARTER ENDING DECEMBER 31, 2007
($000)

	PUB Approved Budget 2007	4th Quarter Actuals 2007	Total Actual Expend. 2007	Variance From Budget 2007
GENERATION				
NEW GENERATION SOURCE				
Generation Projects	421	0	356	(65)
HYDRO PLANTS				
Construction Projects	1,813	501	1,400	(413)
Property Additions	0	0	0	0
Tools and Equipment	83	24	84	1
THERMAL PLANT				
Construction Projects	8,262	3,186	6,523	(1,739)
Property Additions	599	326	434	(165)
Tools and Equipment	42	6	33	(9)
GAS TURBINES				
Construction Projects	837	488	536	(301)
TOTAL GENERATION	12,057	4,531	9,366	(2,691)

NEWFOUNDLAND & LABRADOR HYDRO
2007 CAPITAL EXPENDITURES
SUMMARY BY CATEGORY

FOR THE QUARTER ENDING DECEMBER 31, 2007
($000)

	PUB Approved Budget 2007	4th Quarter Actuals 2007	Total Actual Expend. 2007	Variance From Budget 2007
TRANSMISSION AND RURAL OPERATIONS				
TRANSMISSION	7,046	2,111	5,661	(1,385)
SYSTEM PERFORMANCE AND PROTECTION	261	104	184	(77)
TERMINALS	1,617	671	1,320	(297)
DISTRIBUTION	7,746	4,112	8,296	550
GENERAL	2,145	142	977	(1,168)
GENERAL				
Metering	811	267	308	(503)
Properties	655	381	559	(96)
Tools and Equipment	985	370	936	(49)
TRANSMISSION AND RURAL OPERATIONS	21,266	8,158	18,241	(3,025)

NEWFOUNDLAND & LABRADOR HYDRO
2007 CAPITAL EXPENDITURES
SUMMARY BY CATEGORY

FOR THE QUARTER ENDING DECEMBER 31, 2007
($000)

	PUB Approved Budget 2007	4th Quarter Actuals 2007	Total Actual Expend. 2007	Variance From Budget 2007
GENERAL PROPERTIES				
INFORMATION SYSTEMS AND TELECOMMUNICATIONS	3,999	1,344	3,459	(540)
ADMINISTRATIVE	4,392	2,049	3,352	(1,040)
TOTAL GENERAL PROPERTIES	8,391	3,393	6,811	(1,580)
ALLOWANCE FOR UNFORESEEN EVENTS	1,000	150	743	(257)
PROJECTS APPROVED BY PU BOARD	231	202	202	(29)
PROJECTS APPROVED FOR LESS THAN $50,000	359	191	306	(53)
TOTAL CAPITAL BUDGET	43,304	16,625	35,669	(7,635)

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NEWFOUNDLAND & LABRADOR HYDRO
2007 CAPITAL EXPENDITURES
GENERATION

FOR THE QUARTER ENDING DECEMBER 31, 2007
($000)

	PUB Approved Budget 2007	4th Quarter Actuals 2007	Total Actual Expend. 2007	Variance From Budget 2007	Percentage Variance From Budget 2,007	Variance Explan. Ref. No.
NEW GENERATION SOURCE						
GENERATION PROJECTS						
Island Pond Development - Feasibilty Update	108	0	80	(28)	-26%	
Portland Creek Development - Final Feasibility Study	280	0	276	(4)	-1%	
Wind Generation Inventory Study	33	0	0	(33)	-100%	
TOTAL GENERATION PROJECTS	**421**	**0**	**356**	**(65)**		
HYDRO PLANTS						
CONSTRUCTION PROJECTS						
Replace Penstock - Snook's Arm Generating Station	292	6	129	(163)	-56%	1
Replace Unit 1 Governor Controls - Cat Arm	32	0	34	2	6%	
Replace Underground Fuel Tanks - Cat Arm Powerhouse	15	0	15	0	0%	
Provide Remote Operation By-Pass Valve - Granite Canal	82	41	83	1	1%	
Upgrade Access Road - Upper Salmon	675	15	650	(25)	-4%	
Upgrade Access Road - Burnt Dam	309	274	289	(20)	-6%	
Upgrade Cooling Water System Unit 1 and 2 - Bay d'Espoir	112	0	0	(112)	-100%	2
Replace Station Service Control - Bay d'Espoir	105	62	66	(39)	-37%	
Replace Air Dryer - Cat Arm	76	38	41	(35)	-46%	
Replace Bridge Paradise Access Rd	66	41	64	(2)	-3%	
Stator Windings Design Review - Bay d'Espoir	49	24	29	(20)	-41%	
TOTAL CONSTRUCTION PROJECTS	**1,813**	**501**	**1,400**	**(413)**		

NEWFOUNDLAND & LABRADOR HYDRO
2007 CAPITAL EXPENDITURES
GENERATION

FOR THE QUARTER ENDING DECEMBER 31, 2007
($000)

	PUB Approved Budget 2007	4th Quarter Actuals 2007	Total Actual Expend. 2007	Variance From Budget 2007	Percentage Variance From Budget 2007	Variance Explan. Ref. No.
PROPERTY ADDITIONS						
TOTAL PROPERTY ADDITIONS	**0**	**0**	**0**	**0**		
TOOLS AND EQUIPMENT						
Tools and Equipment Less than $50,000	83	24	84	1	1%	
TOTAL TOOLS AND EQUIPMENT	**83**	**24**	**84**	**1**		
TOTAL HYDRO PLANTS	**1,896**	**525**	**1,484**	**(412)**		
THERMAL PLANT - HOLYROOD						
CONSTRUCTION PROJECTS						
Upgrade Control System	55	0	217	162	295%	3
Purch/Inst Anti-Fouling System for Cooling Water Systems	16	0	81	65	406%	
Addition of Disconnecting Means to 600 Volt MCC Branch Feeders	1,138	294	772	(366)	-32%	4
Fire Protection Upgrades	1,797	503	578	(1,219)	-68%	5
Replace Superheater Unit 2	3,133	2,256	3,065	(68)	-2%	
Study of Regeneration Waste Treatment	35	0	19	(16)	-46%	
Modify Boiler Protection and Control	79	77	81	2	3%	
Turbine and Generator Upgrade Unit 3	1,654	55	1,705	51	3%	
Contaminated Water Treatment	276	0	0	(276)	-100%	6
UPS Battery Monitoring Program	79	1	5	(74)		
TOTAL CONSTRUCTION PROJECTS	**8,262**	**3,186**	**6,523**	**(1,739)**		

NEWFOUNDLAND & LABRADOR HYDRO
2007 CAPITAL EXPENDITURES
GENERATION

FOR THE QUARTER ENDING DECEMBER 31, 2007
($000)

	PUB Approved Budget 2007	4th Quarter Actuals 2007	Total Actual Expend. 2007	Variance From Budget 2007	Percentage Variance From Budget 2007	Variance Explan. Ref. No.
PROPERTY ADDITIONS						
Air Preheater Steam Condenser Pumps - Unit 3	599	326	434	(165)	-28%	7
TOTAL PROPERTY ADDITIONS	**599**	**326**	**434**	**(165)**		
TOOLS AND EQUIPMENT						
Tools and Equipment Less than $50,000	42	6	33	(9)	-21%	
TOTAL TOOLS AND EQUIPMENT	**42**	**6**	**33**	**(9)**		
TOTAL THERMAL PLANTS	**8,903**	**3,518**	**6,990**	**(1,913)**		
GAS TURBINES						
CONSTRUCTION PROJECTS						
Replace Fuel Piping - Hardwoods, Stephenville	530	302	312	(218)	-41%	8
Gas Turbine Assessments - Hardwoods, Stephenville	307	186	224	(83)	-27%	
TOTAL GAS TURBINE PLANTS	**837**	**488**	**536**	**(301)**		
TOTAL GENERATION	**12,057**	**4,531**	**9,366**	**(2,691)**		

NEWFOUNDLAND & LABRADOR HYDRO
2007 CAPITAL EXPENDITURES
TRANSMISSION AND RURAL OPERATIONS

FOR THE QUARTER ENDING DECEMBER 31, 2007
($000)

	PUB Approved Budget 2007	4th Quarter Actuals 2007	Total Actual Expend. 2007	Variance From Budget 2007	Percentage Variance From Budget 2007	Variance Explan. Ref. No.
TRANSMISSION						
Upgrade Corner Brook Frequency Converter - 2006	676	119	823	147	22%	9
Replace Insulators TL231 - (230kV Bay d'Espoir - Stoney Brook)	478	0	466	(12)	-3%	
Replace Wood Poles - Transmission - 2007	2,148	1,168	2,214	66	3%	
Replace Insulators - TL251, TL252 and TL234	2,118	707	1,769	(349)	-16%	10
Upgrade Corner Brook Frequency Converter - 2007	1,320	25	26	(1,294)	-98%	11
Supply and Install Bridge - South West River	212	2	273	61	29%	
Install Deadend Structure - Conne River Tap TL220	94	90	90	(4)	-4%	
TOTAL TRANSMISSION	**7,046**	**2,111**	**5,661**	**(1,385)**		
SYSTEM PERFORMANCE AND PROTECTION						
Upgrade Breaker Controls - BDE/BUC Terminal Station	6	0	3	(3)	-50%	
Upgrade 138kV Protection Upgrades - Springdale, Howley, Indian River	215	101	169	(46)	-21%	
Upgrade Breaker Controls - OPD/SSD Terminal Station	40	3	12	(28)	-70%	
TOTAL SYSTEM PERFORMANCE AND PROTECTION	**261**	**104**	**184**	**(77)**		

NEWFOUNDLAND & LABRADOR HYDRO
2007 CAPITAL EXPENDITURES
TRANSMISSION AND RURAL OPERATIONS

FOR THE QUARTER ENDING DECEMBER 31, 2007
($000)

	PUB Approved Budget 2007	4th Quarter Actuals 2007	Total Actual Expend. 2007	Variance From Budget 2007	Percentage Variance From Budget 2007	Variance Explan. Ref. No.
TERMINALS						
Replace Air Compressor and Dryer - Grand Falls Frequency Converter	48	12	42	(6)	-13%	
Replace Air Compressors - Holyrood Terminal Station	76	0	54	(22)	-29%	
Install Transformer Oil Monitoring System - Upper Salmon	34	12	13	(21)	-62%	
Safety and Reliability Upgrade - Hawkes Bay Terminal Station	349	191	204	(145)	-42%	12
Replace Insulators - Various Stations	313	159	298	(15)	-5%	
Upgrade Breakers - Various Stations	258	(54)	146	(112)	-43%	13
Replace Breaker B7C1 - Hardwoods	136	129	143	7	5%	
Replace Instrument Transformers - Various Stations	80	29	80	0	0%	
Replace Compressors - Various Stations	78	64	67	(11)	-14%	
Replace Battery Banks - Various Stations	72	20	68	(4)	-6%	
Replace Battery Chargers - Various Stations	72	65	70	(2)	-3%	
Replace Surge Arrestors - Various Stations	71	29	85	14	20%	
Install RIGD (Remote Ice Growth Detection) Beam - Various Stations	30	15	50	20	67%	
TOTAL TERMINALS	**1,617**	**671**	**1,320**	**(297)**		
DISTRIBUTION						
Upgrade Distribution Feeders - Various Locations	1,418	429	1,129	(289)	-20%	14
Service Extensions	2,085	1,755	2,800	715	34%	15
Distribution Upgrades	2,035	762	2,224	189	9%	
Replace Distribution Lines - South Brook, Harbour Breton	741	538	783	42	6%	
Distribution Line Pole Replacements	837	299	845	8	1%	
Upgrade Unit 290 and Upgrade Fuel Storage - Williams Harbour	479	244	277	(202)	-42%	16
Grey River Stack Modifications	151	85	108	(43)	-28%	
Interconnect - Rencontre East	0	0	130	130		17
TOTAL DISTRIBUTION	**7,746**	**4,112**	**8,296**	**550**		

NEWFOUNDLAND & LABRADOR HYDRO
2007 CAPITAL EXPENDITURES
TRANSMISSION AND RURAL OPERATIONS

FOR THE QUARTER ENDING DECEMBER 31, 2007
($000)

	PUB Approved Budget 2007	4th Quarter Actuals 2007	Total Actual Expend. 2007	Variance From Budget 2007	Percentage Variance From Budget 2007	Variance Explan. Ref. No.
GENERATION						
Construct New Diesel Plant - St. Lewis	369	20	527	158	43%	18
Replace Diesel Generating Units - Various Location	146	85	189	43	29%	
Replace Control Panel - Rigolet	69	0	90	21	30%	
Install Nox Monitor - Little Bay Islands	81	17	82	1	1%	
Purchase Spare Transformer - Upper Salmon	1,366	13	19	(1,347)	-99%	19
Replace Diesel Unit Breakers - Mary's Harbour	114	7	70	(44)	-39%	
TOTAL GENERATION	**2,145**	**142**	**977**	**(1,168)**		
GENERAL						
METERING						
Automatic Meter Reading	696	195	201	(495)	-71%	20
Purchase Meters and Equipment - Rural Systems	94	65	100	6	6%	
Purchase Metering Spares	21	7	7	(14)	-67%	
TOTAL METERING	**811**	**267**	**308**	**(503)**		
PROPERTIES						
Installation of Fall Arrest Equipment - Hydro facilities	251	110	245	(6)	-2%	
Upgrade Fuel Storage - Norman Bay	222	156	164	(58)	-26%	
Installation of Card Access System - Bishop Falls and Whitbourne	131	97	102	(29)	-22%	
Legal Survey of Distribution Line Right-of-Ways	51	18	48	(3)	-6%	
TOTAL PROPERTIES	**655**	**381**	**559**	**(96)**		

NEWFOUNDLAND & LABRADOR HYDRO
2007 CAPITAL EXPENDITURES
TRANSMISSION AND RURAL OPERATIONS

FOR THE QUARTER ENDING DECEMBER 31, 2007
($000)

	PUB Approved Budget 2007	4th Quarter Actuals 2007	Total Actual Expend. 2007	Variance From Budget 2007	Percentage Variance From Budget 2007	Variance Explan. Ref. No.
TOOLS AND EQUIPMENT						
Confined Space Entry Equipment	13	0	11	(2)	-15%	
Replace Off Road Track Vehicle - Unit 7696 - Cow Head	307	352	352	45	15%	
Replace Light Duty Mobile Equipment Less than $ 50,000	241	0	244	3	1%	
Replace Doble Relay Test Equipment - St. Anthony, Happy Valley	174	3	132	(42)	-24%	
Replace Off Road Track Vehicle - Unit 7734 - Flowers Cove	139	0	91	(48)	-35%	
Tools and Equipment Less than $ 50,000	111	15	106	(5)	-5%	
TOTAL TOOLS AND EQUIPMENT	**985**	**370**	**936**	**(49)**		
TOTAL GENERAL	**2,451**	**1,018**	**1,803**	**(648)**		
TOTAL TRANSMISSION AND RURAL OPERTIONS	**21,266**	**8,158**	**18,241**	**(3,025)**		

NEWFOUNDLAND & LABRADOR HYDRO
2007 CAPITAL EXPENDITURES
GENERAL PROPERTIES

FOR THE QUARTER ENDING DECEMBER 31, 2007
($000)

	PUB Approved Budget 2007	4th Quarter Actuals 2007	Total Actual Expend. 2007	Variance From Budget 2007	Percentage Variance From Budget 2007	Variance Explan. Ref. No.
INFORMATION SYSTEMS						
SOFTWARE APPLICATIONS						
INFRASTRUCTURE REPLACEMENT						
NEW INFRASTRUCTURE						
Applications Enhancements	149	74	148	(1)	-1%	
Cost Recovery CF(L)Co	(27)	(11)	(28)	(1)	4%	
Upgrade of Technology						
Corporate Application Environment	377	73	107	(270)	-72%	21
Cost Recovery CF(L)Co	(75)	(6)	(21)	54	-72%	
TOTAL SOFTWARE APPLICATIONS	**424**	**130**	**206**	**(218)**		

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NEWFOUNDLAND & LABRADOR HYDRO
2007 CAPITAL EXPENDITURES
GENERAL PROPERTIES

FOR THE QUARTER ENDING DECEMBER 31, 2007
($000)

	PUB Approved Budget 2007	4th Quarter Actuals 2007	Total Actual Expend. 2007	Variance From Budget 2007	Percentage Variance From Budget 2007	Variance Explan. Ref. No.
COMPUTER OPERATIONS						
INFRASTRUCTURE REPLACEMENT						
Enterprise Storage Capacity Upgrade	186	168	182	(4)	-2%	
Cost Recovery CF(L)Co	(37)	(11)	(36)	1	-3%	
End User Infrastructure Evergreen Program	395	176	394	(1)	0%	
NEW INFRASTRUCTURE						
Peripheral Infrastructure Replacement	139	15	141	2	1%	
Security Information Management System	73	14	75	2	3%	
Cost Recovery CF(L)Co	(15)	(5)	(15)	0	0%	
UPGRADE OF TECHNOLOGY						
Server Technology Program	82	39	79	(3)	-4%	
TOTAL COMPUTER OPERATIONS	**823**	**396**	**820**	**(3)**		

NEWFOUNDLAND & LABRADOR HYDRO
2007 CAPITAL EXPENDITURES
GENERAL PROPERTIES

FOR THE QUARTER ENDING DECEMBER 31, 2007
($000)

	PUB Approved Budget 2007	4th Quarter Actuals 2007	Total Actual Expend. 2007	Variance From Budget 2007	Percentage Variance From Budget 2007	Variance Explan. Ref. No.
TELECONTROL						
NETWORK SERVICES						
INFRASTRUCTURE REPLACEMENT						
Replace VHF Mobile Radio System	2,185	637	1,712	111	22%	22
Cost Recovery of Works and Transporation	(1,680)	(547)	(1,096)			
Replace Power Line Carrier TL240 - Churchill Falls - Goose Bay	24	0	35	11	46%	
Microwave Site Refurbishing - Bay d'Espoir Hill and Blue Grass Hill	156	28	114	(42)	- 27%	
Replace Battery Systems - 2006 - Multiple Sites	92	0	107	15	16%	
Westcoast Communications System - Study	42	0	46	4	10%	
Replace Battery Systems - 2007 - Multiple Sites	485	138	279	(206)	- 42%	23
Microwave Site Refurbishing	364	158	184	(180)	- 49%	24
Replace Remote Terminal Units - Multiple Sites	321	74	276	(45)	- 14%	
Replace VHF Radio Communications - Burnt Dam	226	139	222	(4)	- 2%	
Replace Radomes - Multiple Sites	27	9	9	(18)	- 67%	
Network Infrastructure						
IRIG-B Distributions	103	86	105	2	2%	
Communications Network Technology	102	55	122	20	20%	
Test Equipment	49	9	52	3	6%	
Hydro Place Wireless	44	7	51	7	16%	
UPGRADE OF TECHNOLOGY						
MWIC Quad - Diversity Upgrade	114	0	116	2	2%	
Network Management Tools	49	19	48	(1)	- 2%	
Upgrade Site Facilities	49	6	51	2	4%	
TOTAL NETWORK SERVICES	**2,752**	**818**	**2,433**	**(319)**		
TOTAL INFORMATION SYSTEMS AND TELECONTROL	**3,999**	**1,344**	**3,459**	**(540)**		

NEWFOUNDLAND & LABRADOR HYDRO
2007 CAPITAL EXPENDITURES
GENERAL PROPERTIES

FOR THE QUARTER ENDING DECEMBER 31, 2007
($000)

	PUB Approved Budget 2007	4th Quarter Actuals 2007	Total Actual Expend. 2007	Variance From Budget 2007	Percentage Variance From Budget 2007	Variance Explan. Ref. No.
ADMINISTRATIVE						
VEHICLES						
Replace Vehicles - Hydro System - 2007	2686	1,530	2,218	(468)	-17%	25
Purchase Trucks, Snowmobiles, lifts, storage bldings- Labrador Coast	842	331	798	(44)	-5%	
ADMINISTRATION						
Construct New Warehouse - Port Saunders	66	0	74	8	12%	
Security Assessment of System Operations	668	131	137	(531)	-79%	26
Replace Storage Ramp - Bishop's Falls	62	13	63	1	2%	
Replace Administration Office Equipment less than $50,000	68	44	62	(6)	-9%	
TOTAL ADMINISTRATIVE	**4,392**	**2,049**	**3,352**	**(1,040)**		
TOTAL GENERAL PROPERTIES	**8,391**	**3,393**	**6,811**	**(1,580)**		

NEWFOUNDLAND & LABRADOR HYDRO
2007 CAPITAL EXPENDITURES
OTHER APPROVED FUNDS

FOR THE QUARTER ENDING DECEMBER 31, 2007
($000)

	PUB Approved Budget 2007	4th Quarter Actuals 2007	Total Actual Expend. 2007	Variance From 2007 Budget	Percentage Variance From 2007 Budget
ALLOCATION FOR UNFORESEEN EVENTS					
Cartwright Distribution - Upgrade Sleet Storm	113	0	105	(8)	-7%
Daniel's Harbour Distribution Line Re-Route	81	0	78	(3)	-4%
Ice Storm Damage - Northern	231	0	245	14	6%
Replace Insulators on TL221	252	0	165	(87)	-35%
Replace Structure 34 on TL212 (Sunnyside to Linton Lake)	203	150	150	(53)	-26%
Unused Allocation for Unforeseen Events	**120**	**0**	**0**	(120)	-100%
TOTAL ALLOCATION FOR UNFORESEEN EVENTS	**1,000**	**150**	**743**	**(257)**	
PROJECTS APPROVED BY PU BOARD					
NEW					
Replace Atomic Absorption with ICP Mass Spectrometer - Order No. P.U. 25 (2007)	231	202	202	(29)	-13%
TOTAL PROJECTS APPROVED BY PU BOARD	**231**	**202**	**202**	**(29)**	

NEWFOUNDLAND & LABRADOR HYDRO
2007 CAPITAL EXPENDITURES
OTHER APPROVED FUNDS

FOR THE QUARTER ENDING DECEMBER 31, 2007
($000)

	PUB Approved Budget 2007	4th Quarter Actuals 2007	Total Actual Expend. 2007	Variance From 2007 Budget	Percentage Variance From 2007 Budget
NEW PROJECTS APPROVED FOR LESS THAN $50,000					
Install Oil Water Separators - Various Stations	35	4	23	(12)	-34%
Replace Annuciator - Come By Chance Terminal Station	49	48	65	16	33%
Replace Battery Charger - Hawkes Bay	4	0	3	(1)	-25%
Purchase High Angle Rescue Equipment	4	0	3	(1)	-25%
Vibration Monitoring Systems Upgrade - Hardwoods and Stephenville	49	32	34	(15)	-31%
Transfer and Overhaul Diesel Unit 2058 - Little Bay Islands	49	(7)	52	3	6%
Replace Portable Oil Dielectric Test Set - Happy Valley	8	7	7	(1)	-13%
Replace Lube Oil Storage Tank - St. Anthony	6	6	6	0	0%
Replace 125 V DC Battery Charger System - L'Anse au Loup	14	10	10	(4)	-29%
Purchase Office Furniture - Hydro Place	22	20	20	(2)	-9%
Install Corporate Emergency Response Centre - Hydro Place	49	23	35	(14)	-29%
Energy Audit - Hydro Place	28	17	17	(11)	-39%
Upgrade Operator Console - Hardwood Gas Turbine	42	31	31	(11)	-26%
TOTAL PROJECTS APPROVED FOR LESS THAN $50,000	**359**	**191**	**306**	**(53)**	

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NEWFOUNDLAND & LABRADOR HYDRO
2007 VARIANCE EXPLANATIONS
GENERATION
FOR THE QUARTER ENDING DECEMBER 31, 2007
(Greater than $100,000)

1. **Replace Penstock - Snook's Arm Generating Station**

   The project was substantially complete in December of 2006 with only site cleanup and landscaping to be done in 2007; however the contractor claimed that they were owed additional amounts due to design changes and site conditions. The final agreement with the contractor was for $131,000 less than expected. This reduction resulted in less overhead and no contingency being utilized.

2. **Upgrade Cooling Water System Unit 1 and 2 - Bay d'Espoir**

   The anticipated cost of this project had escalated considerably since the proposal was prepared early in 2006, partially due to the unusually high price escalation of stainless steel piping, pipe fittings and equipment, therefore it was cancelled and resubmitted in the 2008 Capital Budget Application. This project was approved for $264,000 in Board Order No. P.U. 30 (2007).

3. **Upgrade Control System - Holyrood**

   The cost of the project increased by $170,000 due to unanticipated difficulties in system compatibility that resulted in additional programming, testing and training. There was no change in scope nor was a cost benefit analysis originally prepared for the installation of this system. In addition, this project remains the least cost alternative.

4. **Addition of Disconnecting Means to 600 Volt Motor Control Centre (MCC) Branch Feeders - Holyrood**

   The project is under budget primarily due to the cost for the contracted portion of the work being less than estimated in the original budget. At the time the budget was prepared, the exact outage schedules for the Holyrood plant were not known, so assumptions were made when estimating the contract portion of the project. Worst case scenarios were used, estimating outages over an extended timeframe, which increased the length and cost of the project. Once outage schedules for the plant were confirmed, and included in the tender documents, the tenders were less than the estimates included in the budget.

NEWFOUNDLAND & LABRADOR HYDRO
2007 VARIANCE EXPLANATIONS
GENERATION
FOR THE QUARTER ENDING DECEMBER 31, 2007
(Greater than $100,000)

5. Fire Protection Upgrades - Holyrood

Due to delays in receiving technical clarification from the corporation's insurers for requested fire protection improvements and other work commitments, the bulk of the work will be completed in 2008. The total estimated capital cost remains unchanged.

6. Contaminated Water Treatment - Holyrood

The Contaminated Water Treatment Study is deferred until the long-term future of the Holyrood Plant has been determined.

7. Air Preheater Steam Condenser Pumps - Unit 3 - Holyrood

This project was under budget due to the installation contract being significantly less than the amount estimated in 2006. The successful contractor submitted a very favourable tender because of work shortage at the time. The original estimate for the major component of the work was approximately $342,000, while the actual contract cost was approximately $227,000, resulting in savings of $115,000. These reductions also resulted in less overhead and no contingency being utilized.

8. Replace Fuel Piping - Hardwoods, Stephenville

On December 11, 2007, during excavation operations for this project at Stephenville Gas Turbine, the contractor struck an electrical cable causing a delay in this project. The location of the cable was not shown on any existing Hydro drawings. When excavation work resumes it will be performed manually, without the use of an excavator. Due to the manual digging, this work will have to take place when there is no frost in the ground. As well, a complete unit shutdown is required, with all equipment in the area de-energized to minimize the possibility of striking another live wire. This work is scheduled to be completed in the summer of 2008, within budget.

NEWFOUNDLAND & LABRADOR HYDRO
2007 VARIANCE EXPLANATIONS
TRANSMISSION AND RURAL OPERATIONS
FOR THE QUARTER ENDING DECEMBER 31, 2007
(Greater than $100,000)

9. Upgrade Corner Brook Frequency Converter - 2006

The 2006 work was delayed in starting due to negotiations with Corner Brook Pulp & Paper concerning ownership of the facility. The project costs exceeded the budget primarily for three reasons:

- The pressure relief valve on the new transformer was damaged when the transformer arrived on site. Delays and extra work were incurred while waiting for and installing the replacement valve.
- The tenders for the upgrades to the compressed air system were higher than estimated because there were no contractors in the Corner Brook area that submitted tenders and the contract was awarded to a contractor based in St. John's. There were extra costs incurred in mobilizing this contractor to the work site.
- There were no competitive tenders received for the upgrades to the ventilation systems. The systems had to be redesigned twice, in order to attract competitive bids.

These delays and extra work required additional engineering and project management and also increased the overhead and interest expenses for the project. The scope and justification for the project has not changed from the original project proposal. The execution of the work is still being done at the least costs available in the marketplace.

10. Replace Insulators - TL251, TL252 and TL234

There were efficiencies gained and costs saved because additional work crews and equipment were deployed to the area at the time this project was executed. This also resulted in less overhead costs and contingency not being utilized. Both the material and the contract costs were less than estimated by approximately $149,000. In addition, the work was completed in less time than originally budgeted causing the construction labour to be approximately $93,000 under budget.

11. Upgrade Corner Brook Frequency Converter - 2007

This project is expected to be completed within budget. The 2007 project work was delayed due to delays in the 2006 upgrade work (the reasons for which are outlined in (9) above); consequently, the 2007 project is being carried over to 2008.

NEWFOUNDLAND & LABRADOR HYDRO
2007 VARIANCE EXPLANATIONS
TRANSMISSION AND RURAL OPERATIONS
FOR THE QUARTER ENDING DECEMBER 31, 2007
(Greater than $100,000)

12. Safety and Reliability Upgrade - Hawkes Bay Terminal Station

The 2007 work was delayed due to a system planning analysis which indicated potential modifications to the station. Consequently, work on the project did not start until the early summer of 2007. This left only enough time to complete the general civil works in 2007. The tenders for the civil works were higher than estimated due to local contractors not being available, the time of the year when the tender was called and the general cost of grounding materials. It is not yet confirmed whether this increase in the civil costs will result in an increase in the overall project costs. The electrical portion of the upgrades is currently planned for the summer of 2008. There may be some long delivery times on some electrical equipment, which may further delay final project completion.

13. Upgrade Breakers - Various Stations

This project was budgeted to upgrade four breakers but due to outage and resource unavailability only two breakers were upgraded. This resulted in less overhead costs and the contingency amount not being utilized.

14. Upgrade Distribution Feeders - Various Locations

The budget estimates for upgrading distribution feeders are based on contracted out labour, since internal labour availability was unknown at the project proposal stage. The use of internal labour resulted in an overall reduction of project costs. As well, each project is estimated individually, however, efficiencies were gained and costs were reduced due to work crews being deployed to areas and working on multiple projects concurrently.

15. Service Extensions

The budgeted amount is an annual allotment based on the average of the annual expenditures for services extensions over the last five years. It is not based on a summary of specific projects. There was a $330,000 increase from the estimate in the Labrador Interconnected System as well as a new North West Arm Cottage Development expenditure of $310,000 and Pine Cove Interconnection expenditure of $103,000.

NEWFOUNDLAND & LABRADOR HYDRO
2007 VARIANCE EXPLANATIONS
TRANSMISSION AND RURAL OPERATIONS
FOR THE QUARTER ENDING DECEMBER 31, 2007
(Greater than $100,000)

16. Upgrade Unit 290 and Upgrade Fuel Storage - Williams Harbour

This was a pooled project to upgrade Unit 290 and upgrade the fuel storage. The upgrade Unit 290 portion will be carried over into 2008. During testing it was discovered that the genset to be supplied by the winning bidder was not in compliance with the specification. The deficiencies could not be corrected and the order was cancelled. The genset supply must be retendered which will delay completion until approximately September, 2008. Additional costs will be incurred for retendering, acceptance testing of the new genset, training for a potentially new make of genset, and rewiring/recertification of the control panel to suit an alternative genset. The budget for this portion of the project has increased from $290,000 to $370,000.

17. Interconnect - Rencontre East

This project was completed in 2006 however a contract claims settlement resulted in an additional $130,000 being required for this project.

18. Construct New Diesel Plant - St. Lewis

During construction, extra labor charges associated with plant automation and commissioning as well as other in-house work resulted in an increased cost of $136,000 for the new St. Lewis Diesel Plant. Along with this, increased cost of steel and copper components resulted in an increased cost of $22,000.

A cost benefit analysis performed in June 2005 determined that the construction of a new diesel plant at St. Lewis was the preferred option over the other alternative which was to construct an interconnection to Port Hope Simpson. The Net Present Value (NPV) for the new diesel plant was $530,732 in January 2005 dollars. With the discount rate of 8.4% used in the original cost benefit analysis, the $158,000 equals $124,042 in January 2005. Thus, the original NPV benefits have been reduced by $124,042 to $406,690, remaining the least cost alternative.

NEWFOUNDLAND & LABRADOR HYDRO
2007 VARIANCE EXPLANATIONS
TRANSMISSION AND RURAL OPERATIONS
FOR THE QUARTER ENDING DECEMBER 31, 2007
(Greater than $100,000)

19. Purchase Spare Transformer - Upper Salmon

Transformer manufacturers are experiencing significant increases in demand for new transformers which has extended manufacturing time from less than one year to eighteen months. The resultant extended delivery times for large power transformers has changed the project in-service date to December, 2008. The total project cost is still forecast at $2.2 million, of which $1.36 million was budgeted to be spent in 2007 with the remainder to be spent in 2008.

20. Automatic Meter Reading

The cost of the Automatic Meter Reading (AMR) project has increased from $696,000 to $1,135,000 due to additional requirements identified during the detailed project design in 2007, including costs related to the interface between the AMR system and the existing Customer Billing system and receivers required in each distribution system. Additional time is also required to replace the required meters, therefore this project will be carried over with a completion date of October, 2008.

With respect to cost, the projected operating cost per meter for the Bay d'Espoir and St. Anthony service areas for 2007 is $35 per meter. The implementation of AMR will lower the cost to $10 per meter. The cumulative present worth analysis of AMR and the current system has a positive net present value starting in 2017 (11 years), and totals approximately $266,000 in 2022.

NEWFOUNDLAND & LABRADOR HYDRO
2007 VARIANCE EXPLANATIONS
GENERAL PROPERTIES
FOR THE QUARTER ENDING DECEMBER 31, 2007
(Greater than $100,000)

21. Corporate Application Environment

This project consisted of an operating system upgrade and JD Edwards software upgrade. The software upgrade was required because the vendor support for the current release of JD Edwards was terminating. Subsequently, the vendor decided to support Hydro's current software until 2013 therefore it was decided to delay this upgrade, reducing the net budget by $267,000.

22. Replace VHF Mobile Radio System

The cost overrun can be attributed to increased costs incurred with respect to the work and material associated with our user equipment such as VHF radios, Energy Control Centre interface, installation, testing, and training. Issues encountered during the transition phase caused by faulty user equipment required the old VHF radio system to operate three months longer than anticipated while all units in service were reprogrammed to work with the new system. There was no change in the scope and the project remains the least cost solution. The two tenders received had approximately the same capital cost however the chosen solution had a considerably lower operating cost over the 15 year life span. The increased cost of approximately $111,000 on the total project budget of approximately $7.1 million (1.5%) has minimal impact on the NPV calculation.

23. Replace Battery System - Multiple Sites

The material and contract costs were $162,000 less than budgeted for three reasons:

- One battery and charger system originally included in the 2007 budget was replaced in 2006 because additional capacity was needed at that time.
- The tendering process resulted in more competitive bids for installation services than in previous years.
- The contingency of $40,000 was not used.

24. Microwave Site Refurbishing

The original budget of $360,000 was based on a deficiency report generated by Tiller Engineering in 2005. Between that time and the start of this job, some of the items included in the budget had already been replaced. Other items were operating costs and therefore removed from the list. This resulted in the actual expenditure being significantly below the original budget.

NEWFOUNDLAND & LABRADOR HYDRO
2007 VARIANCE EXPLANATIONS
GENERAL PROPERTIES
FOR THE QUARTER ENDING DECEMBER 31, 2007
(Greater than $100,000)

25. Replace Vehicles - Hydro System - 2007

The remainder of this budget has been carried over to 2008 for the boom remount project dealing with stability issues on two boom trucks V4483 and V4486. This includes supply and installation of two new booms on the old chassis. The lead time to supply the new booms is 18 months.

26. Security Assessment of System Operations

The work completed in 2007 consisted of installing anti-climb devices on communication towers throughout the system, purchasing high voltage and personal protective equipment signage for installation throughout the system, and the initiation of a telecommunication design review. In 2008, the work scope consists of purchasing, and installing a card reader, surveillance camera and alarm equipment throughout the system. As well, upgrades to fencing, area lighting and signage will begin. The requirements for these upgrades were outlined in a summary document produced in 2007, however, the schedule for this work has not yet been finalized. The work will be completed through a combination of external contracts and some work by Hydro Operations. This project will be carried over into 2008 with a scheduled completion date of December, 2008 within budget.

NEWFOUNDLAND AND LABRADOR HYDRO
CAPITAL BUDGET VERSUS EXPENDITURES 1998 - 2007
AS AT DECEMBER 31
($000)

Year	Budget	Actual Expenditures	Variance	Percentage Variance
1998	47,522	28,017	19,505	41.0%
1999	38,142	29,684	8,458	22.2%
2000	43,824	38,569	5,255	12.0%
2001	55,897	47,501	8,396	15.0%
2002	44,660	40,217	4,443	9.9%
2003	36,122	32,506	3,616	10.0%
2004	31,435	27,984	3,451	11.0%
2005	47,760	33,952	13,808	28.9%
2006	49,024	41,217	7,807	15.9%
2007	43,304	35,669	7,635	17.6%

It should be noted that the above variances include amounts related to the carryover of projects from year to year. Variances from budget for completed projects are 8**%** and 5**%** for 2006 and 2007 respectively, well within acceptable ranges. Project carryovers worsened considerably in 2005, with retirements, transfers and reassignments, primarily as a result of the reorganization of Hydro's engineering function. Since then, improvements have been made, and efforts are underway to further improve the completion of projects on schedule. These efforts include:

- more two-year schedules to accommodate the construction seasons rather than the calendar year;
- more two-year schedules to allow adequate lead time on materials, such as that now required for the purchase of power transformers, as identified in the variance explanation for the Upper Salmon transformer, which contributed to the 2007 carryover amount;
- newly hired engineers obtaining the experience and knowledge required to be able to more independently complete assignments;

NEWFOUNDLAND AND LABRADOR HYDRO
CAPITAL BUDGET VERSUS EXPENDITURES 1998 - 2007
AS AT DECEMBER 31
($000)

- capital budget preparation now including review of staff availability. The internal 2008 Capital Budget review resulted in a deferral of projects which remain necessary, but could not be completed with existing staff. This type of deferral, however, contains a risk to the reliability of Hydro's aging infrastructure, which will be mitigated when the maintenance plan is completed.

It is not anticipated that carryovers of capital projects will ever be eliminated. There are frequently sound or unavoidable reasons for delay in project completion, such as in 2007, when projects were delayed due to:

- consideration of the prudence of a particular project under changing circumstances, such as the delay experienced in the safety and reliability upgrades at Hawkes Bay. The project was delayed pending analysis of a reconfiguration of the terminal station to address a separate problem, and work proceeded once it was determined that such a reconfiguration was not required.
- consideration of the requirements of the customer. The Corner Brook frequency converter project was delayed due to discussions with the customer to whom the converter is specifically assigned concerning possibly transferring ownership.

NEWFOUNDLAND & LABRADOR HYDRO
CARRY OVER REPORT
FOR THE YEAR ENDED DECEMBER 31
($000)

	PUB Approved Budget	Revised Budget	Actuals	Carryover Amount	Variance Explan. Ref. No.
Replace Station Service Control - Bay d'Espoir	105	124	66	58	
Stator Windings Design Review - Bay d'Espoir	49	49	29	20	
Fire Protection Upgrades - Holyrood	1,797	1,797	578	1,219	5
UPS Battery Monitoring Program - Holyrood	79	79	5	74	
Replace Fuel Piping - Hardwoods and Stephenville[1]	530	242	145	97	
Upgrade Corner Brook Frequency Converter - 2007	1,320	1,320	26	1,294	11
Upgrade 138kV Protection - Springdale, Howley, Indian River	215	215	169	46	
Upgrade Breaker Controls - OPD/SSD Terminal Station	40	40	12	28	
Safety and Reliability Upgrade - Hawkes Bay Terminal Station	349	349	204	145	12
Upgrade Unit 290 and Upgrade Fuel Storage - Williams Harbour[2]	479	370	92	278	16
Purchase Spare Transformer - Upper Salmon	665	665	19	646	19
Automatic Meter Reading	696	1,135	201	934	20
Installation of Card Access System - Bishop's Falls and Whitbourne	131	131	102	29	
Replace Vehicles - Hydro System - 2007	2,686	2,686	2,218	468	25
Security Assessment of System Operations	668	668	137	531	26
Vibration Monitoring System Upgrade - Hardwoods and Stephenville	49	49	34	15	
TOTAL CARRYOVER	**9,858**	**9,919**	**4,037**	**5,882**	

[1]This was a pooled project to replace fuel piping in the Hardwoods and Stephenville terminal stations. The Hardwoods portion of the job is complete.

[2]This was a pooled project to upgrade Unit 290 and the fuel storage system in William's Harbour. The fuel storage system replacement is complete.

newfoundland labrador hydro
a nalcor energy company

Hydro Place. 500 Columbus Drive.
P.O. Box 12400. St. John's. NL
Canada A1B 4K7
t. 709.737.1400 f. 709.737.1800
www.nlh.nl.ca

March 2, 2009

The Board of Commissioners of Public Utilities
Prince Charles Building
120 Torbay Road, P.O. Box 21040
St. John's, NL
A1A 5B2

ATTENTION: Ms. Cheryl Blundon
Director of Corporate Services & Board Secretary

Dear Ms. Blundon:

Re: 2008 Capital Expenditures and Carryover – Year End

Pursuant to Board Order No. P.U. 30 (2007), p. 26, item 6, enclosed please find the original and eight copies of Newfoundland and Labrador Hydro's (Hydro) report on 2008 Capital Expenditures and Carryover for the year ended December 31, 2008.

Should you have any questions, please contact the undersigned.

Yours truly,

NEWFOUNDLAND AND LABRADOR HYDRO

Per Geoffrey P. Young
Senior Legal Counsel

GPY/jc
Encls.

A REPORT TO
THE BOARD OF COMMISSIONERS OF PUBLIC UTILITIES

CAPITAL EXPENDITURES AND CARRYOVER REPORT

For Year Ending December 31, 2008

March 2009

newfoundland labrador hydro
a nalcor energy company

NEWFOUNDLAND AND LABRADOR HYDRO

CAPITAL EXPENDITURES AND CARRYOVER REPORT

For Quarter Ending December 31, 2008

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NEWFOUNDLAND & LABRADOR HYDRO
2008 CAPITAL EXPENDITURES
OVERVIEW
FOR THE QUARTER ENDING DECEMBER 31, 2008
($000)

	PUB Approved Budget 2008	4th Quarter Actuals 2008	Total Actual Expend. 2008	Variance From Budget 2008
GENERATION	8,965	5,823	9,460	495
TRANSMISSION AND RURAL OPERATIONS	27,617	10,730	23,931	(3,686)
GENERAL PROPERTIES	10,698	3,994	7,565	(3,133)
ALLOWANCE FOR UNFORESEEN EVENTS	1,000	779	933	(67)
PROJECTS APPROVED BY PU BOARD	5,182	338	4,260	(922)
NEW PROJECTS APPROVED FOR LESS THAN $50,000	117	84	97	(20)
TOTAL CAPITAL BUDGET	53,579	21,748	46,246	(7,333)

Projects Approved by PU Board	
2008 Capital Budget Approved by Board Order No. P.U. 30 (2007)	42,398
New Projects Approved by Board Order No. P.U. 17 (2008)	4,542
New Projects Approved by Board Order No. P.U. 23 (2008)	420
New Projects Approved by Board Order No. P.U. 25 (2008)	220
New Projects Approved by Board Order No. P.U. 26 (2008)	0
New Projects Approved by Board Order No. P.U. 30 (2008)	0
Carryover Projects 2007 to 2008	5,882
2008 New Projects Approved for Less than $50,000	117
TOTAL APPROVED CAPITAL BUDGET	53,579

NEWFOUNDLAND & LABRADOR HYDRO
2008 CAPITAL EXPENDITURES
SUMMARY BY CATEGORY
FOR THE QUARTER ENDING DECEMBER 31, 2008
($000)

	PUB Approved Budget 2008	4th Quarter Actuals 2008	Total Actual Expend. 2008	Variance From Budget 2008
GENERATION				
HYDRAULIC PLANTS	4,052	3,494	5,025	973
THERMAL PLANT	4,065	2,162	3,767	(298)
GAS TURBINES	143	94	181	38
TOOLS AND EQUIPMENT	705	73	487	(218)
TOTAL GENERATION	8,965	5,823	9,460	495
TRANSMISSION AND RURAL OPERATIONS				
TERMINAL STATIONS	4,065	1,518	2,478	(1,587)
TRANSMISSION	5,977	3,118	6,606	629
DISTRIBUTION	9,265	3,838	9,745	480
GENERATION	1,956	631	1,287	(669)
PROPERTIES	2,409	565	813	(1,596)
METERING	1,593	240	1,543	(50)
TOOLS AND EQUIPMENT	2,352	820	1,459	(893)
TOTAL TRANSMISSION AND RURAL OPERATIONS	27,617	10,730	23,931	(3,686)

NEWFOUNDLAND & LABRADOR HYDRO
2008 CAPITAL EXPENDITURES
SUMMARY BY CATEGORY
FOR THE QUARTER ENDING DECEMBER 31, 2008
($000)

	PUB Approved Budget 2008	4th Quarter Actuals 2008	Total Actual Expend. 2008	Variance From Budget 2008
GENERAL PROPERTIES				
INFORMATION SYSTEMS	3,444	1,192	3,317	(127)
TELECONTROL	2,817	1,270	1,750	(1,067)
TRANSPORTATION	2,294	877	1,508	(786)
ADMINISTRATIVE	2,143	655	990	(1,153)
TOTAL GENERAL PROPERTIES	10,698	3,994	7,565	(3,133)
ALLOWANCE FOR UNFORESEEN EVENTS	1,000	779	933	(67)
PROJECTS APPROVED BY PU BOARD	5,182	338	4,260	(922)
PROJECTS APPROVED FOR LESS THAN $50,000	117	84	97	(20)
TOTAL CAPITAL BUDGET	53,579	21,748	46,246	(7,333)

NEWFOUNDLAND & LABRADOR HYDRO
2008 CAPITAL EXPENDITURES
GENERATION
FOR THE QUARTER ENDING DECEMBER 31, 2008
($000)

	PUB Approved Budget 2008	4th Quarter Actuals 2008	Total Actual Expend. 2008	Variance From Budget 2008	Percentage Variance From Budget 2008	Variance Explanation Ref. No.
HYDRAULIC PLANTS						
Replace Station Service Control - Bay d'Espoir	58	33	189	131	226%	1
Stator Windings Design Review - Bay d'Espoir	20	7	9	(11)	-55%	
Upgrade Spherical Valve Maintenance Seals - Cat Arm	1,060	1,628	1,969	909	86%	2
Replace Governor Controls Unit 2 - Cat Arm	975	677	1,096	121	12%	3
Arc Flash Analysis - Various Sites	342	217	259	(83)	-24%	
Replace Cooling Water Systems Units 1 and 2 - Bay d'Espoir	264	69	198	(66)	-25%	
Replace 40 kW Diesel Generator - Burnt Dam	157	135	148	(9)	-6%	
Install Meteorological Stations - Various Locations	222	99	225	3	1%	
Hydraulic Structure Life Study - Bay d'Espoir	196	109	123	(73)	-37%	
Replace Cooling Water Piping System - Hinds Lake	193	81	143	(50)	-26%	
Salmon Spillway Stoplog Handling System	141	154	207	66	47%	
Upgrade Intake No. 4 Gate Controls - Bay d'Espoir	116	2	134	18	16%	
Replace Back-Up Air Dryer - Bay d'Espoir	73	52	53	(20)	-27%	
Replace Communications Room Air Conditioner - Bay d'Espoir	64	51	51	(13)	-20%	
Upgrade Access Trail - Venam's Bight	64	91	100	36	56%	
Replace Fire Alarm System - Cat Arm	54	70	82	28	52%	
Replace Auxiliary Service Water Pump - Cat Arm	53	19	39	(14)	-26%	
TOTAL HYDRAULIC PLANTS	**4,052**	**3,494**	**5,025**	**973**		

NEWFOUNDLAND & LABRADOR HYDRO
2008 CAPITAL EXPENDITURES
GENERATION
FOR THE QUARTER ENDING DECEMBER 31, 2008
($000)

	PUB Approved Budget 2008	4th Quarter Actuals 2008	Total Actual Expend. 2008	Variance From Budget 2008	Percentage Variance From Budget 2008	Variance Explanation Ref. No.
THERMAL PLANT						
Fire Protection Upgrades - Holyrood	1,219	438	1,085	(134)	-11%	4
UPS Battery Monitoring Program - Holyrood	74	2	80	6	8%	
Tank Farm Upgrade	500	775	776	276	55%	5
Replace Unit 2 High Pressure Heater	20	56	62	42	210%	
Replace Unit 1 and 2 Condenser Valve Actuators	313	66	236	(77)	-25%	
Replace Unit 2 Electromechanical Trip Device	305	174	345	40	13%	
Precipitator and Scrubber Installation Study	272	221	247	(25)	-9%	
Replace 4160 Volt Motor Relays	172	63	128	(44)	-26%	
Replace Unit 2 Main Steam Stop Valve	171	0	190	19	11%	
Environmental Effects Monitoring Study of Waste Water	73	26	31	(42)	-58%	
Upgrade Ambient Monitoring Station	128	11	91	(37)	-29%	
Soot Blowing Controls Study	123	95	107	(16)	-13%	
Stack Breeching Study	115	37	42	(73)	-63%	
Install Safety Egress Lighting	97	15	20	(77)	-79%	
Auto Synchronizing Units 1 and 2	93	44	46	(47)	-51%	
Install Stator Ground Fault Protection	85	57	118	33	39%	
Upgrade Meteorological Station	75	15	59	(16)	-21%	
Construct Beta Attenuation Meter (BAM) Unit Enclosure	60	0	0	(60)	-100%	
Programmable Logic Controller Replacement Study	58	7	41	(17)	-29%	
Motor Control Centres Assessment	43	20	23	(20)	-47%	
Install UV Domestic Water Treatment	36	15	15	(21)	-58%	
Jetty Building Ventilation	33	25	25	(8)	-24%	
TOTAL THERMAL PLANTS	**4,065**	**2,162**	**3,767**	**(298)**		

NEWFOUNDLAND & LABRADOR HYDRO
2008 CAPITAL EXPENDITURES
GENERATION
FOR THE QUARTER ENDING DECEMBER 31, 2008
($000)

	PUB Approved Budget 2008	4th Quarter Actuals 2008	Total Actual Expend. 2008	Variance From Budget 2008	Percentage Variance From Budget 2008	Variance Explanation Ref. No.
GAS TURBINES						
Replace Fuel Piping -Stephenville	97	58	114	17	18%	
Vibration Monitoring System Upgrade - Hardwoods and Stephenville	15	37	38	23	153%	
Gas Turbine Electrical Assessment - Holyrood	31	(1)	29	(2)	-6%	
TOTAL GAS TURBINE PLANTS	**143**	**94**	**181**	**38**		
TOOLS AND EQUIPMENT						
Replace Champion Grader V-9797 - Bay d'Espoir	404	0	239	(165)	-41%	6
Purchase Grounding Trucks	61	0	55	(6)	-10%	
Tools and Equipment Less than $50,000	240	73	193	(47)	-20%	
TOTAL TOOLS AND EQUIPMENT	**705**	**73**	**487**	**(218)**		
TOTAL GENERATION	**8,965**	**5,823**	**9,460**	**495**		

NEWFOUNDLAND & LABRADOR HYDRO
2008 CAPITAL EXPENDITURES
TRANSMISSION AND RURAL OPERATIONS
FOR THE QUARTER ENDING DECEMBER 31, 2008
($000)

	PUB Approved Budget 2008	4th Quarter Actuals 2008	Total Actual Expend. 2008	Variance From Budget 2008	Percentage Variance From Budget 2008	Variance Explanation Ref. No.
TERMINAL STATIONS						
Upgrade Breaker Controls - Oxen Pond and Sunnyside Terminal Stations	28	27	35	7	25%	
Safety and Reliability Upgrade - Hawkes Bay Terminal Station	145	230	521	376	259%	7
Purchase Spare Transformer - Upper Salmon	2,198	375	416	(1,782)	-81%	8
Replace Battery Banks and Chargers - Various Locations	430	282	473	43	10%	
Replace Disconnect Switches - Cow Head and Daniel's Harbour	368	237	284	(84)	-23%	
Upgrade Circuit Breakers - Various Locations	315	143	295	(20)	-6%	
Replace Digital Fault Recorder - Buchans	130	51	104	(26)	-20%	
Replace Compressors - Buchans	94	61	74	(20)	-21%	
Replace Instrument Transformers - Various Locations	74	(2)	75	1	1%	
Replace Surge Arrestors - Various Locations	67	2	73	6	9%	
Upgrade Station Services - Hardwoods	59	1	1	(58)	-98%	
On-Line Dewpoint Monitoring - Bay d'Espoir	38	27	34	(4)	-11%	
Replace Control Building Roof - Doyles	34	20	22	(12)	-35%	
Secondary Air Line for Switchgear - Cat Arm	33	14	14	(19)	-58%	
Replace Breaker Control Panels - Western Avalon	32	25	28	(4)	-13%	
Replace Equipment Concrete Foundation - Stoney Brook	20	25	29	9	45%	
TOTAL TRANSMISSION	**4,065**	**1,518**	**2,478**	**(1,587)**		

NEWFOUNDLAND & LABRADOR HYDRO
2008 CAPITAL EXPENDITURES
TRANSMISSION AND RURAL OPERATIONS
FOR THE QUARTER ENDING DECEMBER 31, 2008
($000)

	PUB Approved Budget 2008	4th Quarter Actuals 2008	Total Actual Expend. 2008	Variance From Budget 2008	Percentage Variance From Budget 2008	Variance Explanation Ref. No.
TRANSMISSION						
Upgrade Corner Brook Frequency Converter - 2007	1,294	494	1,185	(109)	-8%	
Upgrade 138kV Protection - Springdale, Howley and Indian River	46	0	55	9	20%	
Wood Pole Line Management Program	2,188	1,274	2,393	205	9%	
Replace Insulators TL232 and TL253	848	115	878	30	4%	
Upgrade Corner Brook Frequency Converter - 2008	495	905	943	448	91%	9
Upgrade Line TL212 - (Sunnyside to Linton Lake)	464	6	474	10	2%	
Construct Transmission Line Equipment Off-Loading Areas	302	261	305	3	1%	
Replace Insulators - Various Locations	294	47	324	30	10%	
Install Remote Ice Growth Detection Beam - Various Locations	46	16	49	3	7%	
TOTAL TERMINALS	**5,977**	**3,118**	**6,606**	**629**		

NEWFOUNDLAND & LABRADOR HYDRO
2008 CAPITAL EXPENDITURES
TRANSMISSION AND RURAL OPERATIONS
FOR THE QUARTER ENDING DECEMBER 31, 2008
($000)

	PUB Approved Budget 2008	4th Quarter Actuals 2008	Total Actual Expend. 2008	Variance From Budget 2008	Percentage Variance From Budget 2008	Variance Explanation Ref. No.
DISTRIBUTION						
Replace Diesel Unit No. 290 - William's Harbour	278	191	218	(60)	-22%	
Upgrade Distribution Systems - Various Locations	2,727	1,066	2,551	(176)	-6%	
Service Extensions	2,158	1,352	3,328	1,170	54%	10
Distribution Upgrades	2,293	635	2,236	(57)	-2%	
Replace poles - South Brook and Bay d'Espoir	701	394	588	(113)	-16%	11
Replace Insulators - Various Locations	623	124	572	(51)	-8%	
Replace Recloser Control Panels - Various Locations	223	38	134	(89)	-40%	
Reconfigure Feeders - Happy Valley	151	31	76	(75)	-50%	
Replace Submarine Cable Terminator - Gaultois	64	7	42	(22)	-34%	
Recloser Assessment - Happy Valley	47	0	0	(47)	-100%	
TOTAL DISTRIBUTION	**9,265**	**3,838**	**9,745**	**480**		
GENERATION						
Replace Diesel Units - Norman Bay, Cartwright and Black Tickle	335	4	8	(327)	-98%	12
Diesel Plant Automation - Makkovik and Rigolet	516	361	589	73	14%	
Increase Generation Capacity - Charlottetown	18	1	6	(12)	-67%	
Replace Switchgear - Cartwright	383	102	117	(266)	-69%	13
Replace Mufflers - L'Anse au Loup and St. Anthony	479	117	340	(139)	-29%	14
Replace Underground Fuel Lines - Little Bay Islands and Grey River	89	20	65	(24)	-27%	
Upgrade Meter House Equipment - Various Locations	75	25	87	12	16%	
Install Day Tank and Meter - Hopedale	61	1	75	14	23%	
TOTAL GENERATION	**1,956**	**631**	**1,287**	**(669)**		

NEWFOUNDLAND & LABRADOR HYDRO
2008 CAPITAL EXPENDITURES
TRANSMISSION AND RURAL OPERATIONS
FOR THE QUARTER ENDING DECEMBER 31, 2008
($000)

	PUB Approved Budget 2008	4th Quarter Actuals 2008	Total Actual Expend. 2008	Variance From Budget 2008	Percentage Variance From Budget 2008	Variance Explanation Ref. No.
PROPERTIES						
Installation of Card Access System - Bishop Falls and Whitbourne	29	0	29	0	0%	
Construct New Office/Warehouse/Line Depot Facilities - Happy Valley	1,248	85	94	(1,154)	-92%	15
Upgrade Ventilation System - Makkovik - Project Cancelled	217	0	0	(217)	-100%	16
Construct Diesel Plant Extension - William's Harbour	177	0	11	(166)	-94%	17
Replace Fire Alarm System - Hopedale and Paradise River	168	122	139	(29)	-17%	
Install Storage Ramp - Holyrood and Port Saunders	136	127	132	(4)	-3%	
Install Chain Link Fencing - Port Hope Simpson	84	14	58	(26)	-31%	
Upgrade Parking Lot - Whitbourne	67	55	65	(2)	-3%	
Install Waste Oil Storage Tank - Cartwright	53	4	62	9	17%	
Survey of Hydro's Primary Right of Ways - Various Locations	52	47	54	2	4%	
Install Waste Oil Storage Tank - L'Anse au Loup - Changed to Charlottown	46	2	54	8	17%	
Construct Lube Oil Storage Ramps - Various Locations	44	34	37	(7)	-16%	
Install Pole Storage Ramp - Burgeo	43	47	49	6	14%	
Construct Storage Shed - Paradise River	30	17	18	(12)	-40%	
Transformer Storage Ramp-Port Saunders - St. Lewis Lube Oil Storage Ramp	15	11	11	(4)	-27%	
TOTAL PROPERTIES	**2,409**	**565**	**813**	**(1,596)**		

NEWFOUNDLAND & LABRADOR HYDRO
2008 CAPITAL EXPENDITURES
TRANSMISSION AND RURAL OPERATIONS
FOR THE QUARTER ENDING DECEMBER 31, 2008
($000)

	PUB Approved Budget 2008	4th Quarter Actuals 2008	Total Actual Expend. 2008	Variance From Budget 2008	Percentage Variance From Budget 2008	Variance Explanation Ref. No.
METERING						
Install Automatic Meter Reading 2007 - Various Locations	934	102	967	33	4%	
Install Automatic Meter Reading 2008 - Various Locations	567	96	493	(74)	-13%	
Purchase Meters and Equipment	67	42	58	(9)	-13%	
Purchase Metering Spares	25	0	25	0	0%	
TOTAL METERING	**1,593**	**240**	**1,543**	**(50)**		
TOOLS AND EQUIPMENT						
Replace Off Road Track Vehicles - Bishop's Falls and Whitbourne	746	509	511	(235)	-32%	18
Replace Light Duty Mobile Equipment Less than $50,000	588	121	454	(134)	-23%	19
Installation of Fall Arrest Equipment - Various Locations	404	96	194	(210)	-52%	20
Replace Boom 6069 on Track Vehicle - Stephenville	236	0	0	(236)	-100%	21
Purchase Hydraulic Cutters and Presses - Various Locations	66	1	53	(13)	-20%	
Purchase Forklift for Salvage Stores - Bishop's Falls	49	0	37	(12)	-24%	
Tools and Equipment Less than $50,000	263	93	210	(53)	-20%	
TOTAL TOOLS AND EQUIPMENT	**2,352**	**820**	**1,459**	**(893)**		
TOTAL GENERAL	**6,354**	**1,625**	**3,815**	**(2,539)**		
TOTAL TRANSMISSION AND RURAL OPERATIONS	**27,617**	**10,730**	**23,931**	**(3,686)**		

NEWFOUNDLAND & LABRADOR HYDRO
2008 CAPITAL EXPENDITURES
GENERAL PROPERTIES
FOR THE QUARTER ENDING DECEMBER 31, 2008
($000)

	PUB Approved Budget 2008	4th Quarter Actuals 2008	Total Actual Expend. 2008	Variance From Budget 2008	Percentage Variance From Budget 2008	Variance Explanation Ref. No.
INFORMATION SYSTEMS						
SOFTWARE APPLICATIONS						
INFRASTRUCTURE REPLACEMENT						
New Infrastructure						
Application Enhancements - Work Protection Code	678	54	676	(2)	0%	
Application Enhancements - Energy Systems Water Management	651	428	625	(26)	-4%	
Applications Enhancements Corporate Systems	373	281	365	(8)	-2%	
Cost Recovery CF(L)Co	(75)	(16)	(66)	9	-12%	
Application Enhancements - Energy Systems Optimum Power flow	216	19	115	(101)	-47%	22
Upgrade of Technology						
Corporate Application Environment	331	211	331	0	0%	
Cost Recovery CF(L)Co	(41)	(12)	(41)	0	0%	
TOTAL SOFTWARE APPLICATIONS	**2,133**	**965**	**2,005**	**(128)**		
COMPUTER OPERATIONS						
INFRASTRUCTURE REPLACEMENT						
End User Infrastructure Evergreen Program	451	22	457	6	1%	
Enterprise Storage Capacity Upgrade	327	5	326	(1)	0%	
Cost Recovery CF(L)Co	(65)	0	(65)	0	0%	
NEW INFRASTRUCTURE						
Peripheral Infrastructure Replacement	159	7	159	0	0%	
Video Conferencing	140	113	139	(1)	-1%	
Security Configuration Auditing	72	72	72	0	0%	
Cost Recovery CF(L)Co	(14)	(14)	(14)	0	0%	
UPGRADE OF TECHNOLOGY						
Server Technology Program	241	22	238	(3)	-1%	
TOTAL COMPUTER OPERATIONS	**1,311**	**227**	**1,312**	**1**		
TOTAL INFORMATION SYSTEMS	**3,444**	**1,192**	**3,317**	**(127)**		

NEWFOUNDLAND & LABRADOR HYDRO
2008 CAPITAL EXPENDITURES
GENERAL PROPERTIES
FOR THE QUARTER ENDING DECEMBER 31, 2008
($000)

	PUB Approved Budget 2008	4th Quarter Actuals 2008	Total Actual Expend. 2008	Variance From Budget 2008	Percentage Variance From Budget 2008	Variance Explanation Ref. No.
TELECONTROL						
NETWORK SERVICES						
INFRASTRUCTURE REPLACEMENT						
Customer Service Application - Hydro Place	768	11	40	(728)	-95%	23
Replace Power Line Carrier TL212 - Sunnyside to Paradise River	466	311	369	(97)	-21%	
Replace Remote Terminal Units - Various Sites	319	100	281	(38)	-12%	
Refurbish Microwave Site - Gull Pond Hill	202	183	188	(14)	-7%	
Replace Dial Backup System - Various Sites	201	87	98	(103)	-51%	24
Install Recloser Remote Control - Change Islands	194	96	150	(44)	-23%	
Replace Radomes - Various Sites	124	111	111	(13)	-10%	
Network Infrastructure						
Replace Network Communications Equipment - Various Sites	131	87	144	13	10%	
Test Equipment - Hydro Place and Deer Lake	49	12	54	5	10%	
Wireless Networking - Various Sites	46	49	53	7	15%	
UPGRADE OF TECHNOLOGY						
Voice Communications Strategy Study - Hydro Place	190	85	118	(72)	-38%	
Replace Network Management Tools - Hydro Place	81	85	91	10	12%	
Upgrade Site Facilities - Various Sites	46	53	53	7	15%	
TOTAL TELECONTROL	**2,817**	**1,270**	**1,750**	**(1,067)**		

NEWFOUNDLAND & LABRADOR HYDRO
2008 CAPITAL EXPENDITURES
GENERAL PROPERTIES
FOR THE QUARTER ENDING DECEMBER 31, 2008
($000)

	PUB Approved Budget 2008	4th Quarter Actuals 2008	Total Actual Expend. 2008	Variance From Budget 2008	Percentage Variance From Budget 2008	Variance Explanation Ref. No.
TRANSPORTATION						
Replace Vehicles - Hydro System - 2007	468	0	317	(151)	-32%	25
Replace Vehicles - Hydro System - 2008	1,826	877	1,191	(635)	-35%	26
TOTAL TRANSPORTATION	**2,294**	**877**	**1,508**	**(786)**		
ADMINISTRATION						
Security Assessment of System Operations	531	333	579	48	9%	
Upgrade System Security - Various Sites	906	145	145	(761)	-84%	27
Purchase Spare Transformer - Hydro Place	87	47	51	(36)	-41%	
Install Computer Room Inergen Fire Protection System - Hydro Place	116	0	0	(116)	-100%	28
Safety Hazards Removal - Various Sites	252	117	131	(121)	-48%	29
Purchase and Replace Admin Office Equip less than $50,000	137	13	84	(53)	-39%	
Replace Humidifiers in Air Handling Units - Hydro Place	58	0	0	(58)	-100%	
Replace Air Conditioning Units - Hydro Place	56	0	0	(56)	-100%	
TOTAL ADMINISTRATIVE	**2,143**	**655**	**990**	**(1,153)**		
TOTAL GENERAL PROPERTIES	**10,698**	**3,994**	**7,565**	**(3,133)**		

NEWFOUNDLAND & LABRADOR HYDRO
2008 CAPITAL EXPENDITURES
OTHER APPROVED FUNDS
FOR THE QUARTER ENDING DECEMBER 31, 2008
($000)

	PUB Approved Budget 2008	4th Quarter Actuals 2008	Total Actual Expend. 2008	Variance From Budget 2008	Percentage Variance From Budget 2008	Variance Explanation Ref. No.
ALLOCATION FOR UNFORESEEN EVENTS						
Replace Structure No. 380 on TL212	65	0	67	2	3%	
Replace Air Compressors No. 4 and 5 - Holyrood	256	215	215	(41)	-16%	
Nain Diesel Plant Rehabilitation	0	291	304	304	0%	30
Install Midspan Structure - Roddickton	68	6	61	(7)	-10%	
Grounding Upgrades - Bottom Brook, Hinds Lake and Oxen Pond	0	267	286	286	0%	31
Allocation for Unforeseen Events	**611**	**0**	**0**	**(611)**		
TOTAL ALLOCATION FOR UNFORESEEN EVENTS	**1,000**	**779**	**933**	**(67)**		
PROJECTS APPROVED BY PUB						
CARRYOVER						
NEW						
Replace Superheater Unit 1 - Holyrood	4,446	106	4,028	(418)	-9%	
Public Address System - Holyrood	96	3	3	(93)	-97%	
Condition Assessment and Life Extension Study - Holyrood	420	0	0	(420)	-100%	32
Replace Front End Loader V9614 - Bay d'Espoir	220	229	229	9	4%	
Install Neutral Grounding Resistors - Come by Chance	227	0	0	(227)	-100%	33
Cost Recovery - North Atlantic Refining Limited	(227)	0	0	227		
Relocate Transmisson Line TL227 and TL262 - Daniels Harbour	350	152	152	(198)	0%	34
Cost Recovery - Department Works and Transportation	(350)	(152)	(152)	198		
Coastal Labrador Alternative Energy Study	250	29	29	(221)	-88%	35
Cost Recovery - Department Works and Transportation	(250)	(29)	(29)	221		
TOTAL PROJECTS APPROVED BY PU BOARD	**5,182**	**338**	**4,260**	**(922)**		

NEWFOUNDLAND & LABRADOR HYDRO
2008 CAPITAL EXPENDITURES
OTHER APPROVED FUNDS
FOR THE QUARTER ENDING DECEMBER 31, 2008
($000)

	PUB Approved Budget 2008	4th Quarter Actuals 2008	Total Actual Expend. 2008	Variance From Budget 2008	Percentage Variance From Budget 2008	Variance Explanation Ref. No.
NEW PROJECTS LESS THAN $50,000 APPROVED BY HYDRO						
Electronic White Board - Hydro Place	14	0	13	(1)	-7%	
Install Water and Sewer System - Hopedale	49	45	45	(4)	-8%	
Replace Diesel Unit No. 562 - Norman Bay	17	17	17	0	0%	
Purchase Exercise Equipment - Corporate Wellness Strategy	21	14	14	(7)	-33%	
Purchase Office Furniture - Hydro Place	9	8	8	(1)	-11%	
Purchase Pressure Sealer - Hydro Place	7	0	0	(7)	-100%	
TOTAL PROJECTS LESS THAN $50,000 APPROVED BY HYDRO	**117**	**84**	**97**	**(20)**		

NEWFOUNDLAND AND LABRADOR HYDRO
2008 VARIANCE EXPLANATIONS
GENERATION
FOR THE QUARTER ENDING DECEMBER 31, 2008
(Greater than $100,000)

1. Replace Station Services Control – Bay D'Espoir

Station Services is critical to the operation of the generating units in Bay d'Espoir Powerhouse 1. An outage to the Station Services would cause an outage to Units 1-6. Due to the critical nature of the Station Services, extra precautions and equipment, engineering time and plant personnel time were required to ensure the availability of the Station Services during the preliminary installation work, final installation work and commissioning. All of the cost increases are due to labour for both installation and commissioning.

2. Upgrade Spherical Valve Maintenance Seals - Cat Arm

The original estimate was based upon a preliminary design in a 2007 proposal by the manufacturer of the spherical valves to replace the existing maintenance seals with a new design. In early 2008, the manufacturer commenced detailed engineering and design and concluded that the proposed design would be ineffective. The manufacturer subsequently submitted a new proposal on March 26, 2008, with an improved design for the maintenance seal. This new design resulted in an increase of $279,000 to the contract.

In addition, the cost estimate was based upon availability of camp facilities on-site. The cookhouse and bunkhouse at Cat Arm was closed due to mould issues, as reported in Hydro's 2009 Capital Budget Application [1]. This resulted in additional costs associated with housing workers at the nearest available lodging in the community of Pollard's Point, as well as the additional labour incurred for workers travelling between Pollard's Point and Cat Arm. This resulted in increased costs of $145,000 due to labour, overtime and travel expenses. Furthermore, the scope of the project was expanded to include the construction of a cookhouse on-site to feed workers during the construction period at a cost of $102,000.

A further cost increase of $305,000 is attributed to the provision of additional in-house engineering to permit a more thorough review of the new design, more extensive factory acceptance testing, additional labour and materials to address a number of deficiencies in the contractor's design and work plan and to expedite the return of the generating units to service.

[1] Volume II, Tab 7, "*Cat Arm Hydro Generating Station Replacement of Accommodations*" report.

NEWFOUNDLAND AND LABRADOR HYDRO
2008 VARIANCE EXPLANATIONS
GENERATION
FOR THE QUARTER ENDING DECEMBER 31, 2008
(Greater than $100,000)

3. Replace Governor Controls Unit 2 - Cat Arm

As stated previously, the on-site accommodations at Cat Arm have been closed. Personnel from Hydro and General Electric, the control system supplier, stayed at a motel during the installation and commissioning of the governor controls and its associated equipment. The budget variance is due to increased labour costs due to travel time plus the cost of accommodations.

4. Fire Protection Upgrades – Holyrood

The fire protection system is installed, however, there is some contractor work left to be completed resulting in this project being carried over into 2009. It is expected to be completed within budget.

5. Tank Farm Upgrade - Holyrood

The increase in the cost of this project is due to a contract cost for upgrading fuel storage tank No. 2 that was $306,000 greater than estimated. Factors contributing to the increased contract cost include an increase in material costs and the high demand for skilled labour which has increased contracting costs and a heightened awareness of safety hazards, requiring more involved mitigation procedures during construction.

6. Replace Champion Grader V-9797 – Bay d'Espoir

The budgeted price was developed following discussions with a single manufacturer. Competitive bidding and optimizing the specification resulted in the purchase of a machine which meets requirements at a lower cost.

NEWFOUNDLAND AND LABRADOR HYDRO
2008 VARIANCE EXPLANATIONS
TRANSMISSION AND RURAL OPERATIONS
FOR THE QUARTER ENDING DECEMBER 31, 2008
(Greater than $100,000)

7. Safety and Reliability Upgrades – Hawkes Bay Terminal Station

This project was approved by Board Order No. P.U. 35(2006) as a one-year project and then subsequently carried over into 2007[2]. This delay resulted in a significant increase in costs for material and contracts. The contract cost increased by $149,000 as well as additional labour costs of $163,000.

8. Purchase Spare Transformer – Upper Salmon

In addition to the delay in this project reported in the 2007 Capital Expenditure Report (Page 23), there was a further three-month delay in production by the manufacturer, therefore, this project will be carried over into 2009. Due to the size of this equipment, transportation permits are required in order to get the transformer on site. The Department of Transportation does not usually grant these permits during the winter months, therefore the expected in service date has been extended until June 2009. The total budgeted expenditure remains unchanged.

9. Upgrade Corner Brook Frequency Converter - 2008

This is a multi-year project also reported in the 2007 Capital Expenditures Report (Page 20) and the original plan was to perform two rotor rewinds in separate years, requiring two outages. This plan was reviewed and it was decided to complete both of the rewinds in one longer outage period, therefore more work was done in 2008 than was originally planned. This project is expected to be completed on time and within budget.

10. Service Extensions

The budgeted amount is an annual allotment based on the average of the annual expenditures for service extensions over the last five years. It is not based on a summary of specific projects. The majority of the increase is due to growth located across the Labrador Interconnected System accounting for approximately $700,000. Other areas that had significant increases from the estimate were the central area of the Island Interconnected System, the L'Anse au Loup System and the Pine Cove Interconnection at approximately $150,000, $120,000 and $130,000 respectively.

[2] Page 21 of the 2007 Capital Expenditure and Carryover Report

NEWFOUNDLAND AND LABRADOR HYDRO
2008 VARIANCE EXPLANATIONS
TRANSMISSION AND RURAL OPERATIONS
FOR THE QUARTER ENDING DECEMBER 31, 2008
(Greater than $100,000)

11. Replace Poles – South Brook and Bay d'Espoir

This is a pooled project for South Brook and Bay d'Espoir. The cost of the pole replacement for South Brook was underestimated by $47,000 and the one for Bay d'Espoir was underestimated by $66,000. This was due to contract bids that came in less than expected as well as savings in material costs. This resulted in less overheads and no contingency funds being required.

12. Replace Diesel Units – Norman Bay, Cartwright and Black Tickle

This is a pooled multiyear project. The bulk of the variance relates to Black Tickle, where $293,000 was budgeted to be spent for the purchase and delivery of the diesel unit. Due to other work commitments, this did not occur. This project is expected to be completed on time and within budget in 2009.

13. Replace Switchgear - Cartwright

This is a multiyear project to be completed in 2009. Initially the tendering and delivery of the switchgear was to be completed in 2008 however, scheduling issues with the Makkovik and Rigolet automation project, resulted in the delay of this work until 2009. This project is expected to be completed on time and within budget.

14. Replace Mufflers – L'Anse au Loup and St. Anthony

For the St. Anthony project, labour and travel costs were reduced as a result of using local area labour. The work in L'Anse au Loup had to be completed faster than planned due to low water levels in the Hydro Québec Lac Robertson system that required diesel system availability be restored as quickly as possible. The cost savings for both projects resulted in less overheads and as well as contingency amounts not being utilized.

NEWFOUNDLAND AND LABRADOR HYDRO
2008 VARIANCE EXPLANATIONS
TRANSMISSION AND RURAL OPERATIONS
FOR THE QUARTER ENDING DECEMBER 31, 2008
(Greater than $100,000)

15. Construct New Office/Warehouse/Line Depot Facilities – Happy Valley

This project was reforecast as part of the 2009 Capital Budget application[3]. There was $358,000 to be spent in 2008 which included the land purchase and project design. The project design will now be completed early in 2009. The design process was extended due to a new requirement to construct the building to LEED (Leadership in Energy and Environmental Design) standard, preventing construction from beginning in 2008. The project is expected to be completed on time and within budget.

16. Upgrade Ventilation System - Makkovik

This project has been cancelled. There is an overall concern with the age and condition of many of Hydro's Diesel Plants. Therefore, before addressing any specific issues, it was decided to complete a comprehensive condition assessment of all the plants in question in order to prioritize recommendations for improvements.

17. Construct Diesel Plant Extension – William's Harbour

The bid prices obtained for this project were significantly over budget therefore it was decided to do some design modifications and re-tender the work early in 2009. This project will be completed late in 2009 and there is no change in the overall budget.

18. Replace Off Road Track Vehicles – Bishop's Falls and Whitbourne

The original specifications for these units included pricing for backhoes or booms that were not purchased. A thorough needs analysis permitted specifying vehicle with less auxiliary equipment than originally envisaged. There were also cost savings by purchasing two units with the same specifications and contingency amounts were not utilized.

[3] Page B40 of Hydro's 2009 Capital Budget Application

NEWFOUNDLAND AND LABRADOR HYDRO
2008 VARIANCE EXPLANATIONS
TRANSMISSION AND RURAL OPERATIONS
FOR THE QUARTER ENDING DECEMBER 31, 2008
(Greater than $100,000)

19. Replace Light Duty Mobile Equipment Less than $50,000

The reduction in cost for this project is mainly due to not purchasing several pieces of equipment that were included in this budget. A review of the condition of several pieces of equipment indicated that their useful operating lives could be extended and that replacement of two boom trailers, three boat trailers and a back hoe attachment were not required at this time. These cost reductions resulted in contingency not being utilized.

20. Installation of Fall Arrest Equipment – Various Locations

The cost of this project was less than budgeted for several reasons. Firstly, horizontal lifelines were purchased but not installed at Cat Arm, Hinds Lake and Paradise River. These will be installed using funds from the 2009 fall arrest project. Secondly, the initial plan was to install railings on the perimeter of the roof at the Holyrood Thermal Generating Plant however it was determined that railings were only required near the emergency ladders, resulting in cost savings. Thirdly, the installation of fall arrest equipment at the Nain Diesel Plant was delayed due to the fire.

21. Replace Boom 6069 on Track Vehicle – Stephenville

This project will be carried over into 2009 and was delayed due to the fact that a boom is to be installed on an existing unit. This unit had to be reconfigured and the resulting boom specially designed to fit the track unit therefore the order could not be completed and delivered before the end of the year. This project is expected to be completed within budget.

NEWFOUNDLAND AND LABRADOR HYDRO
2008 VARIANCE EXPLANATIONS
GENERAL PROPERTIES
FOR THE QUARTER ENDING DECEMBER 31, 2008
(Greater than $100,000)

22. Application Enhancements – Energy Systems Optimum Powerflow

The vendor, Open Systems International, has been unable to supply all the required functionality in accordance with the originally planned timeline. This functionality was received early in 2009 and testing will take place up to the end of March. This project is expected to be completed within budget.

23. Customer Service Application – Hydro Place

This is a multiyear project to be completed by the end of 2009. There was very little money spent in 2008 due to an unsuccessful tendering process. The project was tendered twice, first with no responses and then the second resulting in one noncompliant bid. Hydro is currently working with vendors to arrive a solution that meets the requirements. This project is expected to be completed on schedule and within budget.

24. Replace Dial Backup System – Various Sites

No bids were received when the project was initially tendered therefore the project had to be retendered. This resulted in the project completion being delayed until the end of March 2009. This project is expected to cost $178,000 rather than $201,000 budgeted due to lower than expected contract costs.

25. Replace Vehicles – Hydro System – 2007

The remainder of this project was carried over from 2007 for the supply and installation of two new booms on existing chassis. The variance results from competitive bidding and not utilizing all of the contingency from this project.

26. Replace Vehicles – Hydro System - 2008

This project is being carried over into 2009 due to change in policy whereby custom built vehicles costing more than $200,000 will be inspected by Hydro staff on site before shipping, since it is time consuming and potentially costly to correct deficiencies after delivery. This situation pertains to two boom trucks budgeted in 2008. The project is still expected to be completed within budget.

NEWFOUNDLAND AND LABRADOR HYDRO
2008 VARIANCE EXPLANATIONS
GENERAL PROPERTIES
FOR THE QUARTER ENDING DECEMBER 31, 2008
(Greater than $100,000)

27. Upgrade System Security – Various Sites

This project will be carried over into 2009 due to several factors. Because the Upgrade System Security 2007 was carried over into 2008, this increased the scope of work required for 2008. Also, the design and tendering stages of the new system-wide video surveillance program was extensive, largely due to the fact that significant research had to be done before the work could be tendered. This will be an interconnected system, using technologies new to Hydro. This project is expected to be completed within budget by the end of 2009.

28. Install Computer Room Inergen Fire Protection System – Hydro Place

This project was cancelled following a detailed review of the computer room and Hydro Place fire protection systems. A concern was identified that the replacement of the computer room existing sprinkler fire protection and replacement by a gas fire suppression system could compromise the overall building fire protection.

29. Safety Hazards Removal – Various Sites

The purpose of this project was to ensure that adequate capital funding was available to quickly address capital-related safety issues as they were identified. It was not based on specifically identified projects. The amount spent reflects the safety hazards identified and addressed using this funding.

30. Nain Diesel Plant Rehabilitation

The allocation for unforeseen events was used in order to address a fire that occurred at the Nain Diesel Plant in September 2008. In 2009, Hydro will be applying for approval of this project separately and will not continue to use this allocation for this project.

NEWFOUNDLAND AND LABRADOR HYDRO
2008 VARIANCE EXPLANATIONS
OTHER APPROVED FUNDS
FOR THE QUARTER ENDING DECEMBER 31, 2008
(Greater than $100,000)

31. Grounding Upgrades at Bottom Brook, Hinds Lake and Oxen Pond

Hydro obtained approval for Grounding Upgrades – Various Sites in Board Order No. P.U. 36 (2008) for a multi-year project to modify existing ground grids and install or modify gradient control mats. Subsequent to filing the 2009 Capital Budget Application, it was determined that the identified hazards at the sites listed above were serious enough that Hydro could not wait until 2009 to correct these hazards. The allocation for unforeseen events was used in last quarter of 2008 in order to rectify the identified hazards.

32. Condition Assessment and Life Extension Study – Holyrood

Hydro applied for approximately $4.0 million to do a condition assessment and life extension study for the Holyrood Thermal Generating Station, however, only $420,000 was approved by Board Order No. P.U. 23 (2008). This was an approval to begin the study involving the issuance of a request for proposals, evaluation of the proposals and the preparation of a detailed scope of work. Hydro feels that this approach is not a good use of funds and proposed an alternate methodology during a meeting with Board Staff on 2009-01-28, which was accepted in principal. Hydro is in the process of preparing a revised proposal and expects to submit this document in March.

33. Install Neutral Grounding Resistors – Come by Chance

This project is fully contributed by Hydro's customer North Atlantic Refining Limited (NARL) and it was initially going to be completed by the end of 2008 however it will now be completed in the spring of 2009. The project is delayed because NARL was late in approving the project that in turn delayed the design work and the delivery of the resistors.

NEWFOUNDLAND AND LABRADOR HYDRO
2008 VARIANCE EXPLANATIONS
OTHER APPROVED FUNDS
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(Greater than $100,000)

34. Relocate Transmission Line TL227 and TL262 – Daniels Harbour

This project was approved late November by Board Order No. P.U. 30(2008). Even though Hydro intended to complete this work by the end of 2008, adverse weather conditions and the inability of the contractor to provide enough adequately trained individuals to complete this work in the required time frame resulted in this projected being carried over into 2009. This project is scheduled to be completed by the end of March 2009.

35. Coastal Labrador Alternate Energy Study

This project was announced by the Provincial Government in the 2008 Provincial Budget however the funds were not received by Hydro until October 2008. It will therefore be carried over into 2009. Hydro is in the process of preparing the project specifications and will file an application for approval in the near future.

NEWFOUNDLAND AND LABRADOR HYDRO
CAPITAL BUDGET VERSUS EXPENDITURES 1999 – 2008
AS AT DECEMBER 31
($000)

Year	Budget	Actual Expenditures	Variance	Percentage Variance
1999	38,142	29,684	8,458	22.2%
2000	43,824	38,569	5,255	12.0%
2001	55,897	47,501	8,396	15.0%
2002	44,660	40,217	4,443	9.9%
2003	36,122	32,506	3,616	10.0%
2004	31,435	27,984	3,451	11.0%
2005	47,760	33,952	13,808	28.9%
2006	49,024	41,217	7,807	15.9%
2007	43,304	35,669	7,635	17.6%
2008	53,579	46,246	7,333	13.7%

These variances include amounts related to the carryover of projects from year to year. Variances from budget for completed projects are 5% and 1% for 2007 and 2008 respectively, well within acceptable ranges. Staff retirements, resignations, transfers and reassignments, primarily as a result of the reorganization of Hydro's engineering function, were the cause of the significant 2005 carryover amounts. While Hydro has made improvements since then, and continues to make efforts to further improve the completion of projects on schedule, staffing challenges continue.

Project delivery has been improving since 2005. The apparent setback in 2007 can primarily be attributed to a single project, the purchase of a transformer to be used as a spare at Upper Salmon, Bay d'Espoir or Granite Canal. When originally proposed, the delivery cycle for such a transformer was ten months, however, when the project was initiated the international demand for transformers had increased substantially, resulting in a doubling of the delivery cycle, causing the carry over of this project to 2009. This single project accounts for approximately 3.0% of the 17.6% carry over for 2007 and 3.3% of the 13.7% of the carry over from 2008 to 2009.

NEWFOUNDLAND AND LABRADOR HYDRO
CAPITAL BUDGET VERSUS EXPENDITURES 1999 – 2008
AS AT DECEMBER 31
($000)

The 13.7% actual carryover can be attributed principally to two factors:

1. The construction of new office/warehouse/line depot facilities at Happy Valley Goose Bay was delayed, as reported in Hydro's 2009 Capital Budget Application[4]. The approved proposal had construction beginning in 2008, with an expenditure of $1.25 million in that year. The September 2007 requirement that this building be constructed to Leadership in Energy and Environmental Design (LEED) standards which was not included in the proposal, delayed the project schedule while the building was redesigned from an architectural and engineering perspective. The delay of this project accounts for approximately 2.2% of the 13.7% carry over for 2008. In addition costs related to this project increased substantially, as reported in the 2009 Capital Budget Application.

2. In the fall of 2008 Hydro suffered two major losses, a fire at the Nain diesel plant and a failure of the dock at the Holyrood Thermal Generating Station. These emergencies required the diversion of staff from scheduled activities. The Nain fire required the reassignment of staff from Engineering Services and Regulated Operations to construct a temporary diesel pant and begin repairs to the existing plant. The Holyrood dock repairs required staff from Engineering Services to design and contract the implementation of emergency component replacements, to ensure that fuel was able to be received at Holyrood for the winter season. Both events caused delays to several capital projects.

[4] Pages B-40 and B-41 of Hydro's 2009 Capital Budget Application

NEWFOUNDLAND AND LABRADOR HYDRO
CAPITAL BUDGET VERSUS EXPENDITURES 1999 – 2008
AS AT DECEMBER 31
($000)

It is anticipated that some carryovers of capital projects will occur in most years as there are frequently unavoidable reasons for delay in project completion. Some examples of such delays which occurred in 2008 are:

1. Unforeseeable events interfering with scheduled activities, such as occurred following the Nain diesel plant fire and the failure at the Holyrood dock. This contributed to the carry over of capital projects such as Replace Fire Alarm System at Hopedale and Paradise River and Install Meteorological Stations – Various Sites.

2. Changes in market conditions between the time when a project is proposed, approved and implemented, such as happened with the delivery of the spare transformer for Upper Salmon, Bay d'Espoir and Granite Canal. Changes in market conditions can also significantly effect project costs as the escalating cost of commodities result in large price changes in goods (such as copper wire) and services. This applies as well to heavy equipment delivery when a supplier's manufacturing plant may have had capacity available at time of proposal but at time of tender they may be booked which can affect price and in particular delivery schedule.

3. Difficulties with new equipment which must be resolved with the manufacturer. Hydro installed approximately 6,500 meters as part of the Automatic Meter Reading – Various Systems project in 2008, of which about 500 do not perform as they should, requiring collaboration between the meter supplier and the AMR vendor to sort out a software issue and preventing completion of the project. These meters contain an internal programming error, which must be remedied by the manufacturer, tested and reinstalled in the 500 meters, following which, the meters must be installed in the field, adding delays and some rework

Such events as these and others are outside the control of project managers and will result in the carry over of some projects in most years. Hydro continues to improve its project management practices and expects to continue to reduce the number of projects carried over. The project management practices, as reported in the 2007 Capital Expenditures and Carryover year-end report, include:

- more two-year schedules to accommodate the construction seasons rather than the calendar year.
- more two-year schedules to allow adequate lead time on materials, such as that now required for the purchase of power transformers,

NEWFOUNDLAND AND LABRADOR HYDRO
CAPITAL BUDGET VERSUS EXPENDITURES 1999 – 2008
AS AT DECEMBER 31
($000)

- newly hired engineers obtaining the experience and knowledge required to be able to more independently complete assignments; and
- Capital Budget preparation now including review of staff availability.

Project estimators and managers have been challenged in recent years by the rapidly changing costs of commodities, equipment and services. Staff are preparing project proposal estimates to the best of their abilities and the price fluctuations of recent years are beginning to abate somewhat, although there has not yet been a return to the relative stability of past years. These fluctuations have been manifested in a significant reduction in the number of projects completed within +/- 10% of the original cost estimate. We have been fortunate in that the number of projects completed over budget has been essentially equally compensated for by the number of projects completed under budget, conveniently cancelling each other, but this cannot be relied upon to happen consistently each year. It should be expected, that as has been experienced by other industries during these volatile times, Hydro's project completion costs for the next several years will probably vary from original estimated costs by amounts greater than in the past.

NEWFOUNDLAND AND LABRADOR HYDRO
2008 CARRYOVER REPORT
FOR THE QUARTER ENDING DECEMBER 31, 2008
($000)

Project Name[1]	PUB Approved Budget 2008	Revised Budget 2008	Total Actual Expend. 2008	Carryover Amount	Variance Explanation Ref. No.
Replace Governor Controls Unit 2 - Cat Arm	975	1,238	1,096	142	3
Replace 40 kW Diesel Generator - Burnt Dam	157	157	148	9	
Install Meteorological Stations - Various Locations	222	252	225	27	
Fire Protection Upgrades - Holyrood	1,219	1,219	1,085	134	4
Replace Unit 2 High Pressure Heater - Holyrood	20	20	62	(42)	
Environmental Effects Monitoring Study of Waste Water - Holyrood	73	73	31	42	
Install Safety Egress Lighting - Holyrood	97	112	20	92	
Auto Synchronizing Units 1 and 2 - Holyrood	93	93	46	47	
Construct Beta Attenuation Meter (BAM) Unit Enclosure - Holyrood	60	60	0	60	
Tools and Equipment Less than $50,000 - Generation[2]	240	24	0	24	
Purchase Spare Transformer - Upper Salmon	2,198	2,198	416	1,782	8
Replace Disconnect Switches - Cow Head and Daniel's Harbour	368	368	284	84	
Upgrade Station Services - Hardwoods	59	59	1	58	
Replace Insulators TL232 and TL253[3]	848	561	571	(10)	
Upgrade Corner Brook Frequency Converter - 2008	495	801	943	(142)	9
Reconfigure Feeders - Happy Valley	151	151	76	75	
Recloser Assessment - Happy Valley	47	47	0	47	
Replace Diesel Units - Norman Bay, Cartwright and Black Tickle	335	335	8	327	12
Diesel Plant Automation - Makkovik and Rigolet	516	516	589	(73)	
Increase Generation Capacity - Charlottetown	18	18	6	12	
Replace Switchgear - Cartwright	383	383	117	266	13

[1] Projects shaded in yellow are multi-year projects scheduled to be completed in future years.
[2] Comprised of a number of items of which a portion is being carried forward.
[3] Replace Insulators TL253 is complete. Replace Insulators TL232 is a multiyear project.

NEWFOUNDLAND AND LABRADOR HYDRO
2008 CARRYOVER REPORT
FOR THE QUARTER ENDING DECEMBER 31, 2008
($000)

Project Name[1]	PUB Approved Budget 2008	Revised Budget 2008	Total Actual Expend. 2008	Carryover Amount	Variance Explanation Ref. No.
Construct New Office/Warehouse/Line Depot Facilities - Happy Valley	1,248	358	94	264	15
Construct Diesel Plant Extension - William's Harbour	177	177	11	166	17
Replace Fire Alarm System - Hopedale and Paradise River	168	168	139	29	
Install Automatic Meter Reading 2007 - Various Locations	934	1,075	967	108	
Install Automatic Meter Reading 2008 - Various Locations	567	606	493	113	
Replace Boom 6069 on Track Vehicle - Stephenville	236	236	0	236	21
Application Enhancements - Energy Systems Water Management	651	651	625	26	
Application Enhancements - Energy Systems Optimum Power flow	216	216	115	101	22
Customer Service Application - Hydro Place	768	768	40	728	23
Replace Dial Backup System - Various Locations	201	201	98	103	24
Install Recloser Remote Control - Change Islands	194	194	150	44	
Replace Vehicles - Hydro System - 2008	1,826	1,826	1,191	635	26
Upgrade System Security - Various Locations	906	906	145	761	27
Purchase Spare Transformer - Hydro Place	87	87	51	36	
Purchase and Replace Admin Office Equipment less than $50,000[2]	137	50	0	50	
Replace Humidifiers in Air Handling Units - Hydro Place	58	58	0	58	
Replace Air Conditioning Units - Hydro Place	56	56	0	56	
Replace Air Compressors No. 4 and 5 - Holyrood	256	256	215	41	

[1] Projects shaded in yellow are multi-year projects scheduled to be completed in future years.

[2] Comprised of a number of items of which a portion is being carried forward.

NEWFOUNDLAND AND LABRADOR HYDRO
2008 CARRYOVER REPORT
FOR THE QUARTER ENDING DECEMBER 31, 2008
($000)

Project Name[1]	PUB Approved Budget 2008	Revised Budget 2008	Total Actual Expend. 2008	Carryover Amount	Variance Explanation Ref. No.
Nain Diesel Plant Rehabilitation	0	0	304	0	30
Public Address System - Holyrood	96	96	3	93	
Install Neutral Grounding Resistors - Come by Chance	227	227	0	227	32
Cost Recovery - North Atlantic Refining Limited	(227)	(227)	0	(227)	
Relocate Transmisson Line TL227 and TL262 - Daniels Harbour	350	350	152	198	
Cost Recovery - Department Works and Transportation	(350)	(350)	(152)	(198)	
Coastal Labrador Alternative Energy Study	250	250	29	221	33
Cost Recovery - Government Of Newfoundland and Labrador	(250)	(250)	(29)	(221)	
Total Carryover Amount	21,372	20,686	10,365	6,609	

[1] Projects shaded in yellow are multi-year projects scheduled to be completed in future years.

newfoundland labrador hydro
a nalcor energy company

Hydro Place. 500 Columbus Drive.
P.O. Box 12400. St. John's. NL
Canada A1B 4K7
t. 709.737.1400 f. 709.737.1800
www.nlh.nl.ca

March 3, 2010

The Board of Commissioners of Public Utilities
Prince Charles Building
120 Torbay Road, P.O. Box 21040
St. John's, NL
A1A 5B2

ATTENTION: Ms. Cheryl Blundon
Director of Corporate Services & Board Secretary

Dear Ms. Blundon:

Re: 2009 Capital Expenditures and Carryover – Year End

Pursuant to Board Order No. P.U. 30 (2007), p. 26, item 6, enclosed please find the original and eight copies of Newfoundland and Labrador Hydro's (Hydro) report on 2009 Capital Expenditures and Carryover for the year ended December 31, 2009.

Should you have any questions, please contact the undersigned.

Yours truly,

NEWFOUNDLAND AND LABRADOR HYDRO

Geoffrey P. Young
Senior Legal Counsel

GPY/mmcd
Encls.

A REPORT TO
THE BOARD OF COMMISSIONERS OF PUBLIC UTILITIES

CAPITAL EXPENDITURES AND CARRYOVER REPORT

For Year Ending December 31, 2009

March 2010

newfoundland labrador hydro
a nalcor energy company

NEWFOUNDLAND AND LABRADOR HYDRO

CAPITAL EXPENDITURES AND CARRYOVER REPORT

For Quarter Ending December 31, 2009

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NEWFOUNDLAND & LABRADOR HYDRO
2009 CAPITAL EXPENDITURES
OVERVIEW
FOR THE QUARTER ENDING DECEMBER 31, 2009
($000)

	PUB Approved Budget 2009	4th Quarter Actuals 2009	Total Actual Expend. 2009	Variance From Budget 2009
GENERATION	8,287	9,933	7,909	(378)
TRANSMISSION	11,154	5,300	10,732	(422)
RURAL SYSTEMS	20,038	10,364	19,634	(404)
GENERAL PROPERTIES	13,980	4,546	11,420	(2,560)
ALLOWANCE FOR UNFORESEEN EVENTS	1,000	109	672	(328)
PROJECTS APPROVED BY PU BOARD	6,915	1,749	3,618	(3,297)
NEW PROJECTS APPROVED FOR LESS THAN $50,000	171	129	167	(4)
TOTAL CAPITAL BUDGET	61,544	32,130	54,152	(7,392)

Approved Board Order No. P.U. 36 (2008) 2009 Capital Budget	47,856
Carryover Projects 2008 to 2009	6,609
New Project Approved by Board Order No. P.U. 4 (2009)	351
New Project Approved by Board Order No. P.U. 8 (2009)	1,093
New Project Approved by Board Order No. P.U. 10 (2009)	704
New Project Approved by Board Order No. P.U. 16 (2009)	0
New Project Approved by Board Order No. P.U. 23 (2009)	161
New Project Approved by Board Order No. P.U. 28 (2009)	1,210
New Project Approved by Board Order No. P.U. 31 (2009)	2,416
New Project Approved by Board Order No. P.U. 33 (2009)	291
New Project Approved by Board Order No. P.U. 34 (2009)	492
New Project Approved by Board Order No. P.U. 40 (2009)	197
2009 New Projects Approved For Less than $50,000	164
TOTAL APPROVED CAPITAL BUDGET	61,544

NEWFOUNDLAND & LABRADOR HYDRO
2009 CAPITAL EXPENDITURES
SUMMARY BY CATEGORY
FOR THE QUARTER ENDING DECEMBER 31, 2009
($000)

	PUB Approved Budget 2009	4th Quarter Actuals 2009	Total Actual Expend. 2009	Variance From Budget 2009
GENERATION				
HYDRO PLANTS	1,712	789	1,847	135
THERMAL PLANT	5,862	3,072	5,264	(598)
GAS TURBINES	712	6,072	798	86
TOTAL GENERATION	8,287	9,933	7,909	(378)
TRANSMISSION				
TERMINAL STATIONS	5,291	2,049	4,863	(428)
TRANSMISSION	5,832	3,251	5,854	22
TOOLS AND EQUIPMENT	31	0	15	(16)
TOTAL TRANSMISSION	11,154	5,300	10,732	(422)
RURAL SYSTEMS				
CONSTRUCTION PROJECTS	11,982	6,176	13,786	1,804
GENERAL	6,752	3,982	5,096	(1,656)
METERING	745	52	229	(516)
TOOLS AND EQUIPMENT	560	154	523	(37)
TOTAL RURAL SYSTEMS	20,038	10,364	19,634	(404)

NEWFOUNDLAND & LABRADOR HYDRO
2009 CAPITAL EXPENDITURES
SUMMARY BY CATEGORY
FOR THE QUARTER ENDING DECEMBER 31, 2009
($000)

	PUB Approved Budget 2009	4th Quarter Actuals 2009	Total Actual Expend. 2009	Variance From Budget 2009
GENERAL PROPERTIES				
INFORMATION SYSTEMS	1,760	363	1,786	26
TELECONTROL	4,683	1,173	2,650	(2,033)
TRANSPORTATION	4,110	1,544	3,620	(490)
ADMINISTRATIVE	3,426	1,466	3,364	(62)
TOTAL GENERAL PROPERTIES	13,980	4,546	11,420	(2,560)
ALLOWANCE FOR UNFORESEEN EVENTS	1,000	109	672	(328)
PROJECTS APPROVED BY PU BOARD	6,915	1,749	3,618	(3,297)
PROJECTS APPROVED FOR LESS THAN $50,000	171	129	167	(4)
TOTAL CAPITAL BUDGET	61,544	32,130	54,152	(7,392)

NEWFOUNDLAND & LABRADOR HYDRO
2009 CAPITAL EXPENDITURES
GENERATION
FOR THE QUARTER ENDING DECEMBER 31, 2009
($000)

	PUB Approved Budget 2009	4th Quarter Actuals 2009	Total Actual Expend. 2009	Variance From Budget 2009	Percentage Variance From Budget 2009	Variance Explanation Ref. No.
HYDRAULIC PLANTS						
Replace Governor Controls Unit 2 - Cat Arm	216	191	226	10	5%	
Replace 40 kW Diesel Generator at Spillway - Burnt Dam	112	(6)	138	26	23%	
Install Meteorological Stations 2008 - Various Locations	27	0	48	21	78%	
Replace Cooling Water Systems on Units 3 and 4 - Bay d'Espoir	287	12	192	(95)	-33%	
Install Meteorological Stations 2009 - Various Locations	253	144	268	16	6%	
Replace 50kW Diesel Generator - Bay d'Espoir	36	7	7	(29)	-81%	
Upgrade Intake Gate Controls - Hinds Lake	263	224	312	49	19%	
Replace Generator Oil Level System on Units 1 and 2 - Cat Arm	68	113	134	66	98%	
Purchase Spare Stator Windings Units 1 to 4 - Bay d'Espoir	37	5	131	95	259%	
Replace Service Water Piping Unit 7 - Bay d'Espoir	144	31	138	(6)	-4%	
Purchase Tools and Equipment Less Than $50,000	270	68	253	(17)	-6%	
TOTAL HYDRAULIC PLANTS	**1,712**	**789**	**1,847**	**135**	**8%**	

NEWFOUNDLAND & LABRADOR HYDRO
2009 CAPITAL EXPENDITURES
GENERATION
FOR THE QUARTER ENDING DECEMBER 31, 2009
($000)

	PUB Approved Budget 2009	4th Quarter Actuals 2009	Total Actual Expend. 2009	Variance From Budget 2009	Percentage Variance From Budget 2009	Variance Explanation Ref. No.
THERMAL PLANT						
Fire Protection Upgrades - Holyrood	134	(54)	113	(21)	-16%	
Replace Unit 2 High Pressure Heater - Holyrood	877	203	946	69	8%	
Environmental Effects Monitoring Study of Waste Water	129	45	71	(58)	-45%	
Install Safety Egress Lighting	92	166	184	92	100%	
Construct Beta Attenuation Meter (BAM) Unit Enclosure	60	0	63	3	5%	
Automatic Synchroniziation Units 1 and 2	47	107	140	93	198%	
Replace No.'s 4 and 5 Air Compressors - Holyrood	41	0	47	6	15%	
Install Motorized Stack Winches - Holyrood	174	3	49	(125)	-72%	1
Replace Unit 2 Air Preheater Cold End - Holyrood	320	192	314	(6)	-2%	
Replace Unit 1 Hydrogen Emergency Vent Valves - Holyrood	214	3	213	(1)	0%	
Install Unit 1 CR Condensate Drains and HP Heater Trip Level - Holyrood	192	207	284	92	48%	
Replace Unit 3 Steam Seal Regulator - Holyrood	475	483	518	43	9%	
Install Marine Terminal Capstans Lifting Frames - Holyrood	93	79	122	29	31%	
Refurbish Fuel Storage Facility - Holyrood	2,867	1,556	2,086	(781)	-27%	2
Purchase Boom Style Hydraulic Lift - Holyrood	82	55	55	(27)	-33%	
Purchase Tools and Equipment Less Than $50,000	65	27	59	(6)	-10%	
TOTAL THERMAL PLANTS	**5,862**	**3,072**	**5,264**	**(598)**	**-10%**	
GAS TURBINES						
Upgrade Gas Turbine Plant Life Extension - Hardwoods	450	381	540	90	20%	
Replace Automatic Voltage Regulator on Gas Turbine - Stephenville	262	209	258	(4)	-2%	
TOTAL GAS TURBINE PLANTS	**712**	**6,072**	**798**	**86**	**12%**	
TOTAL GENERATION	**8,287**	**9,933**	**7,909**	**(378)**	**-5%**	

NEWFOUNDLAND & LABRADOR HYDRO
2009 CAPITAL EXPENDITURES
TRANSMISSION AND RURAL OPERATIONS
FOR THE QUARTER ENDING DECEMBER 31, 2009
($000)

	PUB Approved Budget 2009	4th Quarter Actuals 2009	Total Actual Expend. 2009	Variance From Budget 2009	Percentage Variance From Budget 2009	Variance Explanation Ref. No.
TERMINAL STATIONS						
Purchase Spare Transformer - Upper Salmon	1,782	662	1,702	(80)	-4%	
Replace Disconnect Switches - Cow Head and Daniel's Harbour	84	41	277	193	230%	3
Upgrade Station Services - Hardwoods	58	30	89	31	53%	
Replace Insulators - Various Terminal Stations	391	219	427	36	9%	
Upgrade Circuit Breakers - Various Terminal Stations	422	87	365	(57)	-14%	
Replace Air Compressors - Sunny Side	96	99	108	12	13%	
Install Digital Fault Recorders - Oxen Pond, Massey Drive and St. Anthony	462	107	331	(131)	-28%	4
Replace 230kV Breaker Controls - Oxen Pond, Bay d'Espoir	100	25	60	(40)	-40%	
Upgrade Power Transformers - Various Terminal Stations	654	291	590	(64)	-10%	
Replace 69kV Breaker L51T2 - Howley	199	211	251	53	26%	
Replace Drainage System - Western Avalon	84	10	67	(17)	-20%	
Perform Grounding Upgrades - Various Terminal Stations	252	129	154	(98)	-39%	
Upgrade Great Northern Peninsula Protection - Various Locations	101	53	68	(33)	-32%	
Install 138kV Capacitive Voltage Transformer - St. Anthony Airport	71	4	42	(29)	-40%	
Install 69kV Capacitive Voltage Transformer - St. Anthony Diesel Plant	67	13	23	(44)	-66%	
New 25kV Terminal Station - Labrador City	283	79	101	(182)	-64%	5
Replace Instrument Transformers - Various Terminal Stations	107	7	128	21	20%	
Replace Surge Arrestors - Various Terminal Stations	81	(18)	80	(1)	-1%	
TOTAL TERMINAL STATIONS	**5,291**	**2,049**	**4,863**	**(428)**	**-8%**	

NEWFOUNDLAND & LABRADOR HYDRO
2009 CAPITAL EXPENDITURES
TRANSMISSION AND RURAL OPERATIONS
FOR THE QUARTER ENDING DECEMBER 31, 2009
($000)

	PUB Approved Budget 2009	4th Quarter Actuals 2009	Total Actual Expend. 2009	Variance From Budget 2009	Percentage Variance From Budget 2009	Variance Explanation Ref. No.
TRANSMISSION						
Replace Insulators on 230kV Line TL-253 - Stony Brook, Buchans	960	866	1,017	57	6%	
Upgrade Corner Brook Frequency Converter - 2008	1,010	701	1,179	169	17%	6
Perform Wood Pole Line Management Program - Various Locations	2,256	1,211	2,613	357	16%	7
Construct Transmission Line Equip Off-Loading Areas - Various Locations	498	299	324	(174)	-35%	8
Construct Transmission Storage Ramps - Bay d'Espoir	75	45	45	(30)	-40%	
Upgrade Transmission Line TL-212 - Sunnyside to Linton Lake	968	100	609	(359)	-37%	9
Install Remote Ice Growth Detector Beams - Various Locations	65	29	67	2	4%	
TOTAL TRANSMISSION	**5,832**	**3,251**	**5,854**	**22**	**0%**	
TOOLS AND EQUIPMENT						
Purchase and Replace Tools and Equipment Less than $50,000	31	0	15	(16)	-51%	
TOTAL TOOLS AND EQUIPMENT	**31**	**0**	**15**	**(16)**	**-51%**	

NEWFOUNDLAND & LABRADOR HYDRO
2009 CAPITAL EXPENDITURES
TRANSMISSION AND RURAL OPERATIONS
FOR THE QUARTER ENDING DECEMBER 31, 2009
($000)

	PUB Approved Budget 2009	4th Quarter Actuals 2009	Total Actual Expend. 2009	Variance From Budget 2009	Percentage Variance From Budget 2009	Variance Explanation Ref. No.
DISTRIBUTION						
Provide Service Extensions - All Service Areas	2,439	1,988	4,011	1,572	64%	10
Upgrade Distribution Systems - All Service Areas	2,526	1,139	2,660	134	5%	
Replace Poles - Jackson's Arm and Hampton	697	291	660	(37)	-5%	
Replace Insulators - Jacksons Arm, Hampden and Little Bay	874	206	712	(162)	-19%	11
Reconfigure Feeders - Happy Valley	75	0	74	(1)	-1%	
Recloser Assessment - Happy Valley	47	23	27	(20)	-43%	
Replace Recloser Control Panels - Various Locations	132	33	107	(25)	-19%	
Replace Submarine Cable Terminator Kit - Change Islands/Fogo Island	96	2	81	(15)	-16%	
Purchase and Install Voltage Regulator Bank - English Harbour West	123	21	102	(21)	-17%	
Upgrade L7 Distribution System - St. Anthony	689	221	504	(185)	-27%	12
Replace Conductor on L2 - Rocky Harbour	325	(130)	348	24	7%	
Replace Line L36 - Wabush	498	222	466	(32)	-6%	
Upgrade Voltage Conversion Phase 1 - Labrador City	189	121	191	2	1%	
Purchase and Install Electronic Recloser - Cartwright	96	59	162	66	69%	
TOTAL DISTRIBUTION	**8,807**	**4,196**	**10,105**	**1,298**	**15%**	

NEWFOUNDLAND & LABRADOR HYDRO
2009 CAPITAL EXPENDITURES
TRANSMISSION AND RURAL OPERATIONS
FOR THE QUARTER ENDING DECEMBER 31, 2009
($000)

	PUB Approved Budget 2009	4th Quarter Actuals 2009	Total Actual Expend. 2009	Variance From Budget 2009	Percentage Variance From Budget 2009	Variance Explanation Ref. No.
GENERATION						
Replace Diesel Units - Norman Bay, Cartwright and Black Tickle	1,265	455	1,003	(262)	-21%	13
Replace Diesel Units - Norman Bay, Postville and Paradise River	170	220	469	299	176%	14
Diesel Plant Automation - Makkovik and Rigolet	306	157	627	321	105%	15
Increase Generation Capacity - Charlottetown (Project Cancelled)	589	0	(6)	(595)	-101%	16
Replace Switchgear - Cartwright	435	130	450	15	3%	
Replace Speed Increaser - Roddickton	125	132	141	16	13%	
Install Furnace Fuel Storage Tank - Williams Harbour (Project Cancelled)	59	0	0	(59)	-100%	
Increase Generation - L'Anse au Loup	23	775	783	760	3319%	17
Upgrade Fuel Storage - Cartwright	139	39	142	3	2%	
Install Meter Station for Fuel Reconcilation - Hawke's Bay	64	72	72	8	13%	
TOTAL GENERATION	**3,175**	**1,980**	**3,681**	**506**	**16%**	
TOTAL CONSTRUCTION PROJECTS	**11,982**	**6,176**	**13,786**	**1,804**	**15%**	

NEWFOUNDLAND & LABRADOR HYDRO
2009 CAPITAL EXPENDITURES
TRANSMISSION AND RURAL OPERATIONS
FOR THE QUARTER ENDING DECEMBER 31, 2009
($000)

	PUB Approved Budget 2009	4th Quarter Actuals 2009	Total Actual Expend. 2009	Variance From Budget 2009	Percentage Variance From Budget 2009	Variance Explanation Ref. No.
GENERAL						
Construct New Office/Warehouse/Line Depot Facilities - Happy Valley	3,224	2,392	2,696	(528)	-16%	18
Construct Diesel Plant Extension - William's Harbour (Project Cancelled)	166	0	(11)	(177)	-107%	19
Replace Fire Alarm System - Hopedale and Paradise River	29	0	11	(18)	-62%	
Install Fall Arrest Equipment - Various Locations	322	132	303	(19)	-6%	
Legal Survey of Primary Distribution Line Right of Ways - Various Locations	56	(14)	55	(1)	-2%	
Install Air Conditioning at Training Centre - Bay d'Espoir	34	22	28	(6)	-19%	
Replace Accom, Septic Sys and Upgrade Plant Communications Sys - Cat Arm	1,254	683	733	(521)	-42%	20
Upgrade CEMS Room Ventilation - Holyrood	39	70	72	33	83%	
Build ATV/snowmobile Storage - Whitbourne	86	70	95	9	10%	
Replace Dock Lighting - Holyrood	33	26	26	(7)	-22%	
Replace Explosive Storage Magazines - Various Locations	293	30	143	(150)	-51%	21
Install Pole Storage Ramps - Various Locations	77	(27)	36	(41)	-53%	
Install Transformer Storage Ramps - Labrador	121	69	96	(25)	-20%	
Upgrade Ventilation System - Little Bay Islands Diesel Plant	186	153	196	10	5%	
Build New Maintenance Shop - St. Anthony	429	263	293	(136)	-32%	22
Install Waste Oil Storage Tanks - Mary's Harbour	84	21	70	(14)	-17%	
Install Water and Sewer System - Paradise River (Project Cancelled)	77	(4)	0	(77)	-100%	
Construct Sewage Disposal Field - Makkovik	50	44	45	(5)	-9%	
Install Storage Ramp - Whitbourne	41	52	55	14	33%	
Pave Parking Lots and Roadways - Bishops Falls	150	0	154	4	3%	
TOTAL GENERAL	**6,752**	**3,982**	**5,096**	**(1,656)**	**-25%**	

NEWFOUNDLAND & LABRADOR HYDRO
2009 CAPITAL EXPENDITURES
TRANSMISSION AND RURAL OPERATIONS
FOR THE QUARTER ENDING DECEMBER 31, 2009
($000)

	PUB Approved Budget 2009	4th Quarter Actuals 2009	Total Actual Expend. 2009	Variance From Budget 2009	Percentage Variance From Budget 2009	Variance Explanation Ref. No.
METERING						
Install Automatic Meter Reading - Various Locations	108	21	123	15	14%	
Install Automatic Meter Reading - VariousLocations	113	30	105	(8)	-7%	
Install Automatic Meter Reading - Change Islands and Fogo Island	491	1	1	(490)	-100%	23
Purchase Meters and Equipment - Various Locations	33	0	0	(33)	-100%	
TOTAL METERING	**745**	**52**	**229**	**(516)**	**-69%**	
TOOLS AND EQUIPMENT						
Replace Boom 6069 on Track Vehicle - Stephenville	236	0	240	4	2%	
Purchase High Definition Infrared Camera - Central	87	1	79	(8)	-9%	
Tools and Equipment Less Than $50,000	237	153	204	(33)	-14%	
TOTAL TOOLS AND EQUIPMENT	**560**	**154**	**523**	**(37)**	**-7%**	

NEWFOUNDLAND & LABRADOR HYDRO
2009 CAPITAL EXPENDITURES
GENERAL PROPERTIES
FOR THE QUARTER ENDING DECEMBER 31, 2009
($000)

	PUB Approved Budget 2009	4th Quarter Actuals 2009	Total Actual Expend. 2009	Variance From Budget 2009	Percentage Variance From Budget 2009	Variance Explanation Ref. No.
INFORMATION SYSTEMS						
SOFTWARE APPLICATIONS						
INFRASTRUCTURE REPLACEMENT						
NEW INFRASTRUCTURE						
Application Enhancements - Energy Systems Water Management	26	0	75	49	188%	
Application Enhancements - Energy Systems Optimum Powerflow	101	0	114	13	13%	
Application Enhancements - Perform Minor Application Enhancements	120	42	121	1	1%	
Cost Recoveries	(35)	(12)	(35)	(0)	0%	
Upgrade Intranet - Hydro Place	67	60	66	(1)	-1%	
Cost Recoveries	(19)	(6)	(19)	0	-2%	
Application Enhancements - Performance Management Software Budgeting Tool	127	0	130	3	2%	
Purchase Protection Relay Event Report Software - Hydro Place	54	22	31	(23)	-42%	
UPGRADE OF TECHNOLOGY						
Citrix Enhancement - Hydro Place	118	22	118	(0)	0%	
Cost Recoveries	(34)	(11)	(34)	0	-1%	
Corporate Application Environment Upgrade Showcase Strategy Suite - Hydro Place	158	75	160	2	1%	
Cost Recoveries	(46)	(15)	(46)	(0)	0%	
TOTAL SOFTWARE APPLICATIONS	**637**	**177**	**681**	**44**	**7%**	

NEWFOUNDLAND & LABRADOR HYDRO
2009 CAPITAL EXPENDITURES
GENERAL PROPERTIES
FOR THE QUARTER ENDING DECEMBER 31, 2009
($000)

	PUB Approved Budget 2009	4th Quarter Actuals 2009	Total Actual Expend. 2009	Variance From Budget 2009	Percentage Variance From Budget 2009	Variance Explanation Ref. No.
COMPUTER OPERATIONS						
INFRASTRUCTURE REPLACEMENT						
End User Evergreen Program - Various Locations	491	93	490	(1)	0%	
Replace Peripheral Infrastructure - Hydro Place	161	24	161	(0)	0%	
Perform Hawke Hill Improvements - Hawke Hill	50	36	37	(13)	-25%	
Replace Drafting Scanner/Plotter - Hydro Place	139	0	139	0	0%	
NEW INFRASTRUCTURE						
Security Smartcard and Disk Encryption for Laptops - Hydro Place	125	2	124	(1)	-1%	
Cost Recoveries	(36)	(12)	(36)	0	-1%	
UPGRADE OF TECHNOLOGY						
Upgrade Server Technology Program - Hydro Place	273	69	269	(4)	-1%	
Cost Recoveries	(79)	(26)	(79)	0	0%	
TOTAL COMPUTER OPERATIONS	**1,123**	**186**	**1,105**	**(18)**	**-2%**	
TOTAL INFORMATION SYSTEMS	**1,760**	**363**	**1,786**	**26**	**1%**	

NEWFOUNDLAND & LABRADOR HYDRO
2009 CAPITAL EXPENDITURES
GENERAL PROPERTIES
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($000)

	PUB Approved Budget 2009	4th Quarter Actuals 2009	Total Actual Expend. 2009	Variance From Budget 2009	Percentage Variance From Budget 2009	Variance Explanation Ref. No.
TELECONTROL						
NETWORK SERVICES						
INFRASTRUCTURE REPLACEMENT						
Customer Service Application - Hydro Place	910	275	360	(550)	-60%	24
Replace Dial Backup System - Various Locations	103	22	60	(43)	-42%	
Install Recloser Remote Control - Change Islands	44	(11)	64	20	45%	
Public Address System - Holyrood	1,275	42	119	(1,156)	-91%	25
Replace Remote Terminal Units - Various Locations	278	120	258	(20)	-7%	
Replace Radomes - Various Locations	130	11	111	(19)	-14%	
Install Fibre Optic Cable - Hinds Lake	209	9	9	(200)	-96%	26
Replace Power Line Carrier on TL250 - Bottom Brook to Grandy Brook	473	62	476	4	1%	
NETWORK INFRASTRUCTURE						
Replace Network Communications Equipment - Various Locations	141	55	132	(9)	-6%	
Purchase Test Equipment - Various Locations	74	2	70	(4)	-5%	
Install Wireless Networking - Various Locations	45	39	39	(6)	-14%	
Replace Radio Tower - Ebbegunbaeg	179	112	124	(55)	-31%	
Replace Batteries and Chargers - Various Locations	729	409	776	47	7%	
UPGRADE OF TECHNOLOGY						
Replace Network Management Tools - Various Locations (Project Cancelled)	47	0	0	(47)	-100%	
Upgrade Site Facilities - Various Locations	47	26	52	5	10%	
TOTAL TELECONTROL	**4,683**	**1,173**	**2,650**	**(2,033)**	**-43%**	

NEWFOUNDLAND & LABRADOR HYDRO
2009 CAPITAL EXPENDITURES
GENERAL PROPERTIES
FOR THE QUARTER ENDING DECEMBER 31, 2009
($000)

	PUB Approved Budget 2009	4th Quarter Actuals 2009	Total Actual Expend. 2009	Variance From Budget 2009	Percentage Variance From Budget 2009	Variance Explanation Ref. No.
TRANSPORATION						
Replace Vehicles and Aerial Devices 2008 - Various Locations	635	0	449	(186)	-29%	27
Replace Vehicles and Aerial Devices 2009 - Various Locations	2,156	731	2,044	(112)	-5%	
Replace Light Duty Mobile Equipment Less Than $50,000 - Various Locations	561	216	530	(31)	-6%	
Replace Off Road Tracked Vehicles - Whitbourne and Bishop's Falls	758	597	597	(161)	-21%	28
TOTAL TRANSPORATION	**4,110**	**1,544**	**3,620**	**(490)**	**-12%**	
ADMINISTRATION						
Upgrade System Security 2008 - Various Locations	762	4	812	50	7%	
Upgrade System Security 2009 - Various Locations	767	232	488	(279)	-36%	29
Purchase Spare Transformer - Hydro Place	389	155	460	71	18%	
Replace Humidifiers in Air Handling Units 2008 - Hydro Place	58	20	20	(38)	-66%	
Replace Air Conditioning Units 2008 - Hydro Place	56	6	6	(50)	-89%	
Replace Humidifiers in Air Handling Units 2009 - Hydro Place	74	34	34	(40)	-54%	
Replace Air Conditioning Units 2009 - Hydro Place	37	30	30	(7)	-20%	
Energy Conservation Upgrades - Hydro Place	833	814	1,167	334	40%	30
Replace Fire Protection Panels - Hydro Place	89	94	104	15	17%	
Purchase and Replace Admin Office Equipment Less Than $50,000	361	77	243	(118)	-33%	
TOTAL ADMINISTRATION	**3,426**	**1,466**	**3,364**	**(62)**	**-2%**	
	13,980	**4,546**	**11,420**	**(2,560)**	**-18%**	

NEWFOUNDLAND & LABRADOR HYDRO
2009 CAPITAL EXPENDITURES
OTHER APPROVED FUNDS
FOR THE QUARTER ENDING DECEMBER 31, 2009
($000)

	PUB Approved Budget 2009	4th Quarter Actuals 2009	Total Actual Expend. 2009	Variance From Budget 2009	Percentage Variance From Budget 2009	Variance Explanation Ref. No.
ALLOCATION FOR UNFORESEEN EVENTS						
Replace Diesel Engine - Mary's Harbour	569	5	454	(115)	-20%	31
TL 221 - Insulator Upgrade	192	104	218	26	14%	
Allocation for Unforeseen Events	**239**	**0**	**0**	**(239)**	-100%	
TOTAL ALLOCATION FOR UNFORESEEN EVENTS	**1,000**	**109**	**672**	**(328)**	**-33%**	
PROJECTS APPROVED BY PUB						
CARRYOVER						
TL227/262 Upgrde Daniel's Harbour, Transmission Line Re-Location	198	(1)	295	97	49%	
Cost Recovery - Dept Works and Transportation	(198)	1	(295)	(97)	49%	
Install Neutral Grounding Resistors - Come By Chance	227	0	0	(227)	-100%	32
Cost Recovery - North Atlantic Refining Limited	(227)	0	0	227	-100%	
NEW						
Replace Programable Logic Controllers - Holyrood	1,093	283	877	(216)	-20%	33
Upgrade Continuous Emission Monitoring System - Holyrood	704	2	7	(697)	-99%	34
Condition Assessment and Life Extension Study - Holyrood	1,210	38	50	(1,160)	-96%	35
Nain Diesel Plant Rehabilitation	2,416	619	1,764	(652)	-27%	36
Replacement of Power Transformer - Wiltondale Terminal Station	351	70	70	(281)	-80%	37
Gas Turbine Refurbishment - Stephenville	291	0	0	(291)	-100%	38
Hinds Lake Powerhouse Slope Stabilization	492	667	704	212	43%	39
Microwave Replacement - Godaleich Hill	197	120	120	(77)	-39%	
Work Protection Code eLearning Program	227	92	92	(135)	-59%	40
Cost Recoveries	(66)	(28)	(66)	0	0%	
Hydro Place Parking Lot Extension	93	0	114	21	23%	
Cost Recovery - Nalcor Energy	(93)	(114)	(114)	(21)	23%	
TOTAL PROJECTS APPROVED BY PU BOARD	**6,915**	**1,749**	**3,618**	**(3,297)**	**-48%**	

NEWFOUNDLAND & LABRADOR HYDRO
2009 CAPITAL EXPENDITURES
OTHER APPROVED FUNDS
FOR THE QUARTER ENDING DECEMBER 31, 2009
($000)

	Budget 2009	4th Quarter Actuals 2009	Total Actual Expend. 2009	Variance From Budget 2009	Percentage Variance From Budget 2009	Variance Explanation Ref. No.
NEW PROJECTS LESS THAN $50,000 APPROVED BY HYDRO						
Pressure Sealer - Treasury	7	0	6	(1)	-14%	
Purchase Former Diesel Plant Property - Fogo Island	4	0	4	0	0%	
Replace Roof - Stony Brook Terminal Station	49	29	29	(20)	-41%	
Replace Roof - Bottom Brook Terminal Station	49	47	47	(2)	-4%	
Purchase Hydraulic Drill and Impact Wrench	5	4	4	(1)	-20%	
Test Console No's 1 and 2 Upgrade	41	41	41	0	0%	
Purchase Towable ATV Backhoe - Mud Lake	10	8	8	(2)	-20%	
Purchase Meters and Equipment	6	0	28	22	367%	
TOTAL PROJECTS LESS THAN $50,000 APPROVED BY HYDRO	**171**	**129**	**167**	**(4)**	**-2%**	

NEWFOUNDLAND AND LABRADOR HYDRO
2009 VARIANCE EXPLANATIONS
GENERATION
FOR THE QUARTER ENDING DECEMBER 31, 2009
(Greater than $100,000)

1. Install Motor Stack Winches – Holyrood

Consultants were hired to complete the detailed engineering design for the stack winches and their respective restraint systems. The cost associated with the installation of this design was prohibitive. It was necessary to design a less elaborate restraint system while offering the same level of safety. Due to the timing and scheduling of other work during the fall, this project will be completed in 2010.

2. Refurbish Fuel Storage Facility - Holyrood

Better than expected competition for the civil site work and drainage system installation provided competitive bids resulting in an overall lower price for the work by approximately $250,000. Based on work performed on pipe supports several years ago, it was estimated that the pipe supports would require extensive modification to return them to serviceable condition, however, once the supports were exposed and detail design was completed, the work required was much less extensive than originally anticipated resulting in further savings of approximately $400,000. Corporate Overhead costs were less based on the reduced cost of the site, drainage and pipe support work. Additionally, the project contingency was not required.

NEWFOUNDLAND AND LABRADOR HYDRO
2009 VARIANCE EXPLANATIONS
TRANSMISSION AND RURAL OPERATIONS
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(Greater than $100,000)

3. Replace Disconnect Switches – Cow Head and Daniel's Harbour

During installation of the disconnect switches in Cow Head, it was discovered that several poles and bus work needed to be replaced, increasing the scope, duration and cost of the project. Due to other work commitments and the increased scope, Hydro's crews were not able to perform all the work and it became necessary to prepare and tender a contract document to have the work performed by a contractor. This additional engineering work, site supervision and contract management was not anticipated in the original project scope, nor was the added cost of having the work performed by a contractor.

4. Install Digital Fault Recorders – Oxen Pond, Massey Drive and St. Anthony

Both the engineering design and installation of the digital fault recorders (DFR) required less time than budgeted resulting in less labour and travel costs. The same model of digital fault recorder was purchased for this project as was installed in Buchans in 2008 therefore the design and drawing preparatory effort was reduced since only modifications to the Buchan's design was required. Similarly, installation personnel were familiar with the Buchan's installation, which expedited the installation at these three locations. This also resulted in less overhead costs and contingency fund being required.

5. New 25kV Terminal Station – Labrador City

This is a multi-year project to be completed in 2011. There were issues which arose during the acquisition of the land required for the new terminal stations which delayed the finalization of the design and the ordering of equipment. These activities will now be completed during the first quarter of 2010. This project is expected to be completed on time within budget.

6. Upgrade Corner Brook Frequency Converter - 2008

The scope of this job included the replacement of the old liquid rheostat which is used to start and stop the frequency converter. The preliminary design and budget was based upon the replacement of the original liquid rheostat with a variable speed drive. During the finalization of the electrical design, it became evident that the use of a variable speed drive was not the preferred solution for this application and it was decided to simply replace the old liquid rheostat with a new one. During disassembly of this 40 year old machine it was also discovered that more remedial work was encountered than expected which increased the scope, duration and cost of the work.

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7. Perform Wood Pole Line Management Program – Various Locations

The wood pole line management program consists of a replacement program for deteriorated poles identified in previous inspections as well as new line inspections. During the 2009 inspection of TL-201, 29 poles were found to be in such condition that, for reliability and safety reasons, they had to be replaced immediately. These additional poles and the associated installation costs were unbudgeted and totaled approximately $500,000. This included the cost of utilizing a contractor and Hydro crews from across the island to complete the work during the limited outage time in November and December. There were also outage restrictions on TL-215 and TL-250 that resulted in additional costs due to the requirement to use of alternate generation and additional labour costs due to the compressed time frame to complete the work. These increased costs were offset by other refurbishment work that was deferred until 2010 and 2011, however, there was still an overall increase of approximately $360,000.

8. Construct Transmission Equipment Off-Loading Areas – Various Locations

The tenders received for construction of off-loading areas, prepared with estimates based on actual contract costs for the previous year, were lower than expected. In addition, the Department of Transportation and Works initially required new culvert installation at all sites but changed the final requirements to the installation of new culvert at sites on an as-needed basis only. They also initially requested that all sites on the Burin Peninsula highway be equipped with guard rails. They eventually concluded that guard rails provided no additional safety benefits to the public and could interfere with both the Department of Transportation and Works snow clearing operations and Hydro's off-loading operations, thus they were removed from the design. The reduced cost of construction work resulted in less engineering labour costs as well as less overhead costs and no contingency fund being required.

9. Upgrade Transmission Line TL-212 – Sunnyside to Linton Lake

Due to environmental constraints related to bog along parts of the line, several of the mid-span structures proposed for 2009 have been deferred until March 2010, to minimize the environmental damage. This multi-year project is to be completed in 2010 and is expected to be completed within budget.

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10. Provide Service Extensions – All Service Areas

The budgeted amount is an annual allotment based on the average of the annual expenditures for service extensions over the last five years. It is not based on a summary of specific projects. There have been increases in expenditures in all service areas with the bulk pertaining to Labrador ($800,000) and Northern ($600,000) regions.

The increase in costs in Labrador is mainly due to housing developments in Happy Valley, Nain, Hopedale and Makkovik; a new school in Happy Valley, and a hotel in Labrador City. The increase in expenditures in the Northern region, which include Southern Labrador, is partly due to an increase in customers converting to electric heat causing a load increase on existing electrical infrastructure, requiring an increase in transformer and conductor sizing and, in certain cases, involves the installation and/or replacement of poles. In addition, there are new schools in Port Hope Simpson and Port Saunders, a wood pellet plant in Roddickton as well as the addition of the ice-making capacity for the Charlottetown Shrimp plant contributing to the increased costs for the Northern region.

11. Replace Insulators – Jacksons Arm, Hampden and Little Bay

The budget estimate for insulator replacement is based on contracted out labour, since internal labour availability was unknown at the project proposal stage. The use of internal labour resulted in an overall reduction of project costs. These factors resulted in less overhead costs and no contingency funds being required.

12. Upgrade L7 Distribution System – St. Anthony

The availability of internal labour to work on this project, which was not anticipated in the budget, resulted in a shorter outage duration therefore reducing labour costs. The contracted portion of the project was also less than expected. This resulted in less overhead costs and no contingency funds being required.

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TRANSMISSION AND RURAL OPERATIONS
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13. Replace Diesel Units – Norman Bay, Cartwright and Black Tickle

The diesel unit replacement for Cartwright is complete however, the ones for Norman Bay and Black Tickle will be carried over and completed in 2010. Due to the design of the existing automatic controls for Norman Bay, extensive engineering for protection and control work would have to be done to temporarily integrate the new equipment with the existing gensets. A capital budget to replace two diesel units and automate the Norman Bay Plant was approved by Board Order No. P.U. 36 (2009). Rather than incur unnecessary costs for temporary configurations and mobilization, it is prudent to install all the equipment at the same time in 2010. The Black Tickle installation was scheduled for completion in late October of 2009. Due to delays in shipping from the manufacturer and further delays with the coastal ferry service, the genset did not arrive until early December, at which time there was no available manpower to complete the installation in 2009. The genset will be installed in the spring of 2010.

14. Replace Diesel Units – Norman Bay, Postville and Paradise River

This project is a multi-year project to be completed in 2010. Due to unforeseen work commitments such as the Nain fire and failures of generating sets at Postville and Mary's Harbour, which negatively impacted the resource availability of both Engineering Services and Operations personnel, there was limited work done on the Norman Bay and Paradise River replacements. However, the genset being replaced in Postville failed prematurely in the winter of 2009 leaving the town vulnerable to outages therefore this project was completed in 2009.

15. Diesel Plant Automation – Makkovik and Rigolet

Originally all project engineering work was to be done by Hydro personnel, however, due to resource constraints within Engineering Services, outside technical assistance was required for the automation design portion of the project. The work that was outsourced included onsite installation of this automation equipment as well as commissioning of the entire diesel plant automation systems followed by operator training. This increased the cost by approximately $185,000. Additionally, there was a significant disruption in the work schedule for operating crews as a result of the diesel plant fire at the Nain Plant in 2008 that affected the work schedule at Makkovik into 2009 resulting in an increase of approximately $100,000 in labour and travel costs.

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16. Increase Generation Capacity – Charlottetown *(Project Cancelled)*

The primary reason for the new generation to be installed at Charlottetown was to continue supporting the high summer load associated with the operation of the seasonal fish plant that was built in the community in 2000. In the fall of 2008, Hydro was advised by the owners of the fish plant that the installation of additional ice making capacity in 2009 would increase demand by 150 kW and that another similar addition could be expected in two to three years. This requires a reassessment of the long-term suitability of the existing generation plant. Hydro expects to have this assessment completed in time for the 2011 Capital Budget Application. The generation shortfall experienced during the summer when the fish plant is operating is being addressed with a temporary mobile generator relocated from L'Anse Au Loup. (See variance explanation 17.)

17. Increase Generation – L'Anse au Loup

This is a multi-year project, the original scope of which was to replace an existing 600 kW diesel generating set with a 1,100 kW unit. Load growth on this system has increased faster than expected and Hydro found it necessary to lease a 1,825 kW mobile generating set to provide sufficient capacity, following notification from Hydro-Québec that it might not be able to provide power from its Lac Robertson hydro facility due to low water levels and its own load requirements. Combined effects of increased demand on the L'Anse au Loup system and potentially less available energy from Hydro Québec has caused Hydro to change the scope of this project to procurement of the 1,825 kW mobile generating set which has been connected to the power system in a temporary fashion. During 2010 a more permanent interconnection will be completed and protection and control enhancements will be effected. This mobile can also be used as an emergency unit for other isolated diesel systems.

18. Construct New Office/Warehouse/Line Depot Facilities – Happy Valley

The office, warehouse and line depot facilities were completed in January 2010, however, pavement and landscaping cannot be completed until the spring and summer of 2010. Therefore this project will be carried over into 2010.

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19. **Construct Diesel Plant Extension – William's Harbour (*Project Cancelled)***

Project cancelled due to the potential relocation of the residents of William's Harbour to other communities.

20. **Replace Accom, Septic Sys, and Upgrade Plant Communications Sys – Cat Arm**

The six modular accommodations units were constructed and are at the Cat Arm Generating station waiting to be installed. The septic system and fencing has also been completed. The lowest acceptable tender for the installation was much greater than the estimated cost. The remaining work will be retendered early in 2010 and is expected to result in a more reasonable installation cost.

21. **Replace Explosive Storage Magazines – Various Sites**

This project came in under budget due to the magazines costing less than expected. The budget for this proposal was based on a quote of approximately $200,000 for the fourteen magazines. The actual contracted cost was approximately $90,000. This resulted in less overhead costs and no contingency fund being required.

22. **Build New Maintenance Shop – St. Anthony**

During excavation for the building foundations, organic material (bog) was encountered, requiring additional excavation and structural fill placement. Additional consultant time was also required to make the necessary geotechnical recommendations. This resulted in an increase in the overall budget by $171,000 as well as construction delays. This project will be completed in the first quarter of 2010.

23. **Install Automatic Metering Reading – Change Islands and Fogo Island**

This project was delayed as the economics were tied, in part, to the expected retirement of a meter reader. The meter reader provided notification later than expected, thus delaying implementation. The revised completion date is November 2011.

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24. Customer Service Application – Hydro Place

The procurement phase of the project resulted in two unsuccessful tender calls, with no bids in the first and a single non-compliant bid in the second, thereby delaying the project by approximately three months. The decision was made to proceed with the non-compliant tenderer however, with a revised proposal, which will utilize purchased software for the Call Centre portion of the work. The refined bid and the time to negotiate the contract for the work has delayed the implementation by a further three months. Utilizing purchased software will lessen the risk associated with application development and reduce future operational costs for program design. This project will be completed within budget by the end of the second quarter in 2010.

25. Public Address System - Holyrood

The public tendering process resulted in a tender which significantly exceeded the budget allocation. The system was redesigned in a simpler configuration which provided similar functionality and will be retendered early in 2010 for installation during the summer.

26. Install Fibre Optic Cable – Hinds Lake

Due to resource limitations within the Engineering Division, this project was not started until the fall of 2009. Originally the right of way clearing and the purchase of equipment was to be done in 2009 before the winter season. This work is now scheduled to be completed as soon as the construction season begins again in the spring of 2010, with the remainder of the work such as pole line construction and fiber cable installation being completed by the fall of 2010. This project is expected to be completed within budget.

27. Replace Vehicles and Aerial Devices 2008 – Various Locations

The project was carried over from 2008 for the purchase of two boom trucks. The variance resulted from the favorable pricing due to the exchange rate in effect during the tendering process as well as the contingency not being required.

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28. **Replace Off Road Tracked Vehicles – Whitbourne and Bishop's Falls**

The project was carried over from 2008 to purchase two tracked units fitted for backhoe attachments. The tracked vehicles were purchased without the attachments due to a safety requirement, therefore reducing the cost. Additionally, the contingency was not utilized.

29. **Upgrade System Security 2009 – Various Locations**

This is a multi-year project that included a security camera contract for approximately $500,000 that was awarded in 2009. Due to design issues and internal labour shortages, only a small portion of this contract was completed. The remaining portion of this contract will be completed in 2010. This project is expected to be completed on time and within budget.

30. **Energy Conservation Upgrades – Hydro Place**

The majority of the cost overrun results from the higher than anticipated engineering consulting fees as well as the cost of the new energy management system components. This project was originally justified based on a payback of 9 years. The cost benefit analysis was recalculated using the new estimated cost. Results from the revised cost benefit analysis indicate that this project will now have a payback of 11 years, well within the 15 year expected service life of the upgrades.

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31. Replace Diesel Engine – Mary's Harbour

This project was initiated in March of 2009 following the sudden failure of generating unit 2048. High level estimates were developed for budgeting purposes. Due to various uncertainties concerning compatibility of the new equipment with the existing controls, and a high workload for the Protection and Control department, the Protection and Control estimate contained extensive engineering and the possibility of utilizing outside consultants which were ultimately not required.

32. Install Neutral Grounding Resistors – Come by Chance

This project is to be fully contributed by Hydro's customer North Atlantic Refining Limited (NARL) and was approved by Board Order No. P.U. 26 (2008). Hydro is waiting for NARL to approve the expenditure for this project.

33. Replace Programmable Logic Controllers - Holyrood

It was anticipated that a substantial amount of collaborative work involving engineering services and plant engineering and operations forces would have been needed during the development of the project but this was found not to be necessary. Installation costs were significantly less than anticipated. This resulted in less overhead costs and no contingency funds being required.

34. Upgrade Continuous Emission Monitoring System – Holyrood

This project was approved March 20, 2009 with estimated expenditures in 2008 and 2009. The project was scheduled to start in February 2009 with a closeout of March 2010. The majority of the tenders pertaining to this project were awarded late in 2009. However, due to longer than expected manufacturing time, the equipment will not arrive on site until March 2010. It is expected that the project will be completed by the end of the third quarter, 2010.

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35. Condition Assessment and Life Extension Study – Holyrood

This is a multi-year project to be completed in 2010. A consultant was selected in 2009 to do the condition assessment but the key members of the consultant's project team were not available until January 2010 to begin work. Therefore the bulk of the project costs will be incurred during 2010 and the project will be completed in 2010.

36. Nain Diesel Plant Rehabilitation

This is a multi-year project to be completed in 2010. The project schedule had the bulk of the plant automation work being done in the fall of 2009 to be completed by February of 2010. However, due to unavailability of Protection and Control staff for the plant automation, this work will not be completed until the last quarter of 2010.

37. Replacement of Power Transformer – Wiltondale Terminal Station

The original project scope was to upgrade a spare transformer owned by Hydro, and to transport and install it in Wiltondale. It was determined that it would be less costly to purchase a transformer, which had been borrowed from Newfoundland Power, and perform related modifications rather than to proceed with the original plan.

38. Gas Turbine Refurbishment – Stephenville

This is a multi-year project to be completed in 2010. The investigation, research and specifications preparation for this project was completed in late 2009. The majority of the budget for this project will now be spent in 2010.

39. Hinds Lake Powerhouse Slope Stabilization

This is a multi-year project to be completed in 2010. The 2009 final cost was higher than originally proposed due to design improvements and quantity variances during construction which resulted in additional rock removal adding $160,000 to the estimated cost of this activity. The additional work also resulted in increased labor cost of approximately $50,000. Hydro is currently reviewing the design and the required 2010 work to finalize the remaining scope and budget to complete the work.

NEWFOUNDLAND AND LABRADOR HYDRO
2009 VARIANCE EXPLANATIONS
OTHER APPROVED FUNDS
FOR THE QUARTER ENDING DECEMBER 31, 2009
(Greater than $100,000)

40. Work Protection Code eLearning Program

This was an unbudgeted capital project that was approved on June 16, 2009 by Board Order No. P.U. 23 (2009). This project has a scheduled duration of at least 33 weeks, therefore it will be completed by the second quarter of 2010. This project is expected to be completed within budget.

NEWFOUNDLAND AND LABRADOR HYDRO
CAPITAL BUDGET VERSUS EXPENDITURES 2000 – 2009
AS AT DECEMBER 31
($000)

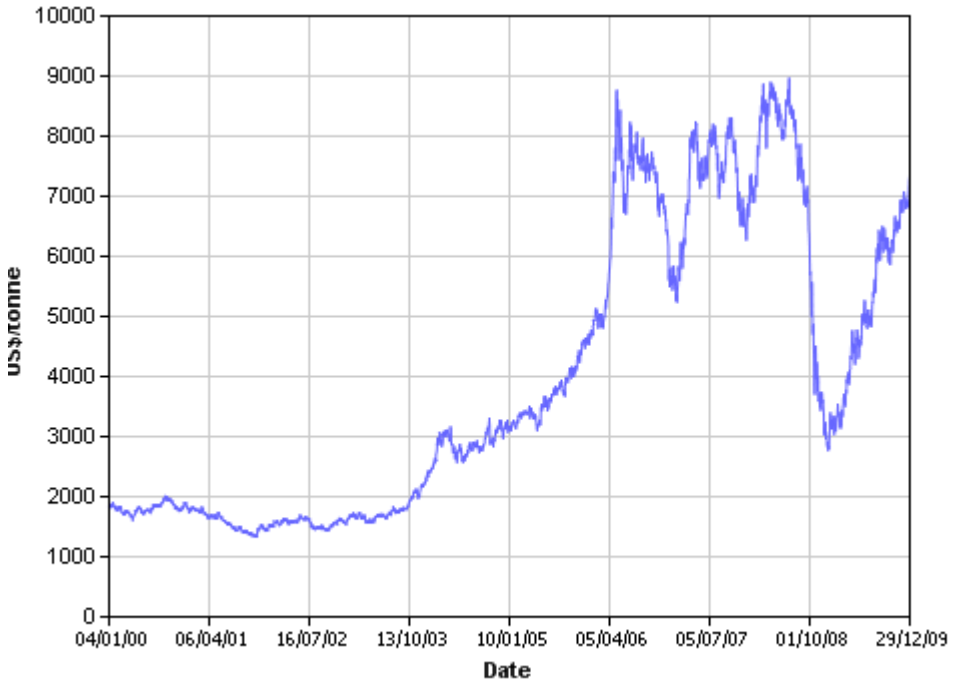
Table 1: CAPITAL BUDGET VERSUS EXPENDITURES 2000 – 2009

Year	Budget	Actual Expenditures	Variance	Percentage Variance
2000	43,824	38,569	5,255	12.0%
2001	55,897	47,501	8,396	15.0%
2002	44,660	40,217	4,443	9.9%
2003	36,122	32,506	3,616	10.0%
2004	31,435	27,984	3,451	11.0%
2005	47,760	33,952	13,808	28.9%
2006	49,024	41,217	7,807	15.9%
2007	43,304	35,669	7,635	17.6%
2008	53,579	46,246	7,333	13.7%
2009	61,544	54,152	7,392	12.0%

These variances include amounts related to the carryover of projects from year to year. Total variances from budget for completed projects are 1% and 1% for 2008 and 2009 respectively, well within acceptable ranges, however the variances of individual projects completed in 2008 and 2009 tend to be greater than in previous years, due to continued high volatility in commodity prices, which are reflected in the cost of materials and manufactured goods. This period of unprecedented volatility began in mid 2005 and as long as it continues individual project variances will be greater than in years prior to 2005. To illustrate this volatility, the graph below indicates the price of copper for the 10 year period ending in December 2009.

NEWFOUNDLAND AND LABRADOR HYDRO
CAPITAL BUDGET VERSUS EXPENDITURES 2000 – 2009
AS AT DECEMBER 31
($000)

Table 2: COPPER PRICES 2000 - 2009



The variances indicated in Table 1 for the years 2000-2009 are due almost entirely to under-spending as a result of not completing all projects approved each year. Hydro continues to have staffing issues, especially within the Engineering Services Division where the bulk of the capital budgets are managed. The maturing of this workforce has resulted in the loss of some of the most experienced staff to retirement and this, coupled with a number of resignations, resulted in the loss of about 30% of the technical staff and their replacement with younger and relatively inexperienced staff. This, combined with increased demand for technical support to deal with an aging infrastructure across the Hydro system, continues to present challenges to lowering the percentage variances as shown above.

It is anticipated that some carryovers of capital projects will occur in most years as there are frequently unavoidable reasons for delays in project completion. The Nain diesel plant fire had a significant affect on the success of the 2009 capital program. The burden it placed on Engineering Services and Operations personnel directly caused the carryover of two projects; Cartwright Switchgear Replacement and Black Tickle Generating Unit Replacement; and adversely affected the schedules of several other projects, contributing to their carryover. Several of the carryover projects missed their year end completion dates by only a few weeks. For example, Happy Valley/Goose Bay staff began moving into the new office building on January 18, and the installation of Meteorlogical Stations was completed in the first week of January.

NEWFOUNDLAND AND LABRADOR HYDRO
CAPITAL BUDGET VERSUS EXPENDITURES 2000 – 2009
AS AT DECEMBER 31
($000)

Hydro has also carried over to 2010 two projects which could have been completed in 2009, as we felt we would obtain lower cost tenders if the work was retendered. The Cat Arm Accommodations building was designed as a prefabricated building, ordered and delivered to site. The installation contract was tendered mid year and resulted in the receipt of bids for much greater than the estimated cost, a reflection of the high level of activity in that segment of the industry at the time. Hydro feels that the installation will be completed for a lower cost if retendered during the winter of 2009/10 for installation in the spring of 2010. The tenders for the Holyrood Paging System were also much higher than expected, the estimate for which was based on discussions held with equipment manufacturers when the budget proposal was prepared. Hydro has changed the design of the system to reduce cost while maintaining functionality. The completion of both these projects in 2010 should result in lower costs to our customers.

Hydro continues to improve its project management practices and expects to continue to reduce the percentage variance between the budget and actual expenditures as well as reduce the number of projects carried over.

NEWFOUNDLAND AND LABRADOR HYDRO
2009 CARRYOVER REPORT
FOR THE QUARTER ENDING DECEMBER 31, 2009
($000)

Project Name	PUB Approved Budget 2009	Revised Budget 2009	Total Actual Expend. 2009	Carryover Amount	Variance Explanation Ref. No.	Original Completion Year
Install Meteorological Stations 2009 - Various Locations	253	253	268	(16)		2009
Install Motorized Stack Winches - Holyrood	174	174	49	125	1	2009
Replace Diesel Units - Norman Bay, Cartwright and Black Tickle	1,265	787	440	347	13	2009
Replace Switchgear - Cartwright	435	758	450	308		2009
Construct New Office/Warehouse/Line Depot Facilities - Happy Valley	3,224	3,224	2,696	528	18	2009
Replace Accom, Septic Sys and Upgrade Plant Communications Sys - Cat Arm	1,254	1,254	733	521	20	2009
Build New Maintenance Shop - St. Anthony	429	600	293	307	22	2009
Install Automatic Meter Reading - Change Islands and Fogo Island	491	491	1	490		2009
Purchase Meters and Equipment - Various Locations	33	33	0	33		2009
Tools and Equipment Less Than $50,000	237	28	0	28		2009
Customer Service Application - Hydro Place	910	1,140	360	780	24	2009
Public Address System - Holyrood	1,275	1,275	119	1,156	25	2009
Replace Vehicles and Aerial Devices 2009 - Various Locations	2,156	2,156	2,044	112		2009
Replace Light Duty Mobile Equipment Less Than $50,000 - Various Locations	561	561	530	31		2009
Purchase Spare Transformer - Hydro Place	389	481	460	21		2009
Replace Air Conditioning Units 2008 - Hydro Place	56	56	6	50		2009
Replace Fire Protection Panels - Hydro Place	89	114	104	10		2009
Install Neutral Grounding Resistors - Come By Chance	227	227	0	227	32	2009
Cost Recovery - North Atlantic Refining Limited	(227)	(227)	0	(227)		2009

NEWFOUNDLAND AND LABRADOR HYDRO
2009 CARRYOVER REPORT
FOR THE QUARTER ENDING DECEMBER 31, 2009
($000)

Project Name	Approved Budget 2009	Revised Budget 2009	Actual Expend. 2009	Carryover Amount	Variance Explanation Ref. No.	Original Completion Year
Replace 50kW Diesel Generator - Bay d'Espoir	36	36	7	29		2011
Purchase Spare Stator Windings Units 1 to 4 - Bay d'Espoir	37	37	131	(95)		2011
Upgrade Great Northern Peninsula Protection - Various Locations	101	101	68	33		2011
Upgrade Transmission Line TL-212 - Sunnyside to Linton Lake	968	968	609	359	8	2011
Replace Diesel Units - Norman Bay, Postville and Paradise River	170	610	470	140	14	2011
Increase Generation - L'Anse Au Loup	23	1,002	783	219	17	2011
Install Fibre Optic Cable - Hinds Lake	209	209	9	200	26	2011
Upgrade System Security 2009 - Various Locations	767	767	488	279	29	2011
Upgrade Continuous Emission Monitoring System - Holyrood	704	704	7	697	34	2011
Condition Assessment and Life Extension Study - Holyrood	1,210	1,210	50	1,160	35	2011
Nain Diesel Plant Rehabilitation	2,416	2,416	1,764	652	36	2011
Gas Turbine Refurbishment - Stephenville	291	291	0	291	38	2011
Hinds Lake Powerhouse Slope Stabilization	492	492	704	(212)	39	2011
Work Protection Code eLearning Program	227	227	92	135	40	2011
Cost Recovery - Nalcor Energy, Churchill Falls	(66)	(66)	(66)	0		
New 25kV Terminal Station - Labrador City	283	283	101	182	5	2012
	21,098	**22,672**	**13,770**	**8,902**		

A REPORT TO
THE BOARD OF COMMISSIONERS OF PUBLIC UTILITIES

CAPITAL EXPENDITURES AND CARRYOVER REPORT

For Year Ending December 31, 2010

March 2011

newfoundland labrador hydro
a nalcor energy company

NEWFOUNDLAND AND LABRADOR HYDRO
CAPITAL EXPENDITURES AND CARRYOVER REPORT
For Year Ending December 31, 2010

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NEWFOUNDLAND & LABRADOR HYDRO
2010 CAPITAL EXPENDITURES
OVERVIEW
FOR THE QUARTER AND YEAR ENDING DECEMBER 31, 2010
($000)

	PUB Approved Budget 2010	4th Quarter Actuals 2010	Total Actual Expend. 2010	Variance From Budget 2010
GENERATION	18,333	5,023	13,736	(4,597)
TRANSMISSION	11,276	5,930	10,654	(622)
RURAL SYSTEMS	16,133	5,941	17,361	1,228
GENERAL PROPERTIES	10,982	3,689	10,084	(898)
ALLOWANCE FOR UNFORESEEN EVENTS	1,694	325	851	(843)
PROJECTS APPROVED BY PU BOARD	4,731	1,079	2,762	(1,969)
NEW PROJECTS LESS THAN $50,000 APPROVED BY HYDRO	148	56	105	(43)
TOTAL CAPITAL BUDGET	63,297	22,043	55,553	(7,744)

2010 Capital Budget Approved by Board Order No. P.U. 1 (2010)*	51,225
Carryover Projects 2009 to 2010	8,902
Changes to Multi-year Projects in 2009 affecting 2010**	(840)
New Project Approved by Board Order No. 31 (2009)	389
New Project Approved by Board Order No. 33 (2009)	1,795
New Project Approved by Board Order No. 34 (2009)	644
New Project Approved by Board Order No. 16 (2010)	0
New Project Approved by Board Order No. 21 (2010)	694
New Project Approved by Board Order No. 26 (2010)	120
New Project Approved by Board Order No. 29 (2010)	18
New Project Approved by Board Order No. 34 (2010)	202
2010 New Projects under $50,000 Approved by Hydro	148
TOTAL APPROVED CAPITAL BUDGET	63,297

* The total Capital Budget for $52,775 was approved less Upgrade Plant Acess Road - Bay d'Espoir for $1,550 that has been cancelled by Hydro since this cost cannot be recovered from its customers.

** **a)** Increase Generation - L'Anse au Loup was approved by Board Order No. P.U. 36 (2008) with a budget of $23,000 for 2009 and $821,000 for 2010. On August 20, 2009 Hydro filed documentation indicating a change in scope resulting in a budget increase for the project with $1,002,000 to be spent in 2009 and $517,000 in 2010. Therefore the 2010 budget is reduced by $304,000.

b) Replace Diesel Units - Norman Bay, Postville and Paradise River is a multi-year project to be completed in 2010, however, the genset being replaced in Postville failed prematurely and was replaced in 2009 reducing the 2010 budget by $536,000.

NEWFOUNDLAND & LABRADOR HYDRO
2010 CAPITAL EXPENDITURES
SUMMARY BY CATEGORY
FOR THE QUARTER AND YEAR ENDING DECEMBER 31, 2010
($000)

	PUB Approved Budget 2010	4th Quarter Actuals 2010	Total Actual Expend. 2010	Variance From Budget 2010
GENERATION				
HYDRO PLANTS	10,057	1,135	6,722	(3,335)
THERMAL PLANT	6,637	3,178	6,228	(409)
GAS TURBINES	1,638	710	786	(852)
TOTAL GENERATION	18,333	5,023	13,736	(4,597)
TRANSMISSION				
TERMINAL STATIONS	5,768	2,881	4,730	(1,038)
TRANSMISSION	5,474	3,042	5,902	428
TOOLS AND EQUIPMENT	33	7	22	(11)
TOTAL TRANSMISSION	11,276	5,930	10,654	(622)
RURAL SYSTEMS				
DISTRIBUTION	8,512	3,632	10,478	1,966
RURAL GENERATION	3,032	1,488	2,810	(222)
GENERAL	2,396	601	2,770	374
METERING	558	157	453	(105)
TOOLS AND EQUIPMENT	1,636	63	850	(786)
TOTAL RURAL SYSTEMS	16,133	5,941	17,361	1,228

NEWFOUNDLAND & LABRADOR HYDRO
2010 CAPITAL EXPENDITURES
SUMMARY BY CATEGORY
FOR THE QUARTER AND YEAR ENDING DECEMBER 31, 2010
($000)

	PUB Approved Budget 2010	4th Quarter Actuals 2010	Total Actual Expend. 2010	Variance From Budget 2010
GENERAL PROPERTIES				
INFORMATION SYSTEMS	2,008	514	1,811	(197)
TELECONTROL	5,105	1,937	4,485	(620)
TRANSPORTATION	2,299	656	2,060	(239)
ADMINISTRATIVE	1,570	582	1,728	159
TOTAL GENERAL PROPERTIES	10,982	3,689	10,084	(898)
OTHER APPROVED FUNDS				
ALLOWANCE FOR UNFORESEEN EVENTS	1,694	325	851	(843)
PROJECTS APPROVED BY PU BOARD	4,731	1,079	2,762	(1,969)
NEW PROJECTS APPROVED FOR LESS THAN $50,000	148	56	105	(43)
TOTAL CAPITAL BUDGET	63,297	22,043	55,553	(7,744)

NEWFOUNDLAND & LABRADOR HYDRO
2010 CAPITAL EXPENDITURES
GENERATION
FOR THE YEAR QUARTER AND ENDING DECEMBER 31, 2010
($000)

	PUB Approved Budget 2010	4th Quarter Actuals 2010	Total Actual Expend. 2010	Variance From Budget 2010	Percentage Variance From Budget 2010	Variance Explanation Ref. No.
HYDRO PLANTS						
Install Meteorological Stations 2009 - Various Sites	(16)	0	9	25	-158%	
Replace 50 kW Diesel Generator - Bay d'Espoir	317	167	330	13	4%	
Purchase Spare Stator Windings Units 2 - Bay d'Espoir	2,711	(66)	1,655	(1,056)	-39%	1
Replace and Purchase Stator Winding - Bay d'Espoir	4,687	284	3,143	(1,544)	-33%	2
Upgrade Plant Access Road - Bay d'Espoir - (*Project Cancelled)*	0	0	0	0	0%	
Install Meteorological Stations 2010 - Various Sites -*(Project Cancelled)*	443	0	0	(443)	-100%	3
Upgrade Units 5 and 6 Cooling Water Systems - Bay d'Espoir	305	166	349	44	15%	
Upgrade Intake Gate Controls - Upper Salmon	284	42	328	44	15%	
Install Diesel Fuel Tank Monitoring System at Ebbegunbaeg - Bay d'Espoir	236	68	160	(76)	-32%	
Purchase Spare Spherical Valve Seal and Ring Assemblies - Bay d'Espoir	223	153	164	(59)	-26%	
Replace A/C Units in Control and Communications Room - Upper Salmon	197	61	67	(130)	-66%	4
Replace Human Machine Interface (HMI) Computer - Paradise River	158	51	82	(76)	-48%	
Upgrade Fuel Storage - Hinds Lake	149	80	167	18	12%	
Install Gain Heaters Gate 2 Burnt Dam Spillway - Bay d'Espoir	81	48	65	(16)	-20%	
Install Air Conditioning at Burnt Spillway - Bay d'Espoir	48	47	54	6	13%	
Replace 21 Inch Metal Cutting Lathe	80	0	0	(80)	-100%	
Purchase Tools and Equipment Less than $50,000	154	34	149	(5)	-3%	
TOTAL HYDRO PLANTS	**10,057**	**1,135**	**6,722**	**(3,335)**		

NEWFOUNDLAND & LABRADOR HYDRO
2010 CAPITAL EXPENDITURES
GENERATION
FOR THE QUARTER AND YEAR ENDING DECEMBER 31, 2010
($000)

	PUB Approved Budget 2010	4th Quarter Actuals 2010	Total Actual Expend. 2010	Variance From Budget 2010	Percentage Variance From Budget 2010	Variance Explanation Ref. No.
THERMAL PLANT						
Install Motorized Stack Winches - Holyrood	125	209	272	147	117%	
Condition Assessment and Life Extension Study - Holyrood	1,846	484	1,278	(568)	-31%	5
Refurbish Fuel Storage Facility - Holyrood	2,500	1,275	2,560	60	2%	
Replace Programmable Logic Controllers - Holyrood	1,208	828	1,358	150	12%	6
Replace Pumphouse Motor Control Centres - Holyrood	50	15	99	49	97%	
Replace Steam Seal Regulator Unit 1 - Holyrood	335	12	16	(319)	-95%	7
Replace Diesel Fire Pump - Holyrood	112	1	28	(84)	-75%	
Install Cold Reheat Condensate Drains and High Pressure Heater Trip Level Units 1 and 3 - Holyrood	231	148	346	115	50%	8
Install Warm Air Make-up Access - Holyrood	170	206	219	49	29%	
Improve On Site Paving and Drainage - Holyrood	59	0	52	(7)	-12%	
Purchase Tools and Equipment Less than $50,000	0	0	0	0	0%	
TOTAL THERMAL PLANTS	**6,637**	**3,178**	**6,228**	**(409)**		
GAS TURBINES						
Upgrade Gas Turbine Plant Life Extension - Hardwoods	1,305	700	705	(600)	-46%	9
Upgrade Glycol Systems - Stephenville	261	2	3	(258)	-99%	10
Upgrade Fuel Tank Farm Controls - Happy Valley	72	8	78	6	8%	
TOTAL GAS TURBINE PLANTS	**1,638**	**710**	**786**	**(852)**		
TOTAL GENERATION	**18,333**	**5,023**	**13,736**	**(4,597)**		

NEWFOUNDLAND & LABRADOR HYDRO
2010 CAPITAL EXPENDITURES
TRANSMISSION
FOR THE QUARTER AND YEAR ENDING DECEMBER 31, 2010
($000)

	PUB Approved Budget 2010	4th Quarter Actuals 2010	Total Actual Expend. 2010	Variance From Budget 2010	Percentage Variance From Budget 2010	Variance Explanation Ref. No.
TERMINAL STATIONS						
Upgrade Great Northern Peninsula Protection - Various Sites	124	45	196	72	58%	
New 25 kV Terminal Station - Labrador City	2,882	1,336	1,693	(1,189)	-41%	11
Upgrade Power Transformers - Various Sites	816	545	913	98	12%	
Upgrade Circuit Breakers - Various Terminal Stations	342	47	501	159	46%	12
Replace Insulators - Various Terminal Stations	399	227	324	(75)	-19%	
Replace Instrument Transformers - Various Sites	197	112	227	30	15%	
Replace Disconnects - Various Sites	199	91	97	(102)	-51%	13
Perform Grounding Upgrades - Various Sites	291	216	272	(19)	-7%	
Upgrade Trailer and Mobile Substation - Bishop's Falls	30	3	151	121	397%	14
Replace Compressed Air Piping and Install Dew Point Monitoring - Holyrood	79	16	19	(60)	-76%	
Replace Surge Arrestors - Various Sites	73	10	72	(1)	-2%	
Install Digital Fault Recorder - Various Sites	166	111	128	(38)	-23%	
Replace Air Compressors - Various Sites	97	83	86	(11)	-11%	
Replace 230 kV Breaker Controls - Massey Drive and Buchans	73	39	51	(22)	-30%	
TOTAL TERMINAL STATIONS	**5,768**	**2,881**	**4,730**	**(1,038)**		

NEWFOUNDLAND & LABRADOR HYDRO
2010 CAPITAL EXPENDITURES
TRANSMISSION
FOR THE QUARTER AND YEAR ENDING DECEMBER 31, 2010
($000)

	PUB Approved Budget 2010	4th Quarter Actuals 2010	Total Actual Expend. 2010	Variance From Budget 2010	Percentage Variance From Budget 2010	Variance Explanation Ref. No.
TRANSMISSION						
Upgrade Transmission Line TL-212 - Sunnyside to Linton Lake	1,323	1,068	1,804	481	36%	15
Construct Transmission Line Equipment Off-Loading Areas - Various Sites	990	912	984	(6)	-1%	
Perform Wood Pole Line Management Program - Various Sites	2,308	556	2,501	193	8%	
Replace Guy Wires TL-215 - Doyles to Grand Bay	301	281	326	25	8%	
Upgrade Line TL-244 - Plum Point to Bear Cove	141	0	0	(141)	-100%	16
Upgrade Anchors on C Structures TL-259 - Parson's Pond	353	171	225	(128)	-36%	17
Install Remote Ice Growth Detector Beams - Various Sites	58	54	62	4	7%	
TOTAL TRANSMISSION	**5,474**	**3,042**	**5,902**	**428**		
TOOLS AND EQUIPMENT						
Purchase Tools and Equipment Less than $50,000	33	7	22	(11)		
TOTAL TOOLS AND EQUIPMENT	**33**	**7**	**22**	**(11)**		
TOTAL TRANSMISSION	**11,276**	**5,930**	**10,654**	**(622)**		

NEWFOUNDLAND & LABRADOR HYDRO
2010 CAPITAL EXPENDITURES
RURAL SYSTEMS
FOR THE QUARTER AND YEAR ENDING DECEMBER 31, 2010
($000)

	PUB Approved Budget 2010	4th Quarter Actuals 2010	Total Actual Expend. 2010	Variance From Budget 2010	Percentage Variance From Budget 2010	Variance Explanation Ref. No.
DISTRIBUTION						
Provide Service Extensions - All Service Areas	2,428	1,949	4,855	2,427	100%	18
Upgrade Distribution Systems - All Service Areas	2,572	519	2,299	(273)	-11%	19
Upgrade Line 2 Distribution Feeder - Glenburnie	267	64	110	(157)	-59%	20
Upgrade Distribution Lines - Various Sites	218	67	84	(134)	-61%	21
Replace Poles - Various Sites	1,083	468	1,005	(78)	-7%	
Voltage Conversion - Labrador City	1,089	238	1,525	436	40%	22
Replace Recloser Control Panels - Various Sites	603	189	370	(233)	-39%	23
Upgrade Line 2 Voltage Conversion to 25 kV - Gaultois	82	27	40	(42)	-51%	
Install New Voltage Regulators - Various Sites	170	111	190	20	12%	
TOTAL DISTRIBUTION	**8,512**	**3,632**	**10,478**	**1,966**		

NEWFOUNDLAND & LABRADOR HYDRO
2010 CAPITAL EXPENDITURES
RURAL SYSTEMS
FOR THE YEAR QUARTER AND ENDING DECEMBER 31, 2010
($000)

	PUB Approved Budget 2010	4th Quarter Actuals 2010	Total Actual Expend. 2010	Variance From Budget 2010	Percentage Variance From Budget 2010	Variance Explanation Ref. No.
RURAL GENERATION						
Replace Diesel Units - Norman Bay, Cartwright and Black Tickle	347	109	432	85	24%	
Replace Diesel Units - Norman Bay, Postville and Paradise River	1,304	1,079	1,497	193	15%	24
Replace Switchgear - Cartwright	308	64	412	104	34%	25
Increase Generation Capacity - L'Ance Au Loup	736	215	448	(288)	-39%	26
Replace Diesel Unit 2001 and Engine 566 - Francois	168	11	11	(157)	-93%	27
Replace Diesel Unit 2018 - McCallum	19	10	10	(9)	-48%	
Replace Main Bus Splitter - Postville - *(Project Cancelled)*	149	0	0	(149)	-100%	28
TOTAL RURAL GENERATION	**3,032**	**1,488**	**2,810**	**(222)**		

NEWFOUNDLAND & LABRADOR HYDRO
2010 CAPITAL EXPENDITURES
RURAL SYSTEMS
FOR THE QUARTER AND YEAR ENDING DECEMBER 31, 2010
($000)

	PUB Approved Budget 2010	4th Quarter Actuals 2010	Total Actual Expend. 2010	Variance From Budget 2010	Percentage Variance From Budget 2010	Variance Explanation Ref. No.
GENERAL						
Construct New Office/Warehouse/Line Depot Facilities - Happy Valley	528	16	334	(194)	-37%	29
Replace Accom, Septic Sys and Upgrade Plant Communications Sys - Cat Arm	521	164	1,108	587	113%	30
Build New Maintenance Shop - St. Anthony	307	0	316	9	3%	
Upgrade Properties - Port Hope Simpson	71	49	52	(19)	-27%	
Install Fall Protection Equipment at Hydro Facilities - Various Sites	198	103	216	18	9%	
Install Pole Storage Ramps - Various Sites	90	3	78	(12)	-14%	
Legal Survey of Primary Distribution Line Right of Way - Various Sites	65	54	65	(0)	-1%	
Install Waste Oil Storage Tanks - Various Sites	84	43	91	7	8%	
Install Transformer Storage Ramps - Various Sites	89	59	84	(5)	-5%	
Upgrade Accommodations - Norman Bay and Ebbegunbaeg	196	6	302	106	54%	31
Upgrade Fire Protection System - Bishop's Falls	158	86	103	(55)	-35%	
Replace Aviation Fuel Tank and Dispensing Unit - Bishop's Falls	88	18	21	(67)	-76%	
TOTAL GENERAL	**2,396**	**601**	**2,770**	**374**		

NEWFOUNDLAND & LABRADOR HYDRO
2010 CAPITAL EXPENDITURES
RURAL SYSTEMS
FOR THE QUARTER AND YEAR ENDING DECEMBER 31, 2010
($000)

	PUB Approved Budget 2010	4th Quarter Actuals 2010	Total Actual Expend. 2010	Variance From Budget 2010	Percentage Variance From Budget 2010	Variance Explanation Ref. No.
METERING						
Purchase Meters and Equipment 2010 - Various Sites	34	30	30	(4)	-13%	
Install Automatic Meter Reading - Various Sites	490	127	390	(100)	-20%	32
Purchase Meters and Equipment 2009 - Various Sites	33	0	33	(0)	0%	
TOTAL METERING	**558**	**157**	**453**	**(105)**		
TOOLS AND EQUIPMENT						
Replace Off-Road Track Vehicles - Various Sites	685	0	1	(684)	-100%	33
Replace Light-Duty Mobile Equipment - Various Sites	554	8	518	(36)	-6%	
Replace Heavy-Duty Forklift - Unit 9799 - Bishop's Falls	166	0	118	(48)	-29%	
Tools and Equipment Less than $50,000	232	55	213	(19)	-8%	
TOTAL TOOLS AND EQUIPMENT	**1,636**	**63**	**850**	**(786)**		
TOTAL RURAL SYSTEMS	**16,133**	**5,941**	**17,361**	**1,228**		

NEWFOUNDLAND & LABRADOR HYDRO
2010 CAPITAL EXPENDITURES
GENERAL PROPERTIES
FOR THE QUARTER AND YEAR ENDING DECEMBER 31, 2010
($000)

	PUB Approved Budget 2010	4th Quarter Actuals 2010	Total Actual Expend. 2010	Variance From Budget 2010	Percentage Variance From Budget 2010	Variance Explanation Ref. No.
INFORMATION SYSTEMS						
SOFTWARE APPLICATIONS						
INFRASTRUCTURE REPLACEMENT						
NEW INFRASTRUCTURE						
Perform Minor Application Enhancements - Hydro Place	121	61	123	2	2%	
Cost Recoveries	(36)	(33)	(42)	(6)	16%	
Work Protection Software Design	71	32	66	(5)	-7%	
Cost Recoveries	(21)	(17)	(22)	(1)	4%	
Upgrade Intranet - Hydro Place	66	60	66	(0)	0%	
Cost Recoveries	(20)	(19)	(23)	(3)	16%	
UPGRADE OF TECHNOLOGY						
Corporate Application Environment - Upgrade Microsoft Products	751	33	562	(189)	-25%	34
Cost Recoveries	(225)	(33)	(191)	34	-15%	
Upgrade Business Intelligence Toolset Software - Hydro Place	84	40	86	2	3%	
Cost Recoveries	(25)	(23)	(29)	(4)	16%	
TOTAL SOFTWARE APPLICATIONS	**765**	**101**	**596**	**(169)**		

NEWFOUNDLAND & LABRADOR HYDRO
2010 CAPITAL EXPENDITURES
GENERAL PROPERTIES
FOR THE QUARTER AND YEAR ENDING DECEMBER 31, 2010
($000)

	PUB Approved Budget 2010	4th Quarter Actuals 2010	Total Actual Expend. 2010	Variance From Budget 2010	Percentage Variance From Budget 2010	Variance Explanation Ref. No.
COMPUTER OPERATIONS						
INFRASTRUCTURE REPLACEMENT						
PC Replacement Program - Various Sites	406	63	404	(2)	-1%	
Replace Peripheral Infrastructure - Various Sites	222	27	227	5	2%	
Upgrade Enterprise Storage Capacity - Hydro Place	241	64	241	(0)	0%	
Cost Recoveries	(72)	(64)	(82)	(10)	13%	
NEW INFRASTRUCTURE						
Develop Learning Management System Safety Courses - Hydro Place	138	110	139	1	1%	
Cost Recoveries	(41)	(37)	(47)	(6)	14%	
Smart Card Implementation - Various Sites	133	117	133	0	0%	
Cost Recoveries	(40)	(35)	(45)	(5)	13%	
Upgrade Security SCADA Intrusion Prevention System - Hydro Place	62	66	68	6	10%	
Upgrade Security Vulnerability Management System - Hydro Place	81	70	70	(11)	-14%	
Cost Recoveries	(24)	(19)	(24)	0	-2%	
UPGRADE OF TECHNOLOGY						
Upgrade Server Technology Program - Various Sites	197	103	198	1	1%	
Cost Recoveries	(59)	(52)	(67)	(8)	14%	
TOTAL COMPUTER OPERATIONS	**1,243**	**413**	**1,215**	**(28)**		
TOTAL INFORMATION SYSTEMS	**2,008**	**514**	**1,811**	**(197)**		

NEWFOUNDLAND & LABRADOR HYDRO
2010 CAPITAL EXPENDITURES
GENERAL PROPERTIES
FOR THE QUARTER AND YEAR ENDING DECEMBER 31, 2010
($000)

	PUB Approved Budget 2010	4th Quarter Actuals 2010	Total Actual Expend. 2010	Variance From Budget 2010	Percentage Variance From Budget 2010	Variance Explanation Ref. No.
TELECONTROL						
NETWORK SERVICES						
INFRASTRUCTURE REPLACEMENT						
Customer Service Application - Hydro Place	780	254	1,210	430	55%	35
Public Address System - Holyrood	1,156	500	540	(616)	-53%	36
Install Fibre Optic Cable - Hinds Lake	683	148	459	(224)	-33%	37
Replace Radomes - Various Sites	212	44	110	(102)	-48%	38
Upgrade Remote Terminal Units - Various Sites	190	(7)	398	208	109%	39
Purchase Tools and Equipment less than $50,000	109	40	89	(20)	-19%	
NETWORK INFRASTRUCTURE						
Replace Stationary Battery Banks and Chargers - Various Sites	717	315	559	(158)	-22%	40
Replace Network Communications Equipment - Various Sites	131	78	149	18	14%	
Install Mobile Communications - Port Hope Simpson, Charlottetown	208	182	202	(6)	-3%	
UPGRADE OF TECHNOLOGY						
Replace Radio Link with Fiber - Bay d'Espoir	489	32	375	(114)	-23%	41
Upgrade Private Automated Branch Exchange (PABX) - Various Sites	339	344	384	45	13%	
Upgrade Operator Training Simulator - Hydro Place	92	7	10	(82)	-89%	
TOTAL TELECONTROL	**5,105**	**1,937**	**4,485**	**(620)**		

NEWFOUNDLAND & LABRADOR HYDRO
2010 CAPITAL EXPENDITURES
GENERAL PROPERTIES
FOR THE QUARTER AND YEAR ENDING DECEMBER 31, 2010
($000)

	PUB Approved Budget 2010	4th Quarter Actuals 2010	Total Actual Expend. 2010	Variance From Budget 2010	Percentage Variance From Budget 2010	Variance Explanation Ref. No.
TRANSPORATION						
Replace Vehicles and Aerial Devices 2009 - Various Sites	112	0	28	(84)	-75%	
Replace Light Duty Mobile Equipment Less than $50,000 - Various Sites	31	0	35	4	12%	
Replace Vehicles and Aerial Devices 2010 - Various Sites	2,156	656	1,997	(159)	-7%	42
TOTAL TRANSPORATION	**2,299**	**656**	**2,060**	**(239)**		
ADMINISTRATION						
Upgrade System Security 2009 - Various Sites	981	355	1,295	314	32%	43
Purchase Spare Transformer - Hydro Place	21	0	12	(9)	-43%	
Replace Air Conditioning Units 2008 - Hydro Place	50	0	46	(4)	-8%	
Replace Fire Protection Panels - Hydro Place	10	0	8	(2)	-20%	
Remove Safety Hazards - Various Sites	252	160	208	(44)	-18%	
Replace Humidifiers in Air Handling Units - Hydro Place	75	5	14	(61)	-81%	
Purchase Tools and Equipment less than $50,000	180	62	145	(35)	-19%	
TOTAL ADMINISTRATION	**1,570**	**582**	**1,728**	**159**		
TOTAL GENERAL PROPERTIES	**10,982**	**3,689**	**10,084**	**(898)**		

NEWFOUNDLAND & LABRADOR HYDRO
2010 CAPITAL EXPENDITURES
OTHER APPROVED FUNDS
FOR THE QUARTER AND YEAR ENDING DECEMBER 31, 2010
($000)

	PUB Approved Budget 2010	4th Quarter Actuals 2010	Total Actual Expend. 2010	Variance From Budget 2010	Percentage Variance From Budget 2010	Variance Explanation Ref. No.
ALLOWANCE FOR UNFORESEEN EVENTS						
Structure Failure TL-208 - Long Harbour	249	3	340	91	37%	
Microwave Radio Site Ice Storm Damage - Four Mile Hill	445	131	320	(125)	-28%	44
Ice Storm - Southern Labrador	207	191	191	(16)	-8%	
Allowance for Unforeseen Events	**793**	**0**	**0**	**(793)**		
TOTAL ALLOWANCE FOR UNFORESEEN EVENTS	**1,694**	**325**	**851**	**(843)**		
PROJECTS APPROVED BY PUB						
CARRYOVER						
Install Neutral Grounding Resistors - Come By Chance	227	0	0	(227)	-100%	45
Cost Recovery - North Atlantic Refining Limited	(227)	0	0	227		
Upgrade Continuous Emission Monitoring System - Holyrood	697	177	614	(83)	-12%	
Nain Diesel Plant Rehabilitation	1,041	89	117	(924)	-89%	46
Gas Turbine Refurbishment - Stephenville	2,086	165	1,269	(817)	-39%	47
Hinds Lake Powerhouse Slope Stabilization	432	465	497	65	15%	
Work Protection Code Elearning Program	135	34	116	(19)	-14%	
NEW						
Voisey's Bay Nickel - Long Harbour Power Supply	3,605	931	1,332	(2,273)	-63%	48
Cost Recovery - Vale Inco	(3,605)	(931)	(1,332)	2,273		
Replace Fuel Tank - Bay d'Espoir Campsite	120	10	10	(110)	-92%	49
Confined Space Isolation (Blanks and Blinds) - Holyrood	202	139	139	(63)	-31%	
Replace Unit 565 - Little Bay Islands	18	0	0	(18)	-100%	
TOTAL PROJECTS APPROVED BY PUB	**4,731**	**1,079**	**2,762**	**(1,969)**		

NEWFOUNDLAND & LABRADOR HYDRO
2010 CAPITAL EXPENDITURES
OTHER APPROVED FUNDS
FOR THE QUARTER AND YEAR ENDING DECEMBER 31, 2010
($000)

	PUB Approved Budget 2010	4th Quarter Actuals 2010	Total Actual Expend. 2010	Variance From Budget 2010	Percentage Variance From Budget 2010	Variance Explanation Ref. No.
NEW PROJECTS LESS THAN $50,000 APPROVED BY HYDRO						
Replace Generator Unit 2066 - Black Tickle	18	12	18	0	0%	
Replace Domestic Water Pump - Upper Salmon - *(Project Cancelled)*	26	0	0	(26)	-100%	
Replace Drainage Piping - Stephenvill Gas Turbine	48	29	72	24	50%	
Replace Switch - Oxen Pond Terminal Station	38	0	0	(38)	-100%	
Purchase Test Equipment - Hydro Place	18	15	15	(3)	-17%	
TOTAL PROJECTS LESS THAN $50,000 APPROVED BY HYDRO	**148**	**56**	**105**	**(43)**		

NEWFOUNDLAND AND LABRADOR HYDRO
2010 VARIANCE EXPLANATIONS
GENERATION
FOR THE YEAR ENDING DECEMBER 31, 2010
(Greater than $100,000)

1. Purchase Spare Stator Windings Unit 2 – Bay d'Espoir

Budget: $2,711 **Actual: $1,655** **Variance: ($1,056)**

This project has been carried over into 2011. When budgetary quotes were received in 2008 for the supply of stator windings, the material cost of the windings was budgeted at $2.3 million. Between the time the quote was provided and the contract was tendered, the price of copper declined. This, combined with favorable tenders, reduced the material cost of the windings to approximately $1.5 million. The reduction in material costs also resulted in less interest and overhead cost, and no contingency being required.

2. Replace and Purchase Stator Winding – Bay d'Espoir

Budget: $4,687 **Actual: $3,143** **Variance: ($1,544)**

From the time that budgetary quotes were provided for this project in 2008, and the time the contract was tendered in 2010, the price of copper declined. This, combined with favorable tenders, reduced the material cost of the windings by approximately $700,000. Conversely, the contract cost for the installation came in approximately $350,000 higher than quoted. This project has been carried over to 2011 and is expected to be completed for approximately $500,000 less than budgeted.

NEWFOUNDLAND AND LABRADOR HYDRO
2010 VARIANCE EXPLANATIONS
GENERATION
FOR THE YEAR ENDING DECEMBER 31, 2010
(Greater than $100,000)

3. **Install Meteorological Stations 2010 – Various Sites** *(Project Cancelled)*

Budget: **$443** **Actual:** **$0** **Variance:** **($443)**

Part of the Install Meteorological Stations project for 2008 approved by Board Order No. P.U. 30 (2007) included the installation of a remote station in the Cat Arm watershed with a snow water equivalent measurement device (snow pillow). This installation of the snow pillow was a first for Hydro and some problems were encountered with communication of the data from the site to Hydro's data collection center in St. John's. Although the gauge has been in place since 2008, difficulties with the satellite communications have prevented the use of this data. The 2010 program was to add more snow pillows (in remote locations in the watersheds of the Victoria, Long Pond, Hinds Lake and Meelpaeg reservoirs), however, because of the communication difficulties experienced with the Cat Arm snow pillow it was decided to cancel the 2010 project and resubmit it when there was certainty that the data collection issues were resolved and that the data received provides the intended benefit of improved inflow forecasting.

4. **Replace A/C Units in Control and Communications Rooms - Upper Salmon**

Budget: **$197** **Actual:** **$67** **Variance:** **($130)**

This project has been carried over into 2011. The equipment supplier failed to approve required modification drawings on time resulting in a ten week delay in the fabrication and delivery of the air conditioning units which did not arrive on site until late December 2010. The budget for this project was prepared based on a supply and install contract, however, the project was executed with owner supply of equipment and installation by a separate contractor thus reducing the overall cost of the project. The cost of the project was reduced by approximately $41,000 as a result of favorable material and installation prices received during the public tender process. This project will be completed by the end of the first quarter of 2011.

NEWFOUNDLAND AND LABRADOR HYDRO
2010 VARIANCE EXPLANATIONS
GENERATION
FOR THE YEAR ENDING DECEMBER 31, 2010
(Greater than $100,000)

5. Condition Assessment and Life Extension Study - Holyrood

Budget: $1,846 **Actual: $1,278** **Variance: ($568)**

This project was carried over into 2011 due to scope changes to include a more detailed condition assessment of the marine terminal, gas turbine plant and the stack breeching on Units 1 and 2. While completing this project, it was recognized that a more in depth analysis on the items listed above should be undertaken as part of this assessment. It was determined that there were sufficient funds within this project in order to complete this additional work therefore this project is still expected to be completed within budget.

6. Replace Programmable Logic Controllers – Holyrood

Budget: $1,208 **Actual: $1,358** **Variance: $150**

This is a multiyear project scheduled to be completed in 2012. The burner management system controls for Units 1 and 2 were replaced during 2010. There were safety related deficiencies in the burner management control systems that were not identified during the preparation of this proposal. The modifications required to correct these deficiencies resulted in an additional $50,000 for completion and commissioning. As well, the tender for the engineering and supply of the burner management systems and the electrical systems were $100,000 greater than expected. In addition, the scope of this project has been changed to exclude the replacement of the control systems for the warm air makeup system. There are mechanical issues with this system that have to be addressed therefore it would not be prudent to replace the control systems at this time. Overall, this project is expected to be completed within budget.

NEWFOUNDLAND AND LABRADOR HYDRO
2010 VARIANCE EXPLANATIONS
GENERATION
FOR THE YEAR ENDING DECEMBER 31, 2010
(Greater than $100,000)

7. Replace Steam Seal Regulator Unit 1 – Holyrood

Budget: $335 **Actual: $16** **Variance: ($319)**

This is a multiyear project scheduled to be completed in 2011. The original plan for 2010 was to complete the project mechanical design requirements by the beginning of the second quarter and then engage a consultant to complete a pipe stress analysis which would then enable tender preparation and award by the third quarter and construction starting in the fourth quarter. However, due to the system operating conditions (extreme changes in temperature during operation) and piping configuration, the stress analysis required several iterations before acceptable thermal stress levels were achieved. As a result, the stress analysis was not completed until January 2011. The construction tender will now be issued in the first quarter of 2011. Also, the initial plan was to install flow meters in the steam lines that would enable measuring flow rates required for control valve sizing. Unfortunately, this was determined not possible due to the existing piping configuration. This information was later determined by locating another utility that had completed an identical project on a similar turbine to Holyrood Unit 1. As a result, the specification for control and manual isolation valves was not completed and tendered until January 2011. This project is expected to be completed within budget.

8. Install Cold Reheat Condensate Drains and High Pressure Heater Trip Level Units 1 and 3 - Holyrood

Budget: $231 **Actual: $346** **Variance: $115**

After capital budget approval, and during the detailed engineering design, it was determined that the installation of a maintenance platform and a more sophisticated electrical and controls package were required. This resulted in an increase in the cost of the installation contract by $70,000. This extra work also required an increase to the cost of in-house resources by $39,000. Also contributing to the increase in installation cost was a reduced unit outage duration which resulted in the contractor having to work overtime shifts to complete the work within the scheduled outage.

NEWFOUNDLAND AND LABRADOR HYDRO
2010 VARIANCE EXPLANATIONS
GENERATION
FOR THE YEAR ENDING DECEMBER 31, 2010
(Greater than $100,000)

9. Upgrade Gas Turbine Plant Life Extension – Hardwoods

Budget: $1,305 **Actual: $705** **Variance: ($600)**

This is a multiyear project scheduled to be completed in 2012. A major portion of the 2010 budget for this project was allocated to overhauling one gas turbine engine. The proposal assumed that a plant outage would occur early in the year so that the gas turbine engine could be removed, refurbished and returned to service before winter. The plant outage at Hardwoods did not occur until late in October. This did not allow sufficient time to have the engine overhauled and returned to service prior to the winter operation season. Depending on the outage schedule for 2011 and the degree of overhaul required once the engine is disassembled and inspected, the work planned for 2011 which involves the overhaul of another of the gas turbine engines may be delayed to 2012.

10. Upgrade Glycol System – Stephenville

Budget: $261 **Actual: $3** **Variance: ($258)**

This multiyear project was scheduled to start in 2010 with completion in 2011. Equipment scheduled to be ordered in 2010 has been rescheduled for ordering in the first quarter of 2011 due to unavailability of resources with project completion still anticipated for 2011.

NEWFOUNDLAND AND LABRADOR HYDRO
2010 VARIANCE EXPLANATIONS
TRANSMISSION
FOR THE YEAR ENDING DECEMBER 31, 2010
(Greater than $100,000)

11. New 25 kV Terminal Station – Labrador City

Budget:	**$2,882**	**Actual:**	**$1,693**	**Variance:**	**($1,189)**

This is a multi-year project scheduled to be completed in 2012. There were issues which arose during the acquisition of the land required for the new terminal stations which delayed the finalization of the design and the ordering of equipment. The design and ordering of equipment is ongoing with scheduled completion during the first quarter of 2011. This project is expected to be completed within budget.

12. Upgrade Circuit Breakers – Various Terminal Stations

Budget:	**$342**	**Actual:**	**$501**	**Variance:**	**$159**

The original plan for the 2010 Upgrade Circuit Breaker program was to complete five overhauls during 2010. There was an unplanned replacement due to the failure of a 138 kV breaker at Bottom Brook. To help minimize the impact to the overall budget the plan was reduced to two replacements after the breaker failed at Bottom Brook in April. In June, a 230 kV Current Transformer failed at Holyrood Terminal Station that damaged an adjacent breaker, resulting in one phase of breaker B1B11 being replaced. Then in October we experienced a problem with breaker B4B5 at Bay d'Espoir and as a result, this originally deferred breaker overhaul had to be advanced. This action resulted in the cost of this project being approximately $160,000 greater than budgeted.

13. Replace Disconnects – Various Sites

Budget:	**$199**	**Actual:**	**$97**	**Variance:**	**($102)**

This project has been carried over into 2011. The station post insulator specifications were updated in 2009 however the corresponding disconnect specifications were not updated. This resulted in delivery delays since the supplier had to procure insulators and switches to meet our new specification requirements. The disconnect switches were not delivered until September therefore it was not possible to schedule an outage in 2010 and this project will be completed in 2011.

NEWFOUNDLAND AND LABRADOR HYDRO
2010 VARIANCE EXPLANATIONS
TRANSMISSION
FOR THE YEAR ENDING DECEMBER 31, 2010
(Greater than $100,000)

14. Upgrade Trailer and Mobile Substation – Bishop's Falls

Budget: $30 **Actual: $151** **Variance: $121**

The original budget estimate for this project was based on upgrading the trailer and replacing the circuit breaker of the existing mobile substation. An assessment of the condition of the existing trailer concluded that the trailer was near its maximum loading limits which had contributed to the deflection of its support beams and that the trailer should be replaced.

The purchase of a new trailer required that the power transformer be transferred from the existing trailer, function-tested and re-commissioned for service by a qualified contractor in a certified test shop. Given the need to go to a certified testing and fabrication shop, it was seen as an opportune time to perform other necessary work on the transformer. As a result all bushings cover gaskets (including the top cover), coolers, pumps and pipe work will be replaced. In addition all steel control panels will be replaced with lighter weight aluminum with upgrades to the control systems to meet current Nalcor standards. An additional set of CTs will be installed on the 69 kV winding of the transformer to provide increased versatility for the application of the substation, as this asset is essential to provide service to customers during planned and emergency work.

While replacement of the 25 kV oil filled circuit breaker with a lighter more environmentally friendly vacuum style breaker was included in the budget estimate, additional modifications are required to the breaker control system to connect it to the main control panel of the substation and bring it up to Nalcor standards, which were not budgeted. The tendered bids were all higher than anticipated.

NEWFOUNDLAND AND LABRADOR HYDRO
2010 VARIANCE EXPLANATIONS
TRANSMISSION
FOR THE YEAR ENDING DECEMBER 31, 2010
(Greater than $100,000)

15. Upgrade Transmission Line TL-212 – Sunnyside to Linton Lake

Budget:	$1,323	Actual:	$1,804	Variance:	$481

The budget estimate for this project was based on tender pricing received during the 2007 and 2008 construction seasons. The tender pricing was higher than expected resulting in this project being over budget by approximately $480,000.

16. Upgrade Transmission Line TL-244 – Plum Point to Bear Cove

Budget:	$141	Actual:	$0	Variance:	($141)

This project was submitted as a multiyear project to be completed in 2011. Due to the unavailability of resources in the Engineering discipline, it was decided to execute and complete this project in a single year, 2011. This project is expected to be completed within budget.

17. Upgrade Anchors on C Structures TL-259 – Parson's Pond

Budget:	$353	Actual:	$225	Variance:	($128)

The planned scope of this project was to replace existing anchors that were deteriorated due to corrosion. Since anchor components are buried underground, no visual inspection or assessment can be performed at site during the budget preparation. As a result, a worst- case scenario was anticipated in which specially designed concrete gravity based anchors would be utilized to prevent any further deterioration due to corrosion.

During the excavation of the existing anchors, it was determined that the anchors were not as deteriorated as anticipated and it was decided to use standard anchor replacements with rock backfill instead of the concrete anchor design. Therefore, the final project cost was $128,000 less than budgeted.

NEWFOUNDLAND AND LABRADOR HYDRO
2010 VARIANCE EXPLANATIONS
RURAL SYSTEMS
FOR THE YEAR ENDING DECEMBER 31, 2010
(Greater than $100,000)

18. Provide Service Extensions – All Service Areas

Budget: $2,428 **Actual: $4,855** **Variance: $2,427**

The increase in this budget is due to the growth in all areas serviced by Hydro. In the Labrador Interconnected system, there are three new subdivisions being developed in Happy Valley and Sheshatshui with an additional 90 homes being developed in total. Housing developments in the Labrador West area have resulted in an additional 130 new houses planned for that area as well as the connection of the new College of North Atlantic facility. In the Northern region, increased services were required as a result of customers converting from oil fired to electric heating systems. In addition, the interconnection of a wood pellet plant, a saw mill and a high school resulted in additional costs.

19. Upgrade Distribution Systems – All Service Areas

Budget: $2,572 **Actual: $2,299** **Variance: ($273)**

The Upgrade Distribution Systems budget is based on a five year average rather than specifically identified projects. The expenditures for this project were below average in the Labrador region.

20. Upgrade Line 2 Distribution Feeder – Glenburnie

Budget: $267 **Actual: $110** **Variance: ($157)**

This is a four year project and in first year, 2010, it was planned to complete a line assessment and environmental assessment. The environmental assessment cost was less than anticipated due to the limited number of environmental issues which were encountered. Due to other capital work commitments, the line assessment was delayed. The overall project is expected to be completed within budget.

NEWFOUNDLAND AND LABRADOR HYDRO
2010 VARIANCE EXPLANATIONS
RURAL SYSTEMS
FOR THE YEAR ENDING DECEMBER 31, 2010
(Greater than $100,000)

21. Upgrade Distribution Lines – Various Sites

Budget: $218 **Actual: $84** **Variance: ($134)**

This is a multiyear project to be completed in 2011 for the communities of Makkovik and Roddickton. The under expenditure in 2010 is due primarily to the Roddickton portion of the project. The first year was designated for an assessment of the line to be completed. This assessment would have provided the necessary information required to order materials for the construction phase in 2011. The assessment was not completed in 2010, due to other work commitments, and therefore materials were not ordered for the project. Although there is an under expenditure for 2010, the project is expected to be completed within budget.

22. Voltage Conversion – Labrador City

Budget: $1,089 **Actual: $1,525** **Variance: $436**

This is a four year project. This first year of this project was designated for the ordering of materials and the upgrade of Harrie Lake Trailer Court to be 25 kV ready. The cost estimate for this project was created prior to an assessment of the line being performed. Once the assessment of the line was completed late in 2009, it was discovered that dual voltage distribution transformers were required to allow for the Harrie Lake 25 kV conversion. Although there is an over expenditure for the budget year 2010, the four-year project is expected to be completed within budget overall.

23. Replace Recloser Control Panels – Various Sites

Budget: $603 **Actual: $370** **Variance: ($233)**

This project has been carried over into 2011 due to the unavailability of resources to complete this work. A cable run is required to the terminal station equipment and the snow must be melted before this work can be completed in June 2011. Repeated recloser installations have decreased the engineering and install/commissioning time required to complete each recloser replacement. This project is expected to be completed under budget.

NEWFOUNDLAND AND LABRADOR HYDRO
2010 VARIANCE EXPLANATIONS
RURAL SYSTEMS
FOR THE YEAR ENDING DECEMBER 31, 2010
(Greater than $100,000)

24. Replace Diesel Units – Norman Bay, Postville and Paradise River

Budget: $1,304 **Actual: $1,497** **Variance: $193**

Costs were higher than anticipated on this project for two reasons. Firstly, the budget was prepared in 2007 with cost estimates from a local vendor. The final tendered costs for gensets in 2009 and 2010 were approximately double the 2007 budget quotes, or $75,000 greater than budgeted. Secondly, the replacement of gensets was planned to take place while the plant remained in operation. This was not possible due to existing equipment constraints and, as a result, temporary generation was required to maintain service to the community while the work was performed. Additional costs of approximately $96,000 were incurred to rent and transport these gensets, and approximately $65,000 in labour and material costs to install and later remove them. These increases in cost were partially offset by a decrease in the protection and control equipment costs.

25. Replace Switchgear - Cartwright

Budget: $308 **Actual: $412** **Variance: $104**

Originally, all project engineering work was to be done by Hydro personnel, however, due to resource constraints within Engineering Services, outside technical assistance was required to complete the automation portion of the project. The work outsourced included onsite installation of the automation equipment, commissioning of the switchgear system, and operator training. This increased the project cost by approximately $65,000. Project construction costs also increased by $25,000 due to additional changes required for the plant Direct Current (DC) system and remediation of arc flash levels.

26. Increase Generation Capacity – L'Anse Au Loup

Budget: $736 **Actual: $448** **Variance: ($288)**

This project has been carried over into 2011. The mobile transformer has been ordered but due to a longer than expected delivery time is not expected on site in L'Anse Au Loup until mid January of 2011. The new protection and control installations can not take place until after the 2011 winter generation season and will be complete by early fall.

NEWFOUNDLAND AND LABRADOR HYDRO
2010 VARIANCE EXPLANATIONS
RURAL SYSTEMS
FOR THE YEAR ENDING DECEMBER 31, 2010
(Greater than $100,000)

27. Replace Diesel Unit 2001 and Engine 566 – Francois

Budget: $168 Actual: $11 Variance: ($157)

Due to a high engineering work load and priorities on other projects already in progress in 2010, this project began later than originally planned. During the design phase it became apparent that arc flash mitigation requirements[1], which were implemented after the project budget was prepared in 2009, would require replacement of the switchgear for unit 566. When replacement of the switchgear was taken into consideration, replacement of the entire genset is the least cost alternative when compared to replacing switchgear and engine only.

As a result of the expanded equipment replacement scope, additional engineering is now required along with longer lead times on equipment delivery. The lead time on a replacement engine was expected to be approximately 12 weeks, whereas, the lead time for a complete genset is 20 to 26 weeks. In addition, with a direct engine replacement, very little engineering time was required, however, a genset and switchgear replacement requires additional engineering effort. The overall impact on the project was to delay replacement of unit 566 from late fall 2010 to late summer of 2011.

28. Replace Main Bus Splitter – Postville *(Project Cancelled)*

Budget: $149 Actual: $0 Variance: ($149)

The scope of this project was to upgrade the main plant splitter from a 400 amp rating to meet load growth in the community. During the initial development stage of this project, it was determined that the main plant splitter is actually rated at 800 amp which is adequate to meet the load requirements for Postville for the foreseeable future. Therefore this project has been cancelled.

[1]Arc flash hazards are given a Hazard Risk Category (HRC) rating. The target for diesel plants is HRC 2 or below. HRC 3 or above has to be reduced to HRC 2 or below and it has been made a requirement to address arc flash issues whenever performing work on or around equipment classified as an arc flash hazard. Stantec report 133530034-R09, Rev. 0 *Arc Flash Hazard analysis Report Francois Diesel Generating Plant*, classifies the Francois diesel plant as HRC 4.

NEWFOUNDLAND AND LABRADOR HYDRO
2010 VARIANCE EXPLANATIONS
RURAL SYSTEMS
FOR THE YEAR ENDING DECEMBER 31, 2010
(Greater than $100,000)

29. Construct New Office/Warehouse/Line Depot Facilities – Happy Valley

Budget: $528 **Actual: $334** **Variance: ($194)**

This project has been carried over into 2011. Delays in receiving operating information from the Contractor have delayed the consultant's submission for "LEED" certification which is expected to take 3 to 4 months after acceptable information is received. In addition, there is a secondary coat of asphalt required for the parking lot that cannot be done until summer. This project is expected to be completed within budget.

30. Replace Accommodations, Septic System and Upgrade Plant Communications System – Cat Arm

Budget: $521 **Actual: $1,108** **Variance: $587**

The budget of $521,000 was carried over from 2009. The foundation, placement of units, electrical, and mechanical pricing for the installation contract for Cat Arm accommodation units was greater than the original budget. It was decided in 2009 to retender the installation contract in 2010 to provide more competition in the tender process; however, only one bid was received. In order to complete the work in time to use the facility in 2010, there was no option but to proceed with the project based on the tendered price. This added approximately $550,000 to the project cost. The cost benefit analysis was recalculated using updated budgeted cost of $1.8 million and the installation option remained the least cost alternative as the table below shows:

Cat Arm Accommodations
Alternative Comparison
Cumulative Net Present Value
To The Year
2030

Alternatives	Cumulative Net Present Value (CPW)	CPW Difference between Alternative and the Least Cost Alternative
Construct Accomodations	1,887,752	0
Stay Off-Site	2,533,795	646,043

NEWFOUNDLAND AND LABRADOR HYDRO
2010 VARIANCE EXPLANATIONS
RURAL SYSTEMS
FOR THE YEAR ENDING DECEMBER 31, 2010
(Greater than $100,000)

31. Upgrade Accommodations – Norman Bay and Ebbegunbaeg

Budget: $196 **Actual: $302** **Variance: $106**

The increase in costs is due primarily to the contract price for the building construction at Norman Bay with a number of factors contributing to the increased cost. First, due to the relocation of the new building to the opposite side of the site, additional water line trenching, installation of a new septic system, and cleaning and removal of the old system were required. Secondly, the completion date for the project was advanced making it necessary for the contractor to use additional workers to complete the project within the time allowed. The advance in the completion date was due to additional projects in Norman Bay that required use of the new accommodation building.

32. Install Automatic Meter Reading – Various Sites

Budget: $490 **Actual: $390** **Variance: ($100)**

This project was under budget due to the fact that deployment of a second collector on Fogo Island was not required. All meter readings from both Fogo Island and Change Islands were accessible through the submarine cable from the collector installed at the Farewell Head terminal station. Prior to installation, it was unknown if there would be issues with reception of the signals through the submarine cable therefore two collectors were budgeted.

33. Replace Off-Road Track Vehicles – Various Sites

Budget: $685 **Actual: $1** **Variance: ($684)**

The project has been carried over into 2011. The purchase of the two track units is delayed as a result of component shortages due to the down turn in the economy. The supplier estimates the units will be delivered by the end of March 2011. This project is expected to be completed within budget.

NEWFOUNDLAND AND LABRADOR HYDRO
2010 VARIANCE EXPLANATIONS
GENERAL PROPERTIES
FOR THE YEAR ENDING DECEMBER 31, 2010
(Greater than $100,000)

34. Corporate Application Environment – Upgrade Microsoft Products

Budget:	**$751**	**Actual:**	**$562**	**Variance:**	**($189)**

This is a three-year project started in 2010. Due to a lack of resources, one component of the upgrade, Sharepoint, that was originally scheduled to be implemented in 2010, will now be done in 2011. This project is expected to be completed on time and within budget.

35. Customer Service Application – Hydro Place

Budget:	**$780**	**Actual:**	**$1,210**	**Variance:**	**$430**

This project was over budget due to the following reasons. Firstly, there was a change in scope in order to address perceived security issues with the web application, as identified by a third party security assessment. This led to additional contract work as well as additional internal labour to implement and test the resulting modified system. Secondly, there was a another scope change in order to purchase hardware spares for the upgraded PBX. This was an unexpected expense in that the original intention was that support for the system, both hardware and software, would be completely outsourced to the vendor with costs to be covered by operating budgets. However, this support model was determined to be prohibitively expensive. As a result, the decision was made to bring support in house for major components of this system, requiring Hydro to purchase its own set of capital spares.

36. Public Address System – Holyrood

Budget:	**$1,156**	**Actual:**	**$540**	**Variance:**	**($616)**

This project has been carried over into 2011. Initially, this project was tendered in 2008/2009 and the tender responses received exceeded the planned budget so it was re-tendered and divided into two parts, design/ supply and installation/commissioning. Project costs have risen for the following reasons:

NEWFOUNDLAND AND LABRADOR HYDRO
2010 VARIANCE EXPLANATIONS
GENERAL PROPERTIES
FOR THE YEAR ENDING DECEMBER 31, 2010
(Greater than $100,000)

36. Public Address System – Holyrood (cont'd.)

- The requirement for On-Site Representatives during construction, arising out of the corporation's Contractor Safety Management program, were not included in the original budget as this requirement did not exist when the budget was prepared;
- Site specific requirements (rigid conduit, additional devices for infill, higher than estimated cable quantities) have increased material costs; and,
- Labour costs for installation are higher than originally estimated.

As a result, the overall cost of this project is $660,000 greater than originally budgeted.

37. Install Fibre Optic Cable – Hinds Lake

Budget:	**$683**	**Actual:**	**$459**	**Variance:**	**($224)**

This project has been carried over into 2011. The completion date has been extended to 2011 due to the delayed delivery of the Alcatel Multiplexers and the training, installation and commissioning of the OC3 Multiplexing equipment. This project is expected to be completed within budget.

38. Replace Radomes – Various Sites

Budget:	**$212**	**Actual:**	**$110**	**Variance:**	**($102)**

Costs for the project were lower than budgeted for two reasons. First, several of the radomes originally planned to be replaced were located at Four Mile Hill microwave site and were damaged in the March ice storm and subsequently replaced as part of the emergency capital project for that site. Second, the contract for supply and installation of radomes was much lower than budgeted, the budget being based on previous years' experience.

NEWFOUNDLAND AND LABRADOR HYDRO
2010 VARIANCE EXPLANATIONS
GENERAL PROPERTIES
FOR THE YEAR ENDING DECEMBER 31, 2010
(Greater than $100,000)

39. Upgrade Remote Terminal Units (RTUs) – Various Sites

Budget: $190 **Actual: $398** **Variance: $208**

This project has been carried over into 2011. The outage associated with the Bay d'Espoir portion of this project for the Bay d'Espoir Unit 7 RTU installation was originally scheduled for October 2010. However, the overall outage planning schedule resulted in the outage being scheduled in June 2010. As a result of this change, engineering and operational overtime was required in order to meet the revised outage dates. Also, during commissioning of the new RTU, an issue with the GE Energy Systems RTU hardware and firmware integration caused equipment failure, which resulted in unanticipated labour and travel being required to develop and implement a temporary fix. GE Energy Services were requested to replicate the failure and provide a permanent solution. However, during this time, GE Energy Services moved their facilities from Calgary, Alberta to Markham, Ontario which resulted in a number of the key players on GE's side changing which caused a delay in the investigation and the development of a permanent solution. A solution was finally proposed by GE in December, 2010 which will require additional labour, material and travel in 2011 to implement. This project is estimated to be $275,000 greater than budgeted.

40. Replace Stationary Battery Banks and Chargers – Various Sites

Budget: $717 **Actual: $559** **Variance: ($158)**

The total actual cost for this project was less than budget for the following reasons. Internal labour was less than anticipated due to increased efficiencies realized from lessons learned during last year's project. The same internal personnel were leveraged for this year's project. The original budget assumed two distinct installation and commission phases but we were able to complete both activities concurrently. This decreased the labour portion of the installation and commission activities by approximately $106,000. This resulted in less interest and overhead costs as well as no contingency being required.

NEWFOUNDLAND AND LABRADOR HYDRO
2010 VARIANCE EXPLANATIONS
GENERAL PROPERTIES
FOR THE YEAR ENDING DECEMBER 31, 2010
(Greater than $100,000)

41. Replace Radio Link with Fiber – Bay d'Espoir

Budget:	**$489**	**Actual:**	**$375**	**Variance:**	**($114)**

Both the engineering design and installation of the equipment required less time than budgeted reducing the cost of these activities by approximately $70,000. This resulted in less interest and overhead costs as well as no contingency being required.

42. Replace Vehicles and Aerial Devices 2010 – Various Sites

Budget:	**$2,156**	**Actual:**	**$1,997**	**Variance:**	**($159)**

This project has been carried over into 2011. The project was intended to be submitted as two year project due to the difficulty in ordering and receiving all the equipment in one calendar year. Inadvertently, only the first year of this project was submitted and approved. The equipment delivery is expected in mid March 2011.

43. Upgrade System Security 2009 – Various Sites

Budget:	**$981**	**Actual:**	**$1,295**	**Variance:**	**$314**

This is a multiyear project started in 2009 to be completed in 2010. It has now been carried over into 2011. There were three major components to this project during 2010; fencing upgrades, card access installation and security camera installation, all at various locations throughout the Hydro system. The fencing upgrades and card access installations have been completed. Security camera installations were scheduled to be completed by late December however, due to complications with the installations at several sites in November and December, and equipment delivery delays from the supplier, the work had to be rescheduled for the first quarter of 2011.

NEWFOUNDLAND AND LABRADOR HYDRO
2010 VARIANCE EXPLANATIONS
OTHER APPROVED FUNDS
FOR THE YEAR ENDING DECEMBER 31, 2010
(Greater than $100,000)

44. Microwave Radio Site Ice Storm Remediation – Four Mile Hill

Budget: $445 **Actual: $320** **Variance: ($125)**

This project was initiated on an emergency basis to repair ice damage sustained at Hydro's Four Mile Hill site in March, 2010. The storm destroyed two microwave antennas and damaged ice shields, fire protection and the building's roof. At the time the budgetary proposal was developed, it was difficult to assess the extent of the damage without removing the roof membrane and external siding. In order to restore service as soon as possible, a budget proposal was generated to investigate the extent of the damage and effect repairs. Detailed aerial and structural assessments of the tower were required in order to provide an accurate budget for the project. The contract for the tower repairs included the material costs. Fortunately the costs were lower than anticipated.

45. Install Neutral Grounding Resistors – Come by Chance *(Project Cancelled)*

Budget: $227 **Actual: $0** **Variance: ($227)**

This project was to be fully contributed by Hydro's customer North Atlantic Refining Limited (NARL) and was approved by Board Order No. P.U. 26 (2008). Hydro was waiting for NARL to approve the cost recovery expenditure for this project; however, this has been ongoing for 3 years and has still not been approved. Therefore Hydro will cancel this project and will resubmit when NARL makes the decision to proceed.

46. Nain Diesel Plant Rehabilitation

Budget: $1,041 **Actual: $117** **Variance: ($924)**

Protection and control labour resources were not available to start the Nain automation work until November 2010 due to previous commitments in Ramea and Cartwright. This work is currently on-going. It has been subsequently determined that insurance proceeds estimated at $884,000 will reduce this years estimated expenditure of $1,041,000.

NEWFOUNDLAND AND LABRADOR HYDRO
2010 VARIANCE EXPLANATIONS
OTHER APPROVED FUNDS
FOR THE YEAR ENDING DECEMBER 31, 2010
(Greater than $100,000)

47. Gas Turbine Refurbishment – Stephenville

Budget: $2,086 **Actual: $1,269** **Variance: ($817)**

The actual cost of the overhaul work performed by Rolls Wood Group was approximately $709,000 less than budgeted. Due to the nature of gas turbine engine overhaul work, it is impossible to fully understand the scope of refurbishment required until the engine is disassembled and inspected. The required refurbishment work was less than originally anticipated resulting in an overall cost savings to this project.

48. Voisey's Bay Nickel – Long Harbour Power Supply

Budget: $3,605 **Actual: $1,332** **Variance: ($2,273)**

This is a multiyear project started in 2010 with completion due in 2012. The delayed signing until May 2010 of the Contribution in Aid of Construction agreement with Vale resulted in no deliveryof terminal station electrical equipment in 2010. Additional delays occurred when a tender award for transmission line towers had to be cancelled due to supplier issues. Project activity has restarted with a new tender award and a review of the project indicates it will be completed within budget and on time.

NEWFOUNDLAND AND LABRADOR HYDRO
2010 VARIANCE EXPLANATIONS
OTHER APPROVED FUNDS
FOR THE YEAR ENDING DECEMBER 31, 2010
(Greater than $100,000)

49. Replace Fuel Tank – Bay d'Espoir Campsite

Budget: $120 **Actual: $10** **Variance: ($110)**

There are two main contributing factors that caused this project to carry over into 2011. The project was an unbudgeted capital project that was initially submitted to the PUB in early August, with approval received the last week of September. Once the tenders for fabrication and supply of the tank and fuelling cabinet were received in October, there was an 8 to 10 week delivery on most of the major components of the fuelling cabinet. This delivery schedule coupled with the planned holiday shut down of the fabrication plant meant it was impossible to meet the original delivery of mid December. All components were received by the end of December, and fabrication of the cabinet and tank is expected to be completed by the end of the first quarter, 2011.

NEWFOUNDLAND AND LABRADOR HYDRO
CAPITAL BUDGET VERSUS ACTUAL EXPENDITURES 2001 – 2011
AS AT DECEMBER 31
($000)

Table 1: CAPITAL BUDGET VERSUS ACTUAL EXPENDITURES 2001 – 2010

Year	Budget	Actual Expenditures	Variance	Percentage Variance
2001	55,897	47,501	8,396	15.0%
2002	44,660	40,217	4,443	9.9%
2003	36,122	32,506	3,616	10.0%
2004	31,435	27,984	3,451	11.0%
2005	47,760	33,952	13,808	28.9%
2006	49,024	41,217	7,807	15.9%
2007	43,304	35,669	7,635	17.6%
2008	53,579	46,246	7,333	13.7%
2009	61,544	54,152	7,392	12.0%
2010	63,297	55,553	7,744	12.2%

The variances shown in Table 1 above include amounts related to the carryover of projects from year to year. Total variances actual to budget for completed projects are 1% for 2009 and 2010. These are well within acceptable ranges; however, the number of individual projects with variances greater than $100,000 in 2009 and 2010 tend to be greater than in previous years, due to continued high volatility in commodity prices and a trend of increasing costs associated with the strong labour market currently being experienced in the province.

The variances presented in Table 1 are almost entirely due to under-spending as a result of not completing all projects approved each year. It is anticipated that some carryover of projects will occur in most years as there may be unavoidable reasons for delays in project completion, for example, system constraints which are precipitated by changes in hydrology, equipment failures, etc.

In spite of strong continued effort by Hydro's project execution team, and largely due to an imbalance between project workload and resource allocation in support of project execution, capital budget versus actual expenditure percentage variance continues to be greater than 10%. Recently there have been organizational structure changes within both Hydro and Nalcor with the establishment of a Project Execution and Technical Services division that should lead to improved delivery and compliance of capital projects in future.

NEWFOUNDLAND AND LABRADOR HYDRO
2010 CARRYOVER REPORT
FOR THE YEAR ENDING DECEMBER 31, 2010
($000)

Project Name	PUB Approved Budget 2010	Revised Budget 2010	Total Actual Expend. 2010	Carryover Amount	Variance Explanation Ref. No.	Original Completion Year
Purchase Spare Stator Windings Units 2 - Bay d'Espoir	4,687	4,192	3,143	1,049	2	2010
Replace A/C Units in Control and Communications Room - Upper Salmon	197	156	67	89	3	2010
Replace 21 Inch Metal Cutting Lathe	80	80	0	80		2010
Condition Assessment and Life Extension Study - Holyrood	1,846	1,846	1,278	568	5	2010
Install Warm Air Make-up Access - Holyrood	170	306	219	87		2010
Replace Disconnects - Various Sites	199	199	97	102	13	2010
Replace 230 kV Breaker Controls - Massey Drive and Buchans	73	73	51	22		2010
Replace Recloser Control Panels - Various Sites	603	385	370	15	23	2010
Increase Generation Capacity - L'Ance Au Loup	736	736	448	288	26	2010
Construct New Office/Warehouse/Line Depot Facilities - Happy Valley	528	528	334	194	29	2010
Replace Aviation Fuel Tank and Dispensing Unit - Bishop's Falls	88	94	21	73		2010
Replace Off Road Track Vehicles - Various Sites	685	685	1	684	33	2010
Tools and Equipment Less than $ 50,000	232	44	29	15		2010
Public Address System - Holyrood	1,156	1,548	540	1,008	36	2010
Install Fibre Optic Cable - Hinds Lake	683	683	459	224	37	2010
Upgrade Remote Terminal Units - Various Sites	190	468	398	70	39	2010
Replace Vehicles and Aerial Devices 2010 - Various Sites	2,156	2,830	1,997	833	42	2010
Upgrade System Security 2009 - Various Sites	981	1,436	1,295	141	43	2010
Replace Humidifiers in Air Handling Units - Hydro Place	75	75	14	61		2010
Replace Fuel Tank - Bay D'Espoir Campsite	120	120	10	110	49	2010
Replace Switch - Oxen Pond Terminal Station	38	38	0	38		2010

NEWFOUNDLAND AND LABRADOR HYDRO
2010 CARRYOVER REPORT
FOR THE YEAR ENDING DECEMBER 31, 2010
($000)

Project Name	PUB Approved Budget 2010	Revised Budget 2010	Total Actual Expend. 2010	Carryover Amount	Variance Explanation Ref. No.	Original Completion Year
Replace Pumphouse Motor Control Centres - Holyrood	50	50	99	(49)		2011
Replace Steam Seal Regulator Unit 1 - Holyrood	335	335	16	319	7	2011
Replace Diesel Fire Pump - Holyrood	112	112	28	84		2011
Upgrade Gas Turbine Plant Life Extension - Hardwoods	1,305	1,305	705	600	9	2011
Upgrade Glycol Systems - Stephenville	261	261	3	258	10	2011
Replace Compressed Air Piping and Install Dew Point Monitoring - Holyrood	79	79	19	60		
New 25 kV Terminal Station - Labrador City	2,882	2,882	1,693	1,189	11	2011
Upgrade Trailer and Mobile Substation - Bishop's Falls	30	517	151	366	14	2011
Upgrade Line TL-244 - Plum Point to Bear Cove	141	141	0	141	16	2011
Upgrade Line 2 Distribution Feeder - Glenburnie	267	267	110	157	20	
Upgrade Distribution Lines - Various Sites	218	218	84	134	21	2011
Upgrade Line 2 Voltage Conversion to 25 kV - Gaultois	82	82	40	42		2011
Replace Diesel Unit 2001 and Engine 566 - Francois	168	168	11	157	27	2011
Replace Diesel Unit 2018 - McCallum	19	19	10	9		2011
Corporate Application Environment - Upgrade Microsoft Products	751	751	562	189	34	2011
Cost Recoveries	(225)	(225)	(191)	(34)		
Nain Diesel Plant Rehabilitation	1,041	1,041	118	923		2011
Confined Space Isolation (Blanks & Blinds) - Holyrood	202	202	139	63		2011
Replace Unit 565 - Little Bay Islands	18	18	0	18		2011
Replace Programmable Logic Controllers - Holyrood	1,208	1,543	1,358	185	6	2012
Voltage Conversion - Labrador City	1,089	1,089	1,525	(436)	22	2012
Voisey's Bay Nickel - Long Harbour Power Supply	3,605	3,605	1,332	2,273	48	2012
Cost Recovery - Vale Inco	(3,605)	(3,605)	(1,332)	(2,273)		
	25,556	**27,377**	**17,251**	**10,126**		

newfoundland labrador hydro
a nalcor energy company

Hydro Place. 500 Columbus Drive.
P.O. Box 12400. St. John's. NL
Canada A1B 4K7
t. 709.737.1400 f. 709.737.1800
www.nlh.nl.ca

March 8, 2012

The Board of Commissioners of Public Utilities
Prince Charles Building
120 Torbay Road, P.O. Box 21040
St. John's, NL
A1A 5B2

ATTENTION: Ms. Cheryl Blundon
Director of Corporate Services & Board Secretary

Dear Ms. Blundon:

Re: 2011 Capital Expenditures and Carryover – Year End

Pursuant to Board Order No. P.U. 38 (2010), p. 19, item 3, enclosed please find the original and eight copies of Newfoundland and Labrador Hydro's (Hydro) report on 2011 Capital Expenditures and Carryover for the year ended December 31, 2011.

Should you have any questions, please contact the undersigned.

Yours truly,

NEWFOUNDLAND AND LABRADOR HYDRO

David Hamis for
Geoffrey P. Young
Senior Legal Counsel

GPY/mmcd
Encls.

A REPORT TO
THE BOARD OF COMMISSIONERS OF PUBLIC UTILITIES

CAPITAL EXPENDITURES AND CARRYOVER REPORT

For Year Ending December 31, 2011

March 2012

newfoundland labrador hydro
a nalcor energy company

NEWFOUNDLAND AND LABRADOR HYDRO
CAPITAL EXPENDITURES AND CARRYOVER REPORT
For Year Ending December 31, 2011

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NEWFOUNDLAND and LABRADOR HYDRO
2011 CAPITAL EXPENDITURES
OVERVIEW
FOR THE QUARTER AND YEAR ENDING DECEMBER 31, 2011
($000)

	PUB Approved Budget 2011	4th Quarter Actuals 2011	Total Actual Expend. 2011	Variance From Budget 2011
GENERATION	15,560	3,912	11,500	(4,060)
TRANSMISSION	14,889	4,804	15,516	628
RURAL SYSTEMS	23,729	9,381	23,245	(484)
GENERAL PROPERTIES	9,911	2,923	8,734	(1,176)
ALLOWANCE FOR UNFORESEEN EVENTS	1,000	579	2,001	1,001
PROJECTS APPROVED BY PU BOARD	2,267	915	2,054	(213)
PROJECTS UNDER $50,000 APPROVED BY HYDRO	99	57	66	(33)
TOTAL CAPITAL BUDGET	67,454	22,571	63,116	(4,338)

2011 Capital Budget Approved by Board Order No. P.U. 38 (2010)[1]	55,043
Carryover Projects 2010 to 2011	10,126
New Project Approved by Board Order No. 29 (2010)	450
New Project Approved by Board Order No. 34 (2010)	1,602
New Project Approved by Board Order No. 20 (2011)	134
2011 New Projects under $50,000 Approved by Hydro	99
TOTAL APPROVED CAPITAL BUDGET	67,454

[1] Due to rounding, there was a slight difference in the amount approved by the PU Board for the 2011 Capital Budget. The amount approved was $55,046.

NEWFOUNDLAND and LABRADOR HYDRO
2011 CAPITAL EXPENDITURES
SUMMARY BY CATEGORY
FOR THE QUARTER AND YEAR ENDING DECEMBER 31, 2011
($000)

	PUB Approved Budget 2011	4th Quarter Actuals 2011	Total Actual Expend. 2011	Variance From Budget 2011
GENERATION				
HYDRO PLANTS	5,371	629	4,139	(1,232)
THERMAL PLANT	7,637	2,083	5,555	(2,082)
GAS TURBINES	2,552	1,200	1,806	(746)
TOTAL GENERATION	15,560	3,912	11,500	(4,060)
TRANSMISSION				
TERMINAL STATIONS	11,384	4,401	11,205	(179)
TRANSMISSION LINES	3,504	403	4,311	807
TOTAL TRANSMISSION	14,889	4,804	15,516	628
RURAL SYSTEMS				
DISTRIBUTION	14,633	5,850	15,994	1,361
GENERATION	5,218	1,732	4,001	(1,217)
PROPERTIES	623	96	512	(111)
METERING	637	116	417	(220)
TOOLS AND EQUIPMENT	2,618	1,587	2,321	(297)
TOTAL RURAL SYSTEMS	23,729	9,381	23,245	(484)

NEWFOUNDLAND and LABRADOR HYDRO
2011 CAPITAL EXPENDITURES
SUMMARY BY CATEGORY
FOR THE QUARTER AND YEAR ENDING DECEMBER 31, 2011
($000)

	PUB Approved Budget 2011	4th Quarter Actuals 2011	Total Actual Expend. 2011	Variance From Budget 2011
GENERAL PROPERTIES				
INFORMATION SYSTEMS	2,189	586	2,184	(5)
TELECONTROL	3,930	1,601	3,600	(330)
TRANSPORTATION	3,184	460	2,072	(1,112)
ADMINISTRATIVE	609	276	878	269
TOTAL GENERAL PROPERTIES	9,911	2,923	8,734	(1,176)
ALLOWANCE FOR UNFORESEEN EVENTS	1,000	579	2,001	1,001
PROJECTS APPROVED BY PU BOARD	2,267	915	2,054	(213)
PROJECTS UNDER $50,000 APPROVED BY HYDRO	99	57	66	(33)
TOTAL CAPITAL BUDGET	67,454	22,571	63,116	(4,338)

NEWFOUNDLAND and LABRADOR HYDRO
2011 CAPITAL EXPENDITURES
GENERATION
FOR THE YEAR QUARTER AND ENDING DECEMBER 31, 2011
($000)

	PUB Approved Budget 2011	4th Quarter Actuals 2011	Total Actual Expend. 2011	Variance From Budget 2011	Percentage Variance From Budget 2011	Variance Explanation Ref. No.
HYDRO PLANT						
Replace Static Excitation System - Upper Salmon, Holyrood and Hinds Lake	1,214	17	18	(1,196)	-99%	1
Upgrade Burnt Dam Access Road Phase 2 - Bay d'Espoir	998	148	1,095	97	10%	
Upgrade Generating Station Service Water System - Cat Arm	360	218	349	(11)	-3%	
Upgrade Intake Gate Controls - Bay d'Espoir	352	27	507	155	44%	2
Upgrade Burnt Dam Spillway Structure - Bay d'Espoir	258	44	161	(97)	-38%	
Purchase Spare Disconnect - Bay d'Espoir	176	40	73	(103)	-58%	3
Replace Automatic Transfer Switches - Bay d'Espoir and Hinds Lake	156	5	54	(102)	-65%	4
Purchase Hydro Meteorological Stations - Various Sites	113	0	0	(113)	-100%	5
Replace Fire Alarm System - Hinds Lake	109	14	21	(88)	-81%	
Install Compressor for Frazil Ice Removal - Upper Salmon Changed to Granite Canal	69	0 28	60	(9)	-13%	
Upgrade Public Safety Around Dams and Waterways - Bay d'Espoir	49	0 31	48	(1)	-3%	
Purchase Spare Stator Windings Units 2 - Bay d'Espoir	1,049	7	1,344	295	28%	6
Replacement of Fuel Tank - Bay d'Espoir Campsite	110	2	103	(7)	-6%	
Replace A/C Units in Control and Communications Room - Upper Salmon	89	(5)	74	(15)	-17%	
Replace 21 Inch Metal Cutting Lathe	80	0	77	(3)	-4%	
Purchase Tools and Equipment Less than $50,000	186	53	155	(31)	-17%	
TOTAL HYDRO PLANT	**5,371**	**629**	**4,139**	**(1,232)**		

NEWFOUNDLAND and LABRADOR HYDRO
2011 CAPITAL EXPENDITURES
GENERATION
FOR THE QUARTER AND YEAR ENDING DECEMBER 31, 2011
($000)

	PUB Approved Budget 2011	4th Quarter Actuals 2011	Total Actual Expend. 2011	Variance From Budget 2011	Percentage Variance From Budget 2011	Variance Explanation Ref. No.
THERMAL PLANT						
Replace Programmable Logic Controllers - Holyrood	932	212	877	(55)	-6%	
Upgrade Hydrogen System - Holyrood	1192	206	281	(911)	-76%	7
Replace Pumphouse Motor Control Centres - Holyrood	950	236	1,091	141	15%	8
Upgrade Synchronous Condenser Unit 3 - Holyrood	484	142	147	(337)	-70%	9
Upgrade Forced Draft Fan Ductwork Unit 1 - Holyrood	843	62	416	(427)	-51%	10
Replace Relay Panels Unit 3 - Holyrood	277	69	139	(138)	-50%	11
Replace Boiler Blowdown Tanks - Holyrood	750	202	743	(7)	-1%	
Upgrade Electrical Equipment - Holyrood	188	76	187	(1)	-1%	
Replace Steam Seal Regulator Unit 2 - Holyrood	175	32	54	(121)	-69%	12
Replace Steam Seal Regulator Unit 1 - Holyrood	533	78	318	(215)	-40%	13
Replace Diesel Fire Pump - Holyrood	279	(26)	156	(123)	-44%	14
Install Weatherhoods for Vent Fans - Holyrood	208	542	549	341	164%	15
Purchase Laser Alignment Equipment - Holyrood	79	31	31	(48)	-61%	
Condition Assessment and Life Extension Study - Holyrood	568	104	416	(152)	-27%	16
Install Warm Air Make-up Access - Holyrood	87	48	81	(6)	-7%	
Purchase Tools and Equipment Less than $50,000	94	69	69	(25)	-26%	
TOTAL THERMAL PLANT	**7,637**	**2,083**	**5,555**	**(2,082)**		
GAS TURBINES						
Upgrade Gas Turbine Plant Life Extension - Hardwoods	1,924	1,052	1,215	(709)	-37%	17
Upgrade Glycol Systems - Stephenville	557	97	539	(18)	-3%	
Upgrade Gas Turbine Operator Console - Stephenville	72	51	52	(20)	-27%	
TOTAL GAS TURBINE PLANTS	**2,552**	**1,200**	**1,806**	**(746)**		
TOTAL GENERATION	**15,560**	**3,912**	**11,500**	**(4,060)**		

NEWFOUNDLAND and LABRADOR HYDRO
2011 CAPITAL EXPENDITURES
TRANSMISSION
FOR THE QUARTER AND YEAR ENDING DECEMBER 31, 2011
($000)

	PUB Approved Budget 2011	4th Quarter Actuals 2011	Total Actual Expend. 2011	Variance From Budget 2011	Percentage Variance From Budget 2011	Variance Explanation Ref. No.
TERMINAL STATIONS						
Upgrade Terminal Stations to 25 kV - Labrador City	4689	2,817	6,262	1,573	34%	18
Perform Grounding Upgrades - Various Sites	321	120	288	(33)	-10%	
Upgrade Substation - Wabush	459	4	14	(445)	-97%	19
Upgrade Power Transformers - Various Sites	866	217	329	(537)	-62%	20
Upgrade Station Reliability and Safety - Rocky Harbour	435	(1)	5	(430)	-99%	21
Replace 69 kV SF6 Breakers - St. Anthony Airport	490	25	499	9	2%	
Replace Breaker, Structures and Disconnects - Hawke's Bay	687	267	340	(347)	-51%	22
Replace Compressed Air System - Bay d'Espoir	84	56	87	3	4%	
Replace 230 kV Circuit Breaker - Sunnyside	41	5	8	(33)	-81%	
Upgrade Trailer and Mobile Substation - Bishop's Falls	834	36	895	61	7%	
Replace Compressed Air Piping and Install Dew Point Monitoring - Holyrood	477	200	552	75	16%	
Replace Insulators - Various Sites	401	247	512	111	28%	23
Upgrade Air Blast Circuit Breakers - Various Sites	334	(37)	297	(37)	-11%	
Replace Disconnects - Various Sites	295	316	408	113	38%	24
Replace Compressor, Dryer and Air Piping Header System - Corner Brook Frequency Converter Station	280	28	147	(133)	-48%	25
Replace Instrument Transformers - Various Sites	199	15	149	(50)	-25%	
Install Alternate Station Services - Stony Brook and Massey Drive	86	6	6	(80)	-93%	
Replace Digital Fault Recorder - Bay d'Espoir	169	28	72	(97)	-57%	
Replace Surge Arresters - Various Sites	75	7	67	(8)	-10%	
Voisey's Bay Nickel - Long Harbour Power Supply	10,600	4,137	10,338	(262)	-2%	
Cost Recovery - Vale Inco	(10,600)	(4,137)	(10,338)	262		
Replace Disconnects - Various Sites	102	44	205	103	101%	26
Replacement of Switch B5B2-2, Oxen Pond Terminal Station	38	0	50	12	32%	
Replace 230 kV Breaker Controls - Massey Drive and Buchans	22	1	13	(9)	-41%	
TOTAL TERMINAL STATIONS	**11,384**	**4,401**	**11,205**	**(179)**		

NEWFOUNDLAND and LABRADOR HYDRO
2011 CAPITAL EXPENDITURES
TRANSMISSION
FOR THE QUARTER AND YEAR ENDING DECEMBER 31, 2011
($000)

	PUB Approved Budget 2011	4th Quarter Actuals 2011	Total Actual Expend. 2011	Variance From Budget 2011	Percentage Variance From Budget 2011	Variance Explanation Ref. No.
TRANSMISSION LINES						
Perform Wood Pole Line Management Program - Various Sites	2,019	125	2,219	200	10%	
Replace Guy Wires TL-215 - Doyles to Grand Bay	289	9	465	176	61%	27
Upgrade Line TL-244 - Plum Point to Bear Cove	1,196	269	1,627	431	36%	28
TOTAL TRANSMISSION LINES	**3,504**	**403**	**4,311**	**807**		
TOTAL TRANSMISSION	**14,889**	**4,804**	**15,516**	**628**		

NEWFOUNDLAND and LABRADOR HYDRO
2011 CAPITAL EXPENDITURES
RURAL SYSTEMS
FOR THE QUARTER AND YEAR ENDING DECEMBER 31, 2011
($000)

	PUB Approved Budget 2011	4th Quarter Actuals 2011	Total Actual Expend. 2011	Variance From Budget 2011	Percentage Variance From Budget 2011	Variance Explanation Ref. No.
DISTRIBUTION						
Voltage Conversion - Labrador City	3,065	1,327	2,932	(133)	-4%	
Upgrade L2 Distribution Feeder - Glenburnie	735	201	418	(317)	-43%	29
Provide Service Extensions - All Service Areas	3,385	1,998	5,591	2,206	65%	30
Upgrade Distribution Systems - All Service Areas	2,499	1,238	3,401	902	36%	31
Upgrade Distribution Lines - Roddickton and Makkovik	1,779	162	1,160	(619)	-35%	32
Upgrade Distribution Systems - Rigolet, Happy Valley and Francois	1,068	398	614	(454)	-42%	33
Replace Poles - Various Sites	882	357	985	103	12%	34
Upgrade Line 2 Voltage Conversion to 25 kV - Gaultois	553	(1)	590	37	7%	
Replace Substation Infrastructure - Burgeo	128	3	7	(121)	-95%	35
Install Voltage Regulators - Conne River and L'Anse au loup	293	81	118	(175)	-60%	36
Replace Recloser Control Panels (2011) - Various Sites	232	168	178	(54)	-23%	
Replace Recloser Control Panels (2010) - Various Sites	15	(82)	0	(15)	-100%	
TOTAL DISTRIBUTION	**14,633**	**5,850**	**15,994**	**1,361**		

NEWFOUNDLAND and LABRADOR HYDRO
2011 CAPITAL EXPENDITURES
RURAL SYSTEMS
FOR THE YEAR QUARTER AND ENDING DECEMBER 31, 2011
($000)

	PUB Approved Budget 2011	4th Quarter Actuals 2011	Total Actual Expend. 2011	Variance From Budget 2011	Percentage Variance From Budget 2011	Variance Explanation Ref. No.
GENERATION						
Perform Arc Flash Remediation - Various Sites	430	81	108	(322)	-75%	37
Replace Fuel Storage Facility - Postville	2,007	988	1,835	(172)	-9%	
Replace Diesel Unit 2001 and Engine 566 - Francois	607	187	466	(141)	-23%	38
Replace Diesel Unit 2018 - McCallum	430	243	371	(59)	-14%	
Replace Mini Hydro Turbine - Roddicton	87	11	11	(76)	-87%	
Install Sequence of Events Monitor in Diesel Plant - Port Hope Simpson	155	7	7	(148)	-95%	39
Replace Fuel Storage Tank - Francois	131	107	139	8	6%	
Upgrade Fuel Storage - Norman Bay	114	8	95	(19)	-17%	
Upgrade Plant Overhead Crane Lifting System - Mary's Harbour	47	25	31	(16)	-33%	
Nain Diesel Plant Rehabilitation	923	333	1,237	(526)	-57%	40
Cost Recovery - Insurance Claim	0	(344)	(840)	0		
Increase Generation Capacity - L'Anse Au Loup	288	86	541	253	88%	41
TOTAL GENERATION	5,218	1,732	4,001	(1,217)		

NEWFOUNDLAND and LABRADOR HYDRO
2011 CAPITAL EXPENDITURES
RURAL SYSTEMS
FOR THE QUARTER AND YEAR ENDING DECEMBER 31, 2011
($000)

	PUB Approved Budget 2011	4th Quarter Actuals 2011	Total Actual Expend. 2011	Variance From Budget 2011	Percentage Variance From Budget 2011	Variance Explanation Ref. No.
PROPERTIES						
Install Fall Protection Equipment - Various Sites	198	67	213	15	7%	
Legal Survey of Primary Distribution Line Right of Way - Various Sites	79	1	5	(74)	-94%	
Install Waste Oil Storage Tank - St. Lewis	79	(2)	78	(1)	-1%	
Construct New Office/Warehouse/Line Depot Facilities - Happy Valley	194	30	130	(64)	-33%	
Replace Aviation Fuel Tank and Dispensing Unit - Bishop's Falls	73	0	86	13	18%	
TOTAL PROPERTIES	**623**	**96**	**512**	**(111)**		
METERING						
Install Automatic Meter Reading - Labrador City and Port au Choix	451	69	237	(214)	-47%	42
Purchase Meters, Equipment and Tanks - Various Sites	186	47	180	(6)	-3%	
TOTAL METERING	**637**	**116**	**417**	**(220)**		
TOOLS AND EQUIPMENT						
Replace Off Road Track Vehicles - Bishop's Falls and Fogo	494	377	404	(90)	-18%	
Replace Light Duty Mobile Equipment - Various Sites	757	466	582	(175)	-23%	43
Purchase Excavators - Bishop's Falls	361	339	339	(22)	-6%	
Purchase Tools and Equipment Less than $50,000 (2011)	183	59	174	(9)	-5%	
Purchase Tools and Equipment Less than $50,000 (2010)	87	50	83	(4)	-5%	
Purchase Portable Dissolved Gas Analysis Unit - Bishop's Falls	52	44	44	(8)	-15%	
Replace Off Road Track Vehicles - Bishop's Falls and Whitbourne	684	252	695	11	2%	
TOTAL TOOLS AND EQUIPMENT	**2,618**	**1,587**	**2,321**	**(297)**		
TOTAL RURAL SYSTEMS	**23,729**	**9,381**	**23,245**	**(484)**		

NEWFOUNDLAND and LABRADOR HYDRO
2011 CAPITAL EXPENDITURES
GENERAL PROPERTIES
FOR THE QUARTER AND YEAR ENDING DECEMBER 31, 2011
($000)

	PUB Approved Budget 2011	4th Quarter Actuals 2011	Total Actual Expend. 2011	Variance From Budget 2011	Percentage Variance From Budget 2011	Variance Explanation Ref. No.
INFORMATION SYSTEMS						
SOFTWARE APPLICATIONS						
NEW INFRASTRUCTURE						
Perform Minor Application Enhancements - Hydro Place	121	38	121	0	0%	
Cost Recoveries	(39)	(12)	(39)	0		
UPGRADE OF TECHNOLOGY						
Corporate Application Environment - Upgrade Microsoft Products	864	253	860	(43)	-5%	
Cost Recoveries	(237)	(81)	(275)	0		
Replace iSeries Computer and Upgrade Operating System - Hydro Place	643	103	641	(2)	0%	
Cost Recoveries	(206)	(33)	(206)	0		
TOTAL SOFTWARE APPLICATIONS	**1,147**	**268**	**1,102**	**(45)**		
COMPUTER OPERATIONS						
INFRASTRUCTURE REPLACEMENT						
PC Replacement Program - Hydro Place	404	76	422	19	5%	
Replace Peripheral Infrastructure - Various Sites	258	85	276	18	7%	
Upgrade Enterprise Storage Capacity - Hydro Place	227	78	226	0	0%	
Cost Recoveries	(73)	(25)	(72)	0		
NEW INFRASTRUCTURE						
Develop Learning Management System Courses - Hydro Place	123	112	124	0	0%	
Cost Recoveries	(40)	(36)	(40)	0		
UPGRADE OF TECHNOLOGY						
Upgrade Server Technology Program - Hydro Place	209	41	214	4	2%	
Cost Recoveries	(67)	(13)	(68)	0		
TOTAL COMPUTER OPERATIONS	**1,042**	**318**	**1,082**	**40**		
TOTAL INFORMATION SYSTEMS	**2,189**	**586**	**2,184**	**(5)**		

NEWFOUNDLAND and LABRADOR HYDRO
2011 CAPITAL EXPENDITURES
GENERAL PROPERTIES
FOR THE QUARTER AND YEAR ENDING DECEMBER 31, 2011
($000)

	PUB Approved Budget 2011	4th Quarter Actuals 2011	Total Actual Expend. 2011	Variance From Budget 2011	Percentage Variance From Budget 2011	Variance Explanation Ref. No.
TELECONTROL						
NETWORK SERVICES						
INFRASTRUCTURE REPLACEMENT						
Replace MDR 6000 Microwave Radio (West) - Various Sites	72	24	28	(44)	-61%	
Refurbish Microwave Site - Deer Lake	207	90	114	(93)	-45%	
Replace Radomes - Various Sites	196	54	102	(94)	-48%	
Purchase Tools and Equipment less than $50,000	86	36	36	(50)	-58%	
Public Address System - Holyrood	1,008	356	1,206	198	20%	44
Install Fibre Optic Cable - Hinds Lake	224	10	117	(107)	-48%	45
Upgrade Remote Terminal Units - Various Sites	70	(18)	95	25	36%	
NETWORK INFRASTRUCTURE						
Replace Battery Banks and Chargers - Various Sites	978	558	872	(106)	-11%	46
Replace Network Communications Equipment - Various Sites	667	265	669	2	0%	
UPGRADE OF TECHNOLOGY						
Install Tower Ice Protection - Chapel Hill Microwave Site	294	199	231	(63)	-21%	
Replace Telephone Keyset - Wabush	80	12	84	5	6%	
Upgrade Site Facilities - Various Sites	48	15	46	(2)	-4%	
TOTAL TELECONTROL	**3,930**	**1,601**	**3,600**	**(330)**		

NEWFOUNDLAND and LABRADOR HYDRO
2011 CAPITAL EXPENDITURES
GENERAL PROPERTIES
FOR THE QUARTER AND YEAR ENDING DECEMBER 31, 2011
($000)

	PUB Approved Budget 2011	4th Quarter Actuals 2011	Total Actual Expend. 2011	Variance From Budget 2011	Percentage Variance From Budget 2011	Variance Explanation Ref. No.
TRANSPORATION						
Replace Vehicles and Aerial Devices 2011 - Various Sites	2,351	457	1,254	(1,097)	-47%	47
Replace Vehicles and Aerial Devices 2010 - Various Sites	833	3	818	(15)	-2%	
TOTAL TRANSPORATION	**3,184**	**460**	**2,072**	**(1,112)**		
ADMINISTRATION						
Remove Safety Hazards - Various Sites	252	142	240	(12)	-5%	
Replace Humidifiers in Air Handling Units - Hydro Place	76	16	18	(58)	-76%	
Purchase Tools and Equipment less than $50,000	79	7	44	(35)	-44%	
Upgrade System Security 2009 - Various Sites	141	110	527	386	274%	48
Replace Humidifiers in Air Handling Units - Hydro Place	61	1	49	(12)	-20%	
TOTAL ADMINISTRATION	**609**	**276**	**878**	**269**		
TOTAL GENERAL PROPERTIES	**9,911**	**2,923**	**8,734**	**(1,176)**		

NEWFOUNDLAND and LABRADOR HYDRO
2011 CAPITAL EXPENDITURES
OTHER APPROVED FUNDS
FOR THE QUARTER AND YEAR ENDING DECEMBER 31, 2011
($000)

	PUB Approved Budget 2011	4th Quarter Actuals 2011	Total Actual Expend. 2011	Variance From Budget 2011	Percentage Variance From Budget 2011	Variance Explanation Ref. No.
ALLOCATION FOR UNFORESEEN EVENTS						
Increase Generation Capacity - Charlottetown	1,000	60	1,482	482	48%	49
Ice Storm - Baie Verte Peninsula	0	519	519	519	100%	50
Allocation for Unforeseen Events	0	0	0	0		
TOTAL ALLOCATION FOR UNFORESEEN EVENTS	**1,000**	**579**	**2,001**	**1,001**		
PROJECTS APPROVED BY PU BOARD						
CARRYOVER						
Confined Space Isolation (Blanks and Blinds) - Holyrood	1,665	415	1,330	(335)	-20%	51
Replace Unit 565 - Little Bay Islands	468	228	452	(16)	-3%	
NEW						
Upgrade Stack Breeching Unit 1 - Holyrood	134	272	272	138	103%	52
TOTAL PROJECTS APPROVED BY PU BOARD	**2,267**	**915**	**2,054**	**(213)**		
NEW PROJECTS LESS THAN $50,000 APPROVED BY HYDRO						
Replace Domestic Service Water Pump in Powerhouse Upper Salmon	28	10	10	(18)	-64%	
Replace Generator Unit 2073 - Port Hope Simpson	26	28	32	6	25%	
Purchase Crown Land - Mary's Harbour	5	0	5	(0)	-6%	
Replace Gas/Diesel Fuel Storage Tank - Cat Arm	17	19	19	2	12%	
Replace Engine 2062 - Grey River	23	0	0	(23)	-100%	
TOTAL PROJECTS LESS THAN $50,000 APPROVED BY HYDRO	**99**	**57**	**66**	**(33)**		

NEWFOUNDLAND AND LABRADOR HYDRO
2011 VARIANCE EXPLANATIONS
GENERATION
FOR THE YEAR ENDING DECEMBER 31, 2011
(Greater than $100,000 and 10% Variance from Budget)

Although this is a 2011 Capital Variance Report, Hydro has explained the variances in context of the full project since many of the variances pertain to multi-year projects. Any differences in the approved annual cash flows compared to the amounts shown in the tables below are due to carry over amounts from the previous year.

1. Replace Static Excitation System – Upper Salmon, Holyrood and Hinds Lake

Budget: $1,214 **Actual: $18** **Variance: ($1,196)**

This is a three year project from 2011 to 2013 to replace static excitation systems at Upper Salmon, Holyrood and Hinds Lake. The initial project schedule and estimated cost are listed in the table below.

Year	Activity	Cost ($000)
2011	Design and Installation of the Static Excitation System – Upper Salmon	1,214.3
2012	Design and Installation of the Static Excitation System – Holyrood Unit 3	1,528.0
2013	Design and Installation of the Static Excitation System – Hinds Lake	1,366.8
	Total	$4,109.1

The overall project scope, budget and completion date are unchanged.

In the first quarter of 2011, a thorough analysis of the project execution plan was undertaken. A review of updated vendor delivery times and outage schedules, and consideration of a failure event for the Hinds Lake excitation system, led to an adjustment to the project execution plan. Installation of the Hinds Lake excitation system was advanced from 2013 to 2012; installation of the Upper Salmon excitation system was deferred from 2011 to 2013; and installation of the Holyrood excitation system was unchanged. The updated cash flow is shown in the table below.

Year	Activity	Cost ($000)
2011A	Design and tender for all three excitation systems.	17.5
2012	Install Excitation Systems – Hinds Lake and Holyrood Unit 3	2,872.3
2013	Install Excitation System – Upper Salmon	1,219.3
	Total	$4,109.1

2011 VARIANCE EXPLANATIONS
GENERATION
FOR THE YEAR ENDING DECEMBER 31, 2011
(Greater than $100,000 and 10% Variance from Budget)

1. Replace Static Excitation System – Upper Salmon, Holyrood and Hinds Lake (cont'd.)

Progress is on pace with the new schedule. The equipment supply contracts for the three excitation systems are in the tendering stage and are expected to be awarded in the first quarter of 2012. Installation has been incorporated into the 2012 and 2013 work plans.

2. Upgrade Intake Gate Controls – Bay d'Espoir

Budget: $352 **Actual: $507** **Variance: $155**

This is a two year project from 2011 to 2012 to upgrade the electrical controls at the Bay d'Espoir Intake Gates 1, 2 and 3, including the establishment of the supporting communications network between Intakes 1, 2, 3 and 4 and Powerhouse 1. The original budgeted project cost by year is shown in the table below.

Year	Activity	Cost ($000)
2011	Upgrade gate controls at one Intake Structure and establish communications network	352.3
2012	Upgrade gate controls at two Intake Structures	468.0
	Total	$820.3

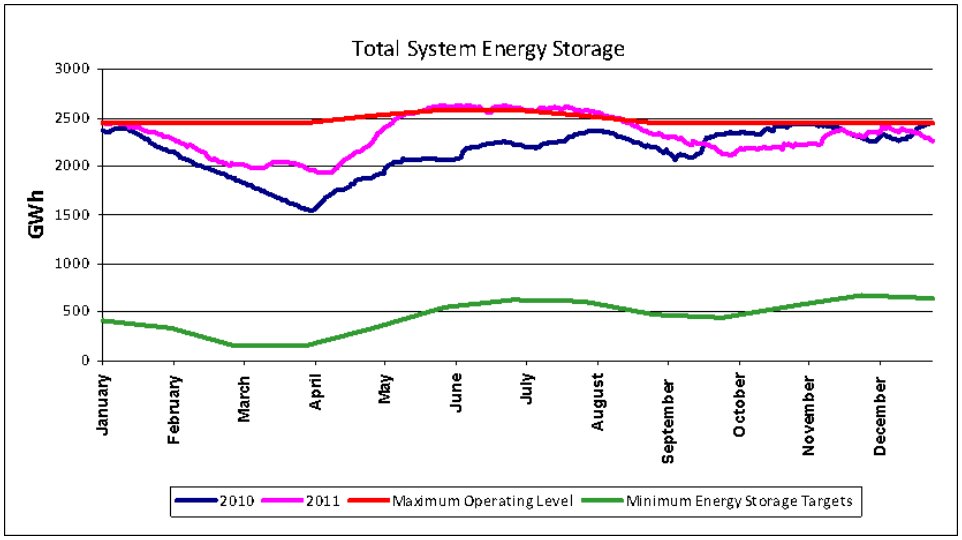
The overall project scope and completion date are unchanged and the scope of work for 2011 is complete.

In 2011, design and procurement were completed on schedule and on budget, and construction commenced during the planned summer outage. Part way through construction, however, Hydro had to change the outage schedule due to exceptionally high inflows into the Bay d'Espoir Reservoir System. The inflows during July 2011 were the highest in Hydro's sixty-year record and surpassed the previous July maximum set in 1996 by four percent as shown in the graph below. With the high reservoir levels, the required outage would have increased the risk of spilling water. To protect rate payer interests, Hydro decided to defer the balance

NEWFOUNDLAND AND LABRADOR HYDRO
2011 VARIANCE EXPLANATIONS
GENERATION
FOR THE YEAR ENDING DECEMBER 31, 2011
(Greater than $100,000 and 10% Variance from Budget)

2. <u>Upgrade Intake Gate Controls – Bay d'Espoir</u> (cont'd.)

of the planned work until reservoir levels subsided (to reduce spill potential). The project team shifted focus to designing, installing and commissioning temporary gate controls, which was accomplished, and the units were released for service in July 2011. The required unit outages were secured in September 2011, at which time the project team remobilized, removed the temporary controls, and completed the original planned work.



The requirement for temporary controls and remobilization led to an increase in the project budget. The table below shows the actual expenditures for 2011 and the updated cash flow for 2012, resulting in a new project total budget:

Year	Cost ($000)
2011A	507.0
2012	495.4
Total	$1,002.4

Hydro conducted a lessons learned exercise on the 2011 portion of this project. Through this exercise, Hydro has identified an opportunity to enhance aspects of its project risk management processes. Enhancements are being implemented early in 2012 and will be applied to the 2012 work for this project.

NEWFOUNDLAND AND LABRADOR HYDRO
2011 VARIANCE EXPLANATIONS
GENERATION
FOR THE YEAR ENDING DECEMBER 31, 2011
(Greater than $100,000 and 10% Variance from Budget)

3. Purchase Spare Disconnect – Bay d'Espoir

Budget: $176 **Actual: $73** **Variance: ($103)**

This is a single year project to engage a vendor to design, construct and supply a spare unit disconnect switch for Bay d'Espoir. The project scope has not changed but the project schedule will carry over into 2012. The work was initially tendered without response. Hydro retendered after an effort to identify qualified bidders and was successful in engaging a vendor at a price that was within the budget. The retendering, combined with the vendor's failure to meet their promised delivery schedule, led to this project being carried into 2012. The switch design is complete and fabrication is in progress. Delivery is anticipated in 2012 with a revised project cost of $132,734 which is approximately 25 percent under budget.

4. Replace Automatic Transfer Switches – Bay d'Espoir and Hinds Lake

Budget: $156 **Actual: $54** **Variance: ($102)**

This was a single year project to replace automatic transfer switches at Hinds Lake and Bay d'Espoir Powerhouse 2 in 2011. The planned scope of work was completed on budget and on schedule for Bay d'Espoir Powerhouse 2. Regarding Hinds Lake, it was discovered in the project planning phase that the available off-the-shelf automatic transfer switches could not provide the functionality required at Hinds Lake. A technical solution that is substantially different has since been identified, a new scope of work developed, and a preliminary estimate prepared. The approved budget was insufficient to execute the work for Hinds Lake. Accordingly, Hydro has cancelled the Hinds Lake portion of this project. A separate project proposal with the new scope of work will be prepared for consideration by the Board as part of Hydro's 2013 Capital Budget Application.

NEWFOUNDLAND AND LABRADOR HYDRO
2011 VARIANCE EXPLANATIONS
GENERATION
FOR THE YEAR ENDING DECEMBER 31, 2011
(Greater than $100,000 and 10% Variance from Budget)

5. Purchase Hydro Meteorological Stations – Various Sites

Budget: $113 **Actual: $0** **Variance: ($113)**

This project has been cancelled. The project was to take over management responsibility of three existing hydro meteorological stations that are presently managed by Environment Canada, through a partnership with the provincial Department of Environment and Conservation (DEC). In the second quarter of 2011, DEC asserted its authority under the Water Resources Act to require Hydro to continue with the existing arrangement in cooperation with DEC and Environment Canada.

6. Purchase Spare Stator Windings Unit 2 – Bay d'Espoir

Budget: $1,049 **Actual: $1,344** **Variance: $295**

This was a one year project in 2010 to install spare windings on Bay d'Espoir Unit 2 and procure one set of spare windings for future installation on Bay d'Espoir Units 1, 3 or 4. The project is complete and there was no change to the scope. The original budget of $4,687,100 was revised in 2010 to $4,191,900. The project carried over into 2011 due to late delivery of the spare windings. The forecast final cost is $4,487,687, which is seven percent over the revised budget, but four percent below the original estimate.

7. Upgrade Hydrogen System - Holyrood

Budget: $1,192 **Actual: $281** **Variance: ($911)**

This is a two year project to upgrade the hydrogen gas system at Holyrood. The original proposed project cost and activity by year is shown in the table below.

Year	Activity	Cost ($000)
2011	Design, procure and start construction of a hydrogen electrolyzer, low pressure hydrogen bulk storage tanks, and three hydrogen gas control panels	1,191.9
2012	Complete construction; procure and install automatic hydrogen venting systems on generating Units 2 and 3, and replace the manual gas control valves and piping	800.4
	Total	$1,992.3

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7. Upgrade Hydrogen System – Holyrood (cont'd.)

The overall project scope, budget and completion date are unchanged.

As a part of Hydro's overall efforts to improve project execution during the planning phase of this project in early 2011, the project execution plan was reviewed and adjusted to reduce the risk of impacting plant reliability. The focus in 2011 was changed to achieving a more complete engineering design of the new system and ordering all long lead items. These objectives were achieved in 2011. The focus in 2012 will be developing a detailed construction plan and completing the construction and commissioning. The revised cash flow is as follows:

Year	Activity	Cost ($000)
2011A	Design and order long lead items	281.2
2012	Construction and commissioning	1,711.1
	Total	$1,992.3

8. Replace Pumphouse Motor Control Centres - Holyrood

Budget: $950 **Actual: $1,091** **Variance: $141**

This is a two year project scheduled to be completed in 2011, but which will carry over into 2012 with an 11 percent increase in the total budget. The carry over and budget increase are a result of the original design and associated technical specification not including replacement of the relay controls required for operation of the pump house equipment. The new MCC panels, which had already been procured, did not include space for relay controls. As a result, separate relay control panels had to be designed, procured and installed. This design was conducted during construction and the relay panels were successfully incorporated into the system for one of the three generating units. The delays, however, prevented Hydro from completing the work for the other two generating units in 2011, causing the carry-over into 2012. Remaining work is integrated into the 2012 work plan.

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8. Replace Pumphouse Motor Control Centres – Holyrood (cont'd.)

Both Hydro and the engineering consultant engaged for this project reviewed their respective quality control processes as to the design omission and met to share lessons learned. One of the outcomes of that review was to obtain agreement by the consultant to cover a significant portion of the cost for the incremental scope of work.

The original and revised budget estimate by year is shown in the table below. The credit from the engineering consultant is included in the revised figures.

Year	Original Cost ($000)	Revised Cost ($000)
2010	50.0	99.5
2011	998.6	561.3
2012	-	508.0
Total	$1,048.6	$1,168.8

9. Upgrade Synchronous Condenser Unit 3 – Holyrood

Budget: $484 **Actual: $147** **Variance: ($337)**

This is a two year project to perform modifications to the Holyrood Generating Unit 3 synchronous condenser to reduce vibration levels during operation. The original cash flow by year is shown in the table below.

Year	Cost ($000)
2011	483.6
2012	405.5
Total	$889.0

The overall project scope, budget and completion date are unchanged.

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9. Upgrade Synchronous Condenser Unit 3 – Holyrood (cont'd.)

There has been a revision to the project execution plan affecting the cash flow. Hydro engaged a specialist vendor in 2011 to design and supply the equipment for this project. The sole source engagement took longer than anticipated to reach an agreement that allows for performance guarantees. Some of the progress payments that were forecast to occur in 2011 have moved into 2012, but there is no impact on delivery of the overall project. The updated cash flow is shown in the table below.

Year	Cost ($000)
2011A	147.0
2012	742.0
Total	$889.0

10. Upgrade Forced Draft Fan Ductwork Unit 1 - Holyrood

Budget: $843 Actual: $416 Variance: ($427)

This was a one year project to upgrade the forced draft fan ductwork on Unit 1, which was carried over into 2012 with a budget increase from $843,000 to $1,497,941 due to exceptionally higher than estimated construction contract cost. The schedule delay was a result of Hydro taking the additional time needed to reduce contract cost and to confirm that the higher cost was warranted.

The design and procurement phases of this project were delivered on budget and on schedule; however, initial tendering of the installation work produced an evaluated low bid that was 212 percent higher than the budgeted cost. The work was not awarded at this stage. To improve pricing through the benefits of scale, Hydro packaged this work with other approved work for Holyrood and retendered. This tender included optional pricing for construction in 2011 and separate optional pricing for construction in 2012.

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10. Upgrade Forced Draft Fan Ductwork Unit 1 – Holyrood (cont'd.)

Hydro conducted a critical review of the project before proceeding. A cost benefit analysis of three alternatives was studied: (1) complete the project in 2011 with construction during an exceptional unit outage in the shoulder season prior to the winter availability period; (2) complete the project in 2012 with construction during the planned unit outage; and (3) terminate the project. The analysis was conducted in the same manner as that used in the submission under the 2011 Capital Budget Application, with the exceptions that updated project costs were used and a more conservative assumption was made regarding the probability of failure. In the original analysis, it was assumed that failure of the ductwork would occur in 2018 for the status quo alternative. In this updated analysis, a more conservative assumption was made that the probability of failure for the remainder of the study period is 50%. The results are summarized in the table below. The analysis clearly demonstrates that it is prudent to complete the project at the higher total project cost in 2012, on the basis of mitigation of the risk of failure and energy savings from a reduced load on the forced draft fans.

Holyrood - Upgrade Unit 1 Forced Draft Fan (FDF) Ductwork		
Alternative Comparison *Cumulative Net Present Value* *To The Year 2020*		
Alternatives	**Cumulative Net Present Value (CPW)**	**CPW Difference between Alternative and the Least Cost Alternative**
(1) Modify FDF Ductwork In 2011	1,787,683	937,666
(2) Modify FDF Ductwork In 2012	850,017	0
(3) Status Quo (Terminate Project)	1,572,911	722,894

Hydro awarded the construction contact in 2011 and has incorporated the project into the 2012 work plan, for project completion in November 2012.

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11. Replace Relay Panels Unit 3 - Holyrood

Budget: $277 Actual: $139 Variance: ($138)

This is a two year project to replace the existing hardwired relay logic infrastructure contained in the three relay panels on Unit 3 with a distributed control system (DCS). The original cash flow by year is shown in the table below.

Year	Activity	Cost ($000)
2011	Design and DCS programming	277.1
2012	Installation and commissioning	553.6
	Total	$830.7

The overall project scope and budget are unchanged. There has been a revision to the design phase of the project execution plan affecting the cash flow. The execution plan for the construction phase is being reviewed and project completion may be delayed.

This project includes an extensive engineering planning phase to compile and field verify the termination schedules and to develop control logic diagrams, from which a vendor will design and program new controls equipment. The field verification step is crucial; proceeding without accurate termination schedules would introduce high risk of project re-work and may lead to technical issues affecting unit reliability. In 2011, the termination schedules were assembled from existing drawings and field verification commenced during planned outages. The discrepancies between the drawings and actual field conditions resulted in additional termination schedule field checks and revisions are required in 2012. Hydro was therefore not in a position in 2011 to engage a vendor for design and programming. Hydro is reviewing the impact of this delay on the construction phase of the project and some of the construction may carry over into 2013. When field verification is complete, Hydro will provide the Board with a revised project schedule, budget and cash flow with the 2013 Capital Budget Application.

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11. Replace Relay Panels Unit 3 – Holyrood (cont'd.)

The revised cash flow by year, subject to further revision in 2012, is shown in the table below.

Year	Cost ($000)
2011A	139.4
2012	691.3
Total	$830.7

12. Replace Steam Seal Regulator Unit 2 - Holyrood

Budget: $175 Actual: $54 Variance: ($121)

This is a two year project to replace the existing hydraulic steam seal regulator on Unit 2 with two pneumatically operated steam pressure control valves. The original budgeted cash flow by year is shown in the table below.

Year	Activity	Cost ($000)
2011	Design and DCS programming	175.0
2012	Installation and commissioning	438.4
	Total	$613.4

The project completion date is unchanged.

The original project execution plan included ordering of the control valves in 2011. As a measure to mitigate project risk, there was a deliberate delay in ordering the valves until experience was gained for identical valves on the similar steam seal regulator project for Holyrood Unit 1 that were scheduled to be installed and commissioned in 2011. The valve procurement delay will not impact overall project completion.

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12. <u>Replace Steam Seal Regulator Unit 2 – Holyrood</u> (cont'd.)

The overall cost of this project will increase to $794,600. During detailed design in 2011, it was determined that the replacement of the pressure safety valve, associated discharge piping and pipe supports would be required in order to provide adequate steam venting for the new steam seal regulator system.

The revised budget estimate by year is shown in the table below.

Year	Cost ($000)
2011A	53.7
2012	740.9
Total	$794.6

13. <u>Replace Steam Seal Regulator Unit 1 – Holyrood</u>

Budget: $533 Actual: $318 Variance: ($215)

This is a two year project that was scheduled to be completed in 2011. The original budget is shown below.

Year	Cost ($000)
2010	335.0
2011	213.7
Total	$548.7

The project is carried into 2012 and the total cost of this project has increased to $658,900 with the breakdown by year as shown below.

Year	Cost ($000)
2010A	16.1
2011A	315.5
2012	327.3
Total	$658.9

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13. Replace Steam Seal Regulator Unit 1 – Holyrood (cont'd.)

The construction contract was awarded in 2011 in time for the planned outage. Shortly after the award, the contractor submitted a revised schedule that extended the work beyond the planned outage window. The contractor was unable to revise their schedule to meet the outage requirements. The contract was terminated and retendered for execution in 2012. The work has been incorporated into the 2012 work plan.

The overall cost of this project will increase to $658,900. As outlined in Item 12 – Replace Steam Seal Regulator Unit 2, during detailed design, it was determined that the replacement of the pressure safety valve, associated discharge piping and pipe supports would be required in order to provide adequate steam venting for the new steam seal regulator system.

14. Replace Diesel Fire Pump – Holyrood

Budget: $279 Actual: $156 Variance: ($123)

This is a two year project to replace the diesel fire pump. The original budget is shown below.

Year	Cost ($000)
2010	111.9
2011	195.4
Total	$307.3

The project scope is unchanged.

The design and procurement phases of this project were delivered on budget. Initial tendering of the installation work resulted in an evaluated low bid that was 182 percent higher than the budgeted cost. The work was not awarded at this stage. To improve pricing through the benefits of scale, Hydro packaged this work with other approved work for Holyrood and retendered to attract additional competitive bidders. This was successful in that the evaluated low bid on the second tender was $93,700 less than the evaluated low bid for the first tender call. The decision to retender meant that the 2011 outage window would be missed.

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14. Replace Diesel Fire Pump – Holyrood (cont'd.)

Hydro awarded the contract for construction in 2012 and the work has been incorporated into 2012 work plan.

The revised budget is shown below.

Year	Cost ($000)
2010A	27.9
2011A	155.8
2012	191.5
Total	$375.2

15. Install Weatherhoods for Vent Fans - Holyrood

Budget: $208 Actual: $549 Variance: $341

This was a one year project to replace weatherhoods on the powerhouse ventilation fans.

The project was completed in 2011 and the scope was unchanged.

The design and procurement phases of this project were delivered on budget. Initial tendering of the installation work resulted in an evaluated low bid that was 420 percent higher than the budgeted cost. The work was not awarded at this stage. To improve pricing through the benefits of scale, Hydro packaged this work with other approved work for Holyrood and retendered to attract additional competitive bidders. Hydro conducted a review of the project justification at this stage, and confirmed that the project was justified on the basis of documented air quality concerns in the powerhouse, and the associated health risk to workers. Hydro awarded the construction contract and adjusted the 2011 work plan to complete the work in the fourth quarter of 2011. The work was successfully completed.

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16. Condition Assessment and Life Extension Study - Holyrood

Budget: $568 Actual: $416 Variance: ($152)

This was a two year project to conduct a condition assessment for Holyrood, scheduled to be completed in 2010; however, it was carried into 2011 to complete more detailed condition assessment of the marine terminal, gas turbine plant and the stack breeching on Units 1 and 2. The project is complete and the total cost at completion was eight percent under budget.

17. Upgrade Gas Turbine Plant Life Extension - Hardwoods

Budget: $1,924 Actual: $1,215 Variance: ($709)

This is a three year project to upgrade the Gas Turbine at Hardwoods. The original budget is as follows.

Year	Activity	Cost ($000)
2010	Refurbish end B gas turbine equipment. Site retrofits and upgrades.	1,304.5
2011	Refurbish end A gas turbine equipment. Site retrofits and upgrades.	1,323.6
2012	Refurbish generator and exciter. Site retrofits and upgrades.	3,366.6
	Total	$5,994.7

The scope of this project remains unchanged and the project is expected to be completed within budget.

The original project execution plan allowed for the overhaul of one gas turbine engine in each of the first two years of the project. As a result of the first engine not being completed in 2010, the plan was revised to complete one engine in 2011 and the second engine in 2012. The revised cash flow for this project is shown in the table below.

Year	Cost ($000)
2010A	704.5
2011A	1,214.6
2012	4,075.6
Total	$5,994.7

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18. Upgrade Terminal Stations to 25 kV – Labrador City

Budget: $4,689 Actual: $6,262 Variance: $1,573

The original budget was submitted as a three year project to construct two new 46/25 kV terminal stations. Each station will have two new 46/25 kV, 15/20/25 MVA power transformers, new 46 kV and 25 kV electrical equipment, and new control buildings The budget estimate by year is shown in the table below.

Year	Cost ($000)
2009	283.2
2010	3,894.8
2011	5,812.6
Total	$9,990.6

The budget for this project was previously increased to $12,650,000 and the 2012 expenditure has been adjusted to incorporate the change in the overall budget. Also, see PUB-NLH-36 (Appendix A) in the Newfoundland and Labrador Hydro 2012 Capital Budget Application.

Year	Cost ($000)
2009A	100.8
2010A	1,693.5
2011A	6,262.4
2012	4,593.3
Total	$12,650.0

This project was estimated in 2008 based on market conditions at the time and using standard escalation indices for future year expenditures. The market conditions realized in Labrador West in the past 24 months have been atypical, driven by strong economic activity in the area. The outcome is an escalation beyond Hydro's standards in contracts, materials and labour.

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19. Upgrade Substation - Wabush

Budget: $459 **Actual: 14** **Variance: ($445)**

This is a two year project to upgrade the Wabush substation. Detailed engineering design, outside substation civil works and equipment delivery were to be completed in 2011 with the substation electrical equipment installation and upgrades completed in 2012. The budget estimate by year is shown in the table below.

Year	Cost ($000)
2011	459.3
2012	626.4
Total	$1,085.7

The scope of this project remains unchanged; however the final cost of this project budget is subject to tender pricing. Demand for labour resources in Labrador West has significantly increased since original submission, thus it is expected that project cost will rise.

The work completed in 2011 included the line inspections and identification of material requirements to allow for preparation of the contract for completion of the work in 2012. Contract preparation is ongoing and will be tendered in the first quarter of 2012. The revised project cash flow is shown in the table below.

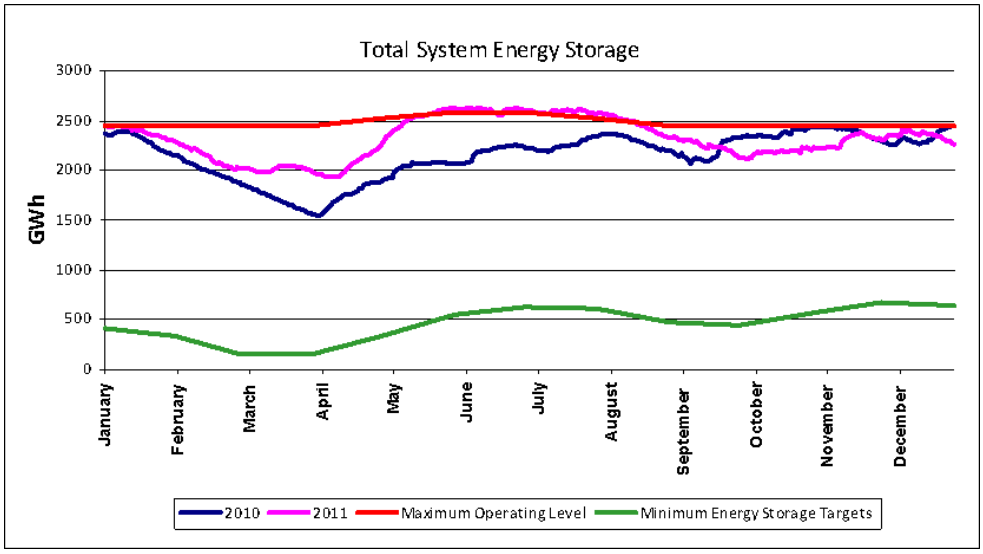
Year	Cost ($000)
2011A	14.3
2012	1,071.4
Total	$1,085.7

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20. Upgrade Power Transformers – Various Sites

Budget: $866 Actual: $329 Variance: ($537)

This is a single year repeating project that Hydro applies for on an annual basis. The primary reasons for reduced spending on this project in 2011 were a reduced outage window for planned work in Bay d'Espoir and technical difficulties with bushing replacements. Exceptionally high inflows into the Bay d'Espoir reservoir system prompted increased hydraulic production from Bay d'Espoir Generating Station, resulting in a decreased outage window and thus a necessary reduction in planned work scope as illustrated in the graph below. Due to the unavailability of direct replacements for bushings, there was a need to resolve technical issues related to installation of bushings procured in 2010, and in procurement and installation of bushings in 2011. This resulted in less work being completed than planned. Additionally, this reduced work scope resulted in less overhead costs being applied and no contingency being required.



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21. Upgrade Station Reliability and Safety – Rocky Harbour

Budget: $435 Actual: $5 Variance: ($430)

This is a two year project to perform a general upgrade to the Rocky Harbour Terminal Station. The detailed design engineering and equipment delivery was to be completed in 2011 with the outside civil work and electrical equipment installation completed in 2012. The budget estimate for this project is shown in the table below.

Year	Cost ($000)
2011	434.8
2012	360.1
Total	$794.9

During the project detail design phase, it was discovered that the original approach to executing the work was not correct, requiring reevaluation of the execution plan, which will likely have budget and schedule implications. The revised budget and schedule will be included in the Status Report on the 2012 Capital Expenditures to June 30 as part of the 2013 Capital Budget Application.

22. Replace Breaker, Structures and Disconnects – Hawke's Bay

Budget: $687 Actual: $340 Variance: ($347)

This was a single year project to replace the 69 kV circuit breaker B7 L21 and its auxiliary equipment at the Hawke's Bay Terminal Station. This project has been carried over into 2012. This project was originally budgeted assuming that the stand-by diesels in the Hawke's Bay Terminal Station would be used extensively during the replacement of the breaker, disconnects, and structure. In order to decrease costs (particularly fuel costs) it was decided to utilize Hydro's portable substation which allowed the structure to be bypassed. The savings are approximately $187,000. The work has now been substantially completed but there are some deficiencies which need to be addressed by the contractor. The commissioning of the new equipment will be completed in 2012.

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23. Replace Insulators – Various Sites

Budget: $401 Actual: $512 Variance: $111

There was significantly more overtime required to complete the necessary insulator replacements at Sunnyside due to a fixed outage window and lost time due to weather, resulting in an extra $40,000 labour costs to complete this work. Material costs were also greater than budgeted due to more materials being required to complete the work than originally estimated resulting in an increased cost of $50,000.

24. Replace Disconnects – Various Sites (2011)

Budget: $295 Actual: $408 Variance: $113

The original plan for replacement of disconnects switches at Conne River and English Harbour West was to utilize Hydro's mobile substation in sequential outages. Due to the number of forced outages previously experienced on the Connaigre Peninsula, it was decided to avail of Newfoundland Power's mobile substation and install both mobile substations on a common outage. This minimized the frequency of outages to customers, but required extra Hydro resources to be utilized from other parts of the Province to complete the work.

25. Replace Compressor, Dryer and Air Piping Header System – Corner Brook Frequency Converter Station

Budget: $280 Actual: $147 Variance: ($133)

This is a single year project that has been carried over into 2012 and is scheduled to begin in mid March. The project was tendered in 2011 and no bids were received. To improve pricing through the benefit of scale, Hydro packaged this work with other approved work and retendered to attract additional competitive bidders. The tender has been awarded and the work is planned to be completed in the first half of 2012.

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26. Replace Disconnects – Various Sites (2010)

Budget: $102 Actual: $205 Variance: $103

This project was a single year project carried over from 2010. The total budget was $198,800 with a total expenditure of $301,000. Material costs were approximately $100,000 greater than budgeted.

27. Replace Guy Wires TL-215 – Doyles to Grand Bay

Budget: $289 Actual: $465 Variance: $176

This is a four year project to replace the existing guy wire arrangement on TL-215 with an assembly that helps reduce the fatigue problem on the existing pre-form grips. A single year project was completed in 2010 which replaced guy wires on approximately 20 percent of the line. This project will replace the guy wires on the remainder of the line with approximately 20 percent being replaced each year. The cash flow estimate by year is shown in the table below.

Year	Cost ($000)
2011	288.8
2012	318.0
2013	350.1
2014	530.0
Total	$1,486.9

The scope for this project remains unchanged and the project is expected to be completed within budget. Extra costs were incurred in 2011 due to future work and material procurement being advanced from future years into 2011, to take advantage of savings related to bulk minimum quantity orders, and to complete full sections of line in some areas.

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27. Replace Guy Wires TL-215 – Doyles to Grand Bay (cont'd.)

The revised cash flow estimate by year is shown in the table below.

Year	Cost ($000)
2011A	465.1
2012	141.7
2013	350.1
2014	530.0
Total	$1,486.9

28. Upgrade Line TL-244 – Plum Point to Bear Cove

Budget: $1,196 Actual: $1,627 Variance: $431

This was a two year project to upgrade transmission line TL-244, however, all the expenditures were incurred in 2011. The original budget was:

Year	Cost ($000)
2010	141.3
2011	1,055.2
Total	1,196.5

The increase in the cost is due mainly to the use of alternate generation requirements. The budget estimate was for three generating diesel units however five units were required.

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29. Upgrade L2 Distribution Feeder - Glenburnie

Budget: $735 Actual: $418 Variance: ($317)

This is a four year project for the design, supply and construction of an 18.5 kilometer (km) three phase distribution line from the Tablelands area to Trout River. It will also include the replacement of approximately 20 deteriorated poles located within the first 5.5 km from the Glenburnie Terminal Station.

The original project schedule and budget estimate are listed in the table below.

Year	Activity	Cost ($000)
2010	Line/Environmental Assessment	267.3
2011	Field Assessment / Line Design	578.2
2012	Material Order/ Procurement/Installation	2,114.6
2013	Environmental	596.6
	Total	$3,556.7

The overall budget and schedule are expected to remain the same.

The original project scope allowed for the completion of a technical and environmental assessment as well as the purchase of a limited amount of material in 2010 and 2011. The assessments are completed, but material will be ordered early in 2012.

The revised cash flow showing actuals for 2010 and 2011 is shown in the table below.

Year	Cost ($000)
2010A	109.9
2011A	417.9
2012	2,432.3
2013	596.6
Total	$3,556.7

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30. Provide Service Extensions – All Service Areas

Budget: $3,385 Actual: $5,591 Variance: $2,206

This is an annual allotment based on past expenditures to provide service connections to new customers. The budget and actual expenditures by area is shown in the table below.

	2011 Cost ($000)	
Region	Budget	Actual
Central	1,045	1,886
Northern	1,092	1,040
Labrador	1,248	2,665
Total	$3,385	$5,591

The Central Region incurred approximately $800,000 in additional service extension work. This was primarily due to new installations in the mining industry, the sawmill/logging industry, the aquaculture industry on the Connaigre Peninsula and the electrification of a cabin area on the Baie Verte Peninsula. In addition, many new service extensions involved upgrading of the existing supporting infrastructure due to larger customer loads. Customers are also converting to electric heat which requires a switch to 200 amp or in some cases 400 amp service.

The Labrador Interconnected system has several new subdivisions under development that are driving cost increases. Examples are the New Hamel, Sheshatshui, Hudson West and Snow's Lane subdivisions. There are new homes being built in Edmunds Crescent and McGregor Avenues. There are also camp developments at Harrie Lake and Labrador City Industrial Park as well as new 3 phase services required in Wabush Industrial Park.

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31. Upgrade Distribution System – All Service Areas

Budget: $2,499 Actual: $3,401 Variance: $902

The Upgrade Distribution Systems budget is based on a five year average rather than specifically identified projects. The budget and expenditure by area is shown in the table below.

	2011 Cost ($000)	
Region	Budget	Actual
Central	998	1,365
Northern	1,051	1,488
Labrador	450	548
Total	$2,499	$3,401

The increased cost in the Central Region is due in large part to the removal of and replacement of defective distribution insulators ($125,000), the removal and replacement of rusty voltage regulators located near coastal regions ($165,000) and the removal of several rusty transformer banks located near environmentally sensitive areas ($65,000).

The increased cost in the Northern Region is due in large part to the replacement of voltage regulators ($250,000), reclosers ($80,000) and distribution line damage and equipment failures ($40,000) and due to an ice storm in Hawkes Bay.

32. Upgrade Distribution Lines – Roddickton and Makkovik

Budget: $1,779 Actual: $1,160 Variance: ($619)

This was a two year pooled project started in 2010 to upgrade distribution lines in Roddickton and Makkovik. The Roddickton portion of the project is complete. The total project for Roddickton was budgeted for $1,063,200 and the total expenditure for this work was $1,106,200.

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(Greater than $100,000 and 10% Variance from Budget)

32. Upgrade Distribution Lines – Roddickton and Makkovik (cont'd.)

The Makkovik portion of the upgrade will be carried over into 2012. This project was tendered twice in 2011. The first tender received no bidders and the second was 42 percent ($337,000) over the budgeted cost. In 2012, there are distribution upgrades planned for Rigolet. These two projects will be pooled together in an effort to receive more competitive pricing. The total budget for the Makkovik upgrade is $799,500 of which $137,300 has been spent to the end of 2011.

33. Upgrade Distribution Systems – Rigolet, Happy Valley and Francois

Budget: $1,068 Actual: $614 Variance: ($454)

This is a two year pooled project to upgrade the distribution systems in Rigolet, Happy Valley and Francois. The Happy Valley and Francois portions of this project were budgeted to be completed in 2011 while the Rigolet upgrade will be completed in 2012. The budget for this project is shown below.

	Cost ($000)	
	2011	2012
Francois	440.9	-
Happy Valley	553.5	-
Rigolet	73.3	652.4
Total	$1,067.7	$652.4

The Francois upgrade will be carried over into 2012. This project was tendered twice in 2011 for the summer and fall construction period and there were no bidders each time. It is anticipated that contractors will be available to complete this work in May/June before the peak summer construction season.

The Happy Valley portion of this project was completed in 2011.

NEWFOUNDLAND AND LABRADOR HYDRO
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RURAL SYSTEMS
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(Greater than $100,000 and 10% Variance from Budget)

33. Upgrade Distribution Systems – Rigolet, Happy Valley and Francois (cont'd.)

The total expenditures for 2011 and the expected expenditures for 2012 are shown below.

	Cost ($000)	
	2011A	2012
Francois	116.0	324.9
Happy Valley	488.2	-
Rigolet	10.5	715.2
Total	$614.7	$1,040.1

34. Replace Poles – Various Sites

Budget: $882 Actual: $985 Variance: $103

This is a one year pooled project to replace poles in Farewell Head, Grandy Brook and Westpoint. The budgeted cost and actual expenditures are shown below.

	2011 Cost ($000)	
	Budget	Actual
Farewell Head	339.6	394.0
Grandy Brook	286.4	312.4
Westpoint	256.4	279.4
Total	$882.4	$985.8

The largest variance occurred in Farewell Head and this was due to the increased labour cost compared to budget.

NEWFOUNDLAND AND LABRADOR HYDRO
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35. Replace Substation Infrastructure - Burgeo

Budget: $128 **Actual: $7** **Variance: ($121)**

This is a two year project to replace the poles, cross arms, insulation and switches. The budget estimate by year is shown in the table below.

Year	Cost ($000)
2011	127.5
2012	368.3
Total	$495.8

The scope for this project remains unchanged and the project is expected to be completed within budget.

The original project scope allowed for the completion of a technical and environmental assessment as well as the purchase of a limited amount of material in 2011. The assessments were completed, but all material will be ordered in 2012. The overall project budget will remain the same. The new project cash flow showing 2011 actual and 2012 estimate is shown in the table below.

Year	Cost ($000)
2011A	7.2
2012	488.6
Total	$495.8

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(Greater than $100,000 and 10% Variance from Budget)

36. Install Voltage Regulators – Conne River and L'Anse au Loup

Budget: $293 Actual: $118 Variance: ($175)

This was a single year project to install voltage regulators at Conne River and L'Anse au Loup. The breakdown of costs between the two portions of the project is shown below.

	2011 Cost ($000)	
	Budget	Actual
Conne River	147.8	81.7
L'Anse au Loup	144.8	35.9
Total	$292.6	$117.6

The Conne River installation was completed however the voltage regulators for L'Anse au Loup were delayed at the manufacturer. The expected delivery date was October 31, 2011 but the regulators left the factory mid December, and therefore there was not enough time to install them before year end. The installation is expected to be completed by the end of the first quarter 2012, resulting in a carry over of $108,900 for the L'Anse au Loup portion of the project.

37. Perform Arc Flash Remediation – Various Sites

Budget: $430 Actual: $108 Variance: ($322)

This project is a five year program to upgrade facilities to reduce the arc flash levels on electrical equipment throughout the Hydro system. The budget estimate by year is shown in the table below.

Year	Cost ($000)
2011	429.5
2012	380.3
2013	391.0
2014	401.8
2015	413.1
Total	$2,015.7

NEWFOUNDLAND AND LABRADOR HYDRO
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37. Perform Arc Flash Remediation – Various Sites (cont'd.)

The overall scope for this project remains unchanged and the project is expected to be completed within budget.

Three sites were completed in 2011. The primary reasons for the variance are related to less work being completed and savings realized on the work that was completed by coordinating arc flash upgrades with other planned work. The revised cash flow including the 2011 actuals is shown in the table below.

Year	Cost ($000)
2011A	107.6
2012	702.2
2013	391.0
2014	401.8
2015	413.1
Total	$2,015.7

38. Replace Diesel Unit 2001 and Engine 566 - Francois

Budget: $607 Actual: $466 Variance: ($141)

This was a two year project started in 2010 and is to be carried over into 2012. The replacement genset for Unit 566 has been installed and commissioned, but the delivery of the replacement genset for Unit 2001 has been delayed. During factory acceptance testing, it became evident the unit was not meeting the specified vibration limits and therefore Hydro could not accept the engine. Troubleshooting of this issue by the manufacturer is currently on-going, but has not yet been resolved.

NEWFOUNDLAND AND LABRADOR HYDRO
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(Greater than $100,000 and 10% Variance from Budget)

39. Install Sequence of Events Monitor in Diesel Plant – Port Hope Simpson

Budget: $155 Actual: $7 Variance: ($148)

This project is a one year project that will be carried over into 2012. Due to the unexpected departure of three engineers in 2011, the project planning and engineering could not be started as planned. Material specifications and ordering has begun and the project is currently scheduled to be completed by mid July 2012.

40. Nain Diesel Plant Rehabilitation

Budget: $923 Actual: $397 Variance: ($526)

In the fall of 2008 there was a fire at the Nain Diesel Plant. Hydro used the Allowance for Unforeseen Events in order to do the necessary work in 2008 for a total of $304,000. In 2009, Hydro filed a multi-year unbudgeted proposal for $2,804,700 to complete the rehabilitation work which was approved by Board Order P.U. 31(2009). The total budget for this project is shown in the table below. Because there were no protection and control resources available to complete this project until late into 2010, this project was carried over into 2011.

NEWFOUNDLAND AND LABRADOR HYDRO
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(Greater than $100,000 and 10% Variance from Budget)

40. Nain Diesel Plant Rehabilitation (cont'd.)

The total costs including insurance proceeds are also shown in the table below.

Cost ($000)				
Year	Budget	Actual before Proceeds	Insurance Proceeds	Net Costs
2008	304.0	304.0	-	304.0
2009	2,415.7	2,146.2	382.0	1,764.2
2010	389.0	1,001.5	883.5	118.0
2011	-	1,236.5	839.7	396.8
Total	$3,108.7	$4,688.2	$2,105.2[1]	$2,583.0

Excluding insurance proceeds, this project was approximately $1.5 million over budget.

Three main drivers were identified for the variance – protection and control work, addition of a septic system, and addition of a hydronic plant heating system. The bulk of cost overruns were due to protection and control work that accounted for over $600,000 in cost increases. The total cost of the scope additions accounted for $400,000. Additional interest and overhead costs associated with the extended schedule added another $300,000.

41. Increase Generation Capacity – L'Anse Au Loup

Budget: $288 **Actual: $541** **Variance: $253**

This was a two year project to replace a 600 kW diesel unit with a 1,100 kW rated diesel unit. The original budget was approved as part of the 2009 Capital Budget and is shown in the table below.

[1] The difference between the insurance proceeds quoted above and the insurance proceeds of $2,119.7 in IC-NLH-1 International Financial Reporting Standards (IFRS) is approximately $15,000 that was incorrectly classified as a capital recovery in 2009. This difference has now been recorded as an operating cost recovery for the Nain fire.

NEWFOUNDLAND AND LABRADOR HYDRO
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(Greater than $100,000 and 10% Variance from Budget)

41. Increase Generation Capacity – L'Anse Au Loup (cont'd.)

Year	Cost ($000)
2009	22.9
2010	820.8
Total	$843.7

Due to the requirement for additional capacity, it was decided to not replace a diesel unit but to add a mobile unit with a capacity of 1,825 kW. The revised budget as well as the actual amount spent is shown in the table below.

	Cost ($000)	
	Budget	Actual
2009	1,002.3	783.2
2010	516.9	447.7
2011	-	540.7
Total	$1,519.2	$1,771.6

The cost increase is due to extra costs incurred on labour and materials. The main reason for the extra labour associated with the project is that the project was carried over for an additional year therefore additional engineering and project management was required in order to finish the job. Additionally there was an overrun on the material cost. This was primarily due to the cost of the mobile transformer coming in higher than originally budgeted.

42. Install Automatic Meter Reading – Labrador City and Port au Choix

Budget: $451 **Actual: $237** **Variance: ($214)**

This is a two year project to implement Automated Meter Reading (AMR) in Hydro's customer service areas of Labrador City and Port au Choix.

NEWFOUNDLAND AND LABRADOR HYDRO
2011 VARIANCE EXPLANATIONS
RURAL SYSTEMS
FOR THE YEAR ENDING DECEMBER 31, 2011
(Greater than $100,000 and 10% Variance from Budget)

42. Install Automatic Meter Reading – Labrador City and Port au Choix (cont'd.)

In 2011, the meters and the terminal station equipment were purchased for Labrador City and the terminal station equipment and a portion of the meters were installed. The remaining meters will be installed early in 2012. The budget estimate by service area and year are shown in the table below.

Year	Labrador City Cost ($000)	Port au Choix Cost ($000)	Total
2011	292.2	159.0	451.2
2012	58.3	29.4	87.7
Total	$350.5	$188.4	$538.9

The implementation of AMR for Port au Choix has been cancelled. The project was originally proposed based on a meter reader position becoming vacant, however, due to a change in circumstances, this did not occur and the benefit anticipated from the implementation of this project would not be realized. The budget for this work will, therefore, not be spent. The revised budget is shown in the table below

Year	Labrador City Budget ($000)
2011A	237.0
2012	113.5
Total	$350.5

43. Replace Light Duty Mobile Equipment – Various Sites

Budget: $757 Actual: $582 Variance: ($175)

This project will be carried over into 2012 due to the delay in delivering two new prototype trailers. In addition, the overall cost is reduced by $160,000 due to changes in the types of heavy duty trailers being purchased resulting in lower cost per unit.

NEWFOUNDLAND AND LABRADOR HYDRO
2011 VARIANCE EXPLANATIONS
RURAL SYSTEMS
FOR THE YEAR ENDING DECEMBER 31, 2011
(Greater than $100,000 and 10% Variance from Budget)

44. Public Address System - Holyrood

Budget: $1,008 **Actual: $1,206** **Variance: $198**

This project is carried over into 2012 due to a small amount of contract work left to be completed. The project is substantially complete and will be completed in 2012. The budget variance is primarily a result of the extended project schedule which has resulted in additional project management, supervision, and overhead costs.

NEWFOUNDLAND AND LABRADOR HYDRO
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GENERAL PROPERTIES
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(Greater than $100,000 and 10% Variance from Budget)

45. Install Fibre Optic Cable – Hinds Lake

Budget: $224 Actual: $117 Variance: ($107)

This is a two year project to replace microwave radio link between Blue Grass Hill Microwave site and Hinds Lake Generating Station with fibre optic cable. It was approved as part of the 2009 Capital Plan with the budget shown in the following table:

	Cost ($000)	
	Budget	Actual
2009	209.2	9.0
2010	482.9	459.1
2011	-	116.9
Total	$692.1	$585.0

The actual amount spent by year is also shown in the table above. The budget savings are due to lower project management and contract costs and no contingency being required.

46. Replace Battery Banks and Chargers – Various Sites

Budget: $978 Actual: $872 Variance: ($106)

This is a single year project to replace battery banks and chargers. This project is under budget mainly due to the project contingency not being required.

NEWFOUNDLAND AND LABRADOR HYDRO
2011 VARIANCE EXPLANATIONS
GENERAL PROPERTIES
FOR THE YEAR ENDING DECEMBER 31, 2011
(Greater than $100,000 and 10% Variance from Budget)

47. Replace Vehicles and Aerial Devices 2011 – Various Sites

Budget: $2,351 **Actual: $1,254** **Variance: ($1,097)**

This is a two year project to replace 25 light-duty vehicles and five heavy-duty work vehicles. The budgeted cost by year is shown in the table below.

Year	Cost ($000)
2011	2,350.5
2012	638.9
Total	$2,989.4

The total cost of this project has been reduced by $989,400 due to two factors. Firstly there was a saving of $289,000 as a result of a downturn in the economy, which resulted in better pricing on vehicles and reduced escalation costs. Secondly, the 2010 project was intended to be submitted as a two year project due to the difficulty in ordering and receiving all the equipment in one calendar year. Inadvertently, only the first year of this project was submitted and approved in 2010 and a change order was completed for the portion of equipment ordered in 2010 and received in 2011. The 2011 multi-year project had already included the $700,000 for the equipment being received in 2011 resulting in a second change to correct the duplication.

Year	Cost ($000)
2011A	1,254.4
2012	745.6
Total	$2,000.0

48. Upgrade System Security 2009 – Various Sites

Budget: $141 **Actual: $527** **Variance: $386**

This was a two year project approved as part of the 2009 Capital Budget with a total budget of $1,469,000 as shown in the table below.

NEWFOUNDLAND AND LABRADOR HYDRO
2011 VARIANCE EXPLANATIONS
GENERAL PROPERTIES
FOR THE YEAR ENDING DECEMBER 31, 2011
(Greater than $100,000 and 10% Variance from Budget)

48. Upgrade System Security 2009 – Various Sites (cont'd.)

Year	Cost ($000)
2009	767.2
2010	701.8
Total	$1,469.0

There were three major components to this project, fencing upgrades, and access installation and security camera installation.

The budget for this project was increased by $455,300 in 2010 due to the difficulty in estimating the costs since it involved security upgrade in over 90 sites. Additionally expansions of existing fencing affected the grounding grids, requiring unplanned modifications.

The installation of the security cameras was completed in 2011. However, there were difficulties in making the sites operational which required multiple site visits to troubleshoot problems and rectify the issues. This resulted in greater than anticipated labour, materials and travel costs.

The overall cost is greater than the revised budget mainly due to an increase in labour costs by $100,000, material costs by $200,000 and overhead costs by $160,000. The revised budget and actual costs are shown in the table below.

	Cost ($000)	
	Revised Budget	Actual
2009	488.0	488.0
2010	1,436.3	1,295.0
2011	-	527.2
Total	$1,924.3	$2,310.2

NEWFOUNDLAND AND LABRADOR HYDRO
2011 VARIANCE EXPLANATIONS
OTHER APPROVED FUNDS
FOR THE YEAR ENDING DECEMBER 31, 2011
(Greater than $100,000 and 10% Variance from Budget)

49. Increase Generation Capacity - Charlottetown

Budget: $1,000 **Actual: $1,482** **Variance: $482**

The project utilized the allocation for unforeseen events. Please see the report called "Unforeseen Item: Increase Generating Capacity Charlottetown" filed under a separate cover.

50. Ice Storm – Baie Verte Peninsula

Budget: $0 **Actual: $519** **Variance: $519**

The project utilized the allocation for unforeseen events. Please see the report called "Unforeseen Item: Ice Storm Damage – Baie Verte Peninsula" filed under a separate cover.

51. Confined Space Isolation (Blanks and Blinds) - Holyrood

Budget: $1,665 **Actual: $1,330** **Variance: ($335)**

This was a two year unbudgeted project approved by Board Order No. P.U. 34(2010). The budget and actuals amount spent for this project is shown in the table blow.

	Cost ($000)	
	Budget	Actual
2010	202.0	138.9
2011	1,602.3	1,329.6
Total	$1,804.3	$1,468.5

There was a reassessment on the installation methods and location of the blanks and blinds that lead to the lower than estimated labour costs. These labour cost were approximately $280,000 less than budgeted which also resulted in less overheads and interest being incurred.

NEWFOUNDLAND AND LABRADOR HYDRO
2011 VARIANCE EXPLANATIONS
OTHER APPROVED FUNDS
FOR THE YEAR ENDING DECEMBER 31, 2011
(Greater than $100,000 and 10% Variance from Budget)

52. Upgrade Stack Breeching Unit 1 - Holyrood

Budget: $134 **Actual: $272** **Variance: $138**

This was a one year project to upgrade stack breeching and replace the stack breeching support structure. Through Board Order No. 20(2011), the Board approved only the replacement of the stack breeching support structure at a cost of $133,700. This amount was from CA-NLH-9 (Appendix B) as quoted by the contractor. It did not include additional project costs such as project management, interest and overhead costs. In Table 4 of Hydro's response to the Request for information IC-NLH-1 (Appendix C), it was stated that:

> "if approval is received in September 2011 to proceed with the refurbishment project, Hydro proposes to address the most pressing concern – the condition of the support structures in 2011."

The revised schedule and revised budget estimate (Schedules 3 and 4, respectively, of that RFI response) indicated that only stack breeching support replacement work was scheduled for 2011 and the cost of that 2011 work was $277,900. The work was completed in 2011.

NEWFOUNDLAND AND LABRADOR HYDRO
CAPITAL BUDGET VERSUS ACTUAL EXPENDITURES 2002 – 2011
AS AT DECEMBER 31
($000)

Table 1: CAPITAL BUDGET VERSUS ACTUAL EXPENDITURES 2002 – 2011

Year	Budget	Actual Expenditures	Variance	Percentage Variance
2002	44,660	40,217	4,443	9.9%
2003	36,122	32,506	3,616	10.0%
2004	31,435	27,984	3,451	11.0%
2005	47,760	33,952	13,808	28.9%
2006	49,024	41,217	7,807	15.9%
2007	43,304	35,669	7,635	17.6%
2008	53,579	46,246	7,333	13.7%
2009	61,544	54,152	7,392	12.0%
2010	63,297	55,553	7,744	12.2%
2011	67,454	63,116	4,338	6.4%

In 2011, Hydro delivered the highest Board approved dollar value capital program execution in recent history. During 2011, Hydro commenced execution of its plan to enhance its project delivery capability. A key step in the process included organizational structure changes within both Hydro and Nalcor with the establishment of a Project Execution and Technical Services division that have lead to improved delivery and compliance of capital projects. While the reorganization has been helpful, there is still work to be done and Hydro is achieving a balance between project workload and resource allocation in support of project execution. Hydro anticipates continued progress in 2012 and further improvement in project delivery and budget compliance.

Total variances of actual to budget costs for completed projects are 1 percent for 2009 and 2010; however, it has increased to 12 percent in 2011. This is due in large part to the trend of increasing costs associated with the strong labour market currently being experienced in the province. The variance per project increased in 2011 over previous years. In 2011 Hydro was intentional and deliberate in stepping back where and when required with an objective of reduced project risk and improved probability for successful delivery in 2012.

NEWFOUNDLAND AND LABRADOR HYDRO
CAPITAL BUDGET VERSUS ACTUAL EXPENDITURES 2002 – 2011
AS AT DECEMBER 31
($000)

The variances presented in Table 1 are partially due to under-spending as a result of not completing all projects approved each year. It is anticipated that some carryover of projects will occur in most years as there may be unavoidable reasons for delays in project completion, for example, system constraints which are precipitated by changes in hydrology, equipment failures, etc. There are also cost increases and project delays being experienced due to the strong labour market. This has manifested itself for example, in eight of the projects in 2011 for which either no bids were received or bids far exceeded estimated costs. Hydro is working to address these issues by reviewing its packaging of projects to encourage competitive bids, as well as attracting additional bidders.

NEWFOUNDLAND AND LABRADOR HYDRO
2011 CARRYOVER REPORT
FOR THE YEAR ENDING DECEMBER 31, 2011
($000)

Project Name	PUB Approved Budget 2011	Revised Budget 2011	Total Actual Expend. 2011	Carryover Amount	Variance Explanation Ref. No.	Original Completion Year
Upgrade Burnt Dam Spillway Structure - Bay d'Espoir	258	258	161	97		2011
Purchase Spare Disconnect - Bay d'Espoir	176	133	73	59	3	2011
Replace Fire Alarm System - Hinds Lake	109	109	21	88		2011
Replace Pumphouse Motor Control Centres - Holyrood	949	1,069	1,091	(22)	8	2011
Upgrade Forced Draft Fan Ductwork Unit 1 - Holyrood	843	1,498	416	1,082	10	2011
Replace Steam Seal Regulator Unit 1 - Holyrood	532	643	318	325	13	2011
Replace Diesel Fire Pump - Holyrood	279	347	156	192	14	2011
Upgrade Glycol Systems - Stephenville	557	1,115	539	576		2011
Replace Breaker, Structures and Disconnects - Hawke's Bay	687	687	340	347	22	2011
Replace Compressor, Dryer and Air Piping Header System - Corner Brook Frequency Converter Station	280	280	147	133	25	2011
Replace Digital Fault Recorder - Bay d'Espoir	169	169	72	97		2011
Upgrade Distribution Lines - Makkovik	781	781	119	662	32	2011
Upgrade Distribution System - Francois	441	441	116	325	34	2011
Install Voltage Regulator - L'Anse au loup	145	145	36	109	36	2011
Replace Diesel Unit 2001 and Engine 566 - Francois	607	607	466	141	38	2011
Install Sequence of Events Monitor in Diesel Plant - Port Hope Simpson	155	155	7	148	39	2011
Legal Survey of Primary Distribution Line Right of Way - Various Sites	79	79	5	74		2011
Replace Light Duty Mobile Equipment - Various Sites	757	597	583	15	43	2011
Public Address System - Holyrood	1,008	1,245	1,206	39	45	2010

NEWFOUNDLAND AND LABRADOR HYDRO
2011 CARRYOVER REPORT
FOR THE YEAR ENDING DECEMBER 31, 2011
($000)

Project Name	PUB Approved Budget 2011	Revised Budget 2011	Total Actual Expend. 2011	Carryover Amount	Variance Explanation Ref. No.	Original Completion Year
Upgrade Generating Station Service Water System -Cat Arm	360	360	349	11		2012
Upgrade Intake Gate Controls - Bay d'Espoir	352	534	507	27	2	2012
Replace Programmable Logic Controllers - Holyrood	933	873	877	(5)		2012
Upgrade Hydrogen System - Holyrood	1,192	1,192	281	911	7	2012
Upgrade Synchronous Condenser Unit 3- Holyrood	484	484	147	337	9	2012
Replace Relay Panels Unit 3- Holyrood	277	277	140	138	11	2012
Replace Steam Seal Regulator Unit 2 - Holyrood	175	356	54	303	12	2012
Upgrade Gas Turbine Plant Life Extension - Hardwoods	1,924	1,010	1,215	(205)	17	2012
Upgrade Terminal Stations to 25 kV - Labrador City	4,689	6,915	6,262	652	18	2012
Upgrade Substation - Wabush	459	459	14	445	19	2012
Upgrade Station Reliability and Safety - Rocky Harbour	435	435	5	429	21	2012
Replace 69 kV SF6 Breakers - St. Anthony Airport	490	490	499	(10)		2012
Replace Compressed Air System - Bay d'Espoir	84	84	87	(3)		2012
Replace 230 kV Circuit Breaker - Sunnyside	41	41	8	34		2012
Install Alternate Station Services - Stony Brook and Massey Drive	86	86	6	80		2012
Voisey's Bay Nickel - Long Harbour Power Supply	10,600	10,600	10,338	262		2012
Cost Recovery - Vale Inco	(10,600)	(10,600)	(10,338)	(262)		
Upgrade Distribution Systems - Rigolet	73	73	11	63	33	2012
Replace Substation Infrastructure- Burgeo	128	128	7	120	35	2012

NEWFOUNDLAND AND LABRADOR HYDRO
2011 CARRYOVER REPORT
FOR THE YEAR ENDING DECEMBER 31, 2011
($000)

Project Name	PUB Approved Budget 2011	Revised Budget 2011	Total Actual Expend. 2011	Carryover Amount	Variance Explanation Ref. No.	Original Completion Year
Replace Mini Hydro Turbine - Roddicton	87	87	11	76		2012
Install Automatic Meter Reading - Labrador City	292	292	237	55		2012
Replace Off Road Track Vehicles - Bishop's Falls	265	154	219	(65)		2012
Replace Off Road Track Vehicles - Fogo	230	68	185	(117)		2012
Corporate Application Environment - Upgrade Microsoft Products	864	864	860	4		2012
Cost Recoveries	(237)	(237)	(275)	39		
Replace MDR 6000 Microwave Radio (West) - Various Sites	72	72	28	45		2012
Replace Vehicles and Aerial Devices 2011 - Various Sites	2,351	1,361	1,254	107	47	2012
Replace Engine # 2062 - Grey River	23	23	0	23		2012
Replace Static Excitation System - Upper Salmon, Holyrood and Hinds Lake	1,214	487	18	470	1	2013
Upgrade Electrical Equipment - Holyrood	188	188	187	1		2013
Voltage Conversion - Labrador City	3,066	3,066	2,932	134		2013
Upgrade L2 Distribution Feeder - Glenburnie	736	736	418	318	29	2013
Replace Guy Wires TL-215 - Doyles to Grand Bay	289	289	465	(176)	27	2014
Perform Grounding Upgrades - Various Sites	321	321	288	34		2015
Perform Arc Flash Remediation - Various Sites	430	430	108	322	37	2015
		Total Carryover		9,083		

NEWFOUNDLAND AND LABRADOR HYDRO
2011 REMOVE SAFETY HAZARDS
FOR THE YEAR ENDING DECEMBER 31, 2011
($000)

Total Approved Budget: **$252.4**
Total Expenditure: **$239.9**
Board Order P.U. 38(2010)

As part of Board Order No. P.U. 38(2010) 2011 Capital Budget, the following was included "Because of the nature of this project the Board would expect to see an explanation in Hydro's annual report on capital expenditures as to each project that was undertaken, setting out the safety hazard that was identified, the location, the steps taken to address the issue and the amount of the expenditure." Please see the following table:

Project Title/Location	Expenditure	Safety Hazard Identified	Project Scope
Purchase Highway Signs TRO Central, Northern, and Labrador	$144.3	As a result of new traffic control legislation in the province effective January 1, 2011 Hydro was required to purchase road signs and follow guidelines in the Traffic Control Manual published by the Department of Transportation and Works. Occupational Health and Safety (OH and S) Regulations require that traffic control procedures shall at minimum meet the requirements of the Department of Transportation and Works "Traffic Control Manual for Roadway Work Operations" or procedures established by a municipality that have been approved by the minister and all relevant specifications".	Highway traffic signs were purchased to be used in daily execution of work to ensure uniform and consistent methods of traffic control when completing work occurring within the right of way of a roadway.
Upgrade Burnt Bridge Bay d'Espoir System	20.5	Safety Work Observation Program (SWOP) #2011002968 Bridge decking is deteriorated and needs to be replaced.	Replaced running boards and decking
Upgrade Venam's Trail Venam's Bight	28.3	SWOP#2011002276 Trail leading to powerhouse along side of penstock is very rough; there is a high potential/concern to flip or to wipe out on an ATV.	Installed railings, retaining walls, brook crossings, and landings to improve safety of access to Venam's Bight powerhouse and intake.

NEWFOUNDLAND AND LABRADOR HYDRO
2011 REMOVE SAFETY HAZARDS
FOR THE YEAR ENDING DECEMBER 31, 2011
($000)

Project Title/Location	Expenditure	Safety Hazard Identified	Project Scope
Powerhouse #1 Stairway Bay d'Espoir	36.9	SWOP#2010000480 Concrete steps between upper parking lot and main level are severely eroded and in need of replacement. Several concrete patches came loose and pose a significant tripping hazard.	Replaced parking lot stairway from employee parking lot to powerhouse.
Mobile Foam Carts Holyrood	10.0	Holyrood had one mobile foam cart, positioned on level 1 of the Powerhouse to control larger pool fires that cannot be contained by the fixed fire protection. There was no other mobile or fixed foam protection on either level I or level III. While our units are protected with fixed deluge, pre-action and/or wet-type sprinkler systems, there was no capability to suppress flammable vapors and provide protection from re-ignition or potential fire migration from flammable liquids fires is sparse. The acquisition of 3 additional mobile foam carts would mitigate the risk to Operators and/or ERT members who may have to combat fuel-based fires.	Purchased two mobile foam carts for Emergency Response Team

APPENDIX A
PUB-NLH-36

PUB-NLH-36
NLH 2012 Capital Budget Application
Page 1 of 1

Q. **Page E-9, New 25 kV Terminal Station – Labrador City, $3,507,000**
Given the time that has elapsed since the original budget was prepared and the issues that have arisen in obtaining tenders, please provide a revised budget based on the most recent best available information.

A. As indicated, the budget for this multi-year project was prepared in 2008. The work was approved and began in 2009 and is scheduled to be completed in 2012. A significant amount of the work to be completed in 2011/2012 is contract work related to the construction of the terminal stations and the installation of equipment.

Hydro has recently completed the tender phase and has recognized a variance between the 2008 estimates and the 2011 tender responses.

The table below provides a summary of the approved budget, the amount spent to date, and projections of the additional expenses to the end of the project.

Approved Budget:	$9,900,000
Spent to Date (Sept 2011):	$3,400,000
Budget for the Remainder of 2011:	$5,500,000
Projection for 2012:	$3,750,000
Final Forecasted Expenses:	$12,650,000
Variance:	$2,750,000

APPENDIX B
CA-NLH-9

CA-NLH-9
Holyrood (HTGS) Stack Breeching and Fuel Tank Refurbishment
Page 1 of 1

Q. Re: Holyrood: Upgrade Unit 1 Stack Breeching

With respect to the budget Estimate at Section 5.1, please break out the project costs for each element or aspect of the work which Hydro is proposing to undertake in this overall project, eg. refurbishing steel casing, work on East Support Structure, work on West Support Structure, insulation of breeching externally, ice protection shelters, etc.

A. A breakout of the project cost for the budget estimate at Section 5.1 is included in the table below.

Project Task Description	Cost ($)
Labour (Internal Hydro engineering, operations, and project management labour):	114,400
Contract (Labour & Materials):	
Remove internal insulation blocks and supply/install 6 inches of external insulation	461,328
Install an ice protection shield	112,428
Replacement of expansion joints and casing repairs	774,144
Supply and install East and West support structures. Includes additional cost to replace the breeching support structures with the existing breeching left in place. A temporary support structure will be required.	133,700
Travel	2,000

The cost estimates provided by Hatch are not broken down by East and West structure, although it is not unreasonable to expect that the relevant costs can be split evenly between the two structures. Please also refer to response to IC-NLH-1.

APPENDIX C
IC-NLH-9

IC-NLH-1
Holyrood (HTGS) Stack Breeching and Fuel Tank Refurbishment
Page 1 of 4

Q. Provide for each project **(Unit 1 Stack Breeching; Fuel Oil Storage Facility),** updated versions of the schedules at section 5.2 of each of the respective July 11 Hydro reports filed to support these projects, based on the assumption these projects would be approved by the Board in September 2011. Identify in each updated schedule the estimated amount of proposed expenditure planned to be incurred at each milestone date.

A. **Fuel Oil Storage Facility:**

When the last report was filed with the Board in July 2011, the schedule was based on receiving approval to proceed with the refurbishment project early enough so that tender documents could be prepared and a construction contract awarded by the end of September 2011. The tank would be taken out of service in 2011 to allow refurbishment to be performed such that it could be placed back in service as early as possible (estimated to be mid March 2012). This would minimize the amount of time the tank would be out of service during the 2011/12 peak load season and also during the ice season when there is risk that pack ice may be present in Conception Bay that could disrupt fuel deliveries to Holyrood.

Based on receiving approval to proceed with the project in September 2011, the target date of mid March to have the tank back in service following refurbishment is no longer realistic. The earliest back-in-service date would need to be extended well into the 2012 ice season. Hydro believes that it is less risky during the ice season to have the tank in service in its present condition then to have it out of service undergoing refurbishment. For this reason, Hydro has revised its schedule as indicated in Table 1 below. The revised schedule has resulted in changes to the

overall project budget such that it has increased marginally. A revised budget estimate has been provided in Table 2.

Table 1:

Activity	Milestone	Proposed Expenditure ($X1000)
Prepare Tender Documents	October 2011	20
Invite and Award Tenders	November 2011	35
Procurement Of Material	December 2011	128
Mobilization	April 2012	480
Complete Construction	September 2012	1,966
Closeout Project	October 2012	125
Total:		**2,754**

Table 2:

Project Cost: *($ x1,000)*	**2011**	**2012**	**Beyond**	**Total**
Material Supply	0.0	0.0	0.0	0.0
Labour	45.0	159.5	0.0	204.5
Consultant	38.0	170.0	0.0	208.0
Contract Work	100.0	1,776.0	0.0	1,876.0
Other Direct Costs	0.0		0.0	2.0
O/H, AFUDC & Escln.	7.8	227.0	0.0	234.8
Contingency	0.0	229.1	0.0	229.1
TOTAL	**190.8**	**2,563.6**	**0.0**	**2,754.4**

Unit 1 Stack Breeching:

When the last report was filed with the Board in July 2011, the schedule was based on receiving approval to proceed with the refurbishment project early enough so that a refurbishment contract could be awarded in August 2011 and the breeching returned to service by the end of its planned scheduled outage period (late October 2011).

Based on receiving approval to proceed with the project in September 2011, the completion date for the project coinciding with the end of the planned outage

schedule (late October 2011) is no longer realistic. The breeching has to be in service for the upcoming 2011/12 peak load season. If approval is received in September 2011 to proceed with the refurbishment project, Hydro proposes to address the most pressing concern - the condition of the support structures, in 2011. The intention is to replace them and in the process minimize any extension required to the planned outage period to complete the work. For this reason, Hydro revised its milestone schedule as indicated in Table 3 below. The revised schedule has resulted in changes to the overall project budget such that it has increased marginally. A revised budget estimate has been provided in Table 4.

Table 3:

Activity	Milestone	Proposed Expenditure ($X1000)
Prepare Tender Documents	October 2011	35
Invite and Award Tenders	October 2011	20
Procurement of Material Required For Breeching Support Structure Replacement	November 2011	80
Mobilization & Replace Breeching Support Structures	November 2011	40
Procurement Of Material Required For Remaining Refurbishment Work	March 2012	420
Commence Remaining Refurbishment (In Accordance With Planned Outage)	May 2012	616
Construction Complete	September 2012	620
Project Final Documentation and Closeout	October 2011	88
Total:		**1,919**

IC-NLH-1
Holyrood (HTGS) Stack Breeching and Fuel Tank Refurbishment
Page 4 of 4

Table 4:

Project Cost: *($ x1,000)*	**2011**	**2012**	**Beyond**	**Total**
Material Supply	0.0	0.0	0.0	0.0
Labour	65.0	49.4	0.0	114.4
Consultant	0.0	0.0	0.0	0.0
Contract Work	200.0	1,281.6	0.0	1,481.6
Other Direct Costs	0.5	1.5	0.0	2.0
O/H, AFUDC & Escln.	12.4	148.8	0.0	161.2
Contingency	0.0	159.8	0.0	159.8
TOTAL	**277.9**	**1,641.1**	**0.0**	**1,919.0**

newfoundland labrador hydro
a nalcor energy company

Hydro Place. 500 Columbus Drive.
P.O. Box 12400. St. John's. NL
Canada A1B 4K7
t. 709.737.1400 f. 709.737.1800
www.nlh.nl.ca

March 1, 2013

The Board of Commissioners of Public Utilities
Prince Charles Building
120 Torbay Road, P.O. Box 21040
St. John's, NL
A1A 5B2

ATTENTION: Ms. Cheryl Blundon
Director of Corporate Services & Board Secretary

Dear Ms. Blundon:

Re: 2012 Capital Expenditures and Carryover – Year End

Pursuant to Board Order No. P.U. 5 (2012), p. 19, item 5, enclosed please find the original and eight copies of Newfoundland and Labrador Hydro's (Hydro) report on 2012 Capital Expenditures and Carryover for the year ended December 31, 2012.

Should you have any questions, please contact the undersigned.

Yours truly,

NEWFOUNDLAND AND LABRADOR HYDRO

Geoffrey P. Young
Senior Legal Counsel

GPY/mmcd
Encls.

A REPORT TO
THE BOARD OF COMMISSIONERS OF PUBLIC UTILITIES

CAPITAL EXPENDITURES AND CARRYOVER REPORT

For Year Ending December 31, 2012

March 2013

newfoundland labrador hydro
a nalcor energy company

NEWFOUNDLAND AND LABRADOR HYDRO
CAPITAL EXPENDITURES AND CARRYOVER REPORT
For Year Ending December 31, 2012

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2012 Capital Budget Variance Overview ($000)

	Board Approved Budget	Total Expend.	Variance
HYDRAULIC PLANT	13,205	13,906	701
THERMAL PLANT	20,578	21,723	1,145
GAS TURBINES	6,555	7,300	745
TERMINAL STATIONS	24,099	27,086	2,986
TRANSMISSION	4,053	4,095	42
DISTRIBUTION	28,878	31,144	2,266
GENERATION	3,687	3,603	(84)
PROPERTIES	644	601	(43)
METERING	1,209	1,202	(7)
RURAL SYSTEMS TOOLS AND EQUIPMENT	3,666	3,217	(449)
INFORMATION SYSTEMS	3,734	3,679	(54)
TELECONTROL	4,037	4,111	74
TRANSPORTATION	5,920	4,941	(979)
ADMINISTRATIVE	381	212	(169)
MAJOR OVERHAUL AND INSPECTIONS	6,840	7,213	373
CONTINGENCY FUND	1,000	1,374	374
PROJECTS APPROVED BY PU BOARD	10,656	8,636	(2,020)
PROJECTS APPROVED FOR LESS THAN $50,000	196	161	(35)
TOTAL CAPITAL BUDGET	139,336	144,203	4,867

2012 Capital Expenditures By Year
($000)

Summary	Capital Budget[1]							Actual Expenditure and Forecast								
	2008	2009	2010	2011	2012	2013 and Beyond	Total	2008	2009	2010	2011 [2]	2012	2013 and Beyond	Carryovers to 2013	Total	Variance
2012 Projects	-	-	-	-	56,327.0	9,112.2	65,439.4	-	-	-	-	45,882.3	9,112.2	8,898.5	63,893.0	(1,546.4)
2011 Projects	-	-	-	14,469.1	12,548.7	4,601.3	31,619.0	-	-	-	7,522.6	15,129.4	5,604.7	5,241.6	33,498.3	1,879.3
2010 Projects	-	-	5,088.4	10,236.0	11,458.4	1,566.1	28,348.8	-	-	4,310.3	9,501.8	8,872.1	1,566.1	5,584.1	29,834.4	1,485.6
2009 Projects	-	100.8	1,693.5	7,105.7	3,750.0	-	12,650.0	-	291.8	1,693.5	6,022.7	7,320.1	-	(223.3)	15,104.8	2,454.8
2008 Projects	96.3	1,182.2	-	-	-	-	1,278.5	2.8	119.1	539.9	1,161.7	48.5	-	-	1,872.1	593.6
Grand Total	96.3	1,283.0	6,781.9	31,810.8	84,084.1	15,279.6	139,335.7	2.8	410.9	6,543.7	24,208.8	77,252.4	16,283.0	19,500.9	144,202.6	4,866.9

2012 Capital Budget Approved by Board Order No. P.U. 2 and 5 (2012)	76,992.3
New Project Approved by Board Order No. 24 (2012)	492.1
New Project Approved by Board Order No. 25 (2012)	2,940.5
New Project Approved by Board Order No. 26 (2012)	321.4
New Project Approved by Board Order No. 27 (2012)	3,154.9
New Project Approved by Board Order No. 35 (2012)	10.2
2012 New Projects under $50,000 Approved by Hydro	172.7
Total Approved Capital Budget Before Carryovers	84,084.1
Carryovers from 2011 to 2012	9,755.9
TOTAL APPROVED CAPITAL BUDGET (As per Table 1 p. 32)	93,840.0

[1] Annual budgets previous to 2012 pertain to projects that have expenditures in 2012.

[2] There has been a restatement of expenditures in 2011 resulting from the conversion to International Financial Reporting Standards (IFRS).

2012 Capital Expenditures By Category
($000)

Hydraulic Plant	Capital Budget				Actual Expenditure and Forecast						
	2011	2012	2013 and Beyond	Total	2011	2012	2013 and Beyond	Carryovers to 2013	Total	Variance	Notes
2012 Projects											
Rewind Stators Unit 4 - Bay d'Espoir	-	4,953.8	-	4,953.8	-	2,548.7	-	2,405.1	4,953.8	-	
Replace Emergency Diesel Generator - Bay d'Espoir	-	611.4	282.7	894.1	-	80.0	282.7	531.4	894.1	-	
Replace Fuel Tank at Burnt Dam - Bay d'Espoir	-	207.5	-	207.5	-	196.3	-	-	196.3	(11.2)	
Replace Rip Rap - Bay d'Espoir	-	199.1	-	199.1	-	114.4	-	-	114.4	(84.7)	
Upgrade Burnt Dam Spillway - Bay d'Espoir	-	523.8	-	523.8	-	168.9	-	621.2	790.1	266.3	1
Purchase Tools and Equipment Less than $50,000	-	106.4	-	106.4	-	94.8	-	-	94.8	(11.6)	
Upgrade Public Safety Around Dams and Waterways - Bay d'Espoir	-	48.3	-	48.3	-	50.1	-	-	50.1	1.8	
2011 Projects											
Replace Fire Alarm System - Hinds Lake	109.1	-	-	109.1	20.2	92.9	-	-	113.1	4.0	
Replace Static Excitation Systems - Upper Salmon, Holyrood and Hinds Lake[3]	487.3	2,402.5	1,219.3	4,109.1	16.8	818.8	2,295.2	978.3	4,109.1	-	
Upgrade Generating Station Service Water System - Cat Arm	360.4	440.0	-	800.4	349.3	259.6	-	191.5	800.4	-	
Upgrade Burnt Dam Spillway Structure - Bay d'Espoir	257.9	-	-	257.9	154.8	70.2	-	228.8	453.8	195.9	2
Purchase Spare Disconnect - Bay d'Espoir	175.6	-	-	175.6	70.6	43.8	-	-	114.4	(61.2)	
Upgrade Intake Gate Controls - Bay d'Espoir	352.3	468.0	-	820.3	507.0	373.6	-	341.2	1,221.8	401.5	3
Total Hydraulic Plant	1,742.6	9,960.8	1,502.0	13,205.4	1,118.7	4,912.1	2,577.9	5,297.5	13,906.2	700.8	

[3] Original budget was $4,109.1 (2010 - $1,214.3, 2011 - $1,528.0, 2012 - $1,366.8) Approved by Order No. P.U. 38 (2010). The revised budget was approved by Order No. P.U. 2 (2012).

2012 Capital Expenditures By Category
($000)

Thermal Plant	Capital Budget					Actual Expenditure and Forecast							
	2010	2011	2012	2013 and Beyond	Total	2010	2011	2012	2013 and Beyond	Carryovers to 2013	Total	Variance	Notes
2012 Projects													
Refurbish Fuel Storage Facility - Holyrood	-	-	2,641.2	-	2,641.2	-	-	1,767.1	-	874.1	2,641.2	-	
Replace Beta Attenuation Monitoring Analyzers - Holyrood	-	-	160.9	-	160.9	-	-	133.2	-	-	133.2	(27.7)	
Upgrade Forced Draft Fan Ductwork Unit 2 - Holyrood	-	-	928.6	-	928.6	-	-	102.4	-	826.2	928.6	-	
Upgrade Stack Breaching Unit 1 - Holyrood	-	-	1,522.3	-	1,522.3	-	-	1,059.5	-	-	1,059.5	(462.8)	4
Upgrade Stack Breaching Unit 2 - Holyrood	-	-	1,505.1	-	1,505.1	-	-	1,123.2	-	-	1,123.2	(381.9)	5
Replace Fuel Oil Heat Tracing - Holyrood	-	-	1,474.3	1,413.9	2,888.2	-	-	783.4	1,413.9	690.9	2,888.2	-	
Rewind Generator Units 1 and 2 - Holyrood[4]	-	-	112.2	-	112.2	-	-	-	-	-	-	(112.2)	6
Purchase Tools and Equipment Less than $50,000	-	-	89.4	-	89.4	-	-	37.4	-		37.4	(52.0)	
2011 Projects													
Upgrade Synchronous Condenser Unit 3 - Holyrood	-	483.5	405.5	-	889.0	-	141.4	784.4	-	-	925.8	36.8	
Upgrade Forced Draft Fan Ductwork Unit 1 - Holyrood	-	843.0	-	-	843.0	-	400.4	976.3	-	-	1,376.7	533.7	7
Replace Relay Panels Unit 3 - Holyrood	-	277.1	553.6	-	830.7	-	134.2	121.5	-	1,449.4	1,705.1	874.4	8
Upgrade Electrical Equipment - Holyrood	-	188.0	206.3	284.5	678.8	-	179.6	41.9	212.1	(11.9)	421.7	(257.1)	9
Upgrade Hydrogen System - Holyrood	-	1,191.9	800.4	-	1,992.3	-	270.5	1,194.5	-	527.3	1,992.3	-	
Replace Steam Seal Regulator Unit 2 - Holyrood	-	175.0	438.4	-	613.4	-	51.6	761.6	-	-	813.2	199.8	10
2010 Projects													
Replace Diesel Fire Pump - Holyrood	111.9	195.4	-	-	307.3	27.9	149.9	208.1	-	-	385.9	78.6	
Replace Pumphouse Motor Control Centres - Holyrood	50.2	998.6	-	-	1,048.8	99.5	1,070.2	285.7	-	62.2	1,517.6	468.8	11
Replace Programmable Logic Controllers - Holyrood[5]	1,357.5	872.5	748.0	-	2,978.0	1,357.5	877.2	659.8	-	-	2,894.5	(83.5)	
Replace Steam Seal Regulator Unit 1 - Holyrood	334.7	213.7	-	-	548.4	16.1	305.2	557.5	-	-	878.8	330.4	12
Total Thermal Plant	1,854.3	5,438.7	11,586.2	1,698.4	20,577.6	1,501.0	3,580.2	10,597.5	1,626.0	4,418.2	21,722.9	1,145.3	

Total 2009

total 2008

[4] The total budget was $11,901.2. Removed future years since project is cancelled.

[5] Original budget was $2,856.7 (2010 - $1,207.9, 2011 - $747.1, 2012 - $901.7) Approved by Order No. P.U. 1 (2010). The revised Budget was approved by Order No. P.U. 2 (2012).

2012 Capital Expenditures By Category
($000)

Gas Turbines	Capital Budget				Actual Expenditure and Forecast						
	2010	2011	2012	Total	2010	2011	2012	Carryovers to 2013	Total	Variance	Notes
2010 Projects											
Upgrade Glycol Systems - Stephenville	261.3	298.9	-	560.2	3.3	517.9	113.2	543.0	1,177.4	617.2	13
Upgrade Gas Turbine Plant Life Extension - Hardwoods[6]	704.5	1,009.8	4,280.4	5,994.7	704.5	1,168.9	505.7	3,743.6	6,122.7	128.0	
Total Gas Turbines	965.8	1,308.7	4,280.4	6,554.9	707.8	1,686.8	618.9	4,286.6	7,300.1	745.2	

[6] Original budget was $5,994.7 (2010 - $1,304.5, 2011 - $1,323.6, 2012 - $3,366.6) Approved by Order No. P.U. 1 (2010). The revised Budget was approved by Order No. P.U.

2012 Capital Expenditures By Category
($000)

Terminal Stations	Capital Budget						Actual Expenditure and Forecast								
	2009	2010	2011	2012	2013 and Beyond	Total	2009	2010	2011	2012	2013 and Beyond	Carryovers to 2013	Total	Variance	Notes
2012 Projects															
Upgrade Circuit Breakers - Various Sites	-	-	-	1,677.3	-	1,677.3	-	-	-	1,287.9	-	-	1,287.9	(389.4)	14
Replace Surge Arrestors - Various Sites	-	-	-	75.7	-	75.7	-	-	-	69.4	-	-	69.4	(6.3)	
Replace Instrument Transformers - Various Sites	-	-	-	452.4	-	452.4	-	-	-	318.6	-	-	318.6	(133.8)	15
Upgrade Power Transformers - Various Sites	-	-	-	1,246.3	-	1,246.3	-	-	-	1,406.6	-	-	1,406.6	160.3	16
Replace Disconnects - Various Sites	-	-	-	351.8	-	351.8	-	-	-	319.2	-	-	319.2	(32.6)	
Replace Compressed Air Piping and Install Dew Point Monitor - Buchans	-	-	-	28.4	278.3	306.8	-	-	-	-	278.3	28.5	306.8	-	
Replace Insulators - Various Sites	-	-	-	411.6	-	411.6	-	-	-	104.2			104.2	(307.4)	17
2011 Projects															
Perform Grounding Upgrades - Various Sites	-	-	321.2	324.0	1,011.5	1,656.7	-	-	287.6	240.7	1,011.5	116.9	1,656.7	-	
Replace Compressed Air System - Bay d'Espoir	-	-	83.9	563.6	-	647.5	-	-	83.7	1,084.2	-	136.9	1,304.8	657.3	18
Replace Digital Fault Recorder - Bay d'Espoir	-	-	168.6	-	-	168.6	-	-	69.1	74.6	-	-	143.7	(24.9)	
Replace 230 kV Circuit Breaker - Sunnyside	-	-	41.3	590.1	-	631.4	-	-	7.3	638.8	-	-	646.1	14.7	
Install Alternate Station Services - Stony Brook and Massey Drive	-	-	86.0	109.2	-	195.2	-	-	5.5	155.7	-	34.0	195.2	-	
Replace Compressor, Dryer and Air Piping Header System - Corner Brook Frequency Converter Station	-	-	280.2	-	-	280.2	-	-	141.8	139.2	-	122.1	403.1	122.9	19
Upgrade Substation - Wabush	-	-	459.3	626.4	-	1,085.7	-	-	13.8	907.6	-	362.6	1,284.0	198.3	20
Replace 69 kV SF6 Breakers - St. Anthony Airport	-	-	489.9	290.1	-	779.9	-	-	480.5	276.4	-	-	756.9	(23.0)	
Upgrade Station Reliability and Safety - Rocky Harbour	-	-	434.8	360.1	-	794.9	-	-	5.2	1,180.8	-	-	1,186.0	391.1	21
Replace Breaker, Structures and Disconnects - Hawke's Bay	-	-	687.4	-	-	687.4	-	-	331.2	260.5	-	-	591.7	(95.7)	
2010 Projects															
Voisey's Bay Nickel - Long Harbour Power Supply	-	122.9	5,505.3	9,169.8	-	14,798.0	-	1,332.0	9,854.0	2,187.4	-	-	13,373.4	(1,424.6)	
Cost Recovery - Vale Inco	-	(122.9)	(5,505.3)	(9,169.8)	-	(14,798.0)	-	(1,332.0)	(9,854.0)	(2,187.4)	-	-	(13,373.4)	1,424.6	
2009 Projects															
Upgrade Terminal Stations to 25 kV - Labrador City[7]	100.8	1,693.5	7,105.7	3,750.0	-	12,650.0	291.8	1,693.5	6,022.7	7,320.1	-	(223.3)	15,104.8	2,454.8	22
Total Terminal Stations	100.8	1,693.5	10,158.3	10,857.0	1,289.8	24,099.4	291.8	1,693.5	7,448.4	15,784.5	1,289.8	577.7	27,085.7	2,986.3	

[7] Original budget was $9,990.6 (2009 - $283.2, 2010 - $3,894.8, 2011 - $5,812.6) Approved by Order No. P.U. 36 (2008). The revised Budget was approved by Order No. P.U. 2 (2012).

2012 Capital Expenditures By Category
($000)

Transmission	Capital Budget				Actual Expenditure and Forecast						
	2011	2012	2013 and Beyond	Total	2011	2012	2013 and Carryovers Beyond	to 2013	Total	Variance	Notes
2012 Projects											
Install Ice Monitoring Equipment - Various Sites	-	47.0	-	47.0	-	45.4	-	-	45.4	(1.6)	
Perform Wood Pole Line Management Program - Various Sites	-	2,519.3	-	2,519.3	-	2,562.8	-	-	2,562.8	43.5	
2011 Projects											
Replace Guy Wires TL-215 - Doyles to Grand Bay	288.8	318.0	880.1	1,486.9	447.6	256.0	880.0	(96.7)	1,486.9	-	
Total Transmission	288.8	2,884.3	880.1	4,053.2	447.6	2,864.2	880.0	(96.7)	4,095.1	41.9	

2012 Capital Expenditures By Category
($000)

Distribution	Capital Budget					Actual Expenditure and Forecast							
	2010	2011	2012	2013 and Beyond	Total	2010	2011	2012	2013 and Beyond	Carryovers to 2013	Total	Variance	Notes
2012 Projects													
Replace Recloser Control Panels - Various Sites	-	-	202.3	-	202.3	-	-	113.9	-	-	113.9	(88.4)	
Provide Service Extensions - All Service Areas	-	-	4,172.0	-	4,172.0	-	-	6,031.8	-	-	6,031.8	1,859.8	23
Upgrade Distribution Systems - All Service Areas	-	-	2,508.0	-	2,508.0	-	-	3,134.1	-	-	3,134.1	626.1	24
Upgrade Distribution Lines - Bay d'Espoir, Parsons Pond and Plum Point	-	-	1,385.2	1,110.5	2,495.7	-	-	1,189.1	1,110.5	17.2	2,316.8	(178.9)	
Distribution Systems Additions - Various Sites	-	-	2,172.1	-	2,172.1	-	-	2,115.9	-	-	2,115.9	(56.2)	
2011 Projects													
Replace Substation Infrastructure- Burgeo	-	127.5	368.3	-	495.8	-	6.9	739.0	-	-	745.9	250.1	25
Upgrade Distribution Systems Francois, Rigolet and Happy Valley	-	1,067.7	652.4	-	1,720.1	-	609.8	1,187.3	-	-	1,797.1	77.0	
Install Voltage Regulators - Conne River and L'Anse au loup	-	292.6	-	-	292.6	-	116.1	96.7	-	-	212.8	(79.8)	
2010 Projects													
Voltage Conversion - Labrador City	1,088.9	3,501.2	3,840.7	969.5	9,400.3	1,524.6	2,825.0	4,120.6	969.5	(39.4)	9,400.3	-	
Upgrade L2 Distribution Feeder - Glenburnie	267.3	578.2	2,114.6	596.6	3,556.7	109.9	402.4	1,382.7	596.6	1,065.1	3,556.7	-	
Upgrade Distribution Lines - Roddickton and Makkovik	217.7	1,645.0	-	-	1,862.7	83.4	1,155.5	479.9	-	-	1,718.8	(143.9)	
Total Distribution	1,573.9	7,212.2	17,415.6	2,676.6	28,878.3	1,717.9	5,115.7	20,591.0	2,676.6	1,042.9	31,144.1	2,265.8	

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2012 Capital Expenditures By Category
($000)

Generation	Capital Budget					Actual Expenditure and Forecast							
	2010	2011	2012	2013 and Beyond	Total	2010	2011	2012	2013 and Beyond	Carryovers to 2013	Total	Variance	Notes
2012 Projects													
Perform FEED for Diesel Plant Remediation - Various Sites	-	-	110.4	-	110.4	-	-	43.6	-	66.8	110.4	-	
Replace Fuel Storage Tanks - St. Lewis	-	-	465.1	-	465.1	-	-	249.3	-	-	249.3	(215.8)	26
2011 Projects													
Perform Arc Flash Remediation - Various Sites	-	429.5	380.3	1,205.9	2,015.7	-	103.5	91.7	1,205.9	614.6	2,015.7	-	
Replace Mini Hydro Turbine - Roddickton	-	86.8	235.4	-	322.2	-	10.7	221.0	-	246.6	478.3	156.1	27
Install Sequence of Events Monitor in Diesel Plant - Port Hope Simpson	-	154.8	-	-	154.8	-	6.6	(6.6)	-	-	-	(154.8)	28
2010 Projects													
Replace Diesel Unit 2001 and Engine 566 - Francois	168.4	450.1	-	-	618.5	11.2	446.9	81.3	-	209.6	749.0	130.5	29
Total Generation	168.4	1,121.2	1,191.2	1,205.9	3,686.7	11.2	567.7	680.3	1,205.9	1,137.6	3,602.7	(84.0)	

2012 Capital Expenditures By Category
($000)

Properties	Capital Budget			Actual Expenditure and Forecast					
	2011	2012	Total	2011	2012	Carryovers to 2013	Total	Variance	Notes
2012 Projects									
Install Fall Protection Equipment - Various Sites	-	199.2	199.2	-	186.5	-	186.5	(12.7)	
Upgrade Mechanical Workshop - St. Anthony	-	87.0	87.0	-	75.3	-	75.3	(11.7)	
Install Waste Oil Storage Tank - L'Anse au Loup	-	81.5	81.5	-	82.7	-	82.7	1.2	
Legal Survey of Primary Distribution Line Right of Ways - Various Sites - 2012	-	197.9	197.9	-	190.4	-	190.4	(7.5)	
2011 Projects									
Legal Survey of Primary Distribution Line Right of Ways - Various Sites - 2011	78.7	-	78.7	4.5	61.5	-	66.0	(12.7)	
Total Properties	78.7	565.6	644.3	4.5	596.4	-	600.9	(43.4)	

2012 Capital Expenditures By Category
($000)

Metering	Capital Budget				Actual Expenditure and Forecast						
	2011	2012	2013 and Beyond	Total	2011	2012	2013 and Beyond	Carryovers to 2013	Total	Variance	Notes
2012 Projects											
Purchase Meters, Equipment and Metering Tanks - Various Sites	-	190.4	-	190.4	-	193.3	-	-	193.3	2.9	
Install Automatic Meter Reading - Plum Point and Bear Cove	-	379.6	288.0	667.6	-	390.8	288.0	(19.3)	659.5	(8.1)	
2011 Projects											
Install Automatic Meter Reading - Labrador City[8]	292.2	58.3	-	350.5	228.0	120.8	-	-	348.8	(1.7)	
Total Metering	292.2	628.3	288.0	1,208.5	228.0	704.9	288.0	(19.3)	1,201.6	(6.9)	

[8] Original budget was $538.9 (2011 - $451.2, 2012 - $87.7) Approved by Order No. P.U. 38 (2010) to install automatic meter reading for Labrador City and Port aux Chois. The Port aux Choix portion of the project was cancelled. The revised Budget was approved by Order No. P.U. 2 (2012).

2012 Capital Expenditures By Category
($000)

Tools and Equipment	Capital Budget				Actual Expenditure and Forecast						
	2011	2012	2013 and Beyond	Total	2011	2012	2013 and Beyond	Carryovers to 2013	Total	Variance	Notes
2012 Projects											
Replace Off Road Track Vehicles - Flowers Cove and Cow Head	-	482.5	395.6	878.1	-	-	395.6	482.5	878.1	-	
Replace Light Duty Mobile Equipment - Various Sites	-	400.6	-	400.6	-	413.1	-	-	413.1	12.5	
Replace Excavator - L'Anse au Loup	-	120.0	-	120.0	-	79.2	-	-	79.2	(40.8)	
Tools and Equipment Less than $50,000	-	406.3	-	406.3	-	360.1	-	18.3	378.4	(27.9)	
2011 Projects											
Replace Off Road Track Vehicles - Bishop's Falls and Fogo	494.3	609.4	-	1,103.7	403.5	426.5	-	-	830.0	(273.7)	30
Replace Light Duty Mobile Equipment - Various Sites	757.0	-	-	757.0	582.5	55.6	-	-	638.1	(118.9)	31
Total Tools and Equipment	1,251.3	2,018.8	395.6	3,665.7	986.0	1,334.5	395.6	500.8	3,216.9	(448.8)	

2012 Capital Expenditures By Category
($000)

Information Systems	Capital Budget					Actual Expenditure and Forecast							
	2010	2011	2012	2013 and Beyond	Total	2010	2011	2012	2013 and Beyond	Carryovers to 2013	Total	Variance	Notes
2012 Projects													
Perform Minor Application Enhancements - Hydro Place	-	-	123.4	-	123.4	-	-	113.3	-	-	113.3	(10.1)	
Cost Recoveries	-	-	(41.9)	-	(41.9)	-	-	(38.5)	-	-	(38.5)	3.4	
Implement Work Protection Safety Code Application - Hydro Place	-	-	115.6	-	115.6	-	-	114.2	-	-	114.2	(1.4)	
Upgrade JD Edwards - Hydro Place	-	-	284.0	587.6	871.6	-	-	518.3	587.6	(234.3)	871.6	-	
Cost Recoveries	-	-	(96.6)	(199.8)	(296.3)	-	-	(176.2)	(199.8)	79.7	(296.3)	-	
Upgrade Energy Management System - Hydro Place	-	-	117.8	-	117.8	-	-	107.0	-	-	107.0	(10.8)	
Upgrade Microsoft Project - Hydro Place	-	-	91.3	-	91.3	-	-	91.3	-	-	91.3	-	
Cost Recoveries	-	-	(31.0)	-	(31.0)	-	-	(31.0)	-	-	(31.0)	-	
Upgrade Creditron System - Hydro Place	-	-	37.5	-	37.5	-	-	39.0	-	-	39.0	1.5	
Replace Personal Computers - Various Sites	-	-	490.6	-	490.6	-	-	499.0	-	-	499.0	8.4	
Replace Peripheral Infrastructure - Various Sites	-	-	327.5	-	327.5	-	-	328.5	-	-	328.5	1.0	
Upgrade Enterprise Storage Capacity - Hydro Place	-	-	306.3	-	306.3	-	-	298.1	-	-	298.1	(8.2)	
Cost Recoveries	-	-	(104.1)	-	(104.1)	-	-	(101.3)	-	-	(101.3)	2.8	
Upgrade Server Technology Program - Hydro Place	-	-	202.6	-	202.6	-	-	201.7	-	-	201.7	(0.9)	
Cost Recoveries	-	-	(30.9)	-	(30.9)	-	-	(30.4)	-	-	(30.4)	0.5	
Upgrade Computer Room - Hydro Place	-	-	122.0	-	122.0	-	-	9.3	-	112.7	122.0	-	
Cost Recoveries	-	-	(41.5)	-	(41.5)	-	-	(3.2)	-	(38.3)	(41.5)	-	
2010 Projects													
Corporate Application Environment - Upgrade Microsoft Products	751.4	675.1	678.1	-	2,104.6	563.4	858.1	682.3	-	-	2,103.8	(0.8)	
Cost Recoveries	(225.4)	(202.5)	(203.4)	-	(631.4)	(191.0)	(275.4)	(204.7)	-	-	(671.1)	(39.7)	
Total Information Systems	526.0	472.6	2,347.3	387.8	3,733.7	372.4	582.7	2,416.7	387.8	(80.2)	3,679.4	(54.3)	

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2012 Capital Expenditures By Category
($000)

Telecontrol	Capital Budget						Actual Expenditure and Forecast								
	2008	2009	2010	2011	2012	Total	2008	2009	2010	2011	2012	Carryovers to 2013	Total	Variance	Notes
2012 Projects															
Upgrade Communication Services - Paradise River	-	-	-	-	97.5	97.5	-	-	-	-	80.2	-	80.2	(17.3)	
Replace Radomes - Various Sites	-	-	-	-	172.0	172.0	-	-	-	-	157.4	-	157.4	(14.6)	
Replace Battery Banks and Chargers - Various Sites	-	-	-	-	880.8	880.8	-	-	-	-	662.1	-	662.1	(218.7)	32
Replace Network Communications Equipment - Various Sites	-	-	-	-	521.6	521.6	-	-	-	-	448.8	-	448.8	(72.8)	
Replace Telephone Systems - Port Saunders and Whitbourne	-	-	-	-	199.3	199.3	-	-	-	-	173.1		173.1	(26.2)	
Upgrade Site Facilities - Various Sites	-	-	-	-	46.5	46.5	-	-	-	-	41.4	-	41.4	(5.1)	
Purchase Tools and Equipment Less than $50,000	-	-	-	-	85.3	85.3	-	-	-	-	45.2		45.2	(40.1)	
2011 Projects															
Replace MDR 6000 Microwave Radio (West) - Various Sites	-	-	-	72.0	683.3	755.3	-	-	-	26.4	603.8	-	630.2	(125.1)	33
2008 Projects															
Public Address System - Holyrood	96.3	1,182.2	-	-	-	1,278.5	2.8	119.1	539.9	1,161.7	48.5	-	1,872.1	593.6	34
Total Telecontrol	96.3	1,182.2	-	72.0	2,686.3	4,036.8	2.8	119.1	539.9	1,188.1	2,260.5	-	4,110.5	73.7	

2012 Capital Expenditures By Category
($000)

Transportation	Capital Budget				Actual Expenditure and Forecast						
	2011	2012	2013 and Beyond	Total	2011	2012	2013 and Beyond	Carryovers to 2013	Total	Variance	Notes
2012 Projects											
Replace Vehicles and Aerial Devices (2012-2013) - Various Sites	-	1,711.4	1,218.8	2,930.2	-	1,594.1	1,218.8	117.3	2,930.2	-	
2011 Projects											
Replace Vehicles and Aerial Devices (2011-2012) - Various Sites	2,350.5	638.9	-	2,989.4	1,254.4	756.2	-	-	2,010.6	(978.8)	35
Total Transportation	2,350.5	2,350.3	1,218.8	5,919.6	1,254.4	2,350.3	1,218.8	117.3	4,940.8	(978.8)	

Administration	Capital Budget				Actual Expenditure and Forecast						
	2011	2012	2013 and Beyond	Total	2011	2012	2013 and Beyond	Carryovers to 2013	Total	Variance	Notes
2012 Projects											
Remove Safety Hazards - Various Sites	-	249.1	-	249.1	-	141.4	-	-	141.4	(107.7)	36
Purchase Tools and Equipment Less than $50,000	-	131.6	-	131.6	-	70.7	-	-	70.7	(60.9)	
Total Administation	-	380.7	-	380.7	-	212.1	-	-	212.1	(168.6)	

Major Overhauls and Inspections	Capital Budget				Actual Expenditure and Forecast						
	2011	2012	2013 and Beyond	Total	2011	2012	2013 and Beyond	Carryovers to 2013	Total	Variance	Notes
2012 Projects											
Condition Assessment and Life Extension Phase 2 - Holyrood	-	1,215.7	-	1,215.7	-	565.2	-	650.5	1,215.7	-	
Overhaul Turbine Unit 1 - Holyrood	-	4,193.1	-	4,193.1	-	4,007.5	-	-	4,007.5	(185.6)	
Overhaul Diesel Units - Various Sites	-	974.1	-	974.1	-	1,605.2	-	-	1,605.2	631.1	37
Overhaul Turbine/Generator Units - Granite Canal and Upper Salmon	-	456.6	-	456.6	-	384.1	-	-	384.1	(72.5)	
Total Major Overhauls and Inspections	-	6,839.5	-	6,839.5	-	6,562.0	-	650.5	7,212.5	373.0	

2012 Capital Expenditures By Category
($000)

Contingency Fund	Capital Budget				Actual Expenditure and Forecast						
	2011	2012	2013 and Beyond	Total	2011	2012	2013 and Beyond	Carryovers to 2013	Total	Variance	Notes
2012 Projects											
Black Tickle Plant Rehabiliation	-	1,000.0	-	1,000.0		1,374.4	-	-	1,374.4	374.4	38
Total Contingency Fund	-	1,000.0	-	1,000.0		1,374.4	-	-	1,374.4	374.4	

Unbudgeted Projects Approved by PUB	Capital Budget				Actual Expenditure and Forecast						
	2011	2012	2013 and Beyond	Total	2011	2012	2013 and Beyond	Carryovers to 2013	Total	Variance	Notes
2012 Projects											
Upgrade Access Road - Cat Arm	-	492.1	-	492.1	-	233.6	-	-	233.6	(258.5)	39
Upgrade Dam - Cat Arm	-	3,154.9	-	3,154.9	-	1,188.5	-	-	1,188.5	(1,966.4)	40
Increase Generation - Mary's Harbour	-	321.4	1,295.0	1,616.4	-	51.0	1,295.0	270.4	1,616.4	-	
Gas Turbine Alternator Rewind - Stephenville	-	2,940.5	2,252.1	5,192.6	-	1,758.0	2,252.1	1,387.4	5,397.5	204.9	
Hydro Place Penthouse Roof Replacement	-	10.2	189.5	199.7	-	-	189.5	10.2	199.7	-	
Total Unbudgeted Projects Approved by PUB	-	6,919.1	3,736.6	10,655.7		3,231.1	3,736.6	1,668.0	8,635.7	(2,020.0)	

Projects Less than $50,000 Approved by Hydro	Capital Budget				Actual Expenditure and Forecast						
	2011	2012	2013 and Beyond	Total	2011	2012	2013 and Beyond	Carryovers to 2013	Total	Variance	Notes
2012 Projects											
Purchase Diesel Plant Property - English Harbour West	-	50.0	-	50.0	-	49.7	-	-	49.7	(0.3)	
Replace Wavetrap - Sunnyside	-	14.6	-	14.6	-	10.8	-	-	10.8	(3.8)	
Gate Hoist Rehabilitation - Burnt Dam	-	35.7	-	35.7	-	32.0	-	-	32.0	(3.7)	
Land Purchase - Happy Valley-Goose Bay	-	46.2	-	46.2	-	46.2	-	-	46.2	-	
2011 Projects											
Replace Engine 2062 - Grey River	23.0	26.2	-	49.2	-	22.3	-	-	22.3	(26.9)	
Total Projects Less than $50,000 Approved by Hydro	23.0	172.7	-	195.7	-	161.0	-	-	161.0	(34.7)	

NEWFOUNDLAND AND LABRADOR HYDRO
2012 VARIANCE EXPLANATIONS
FOR THE YEAR ENDING DECEMBER 31, 2012
(Greater than $100,000 and 10% Variance from Budget)
($000)

1. Upgrade Burnt Dam Spillway - Bay d'Espoir

Budget: $523.8 Total: $790.1 Variance: $266.3

This is a one-year project which has been carried over into 2013. There is a budget increase due to the difference between the budgeted and actual tendered costs for the disassembly and inspection contract and the consultant design cost. The project has been carried over into 2013 as a result of having to reapply for a project to refurbish the stop logs to allow for the approved inspections to be completed safely.

2. Upgrade Burnt Dam Spillway Structure- Bay d'Espoir

Budget: $257.9 Total: $453.8 Variance: $195.9

This is a one-year project initiated in 2011 that was carried over into 2012. The budget increase is due to the use of external resources to design and oversee project execution. In addition, contract pricing obtained through competitive bid process was higher than estimated. The internal review and approval of the budget variances resulted in delayed tender award for the execution of the work. This project will be completed in 2013.

3. Upgrade Intake Gate Controls - Bay d'Espoir

Budget: $820.3 Total: $1,221.8 Variance: $401.5

This is a two-year project initiated in 2011. The scope of this project remains unchanged however due to the timing and the complexity of the work resulted in increased labour costs. The work planned for 2011 was completed; however the work to be completed in 2012 has been delayed until at least 2013 due to system constraints which prevented a suitable outage window to complete the work.

4. Upgrade Stack Breaching Unit 1 - Holyrood

Budget: $1,522.3 Total: $1,059.5 Variance: ($462.8)

This is a one-year project completed in 2012. As a result of tendering the contract work for both Unit 1 and Unit 2 Stack Breaching projects together, a savings was realized. In addition, no project contingency funds were used.

NEWFOUNDLAND AND LABRADOR HYDRO
2012 VARIANCE EXPLANATIONS
FOR THE YEAR ENDING DECEMBER 31, 2012
(Greater than $100,000 and 10% Variance from Budget)
($000)

5. Upgrade Stack Breaching Unit 2 - Holyrood

Budget: $1,505.1 Total: $1,123.2 Variance: ($381.9)

This is a one-year project completed in 2012. As a result of tendering the contract work for both Unit 1 and Unit 2 Stack Breaching projects together, a savings was realized. In addition, no project contingency funds were used.

6. Rewind Generator Units 1 and 2 - Holyrood

Budget: $112.2 Total: $0 Variance: ($112.2)

This project has been cancelled. With the updated long-term plan for Holyrood, Units 1 and 2 will no longer be required to operate as synchronous condensers to 2041. A 2012 review of the Unit 1 and 2 generator stator windings concluded that the windings are expected to operate reliably up to 2017 and do not require replacement.

7. Upgrade Forced Draft Fan Ductwork Unit 1 - Holyrood

Budget: $843.0 Total: $1,376.7 Variance: $533.7

This was a one-year project to be completed in 2011 which was carried over into 2012. The increased project cost is a result of higher than estimated pricing for the installation contract.

A risk-based cost benefit analysis completed in September 2011 clearly demonstrated that it was prudent to complete the project at the higher cost, based upon energy savings from a reduced load on the forced draft fans and mitigation of the risk of failure which could result in an unplanned outage of Unit 1.

NEWFOUNDLAND AND LABRADOR HYDRO
2012 VARIANCE EXPLANATIONS
FOR THE YEAR ENDING DECEMBER 31, 2012
(Greater than $100,000 and 10% Variance from Budget)
($000)

8. Replace Relay Panels Unit 3 - Holyrood

Budget: $830.7 **Total: $1,705.1** **Variance: $874.4**

This is a two-year project initiated in 2011. Additional engineering and plant resource time was required in 2012 in order to complete the field investigations to bring the existing Unit 3 relay panel control schematics and termination schedules up to 'as-built' status. As these 'as-built' drawings form the basis of the control panel design, the contract for the design and supply of the new control panel will now be executed in 2013. As a result, the project will be carried over into 2013.

The installation time for the control panel will be longer than anticipated due to the greater than originally estimated number of cables and conductors entering the Unit 3 relay panel. Cables must be properly labeled and organized for successful commissioning. Also, the commissioning period will be longer in 2013 because in addition to the new control processor being added to the project, the existing Unit 3 control processors will have to be partially re-commissioned. These factors have increased the outage from eight to 12 weeks and have increased both labour and construction costs.

9. Upgrade Electrical Equipment - Holyrood

Budget: $678.8 **Total: $421.7** **Variance: ($257.1)**

This is a three-year project initiated in 2011 to replace the circuit protection equipment in six motor control centers (MCCs) located in the Holyrood plant powerhouse and to replace one MCC and items of the electrical switchgear in the Holyrood Gas Turbine building.

The MCC refurbishments planned for 2011 were completed. A portion of this project was to perform electric upgrades to the Holyrood Gas Turbine however, that work has been cancelled as the Gas Turbine is currently not in service. The remaining MCC refurbishments will be completed in 2013.

NEWFOUNDLAND AND LABRADOR HYDRO
2012 VARIANCE EXPLANATIONS
FOR THE YEAR ENDING DECEMBER 31, 2012
(Greater than $100,000 and 10% Variance from Budget)
($000)

10. Replace Steam Seal Regulator Unit 2 - Holyrood

Budget: $613.4 **Total: $813.2** **Variance: $199.8**

This project was a two-year project initiated in 2011 to replace the existing hydraulic steam seal regulator on Unit 2 with two pneumatically operated steam pressure control valves.

During the detailed design phase in 2011, it was determined that the replacement of the pressure safety valve, associated discharge piping and pipe supports would be required in order to provide adequate steam venting for the new steam seal regulator system. This work scope was not included in the original project scope and thus increased the project above the original estimated cost.

11. Replace Pumphouse Motor Control Centres - Holyrood

Budget: $1,048.8 **Total: $1,517.6** **Variance: $468.8**

This is a two-year project initiated in 2010 which was carried over into 2012. The engineering design and construction specification prepared for this budget did not cover all the aspects of work required to complete this project. This resulted in increased costs for labour and for the installation contract. The installation and commissioning of the Units 1 and 2 pumphouse motor control centers (MCCs) will now be completed during the scheduled 2013 unit outages.

12. Replace Steam Seal Regulator Unit 1 - Holyrood

Budget: $548.4 **Total: $878.8** **Variance: $330.4**

This is a two-year project initiated in 2010 and then carried over into 2012 due to the inability of the contractor to complete the work within the planned outage window. The total cost of this project has increased due to an increase in contract and labour costs over the budgeted amounts, as the contract was retendered which extended the project schedule.

NEWFOUNDLAND AND LABRADOR HYDRO
2012 VARIANCE EXPLANATIONS
FOR THE YEAR ENDING DECEMBER 31, 2012
(Greater than $100,000 and 10% Variance from Budget)
($000)

13. Upgrade Glycol Systems - Stephenville

Budget: $560.1 **Total: $1,177.4** **Variance: $617.3**

This is a two-year project initiated in 2010 which was carried over into 2012 due to multiple tenders being required to secure suitable bids. While the construction work was planned to be completed in the spring of 2012, it was postponed as a result of the alternator failure at the Stephenville Gas Turbine. The glycol system upgrade project cannot be commissioned and placed in service until the alternator refurbishment work is completed. The cost of this project has increased due to an increase in engineering, labour and material costs and also as a result of project delays.

14. Upgrade Circuit Breakers - Various Sites

Budget: $1,677.3 **Total: $1,287.9** **Variance: ($389.4)**

This 2012 project was to replace four breakers at the Bottom Brook, Doyles, Hardwoods and Massey Drive Terminal Stations. Due to the unavailability of a suitable outage window, the breaker replacement in Hardwoods could not be completed. The replacement of the Hardwoods breaker will now be completed under a future circuit breaker project.

15. Replace Instrument Transformers - Various Sites

Budget: $452.4 **Total: $318.6** **Variance: ($133.8)**

This is a one-year project completed in 2012. The final project cost was lower than budgeted as a result of delayed delivery of instrument transformers and the unavailability of suitable outage windows for some installations. The replacement of these instrument transformers will be completed under a future instrument transformer project.

NEWFOUNDLAND AND LABRADOR HYDRO
2012 VARIANCE EXPLANATIONS
FOR THE YEAR ENDING DECEMBER 31, 2012
(Greater than $100,000 and 10% Variance from Budget)
($000)

16. Upgrade Power Transformers - Various Sites

Budget: $1,246.3 **Total: $1,406.6** **Variance: $160.3**

In addition to the planned 2012 power transformer upgrades, there was an additional transformer upgrade required to ensure the winter load in Happy Valley/Goose Bay resulting in increased project costs.

17. Replace Insulators - Various Sites

Budget: $411.6 **Total: $104.2** **Variance: ($307.4)**

The insulators ordered for 2012 were not received due to issues experienced at the manufacturing plant in Japan. These insulators are committed for delivery in 2013 and will be installed as part of the 2013 capital program.

18. Replace Compressed Air System - Bay d'Espoir

Budget: $647.5 **Total: $1,304.8** **Variance: $657.3**

This is a two-year project initiated in 2011 which has been carried into 2013. The project is approximately 90% complete; however it was not completed on time due to limited breaker outage availability. The increase in project cost is primarily due to tendered bids for construction that were higher than estimated.

19. Replace Compressor, Dryer, and Air Piping Header System - Corner Brook Frequency Converter Station

Budget: $280.2 **Total: $403.1** **Variance: $122.9**

This project was originally planned to be completed in 2011 and was carried into 2012 due to difficulties in obtaining bids for the work in 2011. The contract work for this project was combined with other project work and tendered a second time which resulted in contract pricing which was higher than estimated.

NEWFOUNDLAND AND LABRADOR HYDRO
2012 VARIANCE EXPLANATIONS
FOR THE YEAR ENDING DECEMBER 31, 2012
(Greater than $100,000 and 10% Variance from Budget)
($000)

19. Replace Compressor, Dryer, and Air Piping Header System - Corner Brook Frequency Converter Station (cont'd.)

In addition to increased contract pricing, design changes were required in the course of the project which resulted in increased engineering and material costs. The material required to complete the design changes could not be delivered in 2012, and as a result, this project has been carried into 2013. The project is 90% complete.

20. Upgrade Substation - Wabush

Budget: $1,085.7 Total: $1,284.0 Variance: $198.3

This is a two-year project initiated in 2011 which has been carried into 2013. During the detail design phase, additional required design work was identified related to the grounding and yard upgrade work which affected both the project budget and schedule. The project scope includes grounding upgrades within the substation that, for safety reasons, could not be completed late in the year. These upgrades will now be completed during the construction season in the summer of 2013. The overall budget for this project has increased due to higher than anticipated contract pricing.

21. Upgrade Station Reliability and Safety - Rocky Harbour

Budget: $794.9 Total: $1,186.0 Variance: $391.1

This is a two-year project completed in 2012. During the detail design phase, it was realized that some work necessary to complete the project had not been identified at the budget stage which resulted in higher than budgeted contract costs.

NEWFOUNDLAND AND LABRADOR HYDRO
2012 VARIANCE EXPLANATIONS
FOR THE YEAR ENDING DECEMBER 31, 2012
(Greater than $100,000 and 10% Variance from Budget)
($000)

22. Upgrade Terminal Stations to 25 kV - Labrador City

Budget: $12,650 Total: $15,104.8 Variance: $2,454.8

The original budget was submitted as a three-year project to construct two new 46/25 kV terminal stations. Each station will have two new 46/25 kV, 15/20/25 MVA power transformers, new 46 kV and 25 kV electrical equipment and new control buildings. The budget for this project was previously increased to $12,650,000 and the 2012 budget has been adjusted to incorporate the change in the overall budget.

This project was estimated in 2008 based on market conditions at the time and using standard escalation indices for future year expenditures. The market conditions realized in Labrador West during the project execution phase have been a-typical, driven by strong economic activity in the area. The outcome is an escalation beyond Hydro's anticipation in construction contracts, materials and labour.

An additional $2.4 million is required to complete this project as a result of contract pricing increases above estimated amounts for contracts to project completion, use of consultants for design review, commissioning cost estimates which were low compared to the actual cost to commission the specific type and size of stations involved, and additional material costs. All contracts have now been awarded and construction is complete. One of the two terminal stations is in service as of December 2012, and commissioning of the remaining station is ongoing.

This project has been carried over into 2013 as a result of delays in building delivery which have resulted in a delay in completion of the station commissioning work.

NEWFOUNDLAND AND LABRADOR HYDRO
2012 VARIANCE EXPLANATIONS
FOR THE YEAR ENDING DECEMBER 31, 2012
(Greater than $100,000 and 10% Variance from Budget)
($000)

23. Provide Service Extensions - All Service Areas

Budget: $4,172.0 Total: $6,031.8 Variance: $1,859.8

This is an annual allotment based on past expenditures to provide service connections to new customers. The budget and actual expenditures by area is shown in the table below.

	Budget ($000)	Actual ($000)
Central	1,200.0	1,231.3
Northern	1,267.0	1,727.7
Labrador	1,705.0	3,072.8
Total	4,172.0	6,031.8

The Labrador Interconnected system has new subdivisions and line extensions under development that are driving cost increases. Examples are the construction of two new subdivisions Tibett & Brett and Osprey; the extension and rerouting of poles on Hamilton River Road; and as well, the line extensions on Northwest River and Sheshatshiu. In addition, there are developments such as an apartment building, office building, sewer treatment plant and other business developments.

The northern region has also had greater than normal expenditures for service extensions driven by new subdivisions in St. Anthony and Port Saunders, as well as other commercial developments such as a stadium, school, cabin development and health center.

NEWFOUNDLAND AND LABRADOR HYDRO
2012 VARIANCE EXPLANATIONS
FOR THE YEAR ENDING DECEMBER 31, 2012
(Greater than $100,000 and 10% Variance from Budget)
($000)

24. Upgrade Distribution System - All Service Areas

Budget: $2,508.0 **Total: $3,134.1** **Variance: $626.1**

The budget for distribution upgrades is based on a five-year average. The budget and expenditure by area is shown in the table below.

	Budget ($000)	Actual ($000)
Central	993.0	1,854.2
Northern	1,089.0	1,010.2
Labrador	426.0	269.7
Total	2,508.0	3,134.1

The increase in costs compared to budget is due to a transformer failure in Paradise River, a larger than normal replacement of voltage regulators, porcelain cut-outs and transformers as well as the replacement of Hendrix Insulators on Fogo Island.

25. Replace Substation Infrastructure - Burgeo

Budget: $495.8 **Total: $745.9** **Variance: $250.1**

This is a two-year project completed in 2012. The increase in project cost is due to tendered contract pricing which was higher than budgeted.

26. Replace Fuel Storage Tanks - St. Lewis

Budget: $465.1 **Total: $249.3** **Variance: ($215.8)**

This is a one-year project completed in 2012. The decrease in project cost is mainly due to contract costs which were lower than budgeted.

NEWFOUNDLAND AND LABRADOR HYDRO
2012 VARIANCE EXPLANATIONS
FOR THE YEAR ENDING DECEMBER 31, 2012
(Greater than $100,000 and 10% Variance from Budget)
($000)

27. Replace Mini Hydro Turbine - Roddickton

Budget: $322.2 **Total: $478.3** **Variance: $156.1**

This is a two-year project initiated in 2011. The increase in project cost compared to budget is due to a scope change to include a generator replacement. The generator rotor shaft failed in 2010. This failure occurred after the project proposal was submitted for approval. A cost-benefit analysis was performed to compare the feasibility of replacing the generator at additional cost under the same project, postponing the work, or cancelling the current project and shutting down the plant. The results of the cost-benefit analysis favoured proceeding with the turbine overhaul and replacement of the generator.

This project has been carried over into 2013 as a result of longer than anticipated lead time for procurement of a replacement generator.

28. Install Sequence of Events Monitor in Diesel Plant - Port Hope Simpson

Budget: $154.8 **Total: 0** **Variance: ($154.8)**

This is a one-year project that was carried over from 2011. Hydro has decided to cancel this project at this time given studies on-going regarding power generation for the area that could affect the requirement for this functionality.

29. Replace Diesel Unit 2001 and Engine 566 - Francois

Budget: $618.5 **Total: $749.0** **Variance: $130.5**

This project is a two-year project initiated in 2010. The replacement genset for Unit 566 was installed and commissioned in 2011, but delivery of the replacement genset for Unit 2001 was delayed. During factory acceptance testing, the unit did not meet the specified vibration limits. Factory troubleshooting of this issue has been on-going with resolution in December 2012. The replacement genset will now be delivered in 2013.

The project cost has increased as a result of increased genset installation costs for Unit 566 and additional engineering costs associated with troubleshooting of engine issues and extension of the project schedule.

NEWFOUNDLAND AND LABRADOR HYDRO
2012 VARIANCE EXPLANATIONS
FOR THE YEAR ENDING DECEMBER 31, 2012
(Greater than $100,000 and 10% Variance from Budget)
($000)

30. Replace Off-Road Track Vehicles - Bishop's Falls and Fogo

Budget: $1,103.7 Total: $830.0 Variance: ($273.7)

Due to new products available in the utility track industry subsequent to the budget approval, Hydro was able to obtain more versatile units and achieve savings on the original budget.

31. Replace Light Duty Mobile Equipment - Various Sites

Budget: $757.0 Total: $638.1 Variance: ($118.9)

The project cost is less than budgeted due to changes in the types of heavy duty trailers being purchased resulting in lower cost per unit.

32. Replace Battery Banks and Chargers - Various Sites

Budget: $880.8 Total: $662.1 Variance: ($218.7)

The project cost was lower than budgeted as a result of lower than budgeted labour and material costs. In addition, no project contingency funds were used.

33. Replace MDR 6000 Microwave Radio (West) - Various Sites

Budget: $755.3 Total: $630.2 Variance: ($125.1)

This is a two-year project initiated in 2011. The project cost is lower than budgeted as a result of there being no requirement to use contingency funds.

NEWFOUNDLAND AND LABRADOR HYDRO
2012 VARIANCE EXPLANATIONS
FOR THE YEAR ENDING DECEMBER 31, 2012
(Greater than $100,000 and 10% Variance from Budget)
($000)

34. Public Address System - Holyrood

Budget: $1,278.5 **Total: $1,872.1** **Variance: $593.6**

This project was a two-year project planned to be completed in 2009. Initially, the project was tendered in 2008/2009 and the tender responses received exceeded the budget. As a result, the work was divided into two parts, design/ supply and installation/commissioning and re-tendered. This resulted in an extended project schedule which had the design and supply work completed in 2010 and installation and commissioning work substantially completed in 2011.

Project costs have risen primarily for the following reasons:

- the requirement for On-Site Representatives during construction, arising out of Hydro's Contractor Safety Management program, were not included in the original budget as this requirement did not exist when the budget was prepared;
- site specific requirements (rigid conduit, additional devices for infill, higher than estimated cable quantities) have resulted in increased material costs;
- contract costs for installation were higher than originally estimated; and,
- extension of the project schedule which resulted in additional project management, supervision and overhead costs.

NEWFOUNDLAND AND LABRADOR HYDRO
2012 VARIANCE EXPLANATIONS
FOR THE YEAR ENDING DECEMBER 31, 2012
(Greater than $100,000 and 10% Variance from Budget)
($000)

35. Replace Vehicles and Aerial Devices 2011 - Various Sites

Budget: $2,989.4 **Total: $2,010.6** **Variance: ($978.8)**

This is a two-year project to replace 25 light-duty vehicles and five heavy-duty work vehicles.

There are two factors contributing to the favourable variance. Firstly, there was a saving of $289,000 as a result of a downturn in the national economy, which resulted in better pricing on vehicles and reduced escalation costs. Secondly, the 2010 project was intended to be submitted as a two-year project due to the difficulty in ordering and receiving all the equipment in one calendar year. Inadvertently, only the first year of this project was submitted and approved in 2010 and a change order was completed for the portion of equipment ordered in 2010 and received in 2011. The 2011 multi-year project had already included the $700,000 for the equipment being received in 2011 resulting in a second change to correct the duplication.

36. Remove Safety Hazards - Various Sites

Budget: $249.1 **Total: $141.4** **Variance: ($107.7)**

This is a one-year project completed in 2012. This project is based on the requirement to ensure adequate capital funding is available to quickly address capital related safety hazards as they are identified. Therefore, it is only utilized to the extent that specific hazards are identified. The hazards identified in 2012 are itemized in the 2012 Remove Safety Hazards table, p. 34-35.

37. Overhaul Diesel Units - Various Sites

Budget: $974.1 **Total: $1,605.2** **Variance: $631.1**

The project planned for completion of 12 overhauls in 2012. Hydro also completed eight unplanned overhauls in 2012 due to engine failures, resulting in additional costs. Hydro is reviewing its work processes on diesel units to make recommendations to potentially minimize future diesel failures.

NEWFOUNDLAND AND LABRADOR HYDRO
2012 VARIANCE EXPLANATIONS
FOR THE YEAR ENDING DECEMBER 31, 2012
(Greater than $100,000 and 10% Variance from Budget)
($000)

38. Black Tickle Plant Rehabilitation

Contingency Fund: $1,000.0 Total: $1,374.4 Variance: $374.4

The variance between the budgeted cost of $2.6 million and actual expenditures for this project is due primarily to lower than anticipated engineering and internal labour costs. There was less engineering input required to carry out the work and the operations crew's performance and productivity was higher than anticipated, thus reducing the associated labour costs. Rental costs, including temporary generation and chopper usage, were also less than estimated. In addition, no project contingency funds were used.

39. Upgrade Access Road - Cat Arm

Budget: $492.1 Total: $233.6 Variance: ($258.5)

This is a one-year project completed in 2012. The original budget estimate was based on the construction material having to be trucked from a distant quarry. During project execution, an acceptable source of suitable material was found within a short distance of the work site which resulted in a reduction in transportation and processing costs for construction material.

40. Upgrade Dam - Cat Arm

Budget: $3,154.9 Total: $1,188.5 Variance: ($1,966.4)

This is a one-year project completed in 2012. The project cost is lower than budgeted primarily as a result of tendered contract costs which were lower than estimated. The savings on the contract cost also resulted in lower costs for internal labour, equipment rentals and travel costs. In addition, no project contingency funds were used.

NEWFOUNDLAND AND LABRADOR HYDRO
CAPITAL BUDGET VERSUS ACTUAL EXPENDITURES 2003 - 2012
AS AT DECEMBER 31
($000)

Table 1: CAPITAL BUDGET VERSUS ACTUAL EXPENDITURES 2003 – 2012

Capital Budgets/Expenditures 2003 - 2012				
Year	Budget	Actual Expenditures	Variance	Percentage Variance
2003	36,122	32,506	3,616	10.0%
2004	31,435	27,984	3,451	11.0%
2005	47,760	33,952	13,808	28.9%
2006	49,024	41,217	7,807	15.9%
2007	43,304	35,669	7,635	17.6%
2008	53,579	46,246	7,333	13.7%
2009	61,544	54,152	7,392	12.0%
2010	63,297	55,553	7,744	12.2%
2011	67,454	63,116	4,338	6.4%
2012	93,840	77,252	16,588	17.7%

In 2012, Hydro delivered the highest Board approved dollar value capital program execution in recent history. During 2011, Hydro commenced execution of its plan to enhance its project delivery capability. A key step in the process included organizational structure changes within both Hydro and Nalcor with the establishment of a Project Execution and Technical Services division that has lead to improved delivery of and compliance on capital projects. While the reorganization has been helpful, there is still work to be done and Hydro is achieving a balance between project workload and resource allocation in support of project execution. Hydro anticipates continued progress in 2013 and further improvement in project delivery and budget compliance.

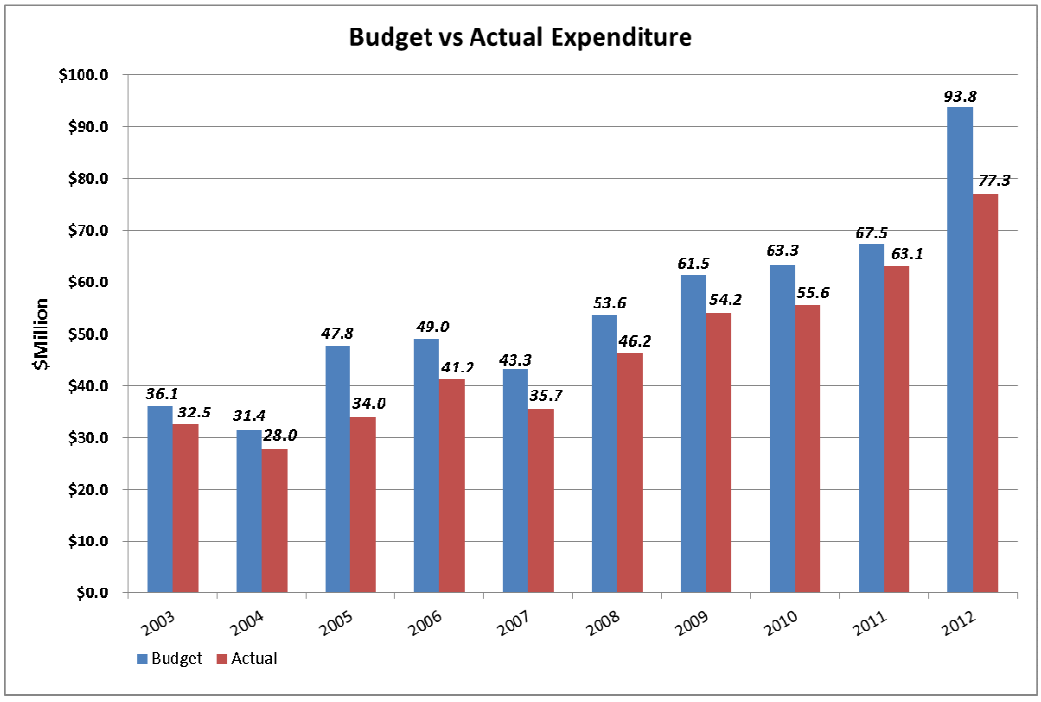
The variances presented in Table 1 are partially due to under-spending as a result of not completing all projects approved each year. It is anticipated that some carryover of projects will occur in most years as there may be unavoidable reasons for delays in project completion, for example, system constraints which are precipitated by changes in hydrology, equipment failures, etc. There are also cost increases and project

NEWFOUNDLAND AND LABRADOR HYDRO
CAPITAL BUDGET VERSUS ACTUAL EXPENDITURES 2003 – 2012
AS AT DECEMBER 31
($000)

delays being experienced due to the strong labour market. Hydro is working to address these issues by reviewing its packaging of projects to encourage competitive bids, as well as attracting additional bidders.

The chart below is a graphical representation of the data presented in Table 1. This chart clearly illustrates the upward trend in both budgeted and actual expenditures over the ten year period.

Chart 1: CAPITAL BUDGET VERSUS ACTUAL EXPENDITURES 2003 – 2012



NEWFOUNDLAND AND LABRADOR HYDRO
2012 REMOVE SAFETY HAZARDS
FOR THE YEAR ENDING DECEMBER 31, 2012
($000)

Total Approved Budget: **$249.1**
Total Expenditure: **$141.4**

Board Order P.U. 38(2010)
As part of Board Order No. P.U. 38(2010) 2011 Capital Budget, the following was included: "Because of the nature of this project the Board would expect to see an explanation in Hydro's annual report on capital expenditures as to each project that was undertaken, setting out the safety hazard that was identified, the location, the steps taken to address the issue and the amount of the expenditure." Please see the following table for projects undertaken in 2012:

Safety Hazards			
Project Title/Location	**Expenditure**	**Safety Hazard Identified**	**Project Scope**
Replacement of GP plugs in Bay d'Espoir turbine pits	$19.0	SWOP#2007002794, #2007002795, #2007002797, and #2010003509 In the turbine pit areas of Bay d'Espoir powerhouse 1 there are 60A, 600V plugs installed for use by maintenance personnel. These plugs are undersized (require minimum 100A capacity) and several have grounding issues and have been tagged out. The current practice is to power maintenance equipment in this area from 600V plugs located at the floor above the turbine pit and run cables along the floor to the area where work is being performed. By replacing these plugs with higher capacity, grounded plugs, the maintenance crews will be able to perform work in a safer manner as tripping hazards will be eliminated and the distance to run cables and to de-energize equipment will be greatly reduced.	Replacement of 60A, 600V plugs with 100A, 600V plugs and correction of grounding deficiencies.
Purchase new master log for Bay d'Espoir powerhouse 1	35.7	SWOP #2008001675 The master log is a critical piece of equipment used to safely isolate the draft tubes of the turbines so that work can be completed in this area. In addition to this, Occupational Health and Safety Regulations of Newfoundland (Part XV, section 371) require that "Below-the-Hook Lifting Devices" be designed, constructed, inspected, tested, and maintained in accordance with ASME B30.20-1993.	Purchase of new master log which meets the requirements of Occupational Health and Safety regulations.

NEWFOUNDLAND AND LABRADOR HYDRO
2012 REMOVE SAFETY HAZARDS
FOR THE YEAR ENDING DECEMBER 31, 2012
($000)

Safety Hazards (cont'd.)			
Repair Victoria Control Structure access road Bridges – Bay d'Espoir	19.7	SWOP #2011006545 and #2012000034 On the road to Victoria Control Structure there are three wooden bridges. The bridges were constructed in early 90's. Bridge 1 is about 5.5 km and 2 and 3 are about 6 km from Burnt Dam Spillway accommodations, respectively. There are several areas on the bridges where the decking is cracked or missing. All three bridges require decking and/or runners to be replaced.	Decking and runners were replaced on Bridge 1 and runners were replaced on bridges 2 and 3.
Installation of disconnect switches at Salmon River spillway gates	12.0	SWOP #2011006262 The switch type and rotary type breakers installed in gatehouses 1, 2 and 3 do not provide sufficient worker protection. To operate the breakers, the operator must open the panel cover and directly switch or engage the breakers; a hazardous exposure of personnel to arc flash and other hazards.	Three 100A, 600V disconnect switches were installed at the Salmon River spillway gate houses.
Holyrood overhead door safety enhancements	25.0	SWOP #2011003212, and #2011003235 A high-potential incident involving an overhead door initiated an investigation into the condition and the operational safety of all overhead doors at HTGS. Two separate condition assessments revealed a number of recommended replacements and modifications that should be made in order to improve on the overall safety and reliability of all overhead doors	Installed retractable barricades, erected signage, and replaced mechanical safety edge on two overhead doors.
Stephenville parking lot upgrade	30.0	SWOP #2009003239, #2011001195, and #2011007408 The safety issue identified was that there was not enough room for larger vehicles (especially when towing a trailer) to enter the existing yard and be able to maneuver in the yard safely.	Relocated the fence to increase space in the existing yard and re-positioned the main gate.

newfoundland labrador hydro
a nalcor energy company

Hydro Place. 500 Columbus Drive.
P.O. Box 12400. St. John's. NL
Canada A1B 4K7
t. 709.737.1400 f. 709.737.1800
www.nlh.nl.ca

March 3, 2014

The Board of Commissioners of Public Utilities
Prince Charles Building
120 Torbay Road, P.O. Box 21040
St. John's, NL
A1A 5B2

ATTENTION: Ms. Cheryl Blundon
Director of Corporate Services & Board Secretary

Dear Ms. Blundon:

Re: 2013 Capital Expenditures and Carryover – Year End

Pursuant to Board Order No. P.U. 5 (2012), p. 19, item 5, enclosed please find the original and eight copies of Newfoundland and Labrador Hydro's (Hydro) report on 2013 Capital Expenditures and Carryover for the year ended December 31, 2013.

Should you have any questions, please contact the undersigned.

Yours truly,

NEWFOUNDLAND AND LABRADOR HYDRO

Geoffrey P. Young
Senior Legal Counsel

GPY/jc
Encls.

A REPORT TO
THE BOARD OF COMMISSIONERS OF PUBLIC UTILITIES

CAPITAL EXPENDITURES AND CARRYOVER REPORT

For Year Ending December 31, 2013

March 2014

newfoundland labrador hydro
a nalcor energy company

NEWFOUNDLAND AND LABRADOR HYDRO
CAPITAL EXPENDITURES AND CARRYOVER REPORT
For Year Ending December 31, 2013

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2013 Capital Budget Variance Overview ($000)

	Board Approved Budget	Total Expend.	Variance
HYDRAULIC PLANT	22,767	19,981	(2,786)
THERMAL PLANT	19,442	18,801	(641)
GAS TURBINES	7,745	5,830	(1,915)
TERMINAL STATIONS	31,021	34,823	3,802
TRANSMISSION	3,954	4,037	83
DISTRIBUTION	32,509	32,707	198
RURAL GENERATION	15,443	15,874	431
PROPERTIES	1,074	930	(144)
METERING	1,627	1,777	150
RURAL SYSTEMS TOOLS AND EQUIPMENT	3,369	3,219	(150)
INFORMATION SYSTEMS	3,656	3,597	(59)
TELECONTROL	2,777	2,429	(348)
TRANSPORTATION	4,912	4,859	(52)
ADMINISTRATIVE	340	99	(242)
ALLOWANCE FOR UNFORESEEN	1,000	846	(154)
PROJECTS APPROVED BY PU BOARD	52,998	45,608	(7,390)
PROJECTS APPROVED FOR LESS THAN $50,000	185	170	(15)
TOTAL CAPITAL BUDGET	204,818	195,586	(9,232)

2013 Capital Expenditures By Year
($000)

Summary	Capital Budget[1]							Actual Expenditure and Forecast								
	2009	2010	2011	2012	2013	2014 and Beyond	Total	2009	2010	2011 [2]	2012 [3]	2013 [4]	2014 and Beyond	Carryovers to 2014	Total	Variance
2013 Projects				-	82,617.0	42,422.0	125,039.0				231.9	57,057.0	42,422.0	13,633.8	113,344.7	(11,746.7)
2012 Projects				19,915.4	9,111.9	-	29,027.3				11,309.4	15,427.2	-	690.2	27,426.8	(1,600.5)
2011 Projects			4,671.7	6,646.0	3,577.4	2,027.4	16,922.5			2,706.4	5,976.2	6,491.0	2,027.4	1,331.2	18,532.2	1,609.7
2010 Projects		2,540.6	6,836.8	10,235.7	1,566.1	-	21,179.2		2,453.0	6,431.3	6,489.2	4,264.3	-	(199.7)	19,438.1	(1,741.1)
2009 Projects	100.8	1,693.5	7,105.7	3,750.0	-	-	12,650.0	291.8	1,693.5	6,022.7	7,320.1	1,515.9	-	-	16,844.0	4,194.0
Grand Total	100.8	4,234.1	18,614.2	40,547.1	96,872.4	44,449.4	204,818.0	291.8	4,146.5	15,160.4	31,326.8	84,755.4	44,449.4	15,455.5	195,585.8	(9,284.6)

2013 Capital Budget Approved by Board Order No. P.U. 4 (2013)	62,272.5
New Project Approved by Board Order No. 25 (2012)	2,252.1
New Project Approved by Board Order No. 26 (2012)	1,295.0
New Project Approved by Board Order No. 35 (2012)	189.5
New Project Approved by Board Order No. 1 (2013)	284.1
New Project Approved by Board Order No. 12 (2013)	5,198.2
New Project Approved by Board Order No. 14 (2013)	12,809.7
New Project Approved by Board Order No. 15 (2013)	3,823.6
New Project Approved by Board Order No. 20 (2013)	8,015.8
New Project approved by Board Order No. 33 (2013)	388.7
New Project approved by Board Order No. 39 (2013)	158.3
2013 New Projects under $50,000 Approved by Hydro	184.9
Total Approved Capital Budget Before Carryovers	96,872.4
Carryovers from 2012 to 2013	19,500.8
TOTAL APPROVED CAPITAL BUDGET	116,373.2

[1] Annual budgets previous to 2013 pertain to projects that have expenditures in 2013.

[2] There has been a restatement of expenditures in 2011 resulting from the conversion to new accounting standards.

[3] 2013 Front End Engineering Design (FEED) costs of $231.9 incurred in 2012 are included in 2012 capital expenditures in this report. FEED costs of $252.5 incurred in 2013 relating to 2014 are not included in this report.

[4] Excludes insurance proceeds, which are offset against the cost of capital assets, of $3,323.6 for Restore Unit 1 Holyrood, $1,072.2 for Rewind Gas Turbine Alternator Stephenville and $104.3 for Black Tickle Plant Rehabilitation.

2013 Capital Expenditures By Category ($000)

Hydraulic Plant	Capital Budget					Actual Expenditure and Forecast							
	2011	2012	2013	2014 and Beyond	Total	2011	2012	2013	2014 and Beyond	Carryovers to2014	Total	Variance	Notes
2013 Projects													
Replace Automatic Transfer Switches - Hinds Lake	-	-	314.7	-	314.7	-	-	323.4	-	32.6	356.0	41.3	
Install Automatic Fuel Monitoring System - Upper Salmon	-	-	192.7	-	192.7	-	1.9	94.8	-	96.0	192.7	-	
Replace Emergency Diesel Fuel Tank - Paradise River	-	-	46.3	-	46.3	-	-	25.2	-	-	25.2	(21.1)	
Replace Stator Windings Units 1, 3 and 4 - Bay d'Espoir	-	-	5,663.5	-	5,663.5	-	8.8	2,265.7	-	3,389.0	5,663.5	-	
Automate Generator Deluge Systems - Bay d'Espoir	-	-	532.0	-	532.0	-	3.9	311.6	-	55.4	370.9	(161.1)	1
Upgrade Units 1 to 6 By-Pass Valves - Bay d'Espoir	-	-	141.9	-	141.9	-	3.0	9.5	-	129.4	141.9	-	
Upgrade Generator Bearings - Bay d'Espoir	-	-	480.9	-	480.9	-	5.3	24.3	-	451.3	480.9	-	
Upgrade Burnt Dam Spillway - Bay d'Espoir	-	-	885.8	-	885.8	-	15.0	223.1	-	647.7	885.8	-	
Purchase Low Pressure Screw Compressor Set - Bay d'Espoir	-	-	97.3	-	97.3	-	3.3	78.7	-	15.3	97.3	-	
Upgrade Public Safety Around Dams and Waterways - Bay d'Espoir	-	-	298.1	-	298.1	-	3.4	337.0	-	-	340.4	42.3	
Replace Fall Arrest System on Surge Tank 1 and 2 - Bay d'Espoir	-	-	153.0	-	153.0	-	3.1	80.2	-	-	83.3	(69.7)	
Replace Cooling Water Pumps - Bay d'Espoir	-	-	175.4	-	175.4	-	2.0	86.5	-	86.9	175.4	-	
Replace North End Equipment Door - Bay d'Espoir	-	-	265.5	-	265.5	-	-	136.3	-	-	136.3	(129.2)	2
Install Waste Oil Storage Tank for PCB's - Bay d'Espoir	-	-	48.9	-	48.9	-	-	31.3	-	-	31.3	(17.6)	
Replace Units 1 to 6 Auto Greasing Systems - Bay d'Espoir	-	-	260.1	-	260.1	-	-	189.9	-	70.2	260.1	-	
Upgrade Water Flow Control Structure RR Pond - Granite Canal	-	-	43.5	-	43.5	-	3.6	25.1	-	-	28.7	(14.8)	
Replace MicroSCADA Computers - Granite Canal	-	-	297.4	-	297.4	-	6.1	226.9	-	-	233.0	(64.4)	
Overhaul Turbine/Generator Units - Cat Arm and Bay d'Espoir	-	-	428.1	-	428.1	-	-	214.4	-	-	214.4	(213.7)	3
Purchase Tools and Equipment Less than $50,000	-	-	82.8	-	82.8	-	-	56.1	-	-	56.1	(26.7)	
2012 Projects													
Rewind Stators Unit 4 - Bay d'Espoir	-	4,953.8	-	-	4,953.8	-	2,548.7	1,540.6	-	-	4,089.3	(864.5)	4
Replace Emergency Diesel Generator - Bay d'Espoir	-	611.4	282.7	-	894.1	-	80.0	618.3	-	-	698.3	(195.8)	5
Upgrade Burnt Dam Spillway - Bay d'Espoir	-	523.8	-	-	523.8	-	168.9	1,084.7	-	-	1,253.6	729.8	6
2011 Projects													
Replace Static Excitation Systems - Upper Salmon, Holyrood and Hinds Lake[5]	16.8	1,797.1	2,295.2	-	4,109.1	16.8	818.8	869.1	-	-	1,704.7	(2,404)	7
Upgrade Generating Station Service Water System - Cat Arm	360.4	440.0	-	-	800.4	349.3	259.6	133.6	-	-	742.5	(57.9)	
Upgrade Burnt Dam Spillway Structure - Bay d'Espoir	257.9	-	-	-	257.9	154.8	70.2	272.9	-	-	497.9	240.0	8
Upgrade Intake Gate Controls - Bay d'Espoir	352.3	468.0	-	-	820.3	507.0	373.6	108.6	-	232.6	1,221.8	401.5	9
Total Hydraulic Plant	987.4	8,794.1	12,985.8	-	22,767.3	1,027.9	4,379.2	9,367.8	-	5,206.4	19,981.3	(2,786.0)	

[5] Original budget was $4,109.1 (2010 - $1,214.3, 2011 - $1,528.0, 2012 - $1,366.8) Approved by Order No. P.U. 38 (2010). The revised budget was approved by Order No. P.U. 2 (2012). The second revised budget was approved by Order No. P.U. 4 (2013)

2013 Capital Expenditures By Category ($000)

Thermal Plant	Capital Budget						Actual Expenditure and Forecast								
	2010	2011	2012	2013	2014 and Beyond	Total	2010	2011	2012	2013	2014 and Beyond	Carryovers to 2014	Total	Variance	Notes
2013 Projects															
Complete Condition Assessment Phase 2 (Year 2) - Holyrood	-	-	-	1,170.2	-	1,170.2	-	-	5.0	554.0	-	-	559.0	(611.2)	10
Overhaul Turbine Valves - Holyrood	-	-	-	993.9	-	993.9	-	-	-	978.0	-	-	978.0	(15.9)	
Overhaul Boiler Feed Pumps - Holyrood	-	-	-	178.5	-	178.5	-	-	-	143.1	-	-	143.1	(35)	
Overhaul Extraction Pumps - Holyrood	-	-	-	101.5	-	101.5	-	-	-	-	-	108.7	108.7	7.2	
Upgrade Fuel Oil Day Tank - Holyrood	-	-	-	584.2	-	584.2	-	-	11.5	477.1	-	-	488.6	(95.6)	
Install Variable Frequency Drives on Forced Draft Fans - Holyrood	-	-	-	697.6	2,659.7	3,357.3	-	-	13.8	206.0	2,659.7	477.8	3,357.3	-	
Replace Condensate Polisher Annunciator Panels - Holyrood	-	-	-	123.5	-	123.5	-	-	0.3	20.9	-	39.5	60.7	(62.8)	
Install Backup System for Raw Water Supply and Clarifier - Holyrood	-	-	-	955.6	-	955.6	-	-	2.4	483.1	-	-	485.5	(470.1)	11
Purchase Tools and Equipment Less than $50,000	-	-	-	10.5	-	10.5	-	-	-	8.5	-	-	8.5	(2.0)	
2012 Projects															
Refurbish Fuel Storage Facility - Holyrood	-	-	2,641.2	-	-	2,641.2	-	-	1,767.1	835.5	-	-	2,602.6	(38.6)	
Upgrade Forced Draft Fan Ductwork Unit 2 - Holyrood	-	-	928.6	-	-	928.6	-	-	102.4	(102.4)	-	-	-	(928.6)	12
Replace Fuel Oil Heat Tracing - Holyrood	-	-	1,474.3	1,413.9	-	2,888.2	-	-	783.4	1,266.9	-	-	2,050.3	(837.9)	13
Condition Assessment and Life Extension Phase 2 - Holyrood	-	-	1,215.7	-		1,215.7	-	-	565.2	426.5	-	-	991.7	(224.0)	14
2011 Projects															
Replace Relay Panels Unit 3 - Holyrood	-	277.1	553.6	-	-	830.7	-	134.2	121.5	1,111.0	-	-	1,366.7	536.0	15
Upgrade Electrical Equipment - Holyrood[6]	-	179.6	30.0	212.1	-	421.7	-	179.6	41.9	287.1	-	-	508.6	86.9	
Upgrade Hydrogen System - Holyrood	-	1,191.9	800.4	-	-	1,992.3	-	270.5	1,194.5	1,917.5	-	105.3	3,487.8	1,495.5	16
2010 Projects															
Replace Pumphouse Motor Control Centres - Holyrood	50.2	998.6	-	-	-	1,048.8	99.5	1,070.2	285.7	148.5	-	-	1,603.9	555.1	17
Total Thermal Plant	50.2	2,647.2	7,643.8	6,441.5	2,659.7	19,442.4	99.5	1,654.5	4,894.7	8,761.3	2,659.7	731.3	18,801.0	(641.4)	

[6] Original budget was $678.8 (2011 - $188.0, 2012 - $206.3, 2013 - $284.5) Approved by Order No. P.U. 38(2010). The revised Budget was approved by Order No. P.U. 4 (2013).

2013 Capital Expenditures By Category
($000)

Gas Turbines	Capital Budget						Actual Expenditure and Forecast							Variance	Notes
	2010	2011	2012	2013	2014 and Beyond	Total	2010	2011	2012	2013	2014 and Beyond	Carryover to 2014	Total		
2013 Projects															
Upgrade Gas Turbine PLC - Happy Valley	-	-	-	61.4	1,128.6	1,190.0	-	-	2.3	22.6	1,128.6	36.5	1,190.0	-	
2010 Projects															
Upgrade Glycol Systems - Stephenville	261.3	298.9	-	-	-	560.2	3.3	517.9	113.2	512.1	-	-	1,146.5	586.3	18
Upgrade Gas Turbine Plant Life Extension - Hardwoods[7]	704.5	1,009.8	4,280.4	-	-	5,994.7	704.5	1,168.9	505.7	1,114.0	-	-	3,493.1	(2,501.6)	19
Total Gas Turbines	965.8	1,308.7	4,280.4	61.4	1,128.6	7,744.9	707.8	1,686.8	621.2	1,648.7	1,128.6	36.5	5,829.6	(1,915.3)	

[7] Original budget was $5,994.7 (2010 - $1,304.5, 2011 - $1,323.6, 2012 - $3,366.6) Approved by Order No. P.U. 1 (2010). The revised Budget was approved by Order No. P.U. 2 (2012).

2013 Capital Expenditures By Category ($000)

Terminal Stations	Capital Budget							Actual Expenditure and Forecast									
	2009	2010	2011	2012	2013	2014 and Beyond	Total	2009	2010	2011	2012	2013	2014 and Beyond	Carryovers to 2014	Total	Variance	Notes
2013 Projects																	
Upgrade Circuit Breakers - Various Sites	-	-	-	-	2785.3	-	2,785.3	-	-	-	12.2	2408.8	-	-	2,421.0	(364.3)	20
Replace Surge Arrestors - Various Sites	-	-	-	-	121.3	-	121.3	-	-	-	3.4	14.3	-	-	17.7	(103.6)	21
Replace Instrument Transformers - Various Sites	-	-	-	-	593.2	3,074.8	3,668.0	-	-	-	9.6	230.7	3,074.8	352.9	3,668.0	-	
Upgrade Power Transformers - Various Sites	-	-	-	-	1621.1	-	1,621.1	-	-	-	7.5	476.0	-	-	483.5	(1,137.6)	22
Replace Disconnects - Various Sites	-	-	-	-	492.6	-	492.6	-	-	-	14.5	360.1	-	-	374.6	(118.0)	23
Replace Insulators - Various Sites	-	-	-	-	187.1	287.9	475.0	-	-	-	5.1	67.0	287.9	115.0	475.0	-	
Replace Optimho Relays on TL242 - Holyrood to Hardwoods	-	-	-	-	189.2	-	189.2	-	-	-	2.3	(2.3)	-	-	-	(189.2)	24
Install Online Vibration Monitoring System - Corner Brook Frequency Converter	-	-	-	-	382.8	-	382.8	-	-	-	4.6	50.6	-	327.6	382.8	-	
Install Transformer Fans - Conne River	-	-	-	-	114.9	-	114.9	-	-	-	-	39.9	-	-	39.9	(75.0)	
Replace 230 kV Breaker Controls - Bottom Brook	-	-	-	-	68.9	-	68.9	-	-	-	-	78.5	-	-	78.5	9.6	
Upgrade Terminal Station - Wiltondale	-	-	-	-	697.7	1,173.3	1,871.0	-	-	-	10.7	134.0	1,173.3	553.0	1,871.0	-	
Replace Compressed Air System - Various Sites	-	-	-	-	303.0	2,105.9	2,408.9	-	-	-	17.2	32.3	2,105.9	253.5	2,408.9	-	
2012 Projects																	
Replace Compressed Air Piping and Install Dew Point Monitor - Buchans	-	-	-	28.4	278.3	-	306.7	-	-	-	-	557.4	-	194.2	751.6	444.9	25
2011 Projects																	
Perform Grounding Upgrades - Various Sites	-	-	321.2	324.0	329.0	682.5	1,656.7	-	-	287.6	240.7	507.2	682.5	(61.3)	1,656.7	-	
Replace Compressed Air System - Bay d'Espoir	-	-	83.9	563.6	-	-	647.5	-	-	83.7	1,084.2	231.3	-	-	1,399.2	751.7	26
Install Alternate Station Services - Stony Brook and Massey Drive	-	-	86.0	109.2	-	-	195.2	-	-	5.5	155.7	54.2	-	-	215.4	20.2	
Replace Compressor, Dryer and Air Piping Header System - Corner Brook Frequency Converter Station	-	-	280.2	-	-	-	280.2	-	-	141.8	139.2	100.3	-	-	381.3	101.1	27
Upgrade Substation - Wabush	-	-	459.3	626.4	-	-	1,085.7	-	-	13.8	907.6	432.4	-	-	1,353.8	268.1	28
2009 Projects																	
Upgrade Terminal Stations to 25 kV - Labrador City[8]	100.8	1,693.5	7,105.7	3,750.0	-	-	12,650.0	291.8	1,693.5	6,022.7	7,320.1	1,515.9	-	-	16,844.0	4,194.0	29
Total Terminal Stations	100.8	1,693.5	8,336.3	5,401.6	8,164.4	7,324.4	31,021.0	291.8	1,693.5	6,555.1	9,934.6	7,288.6	7,324.4	1,734.9	34,822.9	3,801.9	

[8] Original budget was $9,990.6 (2009 - $283.2, 2010 - $3,894.8, 2011 - $5,812.6) Approved by Order No. P.U. 36 (2008). The revised Budget was approved by Order No. P.U. 2 (2012).

2013 Capital Expenditures By Category
($000)

Transmission	Capital Budget					Actual Expenditure and Forecast							
	2011	2012	2013	2014 and Beyond	Total	2011	2012	2013	2014 and Beyond	Carryovers to 2014	Total	Variance	Notes
2013 Projects													
Perform Wood Pole Line Management Program - Various Sites	-	-	2,466.7	-	2,466.7	-	-	2,550.1	-	-	2,550.1	83.4	
2011 Projects													
Replace Guy Wires TL215 - Doyles to Grand Bay	288.8	318.0	350.1	530.0	1,486.9	447.6	256.0	286.7	530.0	(33.4)	1,486.9	-	
Total Transmission	288.8	318.0	2,816.8	530.0	3,953.6	447.6	256.0	2,836.8	530.0	(33.4)	4,037.0	83.4	

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2013 Capital Expenditures By Category
($000)

Distribution	Capital Budget						Actual Expenditure and Forecast								
	2010	2011	2012	2013	2014 and Beyond	Total	2010	2011	2012	2013	2014 and Beyond	Carryovers to 2014	Total	Variance	Notes
2013 Projects															
Replace Recloser Control Panels - Various Sites	-	-	-	209.7	-	209.7	-	-	5.4	155.4	-	-	160.8	(48.9)	
Provide Service Extensions - All Service Areas	-	-	-	5,006.0	-	5,006.0	-	-	-	5,689.4	-	-	5,689.4	683.4	30
Upgrade Distribution Systems - All Service Areas	-	-	-	2,790.0	-	2,790.0	-	-	-	2,974.4	-	-	2,974.4	184.4	
Additions for Load - Distribution Systems - Various Sites	-	-	-	3,114.7	-	3,114.7	-	-	-	3,326.7	-	-	3,326.7	212.0	
Upgrade Distribution Systems - Various Sites	-	-	-	1,940.1	3,995.5	5,935.6	-	-	-	1,714.1	3,995.5	(61.1)	5,648.5	(287.1)	
2012 Projects															
Upgrade Distribution Lines - Bay d'Espoir, Parsons Pond and Plum Point	-	-	1,385.2	1,110.5	-	2,495.7	-	-	1,189.1	1,243.0	-	-	2,432.1	(63.6)	
2010 Projects															
Voltage Conversion - Labrador City	1,088.9	3,501.2	3,840.7	969.5	-	9,400.3	1,524.6	2,825.0	4,120.6	1,129.8	-	(199.7)	9,400.3	-	
Upgrade L2 Distribution Feeder - Glenburnie	267.3	578.2	2,114.6	596.6	-	3,556.7	109.9	402.4	1,382.7	1,179.4	-	-	3,074.4	(482.3)	31
Total Distribution	1,356.2	4,079.4	7,340.5	15,737.1	3,995.5	32,508.7	1,634.5	3,227.4	6,697.8	17,412.2	3,995.5	(260.8)	32,706.6	197.9	

2013 Capital Expenditures By Category
($000)

Rural Generation	Capital Budget						Actual Expenditure and Forecast								
	2010	2011	2012	2013	2014 and Beyond	Total	2010	2011	2012	2013	2014 and Beyond	Carryovers to 2014	Total	Variance	Notes
2013 Projects															
Overhaul Diesel Units - Various Sites	-	-	-	977.8	-	977.8	-	-	-	1,134.3	-	-	1,134.3	156.5	32
Additions for Load Isolated Generation Stations-Various Sites	-	-	-	2,040.2	9,357.9	11,398.1	-	-	27.8	1,196.4	9,357.9	816.0	11,398.1	-	
2012 Projects															
Perform FEED for Diesel Plant Remediation - Various Sites	-	-	110.4	-	-	110.4	-	-	43.6	69.2	-	-	112.8	2.4	
2011 Projects															
Perform Arc Flash Remediation - Various Sites	-	429.5	380.3	391.0	814.9	2,015.7	-	103.5	91.7	149.8	814.9	855.8	2,015.7		
Replace Mini Hydro Turbine - Roddickton	-	86.8	235.4	-	-	322.2	-	10.7	221.0	29.3	-	232.2	493.2	171.0	33
2010 Projects															
Replace Diesel Unit 2001 and Engine 566 - Francois	168.4	450.1	-	-	-	618.5	11.2	446.9	81.3	180.5	-	-	719.9	101.4	34
Total Rural Generation	168.4	966.4	726.1	3,409.0	10,172.8	15,442.7	11.2	561.1	465.4	2,759.5	10,172.8	1,904.0	15,874.0	431.3	

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2013 Capital Expenditures By Category
($000)

Properties									
	2013	2014 and Beyond	Total	2013	2014 and beyond	Carryovers to 2014	Total	Variance	Notes
2013 Projects									
Install Automatic Fire Sprinkler System - Bay d'Espoir	429.9	-	429.9	352.4	-	-	352.4	(77.5)	
Install Fall Protection Equipment - Various Sites	196.6	-	196.6	163.5	-	-	163.5	(33.1)	
Install Additional Washrooms - Various Sites	250.9	-	250.9	217.8	-	-	217.8	(33.1)	
Legal Survey of Primary Distribution Line Right of Ways - Various Sites 2013	156.2	40.0	196.2	-	40.0	156.2	196.2	-	
Total Properties	1,033.6	40.0	1,073.6	733.7	40.0	156.2	929.9	(143.7)	

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2013 Capital Expenditures By Category
($000)

Metering											
	2012	2013	2014 and Beyond	Total	2012	2013	2014 and Beyond	Carryovers to 2014	Total	Variance	Notes
2013 Projects											
Purchase Meters, Equipment and Metering Tanks - Various Sites	-	199.5	-	199.5	-	180.1	-	-	180.1	(19.4)	
Purchase 10 Position Meter Calibration Test Console - Hydro Place	-	192.5	-	192.5	-	-	-	192.5	192.5	-	
Install Automatic Meter Reading - Glenburnie and Rocky Harbour	-	397.9	258.8	656.7	-	537.8	258.8	13.8	810.4	153.7	35
2012 Projects											
Install Automatic Meter Reading - Various Sites	290.4	287.7	-	578.1	309.7	284.0	-	-	593.7	15.6	
Total Metering	290.4	1,077.6	258.8	1,626.8	309.7	1,001.9	258.8	206.3	1,776.7	149.9	

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2013 Capital Expenditures By Category
($000)

Tools and Equipment											
	2012	2013	2014 and Beyond	Total	2012	2013	2014 and Beyond	Carryovers to 2014	Total	Variance	Notes
2013 Projects											
Replace Off Road Track Vehicles											
- Whitbourne, Port Saunders and Happy Valley	-	416.8	1,054.1	1,470.9	-	324.7	1,054.1	92.1	1,470.9	-	
Replace Light Duty Mobile Equipment - Various Sites	-	476.5	-	476.5	-	448.2	-	-	448.2	(28.3)	
Tools and Equipment Less than $50,000	-	525.3	-	525.3	-	397.7	-	51.4	449.1	(76.2)	
2012 Projects											
Replace Off Road Track Vehicles - Flowers Cove and Cow Head	482.5	395.6	-	878.1	-	843.1	-	-	843.1	(35.0)	
Tools and Equipment Less than $50,000	18.3	-	-	18.3	-	7.5	-	-	7.5	(10.8)	
Total Tools and Equipment	500.8	1,814.2	1,054.1	3,369.1	-	2,021.2	1,054.1	143.5	3,218.8	(150.3)	

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2013 Capital Expenditures By Category
($000)

Information Systems											
	2012	2013	2014 and Beyond	Total	2012	2013	2014 and Beyond	Carryovers to 2014	Total	Variance	Notes
2013 Projects											
Perform Minor Application Enhancements - Hydro Place	-	126.8	-	126.8	-	132.6	-	-	132.6	5.8	
Cost Recoveries	-	(45.7)	-	(45.7)	-	(47.7)	-	-	(47.7)	(2.0)	
Upgrade Energy Management System - Hydro Place	-	129.9	-	129.9	-	133.8	-	-	133.8	3.9	
Upgrade Microsoft Project - Hydro Place	-	656.7	920.3	1,577.0	-	619.6	920.3	37.1	1,577.0	-	
Cost Recoveries	-	(236.4)	(331.3)	(567.7)	-	(223.1)	(331.3)	(13.3)	(567.7)	-	
Upgrade Business Intelligence Software - Hydro Place	-	576.9	-	576.9	-	245.9	-	331.0	576.9	-	
Cost Recoveries	-	(207.7)	-	(207.7)	-	(88.5)	-	(119.2)	(207.7)	-	
Replace Personal Computers - Various Sites	-	463.9	-	463.9	-	432.0	-		432.0	(31.9)	
Replace Peripheral Infrastructure - Various Sites	-	309.9	-	309.9	-	298.6	-	-	298.6	(11.3)	
Upgrade Enterprise Storage Capacity - Hydro Place	-	194.9	-	194.9	-	185.7	-	-	185.7	(9.2)	
Cost Recoveries	-	(70.2)	-	(70.2)	-	(66.9)	-	-	(66.9)	3.3	
Upgrade Server Technology Program - Hydro Place	-	499.4	-	499.4	-	497.4	-	-	497.4	(2.0)	
Cost Recoveries	-	(131.8)	-	(131.8)	-	(131.3)	-	-	(131.3)	0.5	
Upgrade Computer Room Air Conditioner - Hydro Place	-	130.0	-	130.0	-	98.3	-	31.7	130.0	-	
Cost Recoveries	-	(46.8)	-	(46.8)	-	(35.4)	-	(11.4)	(46.8)	-	
Replace Helpdesk Service Manager Application - Hydro Place	-	96.5	-	96.5	-	90.4	-	-	90.4	(6.1)	
Cost Recoveries	-	(34.7)	-	(34.7)	-	(32.5)	-	-	(32.5)	2.2	
2012 Projects											
Upgrade JD Edwards - Hydro Place	284.0	587.6	-	871.6	518.3	315.6	-	-	833.9	(37.7)	
Cost Recoveries	(96.6)	(199.8)	-	(296.4)	(176.2)	(107.3)	-	-	(283.5)	12.9	
Upgrade Computer Room - Hydro Place	122.0	-	-	122.0	9.3	131.6	-	-	140.9	18.9	
Cost Recoveries	(41.5)	-	-	(41.5)	(3.2)	(44.7)	-	-	(47.9)	(6.4)	
Total Information Systems	267.9	2,799.4	589.0	3,656.3	348.2	2,404.1	589.0	255.9	3,597.2	(59.1)	

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2013 Capital Expenditures By Category
($000)

Telecontrol										
	2013	2014 and Beyond	Total	2012	2013	2014 and Beyond	Carryovers to 2014	Total	Variance	Notes
2013 Projects										
Replace MDR 4000 Microwave Radio (West) - Various Sites	539.0	706.9	1,245.9	2.9	95.1	706.9	441.0	1,245.9	-	
Replace Radomes - Various Sites	336.0	-	336.0	2.6	260.4	-	-	263.0	(73.0)	
Replace Battery Banks and Chargers - Various Sites	782.0	-	782.0	3.8	549.4	-	-	553.2	(228.8)	36
Replace Network Communications Equipment - Various Sites	182.4	-	182.4	2.4	154.5	-	-	156.9	(25.5)	
Replace Telephone Systems - Various Sites	135.4	-	135.4	2.4	116.9	-	-	119.3	(16.1)	
Upgrade Site Facilities - Various Sites	49.8	-	49.8	-	47.4	-	-	47.4	(2.4)	
Purchase Tools and Equipment Less than $50,000	45.6	-	45.6	-	43.2	-	-	43.2	(2.4)	
Total Telecontrol	2,070.2	706.9	2,777.1	14.1	1,266.9	706.9	441.0	2,428.9	(348.2)	

2013 Capital Expenditures By Category
($000)

Transportation											
	2012	2013	2014 and Beyond	Total	2012	2013	2014 and Beyond	Carryovers to 2014	Total	Variance	Notes
2013 Projects											
Replace Vehicles and Aerial Devices (2013-2014) - Various Sites	-	1,302.3	679.2	1,981.5	-	692.9	679.2	609.4	1,981.5	-	
2012 Projects											
Replace Vehicles and Aerial Devices (2012-2013) - Various Sites	1,711.4	1,218.8	-	2,930.2	1,594.1	1,283.7	-	-	2,877.8	(52.4)	
Total Transportation	1,711.4	2,521.1	679.2	4,911.7	1,594.1	1,976.6	679.2	609.4	4,859.3	(52.4)	

Administration											
	2012	2013	2014 and Beyond	Total	2012	2013	2014 and Beyond	Carryovers to 2014	Total	Variance	Notes
2013 Projects											
Remove Safety Hazards - Various Sites	-	250.5	-	250.5	2.8	64.2	-	-	67.0	(183.5)	37
Purchase Tools and Equipment Less than $50,000	-	89.9	-	89.9	-	31.6	-	-	31.6	(58.3)	
Total Administration	-	340.4	-	340.4	2.8	95.8	-	-	98.6	(241.8)	

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2013 Capital Expenditures By Category
($000)

Allowance For Unforeseen	2012	2013	2014 and Beyond	Total	2012	2013	2014 and Beyond	Carryover to 2014	Total	Variance	Notes
2013 Projects											
Refurbish 230 kV Breakers - Holyrood and Buchans	-	-	-	-	-	206.6	-	-	206.6	-	
Black Tickle Plant Rehabilitation	-	-	-	-	-	147.0	-	-	147.0	-	
Forced Draft Fan Upgrade - Holyrood	-	-	-	-	-	6.3	-	-	6.3	-	
Upgrade Gas Turbine Alternator - Happy Valley	-	-	-	-	-	365.2	-	-	365.2	-	
Replacement of Damaged Structures to 138 kV Line - TL222	-	-	-	-	-	120.9	-	-	120.9	-	
Total Allowance For Unforeseen	-	1,000.0	-	1,000.0	-	846.0	-	-	846.0	(154.0)	38

Unbudgeted Projects Approved by PUB	2012	2013	2014 and Beyond	Total	2012	2013	2014 and Beyond	Carryover to 2014	Total	Variance	Notes
2013 Projects											
Refurbish Stoplogs - Burnt Dam Spillway	-	284.1	-	284.1	-	236.5	-	-	236.5	(47.6)	
Refurbish Marine Terminal - Holyrood	-	5,198.2	-	5,198.2	-	2,023.7	-	-	2,023.7	(3,174.5)	39
Restore Unit 1 - Holyrood	-	12,809.7	-	12,809.7	-	9,039.5	-	-	9,039.5	(3,770.2)	40
Increase 230 kV Transformer Capacity - Oxen Pond	-	3,823.6	15,310.4	19,134.0	-	153.6	15,310.4	3,670.0	19,134.0	-	
Replace Breaker - Hinds Lake	-	388.7	-	388.7	-	393.9	-	-	393.9	5.2	
Replace Alternator - Hardwoods	-	8,015.8	-	8,015.8	-	7,058.2	-	-	7,058.2	(957.6)	41
Purchase Equipotential Bonding and Grounding Equipment	-	158.3	-	158.3	-	-	-	158.3	158.3	-	
Blackstart Capability Upgrade - Holyrood	-	-	-	-	-	84.5	-	-	84.5	84.5	
2012 Projects											
Increase Generation - Mary's Harbour	321.4	1,295.0	-	1,616.4	51.0	1,069.4	-	496.0	1,616.4	-	
Rewind Gas Turbine Alternator - Stephenville	2,940.5	2,252.1	-	5,192.6	1,758.0	3,941.7	-	-	5,699.7	507.1	
Replace Penthouse Roof - Hydro Place	10.2	189.5	-	199.7	-	162.9	-	-	162.9	(36.8)	
Total Unbudgeted Projects Approved by PUB	3,272.1	34,415.0	15,310.4	52,997.5	1,809.0	24,163.9	15,310.4	4,324.3	45,607.6	(7,389.9)	

Projects Less than $50,000 Approved by Hydro	2012	2013	2014 and Beyond	Total	2012	2013	2014 and Beyond	Carryover to 2014	Total	Variance	Notes
2013 Projects											
Replace Loggers - Hydrometric Stations	-	41.9	-	41.9	-	37.6	-	-	37.6	(4.3)	
Replace Air Conditioning Equipment - Computer Server Room	-	37.2	-	37.2	-	28.3	-	-	28.3	(8.9)	
Pole Replacement - TL1301 - Fire Damage	-	49.7	-	49.7	-	43.3	-	-	43.3	(6.4)	
Replace Structure - TL259	-	18.7	-	18.7	-	25.6	-	-	25.6	6.9	
Burnt Dam Refurbishment of Heated Gate	-	37.4	-	37.4	-	35.6	-	-	35.6	(1.8)	
Total Projects Less than $50,000 Approved by Hydro	-	184.9	-	184.9	-	170.4	-	-	170.4	(14.5)	

NEWFOUNDLAND AND LABRADOR HYDRO
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(Greater than $100,000 and 10% Variance from Budget)
($000)

1. Automate Generator Deluge Systems – Bay d'Espoir

Budget: $532.0 Total: $370.9 Variance: ($161.1)

This is a one-year project that has been carried over into 2014. The cost for this project has been reduced as a result of lower than estimated engineering and internal labor costs. The project contingency has also been reduced as contract costs are known and thus the risk to project cost is low.

2. Replace North-End Equipment Door – Bay d'Espoir

Budget: $265.5 Total: $136.3 Variance: ($129.2)

This is a one-year project completed in 2013. The contract pricing obtained through a competitive bid process for this project was less than anticipated in the original project estimate.

3. Overhaul Turbine/Generator Units – Cat Arm and Bay d'Espoir

Budget: $428.1 Total: $214.4 Variance: ($213.7)

This is a one-year project completed in 2013. The overhaul for Cat Arm was lower than budgeted due to unit trend monitoring data analysis that resulted in a portion of the planned unit dismantling not being required. The overhaul cost for Bay d'Espoir was lower than anticipated in the original project estimate due to the coincident replacement of the stator windings and tasks common to both projects which resulted in project cost savings.

4. Rewind Stators Unit 4 – Bay d'Espoir

Budget: $4,953.8 Total: $4,089.3 Variance: ($864.5)

This is a one-year project that was carried over into 2013. The project cost decrease is a result of lower than estimated construction labour and material costs. These cost savings resulted in lower than estimated project interest cost and no contingency funds being utilized.

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($000)

5. Replace Emergency Diesel Generator – Bay d'Espoir

Budget: $894.1 Total: $698.3 Variance: ($195.8)

This is a two-year project that was completed in 2013. The project was completed under budget as a result of savings on the cost of the diesel genset and installation labour. These savings resulted in reduced project interest and no contingency funds being used.

6. Upgrade Burnt Dam Spillway – Bay d'Espoir

Budget: $523.8 Total: $1,253.6 Variance: $729.8

This is a one-year project which was carried over into 2013. There was a cost increase of $270.0 due to the difference between the budgeted and actual tendered costs for the disassembly and inspection contract and the consultant design cost. An additional $460.0 was required to complete the approved scope of work. Specifically, additional funds were required for internal costs including labour, material, travel, interest and contingency not originally approved as part of this project. The project was carried over into 2013 as a result of having to reapply for a portion of the planned project to refurbish the stop logs to allow for the approved inspections to be completed safely.

7. Replace Static Excitation Systems – Upper Salmon, Holyrood Unit 3 and Hinds Lake

Budget: $4,109.1 Total: $1,704.7 Variance: ($2,404.0)

This is a three-year project completed in 2013. The project was completed under budget as a result of much lower than expected supply, installation contract, and internal labour costs.

8. Upgrade Burnt Dam Spillway Structure – Bay d'Espoir

Budget: $257.9 Total: $497.9 Variance: $240.0

This is a one-year project initiated in 2011 that was carried over into 2012 and 2013. The cost increase is due to the unplanned use of external resources to complete design and oversee project execution. In addition, contract pricing obtained through the competitive bid process was higher than anticipated in the original project estimate. This project was completed in 2013.

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9. Upgrade Intake Gate Controls – Bay d'Espoir

Budget: $820.3 Total: $1,221.8 Variance: $401.5

This is a two-year project initiated in 2011. The scope of this project remains unchanged, however the timing and the complexity of the work has resulted in increased labour costs. The work planned for 2011 was completed; however the work which was planned to be completed in 2012 was originally delayed to 2013 and now until 2014 due to system constraints which prevented a suitable outage window to complete the work. In 2011, high water levels required the outage work to be delayed after work had commenced, requiring extra work to install temporary controls, and then to return later to complete the original scope of work. In 2012, outages to three units simultaneously were required to complete the scope of work and system loading considerations prevented a suitable outage window to complete the work. In 2013, failure of the intake gate prevented the completion of the planned work, as the repair of the gate had to be completed during the outage window.

10. Complete Condition Assessment Phase 2 (Year 2) - Holyrood

Budget: $1,170.2 Total: $559.0 Variance: ($611.2)

This is a one-year project completed in 2013. The key focus area of this condition assessment was the Unit 2 boiler and high energy piping inspections. In January of 2013, a forced outage occurred on Unit 1 which impacted the 2013 Holyrood unit outage schedule. As a result, the planned outage for Unit 2 was reduced and the boiler and high energy piping condition assessment could not be completed. This work will now be completed as part of the 2014 condition assessment project. The work completed included a visual inspection of plant roofs and overhead doors, CCTV inspection of underground drainage pipelines, inspection of concrete equalization basin 2, Unit 3 generator testing, and inspection of the waste water basin building.

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11. Install Backup System for Raw Water Supply and Clarifier - Holyrood

Budget: $955.6 Total: $485.5 Variance: ($470.1)

This project is a one-year project which has been completed under budget. The primary reason for the reduced project cost is contract pricing obtained through the competitive bid process which was lower than anticipated in the original project estimate.

12. Upgrade Forced Draft Fan Ductwork Unit 2 - Holyrood

Budget: $928.6 Total: $0 Variance: ($928.6)

This project has been cancelled. A component of the original project justification was based on a cost benefit analysis. With the updated long term plan for Holyrood, an updated cost benefit analysis was completed. Unit 2 will no longer be required to operate as a generator after 2021, resulting in a reduced study period. In addition, the forecasted pricing of No. 6 fuel oil is now lower than that used in the original cost benefit analysis. As a result, this project is no longer economically justified.

13. Replace Fuel Oil Heat Tracing - Holyrood

Budget: $2,888.2 Total: $2,050.3 Variance: ($837.9)

This is a two-year project completed as planned in 2013. Contract pricing obtained through the competitive bid process was lower than anticipated in the original project estimate. In addition, the majority of the work was completed in year 2 of the project, resulting in lower project interest costs.

14. Condition Assessment and Life Extension Phase 2 - Holyrood

Budget: $1,215.7 Total: $991.7 Variance: ($224.0)

This is a one-year project that was carried over from 2012. The scope of the project was to complete a Level II assessment of the major issues found in the Level I assessment performed previously. The total project cost was less than originally estimated due to lower than anticipated contract and project interest costs.

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($000)

15. Replace Relay Panels Unit 3 – Holyrood

Budget: $830.7 **Total: $1,366.7** **Variance: $536.0**

This is a two-year project initiated in 2011. Project costs were higher than originally estimated as additional engineering and plant resource time was required in 2012 in order to complete field investigations to bring the existing Unit 3 relay panel control schematics and termination schedules up to 'as-built' status. As these 'as-built' drawings formed the basis of the control panel design, the contract for the design and supply of the new control panel was then delayed until 2013.

As a result of the additional field investigation work completed, it was realized that the installation of the control panel would take longer than originally anticipated, as would the commissioning of the new equipment into the existing system. This increased the schedule for this work from eight to twelve weeks, resulting in increased labour and construction costs.

16. Upgrade Hydrogen System - Holyrood

Budget: $1,992.3 **Total: $3,487.8** **Variance: $1,495.5**

This is a two-year project initiated in 2011 which has now been carried over into 2014. An increase in the original capital project budget was required to complete the original project deliverables. This increase is a result of a divergence between the budgeted and actual cost for engineering design, materials, and construction. The procurement of long lead items was completed as planned in 2011 within budget. The engineering design and tendering of the construction contract were completed in the spring of 2012. One tender was received at a price of $1,242.3, compared to the budgeted contract cost of $290.0. The contract was not awarded. At this point, Hydro reviewed and confirmed the project scope and justification. Following the announcement of the Muskrat Falls Project in December 2012, there was a change in the long term asset plan for Holyrood, and the conversion of Units 1 and 2 to synchronous condensers was no longer required. This necessitated a further review and confirmation of the project justification, and adjustments to the project scope. The original project justification remained unchanged; the upgrades of the hydrogen system are necessary to improve the safety and reliability of the system.

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($000)

16. Upgrade Hydrogen System – Holyrood (cont'd.)

The project was carried over into 2013 and the construction specification was re-designed to address the scope adjustments resulting from the change in the long term asset plan for Holyrood. A revised construction contract was tendered in the spring of 2013 and five tenders were received. The lowest evaluated tender was $997.0. This contract was awarded and work is substantially complete, with final commissioning remaining to be completed.

17. Replace Pumphouse Motor Control Centres - Holyrood

Budget: $1,048.8 Total: $1,603.9 Variance: $555.1

This is a two-year project initiated in 2010 which was completed in 2013. The engineering design and construction specification originally prepared for this work did not cover all the aspects of work required to complete this project. This resulted in increased costs for labour and for the installation contract. The installation and commissioning of the Units 1 and 2 pumphouse motor control centers (MCCs) were completed during the scheduled 2013 unit outages.

18. Upgrade Glycol Systems - Stephenville

Budget: $560.2 Total: $1,146.5 Variance: $586.3

This is a two-year project initiated in 2010 which was carried over into 2012 and then into 2013 due to multiple tenders being required to secure suitable bids. This competitive bid process resulted in contract pricing much higher than anticipated in the original project estimate. While the construction work was planned to be completed in the spring of 2012, it was postponed as a result of the alternator failure at the Stephenville Gas Turbine. The glycol system upgrade project could not be commissioned and placed in service until the alternator refurbishment work was completed. This work is now complete and the system is in service. The cost of this project also increased as a result of project delays.

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19. Upgrade Gas Turbine Plant Life Extension - Hardwoods

Budget: $5,994.7 Total: $3,493.1 Variance: ($2,501.6)

This is a three-year project initiated in 2010 and carried over into 2013. The cost of this project was reduced due to the removal of the costs allocated for the alternator and excitation system inspection and refurbishment. This work was not required as the alternator and exciter were replaced under a separate project approved in Board Order No. 20(2013).

20. Upgrade Circuit Breakers – Various Sites

Budget: $2,785.3 Total: $2,421.0 Variance: ($364.3)

This a one-year project completed in 2013. Two planned circuit breaker replacements for Cow Head and Hardwoods were not completed as a result of later than anticipated delivery of replacement circuit breakers. These replacements will now be completed in 2014. Additionally, two planned overhauls were delayed and will now be completed as part of the 2014 circuit breaker upgrade project.

21. Replace Surge Arrestors – Various Sites

Budget: $121.3 Total: $17.7 Variance: ($103.6)

This is a one-year project planned to be completed in 2013. The majority of work planned for this project was not completed as a result of resources being redirected to complete critical work at Stephenville and Hardwoods gas turbines and to complete other required maintenance. Additionally, work related to Cow Head T1 was planned to be completed with planned breaker replacement work which has been deferred to 2014 as a result of late breaker delivery. This work will now be completed as part of the 2014 surge arrester replacement project.

22. Upgrade Power Transformers – Various Sites

Budget: $1,621.1 Total: $483.5 Variance: ($1,137.6)

This is a one-year project planned to be completed in 2013. This project includes several types of upgrades to power transformers including oil refurbishment, radiator replacement, bushing replacement, and leak repair. This work is normally coordinated such that, where possible, several

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22. **Upgrade Power Transformers – Various Sites (cont'd.)**

upgrades are performed on a transformer at the same time to avoid duplication of work and to minimize cost and equipment outage time.

Challenges were experienced with procurement of leak repair services, delivery of replacement radiators, and with purchase of replacement bushings. As a result, coordinated work was not completed on Bay d'Espoir T1 (leak repair and oil refurbishment) and Happy Valley T1 Spare (leak repair, oil refurbishment, and bushing replacement). Cow Head T1 leak repair was planned to be completed at the same time as a breaker replacement. This work has been deferred to 2014 due to late delivery of the breaker. Additionally, planned radiator replacement on Hardwoods T2 could not be completed due to late delivery of replacement radiators.

The purchase and installation of bushings was reduced as a result of difficulty finding direct replacement bushings for some transformers. The work originally planned for 2013 will now be completed as part of the 2014 upgrade power transformers project.

23. **Replace Disconnects – Various Sites**

Budget: $492.6 **Total: $374.6** **Variance: ($118.0)**

This is a one-year project completed in 2013. Not all of the planned disconnect replacements were completed. The disconnect purchased for Bottom Brook B1T1 was used to replace Hardwoods B1T2 due to a failure of the switch at Hardwoods. Replacements planned for Barachois were not completed due to late delivery of a motor operator. These replacements will be completed as part of the 2014 disconnect replacement project.

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($000)

24. Replace Optimho Relays on TL242 – Holyrood to Hardwoods

Budget: $189.2 Total: $0 Variance: ($189.2)

Given the sanction of the Labrador Island Link, TL242 will be reconfigured to terminate in the new Soldiers Pond Terminal Station. The protection on TL242 will be upgraded as part of that project. As a result, Hydro decided that the protection upgrade should be delayed to be aligned with the new configuration. The protection package is currently out on tender and once it is awarded, replacement relays will be procured and installed by Hydro.

25. Replace Compressed Air Piping and Install Dew Point Monitor - Buchans

Budget: $306.7 Total: $751.6 Variance: $444.9

This is a two-year project initiated in 2012 and carried over into 2014. The budget has been increased due to contract pricing obtained through the competitive bid process which was higher than anticipated in the original project estimate by approximately $200.0. Future budgets for similar work have been adjusted to reflect the higher costs realized in completing this work.

26. Replace Compressed Air System – Bay d'Espoir

Budget: $647.5 Total: $1,399.2 Variance: $751.7

This is a two-year project initiated in 2011 which was carried over into 2013. The increase in project cost is primarily due to contract pricing obtained through the competitive bid process which was higher than anticipated in the original project estimate. Future budgets for similar work have been adjusted to reflect the higher costs realized in completing this work.

27. Replace Compressor, Dryer and Air Piping Header System - Corner Brook Frequency Converter Station

Budget: $280.2 Total: $381.3 Variance: $101.1

This project was originally planned to be completed in 2011 and was carried into 2012 due to difficulties in obtaining bids for the work in 2011. The contract work for this project was combined with other project work and tendered a second time which resulted in contract pricing which was still higher than originally estimated.

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($000)

27. Replace Compressor, Dryer and Air Piping Header System - Corner Brook Frequency Converter Station (cont'd.)

In addition to increased contract pricing, design changes were required in the course of the project which resulted in increased engineering and material costs. The material required to complete the design changes could not be delivered in 2012 and, as a result, this project was completed in 2013.

28. Upgrade Substation - Wabush

Budget: $1,085.7 Total: $1,353.8 Variance: $268.1

This is a two-year project initiated in 2011 and carried over into 2013. The primary reason for the increase in project cost is contract pricing obtained through the competitive bid process which was higher than anticipated in the original project estimate.

29. Upgrade Terminal Stations to 25 kV - Labrador City

Budget: $12,650 Total: $16,844.0 Variance: $4,194.0

The original budget was submitted as a three-year project to construct two new 46/25 kV terminal stations. Each station will have two new 46/25 kV, 15/20/25 MVA power transformers, new 46 kV and 25 kV electrical equipment and new control buildings. The budget for this project was previously increased to $12,650.0 and the 2012 budget was adjusted to incorporate the change in the overall budget.

This project was estimated in 2008 based on market conditions at the time and using standard escalation indices for future year expenditures. The market conditions realized in Labrador West during the project execution phase have been atypical, driven by strong economic activity in the area. The outcome was an escalation beyond Hydro's anticipation in construction contracts, materials and labour.

An additional $3.1 million was required to complete this project as a result of contract pricing increases above estimated amounts for use of consultants for design review, commissioning cost estimates which were low compared to the actual cost to commission the specific type and size of stations involved, and additional material costs. Both terminal stations are now in service.

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30. Provide Service Extensions – All Service Areas

Budget: $5,006.0 Total: $5,689.4 Variance: $683.4

This is an annual allotment based on past expenditures to provide service connections to new customers. The budget and actual expenditures by area is shown in the table below.

	Budget ($000)	Actual ($000)
Central	1,437.0	1,751.4
Northern	1,371.0	1,202.0
Labrador	2,198.0	2,736.0
Total	5,006.0	5,689.4

The variance is mainly related to growth in the Labrador Interconnected System, especially in Labrador West.

31. Upgrade L2 Distribution Feeder - Glenburnie

Budget: $3,556.7 Total: $3,074.4 Variance: ($482.3)

This is a three-year project started in 2010 and carried over into 2013. This project was completed under budget as a result of contract pricing obtained through the competitive bid process which was lower than anticipated in the original project estimate.

32. Overhaul Diesel Units – Various Sites

Budget: $977.8 Total: $1,134.3 Variance: $156.5

This is a one-year project to overhaul diesel units. The increase in project cost is due to required unplanned replacement of additional parts on a diesel unit in Nain.

33. Replace Mini Hydro Turbine - Roddickton

Budget: $322.2 Total: $493.2 Variance: $171.0

This is a two-year project initiated in 2011. The increase in project cost compared to budget is due to a scope change to include a generator replacement. The generator rotor shaft failed in 2010. This failure

NEWFOUNDLAND AND LABRADOR HYDRO
2013 VARIANCE EXPLANATIONS
FOR THE YEAR ENDING DECEMBER 31, 2013
(Greater than $100,000 and 10% Variance from Budget)
($000)

33. Replace Mini Hydro Turbine – Roddickton (cont'd.)

occurred after the project proposal was submitted for approval. A cost-benefit analysis was performed to compare the feasibility of replacing the generator at additional cost under the same project, postponing the work, or cancelling the current project and shutting down the plant. The results of the cost-benefit analysis favoured proceeding with the turbine overhaul and replacement of the generator.

This project has been carried over into 2014 as a result of additional time being required for procurement of a replacement generator.

34. Replace Diesel Unit 2001 and Engine 566 - Francois

Budget: $618.5 Total: $719.9 Variance: $101.4

This project is a two-year project initiated in 2010. The replacement genset for Unit 566 was installed and commissioned in 2011, but delivery of the replacement genset for Unit 2001 was delayed. During factory acceptance testing, the unit did not meet the specified vibration limits. Factory troubleshooting of this issue was on-going with resolution in December 2012. The replacement genset was delivered in 2013.

The project cost has increased as a result of increased genset installation costs for Unit 566 and additional engineering costs associated with troubleshooting of engine issues and increased interest costs as a result of extension of the project schedule.

35. Install Automatic Meter Reading – Glenburnie and Rocky Harbour

Budget: $656.7 Total: $810.4 Variance: $153.7

There are two approved capital projects currently in progress for installation of automatic meter reading. One project was originally budgeted to install automatic meter reading in the service areas of Rocky Harbour and Glenburnie in 2012 and 2013, and the second project was originally budgeted to install automatic meter reading in the service areas of Plum Point and Bear Cove in 2013 and 2014. The anticipated retirement dates of the respective meter readers have changed, and a decision was made in

NEWFOUNDLAND AND LABRADOR HYDRO
2013 VARIANCE EXPLANATIONS
FOR THE YEAR ENDING DECEMBER 31, 2013
(Greater than $100,000 and 10% Variance from Budget)
($000)

35. Install Automatic Meter Reading – Glenburnie and Rocky Harbour (cont'd.)

2012 to swap the two projects. The meter reader for Rocky Harbour and Glenburnie also reads the meters for the service areas of Wiltondale and Sally's Cove. These areas were not originally budgeted but are necessary to achieve the benefit of eliminating a meter reader position. An updated cost benefit analysis was completed which demonstrated that installation of automatic meter reading in Rocky Harbour, Glenburnie, Wiltondale and Sally's Cove is the least cost alternative compared to the status quo, with a $32.0 difference in net present value. The cost increase is associated with the materials and labour associated with Wiltondale and Sally's Cove.

36. Replace Battery Banks and Chargers – Various Sites

Budget: $782.0 Total: $553.2 Variance: ($228.8)

This is a one-year project completed in 2013. The reduction in project cost is a result of lower than anticipated engineering and construction labour being required.

37. Remove Safety Hazards – Various Sites

Budget: $250.5 Total: $67.0 Variance: ($183.5)

This is a one-year project completed in 2013. This project is based on the requirement to ensure adequate capital funding is available to quickly address capital related safety hazards as they are identified. Therefore, this funding is only utilized to the extent that specific hazards are identified. The hazards identified in 2013 are itemized in the 2013 Remove Safety Hazards table, p. 35. In addition, the project budget for this project was reduced by $158.3, the amount of a supplemental project for the purchase of equipotential bonding and grounding equipment, approved by Board Order P.U. 39(2013).

38. Allowance for Unforeseen

Budget: $1,000.0 Total: $846.0 Variance: ($154.0)

The Allowance for Unforeseen items is an annual allotment that permits Hydro to act expeditiously to deal with events affecting the electrical system which cannot wait for specific approval of the Board. Actual unforeseen expenditures for 2013 under this account include costs associated with refurbishment

NEWFOUNDLAND AND LABRADOR HYDRO
2013 VARIANCE EXPLANATIONS
FOR THE YEAR ENDING DECEMBER 31, 2013
(Greater than $100,000 and 10% Variance from Budget)
($000)

38. Allowance for Unforeseen (cont'd.)

of 230 kV breakers at Holyrood and Buchans, upgrade of the alternator at Happy Valley Gas Turbine, replacement of damaged structures on TL222, rehabilitation of the Black Tickle diesel plant, and upgrade of Unit 3 forced draft fan motor at Holyrood, all of which are detailed on page 16. Detailed reports have been or will be filed for each project that has used this allowance.

39. Refurbish Marine Terminal - Holyrood

Budget: $5,198.2 Total: $2,023.7 Variance: ($3,174.5)

This is a supplemental project approved by Board Order P.U.12(2013). The project variance is primarily a result of finding an alternative means of repairing fender number four than originally planned. The original repair method required the use of a barge to position the form for the concrete fender. The form was able to be placed from the shore and no barge was required. This resulted in a significant reduction in the contract cost.

40. Restore Unit 1 - Holyrood

Budget: $12,809.7 Total: $9,039.5 Variance: ($3,770.2)

This is a supplemental project approved by Board Order P.U.14(2013) which resulted from an in service failure of Unit 1.

During the failure event, the turbine/generator bearing journals experienced significant damage as a result of a loss of lubrication. The original project estimate included an allowance to machine the journals to remove the damaged areas caused by liquid metal embrittlement, welding repairs to build up the journal diameters, machining the journals to their original diameters, and post weld heat treatment. The liquid metal embrittlement was not as "deep" as originally anticipated and it was possible to machine the journals and install "oversized" bearings rather than welding and machining the journals to the original diameters. This resulted in significant project cost savings.

NEWFOUNDLAND AND LABRADOR HYDRO
2013 VARIANCE EXPLANATIONS
FOR THE YEAR ENDING DECEMBER 31, 2013
(Greater than $100,000 and 10% Variance from Budget)
($000)

41. Replace Alternator - Hardwoods

Budget: $8,015.8 **Total: $7,058.2** **Variance: ($957.6)**

This project is a supplemental project approved by Board Order P.U. 19(2013) Amended. The project variance is a result of the majority of the project contingency not being used.

NEWFOUNDLAND AND LABRADOR HYDRO
2013 VARIANCE EXPLANATIONS
FOR THE YEAR ENDING DECEMBER 31, 2013
(Greater than $100,000 and 10% Variance from Budget)
($000)

Capital Budgets/Expenditures 2004- 2013

Year	Budget	Actual Expenditures	Variance	Percentage Variance
2004	31,435	27,984	3,451	11.0%
2005	47,760	33,952	13,808	28.9%
2006	49,024	41,217	7,807	15.9%
2007	43,304	35,669	7,635	17.6%
2008	53,579	46,246	7,333	13.7%
2009	61,544	54,152	7,392	12.0%
2010	63,297	55,553	7,744	12.2%
2011	67,454	63,116	4,338	6.4%
2012	93,840	77,252	16,588	17.7%
2013	116,373	84,755	31,618	27.2%

The variances presented in Table 1 are partially due to under-spending as a result of not completing all projects approved each year. It is anticipated that some carryover of projects will occur in most years as there may be unavoidable reasons for delays in project completion, for example, system constraints which are precipitated by changes in hydrology, equipment failures, etc.

In 2013, project cost reductions related to lower than anticipated contract pricing also contributed to reduced project costs. Project cost reductions for completed projects account for approximately $20.4 million. Project carry overs and spending shifts on multi-year projects account for approximately $15 million. Project cost overruns account for the remaining variance.

2013 Carryover Report
For the Year Ending December 31, 2013
($000)

Project Name	PUB Approved Budget 2013	Revised Budget 2013	FEED 2013	Total Actual Expend. 2013	Carryover Amount	Completion Year
Replace Automatic Transfer Switches - Hinds Lake	314.7	356.0	-	323.4	32.6	2013
Install Automatic Fuel Monitoring System - Upper Salmon	192.7	192.7	1.9	94.8	96.0	2013
Upgrade Intake Gate Controls - Bay d'Espoir	341.2	341.2	-	108.6	232.6	2013
Replace Stator Windings Units 1, 3 and 4 - Bay d'Espoir	5,663.5	5,663.5	8.8	2,265.7	3,389.0	2013
Automate Generator Deluge Systems - Bay d'Espoir	532.0	370.9	3.9	311.6	55.4	2013
Upgrade Units 1 to 6 By-Pass Valves - Bay d'Espoir	141.9	141.9	3.0	9.5	129.4	2013
Upgrade Generator Bearings - Bay d'Espoir	480.9	480.9	5.3	24.3	451.3	2013
Upgrade Burnt Dam Spillway - Bay d'Espoir	885.8	885.8	15.0	223.1	647.7	2013
Purchase Low Pressure Screw Compressor Set - Bay d'Espoir	97.3	97.3	3.3	78.7	15.3	2013
Replace Cooling Water Pumps - Bay d'Espoir	175.4	175.4	2.0	86.5	86.9	2013
Replace Units 1 to 6 Auto Greasing Systems - Bay d'Espoir	260.1	260.1	-	189.9	70.2	2013
Overhaul Extraction Pumps - Holyrood	101.5	108.7	-	-	108.7	2013
Upgrade Hydrogen System - Holyrood	527.3	2,022.8	-	1,917.5	105.3	2013
Replace Condensate Polisher Annunciator Panels - Holyrood	123.5	60.7	0.3	20.9	39.5	2013
Purchase 10 Position Meter Calibration Test Console - Hydro Place	192.5	192.5	-	-	192.5	2013
Replace Compressed Air Piping and Install Dew Point Monitor-Buchans	306.7	751.6	-	557.4	194.2	2013
Install Online Vibration Monitoring System - Corner Brook Frequency Converter	382.8	382.8	4.6	50.6	327.6	2013
Purchase Five Hydraulic Impact Tools	15.5	15.5	-	0.4	15.1	2013
Purchase Office Furniture - Various	31.0	36.3	-	-	36.3	2013
Voltage Conversion - Labrador City	930.1	930.1	-	1,129.8	(199.7)	2013
Replace Mini Hydro Turbine - Roddicton	246.6	261.5	-	29.3	232.2	2013
Increase Generation - Mary's Harbour	1,565.4	1,565.4	-	1,069.4	496.0	2013
Upgrade Business Intelligence Software - Hydro Place	576.9	576.9	-	245.9	331.0	2013
Cost Recoveries	(207.7)	(207.7)	-	(88.5)	(119.2)	2013
Upgrade Computer Room Air Conditioner - Hydro Place	130.0	130.0	-	98.3	31.7	2013
Cost Recoveries	(46.8)	(46.8)	-	(35.4)	(11.4)	2013
Equipotential Grounding and Bonding Equipment	158.3	158.3	-	-	158.3	2013

2013 Carryover Report
For the Year Ending December 31, 2013
($000)

Project Name	PUB Approved Budget 2013	Revised Budget 2013	FEED 2013	Actual Expend. 2013	Carryover Amount	Original Completion Year
Install Automatic Meter Reading - Glenburnie and Rocky Harbour	397.9	551.6	-	537.8	13.8	2014
Replace MDR 4000 Microwave Radio (West) - Various Sites	539.0	539.0	2.9	95.1	441.0	2014
Install Variable Frequency Drives on Forced Draft Fans - Holyrood	697.6	697.6	13.8	206.0	477.8	2014
Replace Compressed Air Systems - Sunnyside and Stony Brook	303.0	303.0	17.2	32.3	253.5	2014
Replace Insulators - Various Sites	187.1	187.1	5.1	67.0	115.0	2014
230kV Transformer Capacity - Oxen Pond Terminal Station	3,823.6	3,823.6	-	153.6	3,670.0	2014
Replace Vehicles and Aerial Devices - (2013-2014) - Various Sites	1,302.3	1,302.3	-	692.9	609.4	2014
Replace Off Road Track Vehicles - Whitbourne, Happy Valley and Port Saunders	416.8	416.8	-	324.7	92.1	2014
Replace Guy Wires TL-215 - Doyles to Grand Bay	253.3	253.3	-	286.7	(33.4)	2014
Upgrade Distribution Systems - Various Sites	311.9	311.9	-	373.0	(61.1)	2014
Additions for Load Isolated Generation Stations - Various Sites	2,040.2	2,040.2	27.8	1,196.4	816.0	2014
Upgrade Gas Turbine PLC - Happy Valley	61.4	61.4	2.3	22.6	36.5	2014
Upgrade Terminal Station - Wiltondale	697.7	697.7	10.7	134.0	553.0	2014
Perform Grounding Upgrades - Various Sites	445.9	445.9	-	507.2	(61.3)	2014
Legal Survey of Primary Distribution Line Right of Ways - 2013	156.2	156.2	-	-	156.2	2014
Perform Arc Flash Remediation - Various Sites	1,005.6	1,005.6	-	149.8	855.8	2015
Upgrade Microsoft Project - Hydro Place	656.7	656.7	-	619.6	37.1	2015
Cost Recoveries	(236.4)	(236.4)	-	(223.1)	(13.3)	2015
Replace Instrument Transformers - Various Sites	593.2	593.2	9.6	230.7	352.9	2017
Total Carry over amount					15,455.5	

NEWFOUNDLAND AND LABRADOR HYDRO
2013 REMOVE SAFETY HAZARDS
FOR THE YEAR ENDING DECEMBER 31, 2013
($000)

Total Approved Budget: **$250,500**
Total Expenditure: **$ 66,995**

Board Order P.U. 38(2010)

As part of Board Order No. P.U. 38(2010) 2011 Capital Budget, the following was included: "Because of the nature of this project the Board would expect to see an explanation in Hydro's annual report on capital expenditures as to each project that was undertaken, setting out the safety hazard that was identified, the location, the steps taken to address the issue and the amount of the expenditure." Please see the following table for projects undertaken in 2013:

Safety Hazards			
Project Title/Location	**Expenditure**	**Safety Hazard Identified**	**Project Scope**
Terminal Station Fence Height Extension – Cow Head	$29.5	Due to extensive sand buildup around terminal station fence, there is a need to raise the height of the fence to prevent public access. SWOP#2013004291 (July 2013) CHD TS Sand accumulations inside and outside fence rendering fence height substandard and allowing public access over fence rails	The height of the fence was raised, and a drift fence was installed to prevent the buildup of sand and snow in and around the terminal station.
Purchase Storage Shed – Mary's Harbour	$19.4	During site visit discovered excessive mold on the ceiling in the storage shed.	New storage shed was purchased.
Cat Arm Draft Tube Scaffolding	$18.1	Unit 2: Support beams for the draft tube scaffolding on Unit 2 are missing. Missing beams created safety hazard for the crews who will be working in that spot during unit annual maintenance. In the event of needle repair requirement access to the needle will not be permitted until the platform is repaired.	Design of replacement beams, purchase of materials, and construction of replacement beams.

newfoundland labrador hydro
a nalcor energy company

Hydro Place. 500 Columbus Drive.
P.O. Box 12400. St. John's. NL
Canada A1B 4K7
t. 709.737.1400 f. 709.737.1800
www.nlh.nl.ca

March 2, 2015

The Board of Commissioners of Public Utilities
Prince Charles Building
120 Torbay Road, P.O. Box 21040
St. John's, NL
A1A 5B2

ATTENTION: Ms. Cheryl Blundon
Director of Corporate Services & Board Secretary

Dear Ms. Blundon:

Re: 2014 Capital Expenditures and Carryover – Year End

Pursuant to Board Order No. P.U. 5(2012), p. 19, item 5, enclosed please find the original and 12 copies of Newfoundland and Labrador Hydro's (Hydro) report on 2014 Capital Expenditures and Carryover for the year ended December 31, 2014.

Should you have any questions, please contact the undersigned.

Yours truly,

NEWFOUNDLAND AND LABRADOR HYDRO

Geoffrey P. Young
Senior Legal Counsel

GPY/cp

A REPORT TO
THE BOARD OF COMMISSIONERS OF PUBLIC UTILITIES

CAPITAL EXPENDITURES AND CARRYOVER REPORT

For Year Ending December 31, 2014

March 2015

newfoundland labrador hydro
a nalcor energy company

NEWFOUNDLAND AND LABRADOR HYDRO
CAPITAL EXPENDITURES AND CARRYOVER REPORT
For Year Ending December 31, 2014

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Capital Expenditures and Carryover Report
December 31, 2014

Total Capital Project Variance
2014 Overview
($000)

Asset Type	Board Approved Budget	Total Project Expenditures and Forecast	Variance
HYDRAULIC	21,897	17,360	(4,537)
THERMAL	15,586	16,869	1,283
GAS TURBINES	4,185	3,906	(279)
TERMINAL STATIONS	19,583	18,182	(1,401)
TRANSMISSION	6,231	6,144	(87)
DISTRIBUTION	34,269	32,549	(1,720)
RURAL GENERATION	18,306	19,815	1,510
PROPERTIES	844	530	(314)
METERING	1,745	1,830	85
RURAL SYSTEMS TOOLS AND EQUIPMENT	2,984	2,644	(341)
INFORMATION SYSTEMS	3,040	3,137	98
TELECONTROL	3,138	2,446	(692)
TRANSPORTATION	4,882	4,949	67
ADMINISTRATIVE	324	282	(42)
ALLOWANCE FOR UNFORESEEN	1,580	676	(904)
SUPPLEMENTAL PROJECTS	486,517	456,235	(30,283)
PROJECTS APPROVED FOR LESS THAN $50,000	485	437	(48)
TOTAL CAPITAL BUDGET	**625,594**	**587,989**	**(37,605)**

2014 Capital Expenditures By Year ($000)

Summary	Capital Budget[1]									Actual Expenditure and Forecast									
					A	B	C (A+B)		D					E			F	F-D	E-C
	2010	2011	2012	2013	Carryover 2013	Original 2014[3]	Revised 2014[3]	2015 and Beyond	Total	2010	2011	2012	2013	2014[2]	2015 and Beyond	Carryovers to 2015	Total	Project Variance	Annual Variance
2014 Projects						223,465.7	223,465.7	314,347.6	537,813.3				84.5	161,278.1	314,347.6	25,576.1	501,286.3	(36,527.0)	(62,187.6)
2013 Projects				23,783.5	13,633.8	39,602.3	53,236.1	2,819.7	66,205.5			137.5	9,709.7	40,127.8	2,819.7	10,030.9	62,825.6	(3,379.9)	(13,108.3)
2012 Projects			460.2	1,573.3	690.2	-	690.2	-	2,033.5			94.6	1,696.0	299.0	-	-	2,089.6	56.1	(391.2)
2011 Projects		2,670.5	2,526.1	1,070.1	1,331.2	1,268.9	2,600.1	758.5	8,294.1		1,626.9	2,377.5	2,999.1	1,779.8	758.5	798.1	10,339.9	2,045.8	(820.3)
2010 Projects	1,088.9	3,501.2	3,840.7	969.5	0.0	608.9	608.9	1,238.2	11,247.4	1,524.6	2,825.0	4,120.6	1,129.8	1,243.4	1,238	(634.5)	11,447.1	199.7	634.5
Grand Total	1,088.9	6,171.7	6,827.0	27,396.4	15,655.2	264,945.8	280,601.0	319,164.0	625,593.8	1,524.6	4,451.9	6,730.2	15,619.1	204,728.1	319,164.0	35,770.6	587,988.5	(37,605.3)	(75,872.9)

2014 Capital Budget Approved by Board Order No. P.U. 42 (2013)	97,805.3
New Project approved by Board Order No. 38 (2013)	1,263.4
New Project Approved by Board Order No. 16 (2014)[4]	109,677.0
New Project Approved by Board Order No. 23 (2014)	580.0
New Project Approved by Board Order No. 29 (2014)	7,197.8
New Project Approved by Board Order No. 32(2014)	1,452.5
New Project Approved by Board Order No. 33 (2014)	3,632.2
New Project Approved by Board Order No. 34 (2014)	636.7
New Project Approved by Board Order No. 36 (2014)	958.8
New Project Approved by Board Order No. 38 (2014)	259.5
New Project Approved by Board Order No. 45 (2014)[3]	608.9
New Project Approved by Board Order No. 46 (2014)	491.8
New Project Approved by Board Order No. 53 (2014)	2,412.6
New Project Approved by (O.C. 2014-033)	37,484.2
2014 New Projects under $50,000 Approved by Hydro	485.1
Total Approved Capital Budget Before Carryovers	264,945.8
Carryovers from 2013 to 2014	15,655.2
TOTAL APPROVED CAPITAL BUDGET	280,601.0

[1] Annual budgets previous to 2014 pertain to projects that have expenditures in 2014.

[2] Includes Insurance Proceeds relating to Sunnyside - Transformer T1 Replacement ($1.8M).

[3] As per P.U 45 (2014) the Board did not approve the $0.2M Voltage Conversion - Labrador City actual costs over budget from 2010 to 2013. Upon completion of the capital job Hydro will exclude the $0.2M from average rate base.

[4] The construction of the Labrador West Transmission was approved by OC2014-033, February 2, 2014 of which $37.5M was included in the 2014 Capital Budget. The capital expenditures associated with this project are $10,996,000 as at December 31, 2014 and are included in Work In Progress and as a result are currently excluded from average rate base. The costs to be included in rate base will be subject to review by the Board of Commissioners of Public Utilities.

2014 Capital Expenditures By Category ($000)

Hydraulic Generation Projects	Capital Budget								Actual Expenditure and Forecast										
	2011	2012	2013	Carryover 2013	Original 2014	Revised 2014	2015 and Beyond	Total	2011	2012	2013	Actual YTD 2014	Carryovers to 2015	2015 and Beyond	Total	Project Variance	Annual Variance	Notes
2014 Projects																		
Automated Fuel Monitoring System at West Salmon Spillway - BDE	-	-	-	-	193.2	193.2	-	193.2	-	-	-	0.0	-	-	0.0	(193.2)	(193.2)	1
Replace Turbine/Generator Cooling Water Flow Meters - USL	-	-	-	-	139.7	139.7	-	139.7	-	-	-	85.5	-	-	85.5	(54.2)	(54.2)	
Replace Engine on Emergency Lift System - West Salmon Spillway	-	-	-	-	67.1	67.1	-	67.1	-	-	-	61.2	-	-	61.2	(5.9)	(5.9)	
Raise Height of Earth Dam - Paradise River	-	-	-	-	98.7	98.7	-	98.7	-	-	-	158.3	-	-	158.3	59.6	59.6	
Upgrade Shoreline Protection - Cat Arm	-	-	-	-	55.3	55.3	-	55.3	-	-	-	31.5	-	-	31.5	(23.8)	(23.8)	
Replace Generator Bearing Coolers Units 4 and 5 - Bay d'Espoir	-	-	-	-	199.0	199.0	-	199.0	-	-	-	136.9	-	-	136.9	(62.1)	(62.1)	
Rewind Stator Unit 3 - Bay d'Espoir	-	-	-	-	4,343.9	4,343.9	-	4,343.9	-	-	-	2,833.4	-	-	2,833.4	(1,510.5)	(1,510.5)	2
Upgrade Burnt Dam Spillway - Bay d'Espoir	-	-	-	-	110.2	110.2	1,201.9	1,312.1	-	-	-	126.1	(15.9)	1,201.9	1,312.1	-	15.9	
Upgrade North Cut-Off Dam Access Road - Bay d'Espoir	-	-	-	-	631.7	631.7	-	631.7	-	-	-	474.1	-	-	474.1	(157.6)	(157.6)	3
Refurbish Surge Tank 3 - Bay d'Espoir	-	-	-	-	2,265.0	2,265.0	-	2,265.0	-	-	-	1,497.0	-	-	1,497.0	(768.0)	(768.0)	4
Automate Generator Deluge Systems Units 3 and 6 - Bay d'Espoir	-	-	-	-	612.0	612.0	-	612.0	-	-	-	457.9	-	-	457.9	(154.1)	(154.1)	5
Upgrade Victoria Control Structure - Bay d'Espoir	-	-	-	-	495.1	495.1	-	495.1	-	-	-	79.6	415.5	-	495.1	-	(415.5)	6
Upgrade Generator Bearings Unit 2 - Bay d'Espoir	-	-	-	-	18.9	18.9	396.0	414.9	-	-	-	9.4	9.5	396.0	414.9	-	(9.5)	
Upgrade Public Safety Around Dams and Waterways - Bay d'Espoir	-	-	-	-	352.8	352.8	-	352.8	-	-	-	246.7	-	-	246.7	(106.1)	(106.1)	7
Replace Automatic Greasing Systems Units 5 and 6 - Bay d'Espoir	-	-	-	-	233.4	233.4	-	233.4	-	-	-	166.5	-	-	166.5	(66.9)	(66.9)	
Replace Spherical By Pass Valve Assemblies Units 1 and 2 - BDE	-	-	-	-	57.5	57.5	96.3	153.8	-	-	-	12.8	44.7	96.3	153.8	-	(44.7)	
Replace Fall Arrest on Surge Tank 1 - Bay d'Espoir	-	-	-	-	142.8	142.8	-	142.8	-	-	-	114.9	-	-	114.9	(27.9)	(27.9)	
Install Handheld Pendant to Overhead Crane - Bay d'Espoir	-	-	-	-	49.9	49.9	-	49.9	-	-	-	45.0	4.9	-	49.9	-	(4.9)	
Overhaul Turbine/Generator Units - Bay d'Espoir and Hinds Lake	-	-	-	-	485.0	485.0	-	485.0	-	-	-	481.2	-	-	481.2	(3.8)	(3.8)	
Purchase Tools and Equipment Less than $50,000	-	-	-	-	87.0	87.0	-	87.0	-	-	-	82.8	-	-	82.8	(4.2)	(4.2)	
2013 Projects																		
Replace Automatic Transfer Switches - Hinds Lake	-	-	314.7	32.6	-	32.6	-	314.7	-		323.4	93.8	-	-	417.2	102.5	61.2	8
Install Automatic Fuel Monitoring System - Upper Salmon	-	-	192.7	96.0	-	96.0	-	192.7	-	1.9	94.8	(96.7)	-	-	-	(192.7)	(192.7)	9
Replace Stator Windings Units 1, 3 and 4 - Bay d'Espoir	-	-	5,663.5	3,389.0	-	3,389.0	-	5,663.5	-	8.8	2,265.7	2,132.5	-	-	4,407.0	(1,256.5)	(1,256.5)	10
Automate Generator Deluge Systems - Bay d'Espoir	-	-	532.0	55.4	-	55.4	-	532.0	-	3.9	311.6	67.7	-	-	383.2	(148.8)	12.3	11
Upgrade Units 1 to 6 By-Pass Valves - Bay d'Espoir	-	-	141.9	129.4	-	129.4	-	141.9	-	3.0	9.5	172.5	(43.1)	-	141.9	-	43.1	
Upgrade Generator Bearings - Bay d'Espoir	-	-	480.9	451.3	-	451.3	-	480.9	-	5.3	24.3	207.3	-	-	236.9	(244.0)	(244.0)	12
Upgrade Burnt Dam Spillway - Bay d'Espoir	-	-	885.8	647.7	-	647.7	-	885.8	-	15.0	223.1	635.4	12.3	-	885.8	-	(12.3)	
230 kV Transmission Line - Bay d'Espoir to Western Avalon	-	-	97.3	15.3	-	15.3	-	97.3	-	3.3	78.7	24.9	-	-	106.9	9.6	9.6	
Replace Cooling Water Pumps - Bay d'Espoir	-	-	175.4	86.9	-	86.9	-	175.4	-	2.0	86.5	61.6	-	-	150.1	(25.3)	(25.3)	
Replace Units 1 to 6 Auto Greasing Systems - Bay d'Espoir	-	-	260.1	70.2	-	70.2	-	260.1	-	-	189.9	71.9	-	-	261.8	1.7	1.7	
2011 Projects																		
Upgrade Intake Gate Controls - Bay d'Espoir	352.3	468.0	-	232.6	-	232.6	-	820.3	507.0	373.6	108.6	126.1	-	-	1,115.3	295.0	(106.5)	13
Total Hydraulic Generation Projects	352.3	468.0	8,744.3	5,206.4	10,638.2	15,844.6	1,694.2	21,897.0	507.0	416.8	3,716.1	10,597.8	427.9	1,694.2	17,359.8	(4,537.2)	(5,246.8)	

2014 Capital Expenditures By Category ($000)

Thermal Generation Projets	Capital Budget								Actual Expenditure and Forecast										
	2011	2012	2013	Carryover 2013	Original 2014	Revised 2014	2015 and Beyond	Total	2011	2012	2013	2014	Carryovers to 2015	2015 and Beyond	Total	Project Variance	Annual Variance	Notes
2014 Projects																		
Overhaul Turbine/Generator Unit 2 - Holyrood	-	-	-	-	5,147.0	5,147.0	-	5,147.0	-	-	-	5,131.6	-	-	5,131.6	(15.4)	(15.4)	
Replace Economizer Inlet Valves - Holyrood	-	-	-	-	192.0	192.0	329.1	521.1	-	-	-	133.6	58.4	329.1	521.1	-	(58.4)	
Install Cold-Reheat Condensate Drains and High Pressure Heater Trip Level Unit 3 - Holyrood	-	-	-	-	49.8	49.8	467.4	517.2	-	-	-	101.3	(51.5)	467.4	517.2	-	51.5	
Overhaul Boiler Feed Pump East Unit 3 - Holyrood	-	-	-	-	194.9	194.9	-	194.9	-	-	-	190.9	-	-	190.9	(4.0)	(4.0)	
Upgrade Underground Plant Drainage System - Holyrood	-	-	-	-	112.6	112.6	-	112.6	-	-	-	36.4	-	-	36.4	(76.2)	(76.2)	
Overhaul Cooling Water Pump East Unit 1 - Holyrood	-	-	-	-	98.4	98.4	-	98.4	-	-	-	95.6	-	-	95.6	(2.8)	(2.8)	
Overhaul Extraction Pump South Unit 1 - Holyrood	-	-	-	-	96.8	96.8	-	96.8	-	-	-	93.5	-	-	93.5	(3.3)	(3.3)	
Replace Continuous Opacity Monitors - Holyrood	-	-	-	-	49.3	49.3	-	49.3	-	-	-	48.2	-	-	48.2	(1.1)	(1.1)	
Complete Condition Assessment Phase 2 - Holyrood	-	-	-	-	1,476.8	1,476.8	-	1,476.8	-	-	-	1,412.5	-	-	1,412.5	(64.3)	(64.3)	
Upgrade Plant Elevators - Holyrood	-	-	-	-	533.2	533.2	-	533.2	-	-	-	579.9	(46.7)	-	533.2	-	46.7	
Upgrade Vibration Monitoring System - Holyrood	-	-	-	-	524.9	524.9	-	524.9	-	-	-	476.8	48.1	-	524.9	-	(48.1)	
Install Fire Protection Upgrades - Holyrood	-	-	-	-	56.6	56.6	312.5	369.1	-	-	-	312.0	(255.4)	312.5	369.1	-	255.4	14
Replace DC Distribution Panels and Breakers - Holyrood	-	-	-	-	174.2	174.2	-	174.2	-	-	-	25.6	148.6	-	174.2	-	(148.6)	15
Upgrade Waste Water Basin Building - Holyrood	-	-	-	-	136.7	136.7	-	136.7	-	-	-	36.3	-	-	36.3	(100.4)	(100.4)	16
Purchase Tools and Equipment Less than $50,000	-	-	-	-	59.2	59.2	-	59.2	-	-	-	37.7	15.1	-	52.8	(6.4)	(21.5)	
2013 Projects																		
Overhaul Extraction Pumps - Holyrood	-	-	101.5	108.7	-	108.7	-	101.5	-	-	-	97.2	-	-	97.2	(4.3)	(11.5)	
Install Variable Frequency Drives on Forced Draft Fans - Holyrood	-	-	697.6	477.8	2,659.7	3,137.5	-	3,357.3	-	13.8	206.0	2,746.8	390.7	-	3,357.3	-	(390.7)	17
Replace Condensate Polisher Annunciator Panels - Holyrood	-	-	123.5	39.5	-	39.5	-	123.5	-	0.3	20.9	36.4	-	-	57.6	(65.9)	(3.1)	
2011 Projects																		
Upgrade Hydrogen System - Holyrood	1,191.9	800.4	-	105.3	-	105.3	-	1,992.3	270.5	1,194.5	1,917.5	236.6	-	-	3,619.1	1,626.8	131.3	18
Total Thermal Generation Projects	1,191.9	800.4	922.6	731.3	11,562.1	12,293.4	1,109.0	15,586.0	270.5	1,208.6	2,144.4	11,828.9	307.3	1,109.0	16,868.7	1,282.7	(464.5)	

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2014 Capital Expenditures By Category ($000)

Gas Turbine Generation Projects	Capital Budget							Actual Expenditure and Forecast								
	2012	2013	Carryover 2013	Original 2014	Revised 2014	2015 and Beyond	Total	2012	2013	2014	Carryover to 2015	2015 and Beyond	Total	Project Variance	Annual Variance	Notes
2014 Projects																
Upgrade Gas Turbine Plant Life Extension - Stephenville	-	-	-	2,995.0	2,995.0	-	2,995.0	-	-	2,715.8	-	-	2,715.8	(279.2)	(279.2)	
2013 Projects																
Upgrade Gas Turbine PLC - Happy Valley	-	61.4	36.5	1,128.6	1,165.1	-	1,190.0	2.3	22.6	430.9	734.2	-	1,190.0	-	(734.2)	19
Total Gas Turbine Generation Projects	-	61.4	36.5	4,123.6	4,160.1	-	4,185.0	2.3	22.6	3,146.7	734.2	-	3,905.8	(279.2)	(1,013.4)	

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2014 Capital Expenditures By Category ($000)

Terminal Stations Projects	Capital Budget								Actual Expenditure and Forecast									
	2011	2012	2013	Carryover 2013	Original 2014	Revised 2014	2015 and Beyond	Total	2011	2012	2013	2014	Carryovers to 2015	2015 and Beyond	Total	Project Variance	Annual Variance	Notes
2014 Projects																		
Upgrade Circuit Breakers - Various Sites	-	-	-	-	3,695.4	3,695.4	1,642.5	5,337.9	-	-	-	1,571.7	2,123.7	1,642.5	5,337.9	-	(2,123.7)	20
Replace Surge Arrestors - Various Sites	-	-	-	-	181.9	181.9	-	181.9	-	-	-	61.9	-	-	61.9	(120.0)	(120.0)	21
Upgrade Power Transformers - Various Sites	-	-	-	-	1,904.4	1,904.4	-	1,904.4	-	-	-	1,726.4	-	-	1,726.4	(178.0)	(178.0)	
Replace Disconnect Switches - Various Sites	-	-	-	-	815.9	815.9	189.5	1,005.4	-	-	-	148.4	667.5	189.5	1,005.4	-	(667.5)	22
Upgrade Terminal Station Foundations - Various Sites	-	-	-	-	197.9	197.9	-	197.9	-	-	-	122.8	-	-	122.8	(75.1)	(75.1)	
Replace Optimho Relays on TL203 - Western Avalon to Sunnyside	-	-	-	-	89.1	89.1	96.9	186.0	-	-	-	18.2	70.9	96.9	186.0	-	(70.9)	
2013 Projects																		
Replace Instrument Transformers - Various Sites	-	-	593.2	352.9	552.8	905.7	2,522.0	3,668.0	-	9.6	230.7	699.0	206.7	2,522.0	3,668.0	-	(206.7)	23
Replace Insulators - Various Sites	-	-	187.1	115.0	287.9	402.9	-	475.0	-	5.1	67.0	361.3	41.6	-	475.0	-	(41.6)	
Install Online Vibration Monitoring System - Corner Brook Frequency Converter	-	-	382.8	327.6	-	327.6	-	382.8	-	4.6	50.6	255.1	-	-	310.3	(72.5)	(72.5)	
Upgrade Terminal Station - Wiltondale	-	-	697.7	553.0	1,173.3	1,726.3	-	1,871.0	-	10.7	134.0	1,707.7	-	-	1,852.4	(18.6)	(18.6)	
Replace Compressed Air System - Various Sites	-	-	303.0	253.5	2,105.9	2,359.4	-	2,408.9	-	17.2	32.3	994.4	-	-	1,043.9	(1,365.0)	(1,365.0)	24
2012 Projects																		
Replace Compressed Air Piping and Install Dew Point Monitor - Buchans	-	28.4	278.3	194.2	-	194.2	-	306.7	-	-	557.4	178.0	-	-	735.4	428.7	(16.2)	25
2011 Projects																		
Perform Grounding Upgrades - Various Sites	321.2	324.0	329.0	(61.3)	337.1	275.8	345.4	1,656.7	287.6	240.7	507.2	224.0	51.8	345.4	1,656.7	-	(51.8)	
Total Terminal Stations Projects	321.2	352.4	2,771.1	1,734.9	11,341.6	13,076.5	4,796.3	19,582.6	287.6	287.9	1,579.2	8,068.9	3,162.2	4,796.3	18,182.1	(1,400.5)	(5,007.6)	

2014 Capital Expenditures by Category ($000)

Transmission Projects	Capital Budget								Actual Expenditure and Forecast										
	2011	2012	2013	Carryover 2013	Original 2014	Revised 2014	2015 and Beyond	Total	2011	2012	2013	2014	Carryovers to 2015	2015 and Beyond	Total	Project Variance	Annual Variance	Notes
2014 Projects																		
Perform Wood Pole Line Management Program - Various Sites	-	-	-	-	2,564.20	2,564.2	-	2,564.2	-	-	-	2,496.8	-	-	2,496.8	(67.4)	(67.4)	
Refurbish Anchors and Footings TL202 and TL206 - Bay d'Espoir to Sunnyside	-	-	-	-	1,191.70	1,191.7	988.2	2,179.9	-	-	-	211.5	980.2	988.2	2,179.9	-	(980.2)	26
2011 Projects																		
Replace Guy Wires TL-215 - Doyles to Grand Bay	288.8	318.0	350.1	(33.4)	530.0	496.6	-	1,486.9	447.6	256.0	286.7	476.7	0.0	0.0	1,467.0	(19.9)	(19.9)	
Total Transmission Projects	288.8	318.0	350.1	(33.4)	4,285.9	4,252.5	988.2	6,231.0	447.6	256.0	286.7	3,185.0	980.2	988.2	6,143.7	(87.3)	(1,067.5)	

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2014 Capital Expenditures By Category ($000)

Distribution Projects	Capital Budget									Actual Expenditure and Forecast										
	2010	2011	2012	2013	Carryover 2013	Original 2014	Revised 2014	2015 and Beyond	Total	2010	2011	2012	2013	2014	Carryovers to 2015	2015 and Beyond	Total	Project Variance	Annual Variance	Notes
2014 Projects																				
Replace Recloser Control Panels - Various Sites	-	-	-	-	-	111.3	111.3	84.4	195.7	-	-	-	-	85.0	26.3	84.4	195.7	-	(26.3)	
Provide Service Extensions - All Service Areas	-	-	-	-	-	6,290.0	6,290.0	-	6,290.0	-	-	-	-	5,233.8	-	-	5,233.8	(1,056.2)	(1,056.2)	27
Provide Service Extensions - All Service Areas - CIAC	-	-	-	-	-	(120.0)	(120.0)	-	(120.0)	-	-	-	-	(419.5)	-	-	(419.5)	(299.5)	(299.5)	28
Upgrade Distribution Systems - All Service Areas	-	-	-	-	-	3,422.0	3,422.0	-	3,422.0	-	-	-	-	3,661.0	-	-	3,661.0	239.0	239.0	
Upgrade Distribution Systems - All Service Areas - CIAC	-	-	-	-	-	(52.0)	(52.0)	-	(52.0)	-	-	-	-	(86.8)	-	-	(86.8)	(34.8)	(34.8)	
Upgrade Distribution Systems - Various Sites (2014/2015)	-	-	-	-	-	2,499.8	2,499.8	4,850.1	7,349.9	-	-	-	-	2,142.5	177.1	4,850.1	7,169.7	(180.2)	(357.3)	29
2013 Projects																				
Upgrade Distribution Systems - Various Sites	-	-	-	1,940.1	(61.1)	3,995.5	3,934.4	-	5,935.6	-	-	-	1,714.1	3,633.4	-	-	5,347.5	(588.1)	(301.0)	
2010 Projects																				
Voltage Conversion - Labrador City[5]	1,088.9	3,501.2	3,840.7	969.5		608.9	608.9	1238.2	11,247.4	1,524.6	2,825.0	4,120.6	1,129.8	1,243.4	(634.5)	1,238.2	11,447.1	199.7	634.5	30
Total Distribution Projects	1,088.9	3,501.2	3,840.7	2,909.6	(61.1)	16,755.5	16,694.4	6,172.7	34,268.6	1,524.6	2,825.0	4,120.6	2,843.9	15,492.8	(431.1)	6,172.7	32,548.5	(1,720.1)	(1,201.6)	

[5] As per P.U 45(2014) the Board did not approve the $0.2M Voltage Conversion - Labrador City actual costs over budget from 2010 to 2013. Upon completion of the capital job Hydro will exclude the $0.2M from average rate base.

2014 Capital Expenditures By Category ($000)

Rural Generation Projects	Capital Budget								Actual Expenditure and Forecast									
	2011	2012	2013	Carryover 2013	Original 2014	Revised 2014	2015 and Beyond	Total	2011	2012	2013	2014	Carryovers to 2015	2015 and Beyond	Total	Project Variance	Annual Variance	Notes
2014 Projects																		
Overhaul Diesel Units - Various Sites	-	-	-	-	823.5	823.5	-	823.5	-	-	-	1,242.3	-	-	1,242.3	418.8	418.8	31
Install Fire Protection System - Nain	-	-	-	-	107.1	107.1	892.2	999.3	-	-	-	40.7	66.4	892.2	999.3	-	(66.4)	
Construct Storage Facility - Postville	-	-	-	-	183.8	183.8	-	183.8	-	-	-	66.7	177.8	-	244.5	60.7	(117.1)	32
Inspect Fuel Storage Tanks - Various Sites	-	-	-	-	495.0	495.0	-	495.0	-	-	-	569.3	-	-	569.3	74.3	74.3	
Upgrade Diesel Plant Production Data Collection Equipment-Various	-	-	-	-	268.9	268.9	550.5	819.4	-	-	-	107.8	161.1	550.5	819.4	-	(161.1)	33
Upgrade Ventilation System - Ramea	-	-	-	-	263.0	263.0	-	263.0	-	-	-	180.6	-	-	180.6	(82.4)	(82.4)	
Replace Fuel Storage Tank - Ramea	-	-	-	-	234.2	234.2	-	234.2	-	-	-	184.3	-	-	184.3	(49.9)	(49.9)	
Additions To Accommodate Load Growth - Hopedale	-	-	-	-	641.2	641.2	-	641.2	-	-	-	593.3	-	-	593.3	(47.9)	(47.9)	
2013 Projects																		
Additions for Load Isolator Generation Stations - Various Sites	-	-	2,040.2	816.0	9,357.9	10,173.9	-	11,398.1	-	27.8	1196.4	6,853.5	4,310.1	-	12,387.8	989.7	(3,320.4)	34
2012 Projects																		
Perform FEED for Diesel Plant Remediation - Various Sites	-	110.4	-	-	-	0.0	-	110.4	-	43.6	69.2	-	-	-	112.8	2.4	-	
2011 Projects																		
Perform Arc Flash Remediation - Various Sites	429.5	380.3	391.0	855.8	401.8	1,257.6	413.1	2,015.7	103.5	91.7	149.8	511.3	746.3	413.1	2,015.7	-	(746.3)	35
Replace Mini Hydro Turbine - Roddickton	86.8	235.4	-	232.2	-	232.2	-	322.2	10.7	221.0	29.3	205.1	-	-	466.1	143.9	(27.1)	36
Total Rural Generation Projects	516.3	726.1	2,431.2	1,904.0	12,776.4	14,680.4	1,855.8	18,305.8	114.2	384.1	1,444.7	10,554.9	5,461.7	1,855.8	19,815.4	1,509.6	(4,125.5)	

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2014 Capital Expenditures By Category ($000)

Properties Projects	Capital Budget						Actual Expenditure and Forecast							
	2013	Carryover 2013	Original 2014	Revised 2014	2015 and Beyond	Total	2013	2014	Carryovers to 2015	2015 and Beyond	Total	Project Variance	Annual Variance	Notes
2014 Projects														
Install Fall Protection Equipment - Various Sites	-	-	199.2	199.2	-	199.2	-	139.1	-	-	139.1	(60.1)	(60.1)	
Install Additional Washrooms - Various Sites	-	-	251.0	251.0	-	251.0	-	-	-	-	-	(251.0)	(251.0)	37
Legal Survey of Primary Distribution Line Right of Ways - Various Sites 2014	-	-	156.8	156.8	40.3	197.1	-	247.3	(90.6)	40.3	197.0	(0.1)	90.5	
2013 Projects														
Legal Survey of Primary Distribution Line Right of Ways - Various Sites 2013	156.2	156.2	40.0	196.2	-	196.2	-	193.6	-	-	193.6	(2.6)	(2.6)	
Total Properties Projects	156.2	156.2	647.0	803.2	40.3	843.5	-	580.0	(90.6)	40.3	529.7	(313.8)	(223.2)	

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2014 Capital Expenditures By Category ($000)

Metering Projects	Capital Budget						Actual Expenditure and Forecast								
	2013	Carryover 2013	Original 2014	Revised 2014	2015 and Beyond	Total	2013	2014	Carryovers to 2015	2015 and Beyond	Total	Project Variance	Annual Variance	Notes
2014 Projects														
Purchase Meters, Equipment and Metering Tanks - Various Sites	-	-	199.0	199.0	-	199.0	-	137.6	61.4	-	199.0	-	(61.4)	
Install Automatic Meter Reading - Various Sites (2014-2015)	-	-	356.9	356.9	340.2	697.1	-	333.2	23.7	340.2	697.1	-	(23.7)	
2013 Projects														
Purchase 10 Position Meter Calibration Test Console - Hydro Place	192.5	192.5	-	192.5	-	192.5	-	190.3	-	-	190.3	(2.2)	(2.2)	
Install Automatic Meter Reading - Glenburnie and Rocky Harbour	397.9	13.8	258.8	272.6	-	656.7	537.8	205.9	-	-	743.7	87.0	(66.7)	
Total Metering Projects	590.4	206.3	814.7	1,021.0	340.2	1,745.3	537.8	867.0	85.1	340.2	1,830.1	84.8	(154.0)	

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2014 Capital Expenditures By Category ($000)

Tools and Equipment	Capital Budget						Actual Expenditure and Forecast							
	2013	Carryover 2013	Original 2014	Revised 2014	2015 and Beyond	Total	2013	2014	Carryovers to 2015	2015 and Beyond	Total	Project Variance	Annual Variance	Notes
2014 Projects														
Purchase Portable Vibration Testing Equipment - Various Sites	-	-	60.6	60.6	-	60.6	-	64.4	-	-	64.4	3.8	3.8	
Replace Light Duty Mobile Equipment - Various Sites	-	-	579.1	579.1	-	579.1	-	465.3	-	-	465.3	(113.8)	(113.8)	38
Replace Excavator - St. Anthony	-	-	110.0	110.0	-	110.0	-	95.0	-	-	95.0	(15.0)	(15.0)	
Purch Track Mounted Backyard Radial Boom Derrick - Bishop Falls	-	-	158.7	158.7	-	158.7	-	163.9	-	-	163.9	5.2	5.2	
Tools and Equipment Less than $50,000	-	-	553.3	553.3	-	553.3	-	416.7	31.3	-	448.0	(105.3)	(136.6)	39
2013 Projects														
Replace Off Road Track Vehicles														
- Whitbourne, Port Saunders and Happy Valley	416.8	92.1	1,054.1	1,146.2	-	1,470.9	324.7	1,035.1	-	-	1,359.8	(111.1)	(111.1)	
Tools and Equipment Less than $50,000	51.8	51.4	-	51.4	-	51.8	0.4	46.7	-	-	47.1	(4.7)	(4.7)	
Total Tools and Equipment	468.6	143.5	2,515.8	2,659.3	-	2,984.4	325.1	2,287.1	31.3	-	2,643.5	(340.9)	(372.2)	

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2014 Capital Expenditures By Category ($000)

Information Systems Projects	Capital Budget						Actual Expenditure and Forecast								
	2013	Carryover 2013	Original 2014	Revised 2014	2015 and Beyond	Total	2013	2014	Carryovers to 2015	2015 and Beyond	Total	Project Variance	Annual Variance	Notes
2014 Projects														
Perform Minor Application Enhancements - Hydro Place	-	-	138.6	138.6	-	138.6	-	142.0	-	-	142.0	3.4	3.4	
Cost Recoveries	-	-	(51.3)	(51.3)	-	(51.3)	-	(52.5)	-	-	(52.5)	(1.2)	(1.2)	
Upgrade Energy Management System - Hydro Place	-	-	187.9	187.9	-	187.9	-	184.3	-	-	184.3	(3.6)	(3.6)	
Replace Personal Computers - Various Sites	-	-	489.8	489.8	-	489.8	-	529.1	-	-	529.1	39.3	39.3	
Replace Peripheral Infrastructure - Various Sites	-	-	200.7	200.7	-	200.7	-	220.4	-	-	220.4	19.7	19.7	
Upgrade Enterprise Storage Capacity - Hydro Place	-	-	517.8	517.8	-	517.8	-	528.9	-	-	528.9	11.1	11.1	
Cost Recoveries	-	-	(191.6)	(191.6)	-	(191.6)	-	(195.7)	-	-	(195.7)	(4.1)	(4.1)	
Upgrade Server Technology Program - Hydro Place	-	-	328.0	328.0	-	328.0	-	348.3	-	-	348.3	20.3	20.3	
Cost Recoveries	-	-	(42.0)	(42.0)	-	(42.0)	-	(44.2)	-	-	(44.2)	(2.2)	(2.2)	
2013 Projects														
Upgrade Microsoft Project - Hydro Place	656.7	37.1	455.1	492.2	465.2	1,577.0	619.6	477.8	14.4	465.2	1,577.0	-	(14.4)	
Cost Recoveries	(236.4)	(13.3)	(163.8)	(177.1)	(167.5)	(567.7)	(223.1)	(172.0)	(5.1)	(167.5)	(567.7)	-	5.1	
Upgrade Business Intelligence Software - Hydro Place	576.9	331.0	-	331.0	-	576.9	245.9	353.4	-	-	599.3	22.4	22.4	
Cost Recoveries	(207.7)	(119.2)	-	(119.2)	-	(207.7)	(88.5)	(127.2)	-	-	(215.7)	(8.0)	(8.0)	
Upgrade Computer Room Air Conditioner - Hydro Place	130.0	31.7	-	31.7	-	130.0	98.3	32.9	-	-	131.2	1.2	1.2	
Cost Recoveries	(46.8)	(11.4)	-	(11.4)	-	(46.8)	(35.4)	(11.9)	-	-	(47.3)	(0.5)	(0.5)	
Total Information Systems Projects	872.7	255.9	1,869.2	2,125.1	297.7	3,039.6	616.8	2,213.6	9.3	297.7	3,137.4	97.8	88.5	

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2014 Capital Expenditures By Category ($000)

Telecontrol Projects	Capital Budget						Actual Expenditure and Forecast								
	2013	Carryover 2013	Original 2014	Revised 2014	2015 and Beyond	Total	2012	2013	2014	Carryovers to 2015	2015 and Beyond	Total	Project Variance	Annual Variance	Notes
2014 Projects															
Replace Radomes - Various Sites	-	-	324.9	324.9	-	324.9	-	-	222.5	-	-	222.5	(102.4)	(102.4)	40
Purchase Tools and Equipment less than $50,000	-	-	46.4	46.4	-	46.4	-	-	45.9	-	-	45.9	(0.5)	(0.5)	
Replace Battery Banks and Chargers - Various Sites	-	-	267.0	267.0	398.0	665.0	-	-	293.5	(26.5)	398.0	665.0	-	26.5	
Replace Network Communications Equipment - Various Sites	-	-	91.0	91.0	-	91.0	-	-	100.1	-	-	100.1	9.1	9.1	
Upgrade IP SCADA Network - Various Sites	-	-	254.2	254.2	238.7	492.9	-	-	144.8	109.4	238.7	492.9	-	(109.4)	41
Upgrade Site Facilities - Various Sites	-	-	49.8	49.8	-	49.8	-	-	42.2	-	-	42.2	(7.6)	(7.6)	
Replace Telephone Systems - Various Sites	-	-	139.9	139.9	-	139.9	-	-	134.7	-	-	134.7	(5.2)	(5.2)	
Replace Wescom Scanner - Corner Brook	-	-	81.7	81.7	-	81.7	-	-	66.9	-	-	66.9	(14.8)	(14.8)	
2013 Projects															
Replace MDR 4000 Microwave Radio (West) - Various Sites	539.0	441.0	706.9	1,147.9	-	1,245.9	2.9	95.1	577.5	-	-	675.5	(570.4)	(570.4)	42
Total Telecontrol Projects	539.0	441.0	1,961.8	2,402.8	636.7	3,137.5	2.9	95.1	1,628.1	82.9	636.7	2,445.7	(691.8)	(774.7)	

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2014 Capital Expenditures By Category ($000)

Transportation	Capital Budget						Actual Expenditure and Forecast								
	2013	Carryover 2013	Original 2014	Revised 2014	2015 and Beyond	Total	2013	2014	Carryovers to 2015	2015 and Beyond	Total	Project Variance	Annual Variance	Notes
2014 Projects														
Replace Vehicles and Aerial Devices (2014-2015) - Various Sites	-	-	1809.1	1,809.1	1,091.0	2,900.1	-	900.5	908.6	1,091.0	2,900.1	-	(908.6)	43
2013 Projects														
Replace Vehicles and Aerial Devices (2013-2014) - Various Sites	1302.3	609.4	679.2	1,288.6	-	1,981.5	692.9	1,356.0	-	-	2,048.9	67.4	67.4	
Total Transportation	1,302.3	609.4	2,488.3	3,097.7	1,091.0	4,881.6	692.9	2,256.5	908.6	1,091.0	4,949.0	67.4	(841.2)	

Administrative	Capital Budget						Actual Expenditure and Forecast							
	2013	Carryover 2013	Original 2014	Revised 2014	2015 and Beyond	Total	2013	2014	Carryovers to 2015	2015 and Beyond	Total	Variance	Annual Variance	Notes
2014 Projects														
Remove Safety Hazards - Various Sites	-	-	257.8	257.8	-	257.8	-	207.6	50.2	-	257.8	-	(50.2)	
Purchase Tools and Equipment Less than $50,000	-	-	65.9	65.9	-	65.9	-	24.2	-	-	24.2	(41.7)	(41.7)	
Total Administrative	-	-	323.7	323.7	-	323.7	-	231.8	50.2	-	282.0	(41.7)	(91.9)	

2014 Capital Expenditures By Category ($000)

Allowance For Unforeseen

	Capital Budget							Actual Expenditure and Forecast								
	2012	2013	Carryover 2013	Original 2014	Revised 2014	2015 and Beyond	Total	2012	2013	2014	Carryover to 2015	2015 and Beyond	Total	Project Variance	Annual Variance	Notes
2014 Projects																
Total Allowance For Unforeseen				1,000.0	1,000.0		1,000.0	-	-	-	-	-	-	(1,000.0)	(1,000.0)	
Additional Allowance for Unforeseen - Board Order No. 23 (2014)				580.0	580.0		580.0	-	-	-	-	-	-	(580.0)	(580.0)	
Replace Excitation Transformer, Unit #6 - Bay d'Espoir								-	-	71.1	-	-	71.1	71.1	71.1	
230kV Breaker (B1L17) Overhaul - Holyrood								-	-	361.3	-	-	361.3	361.3	361.3	
230kV Breaker (B1L03) Overhaul - Sunnyside								-	-	160.9	-	-	160.9	160.9	160.9	
2013 Projects																
Forced Draft Fan Upgrade - Holyrood							-	-	6.3	76.4	-	-	82.7	82.7	76.4	
Total Allowance For Unforeseen	-	-	-	1,580.0	1,580.0	-	1,580.0	-	6.3	669.7	-	-	676.0	(904.0)	(910.3)	44

Supplemental Projects

	Capital Budget							Actual Expenditure and Forecast								
	2012	2013	Carryover 2013	Original 2014	Revised 2014	2015 and Beyond	Total	2012	2013	2014	Carryover to 2015	2015 and Beyond	Total	Project Variance	Annual Variance	Notes
2014 Projects																
Blackstart Capability Upgrade - Holyrood	-	-	-	1,263.4	1,263.4	-	1,263.4	-	84.5	762.0	-	-	846.5	(416.9)	(501.4)	45
100 MW (Nominal) Combustion Turbine Addition - Holyrood	-	-	-	109,677.0	109,677.0	9,249.0	118,926.0	-	-	95,435.5	14,241.5	9,249.0	118,926.0	-	(14,241.5)	46
Labrador West Transmission Project - Construction Phase[6]	-	-	-	37,484.2	37,484.2		37,484.2	-	-	10,996.0			10,996.0	(26,488.2)	(26,488.2)	47
Transformer T1 Replacement - Sunnyside (Netted against Insurance Proceeds)[7]	-	-	-	7,197.8	7,197.8	1,226.4	8,424.2	-	-	3,236.7	2,135.1	1,226.4	6,598.2	(1,826.0)	(3,961.1)	48
Western Avalon Transformer T5 Upgrade	-	-	-	1,452.5	1,452.5	-	1,452.5	-	-	1,013.9	-	-	1,013.9	(438.6)	(438.6)	49
Transmission Lines TL201/TL203 Insulator Replacement	-	-	-	3,632.2	3,632.2	-	3,632.2	-	-	3,048.4	-	-	3,048.4	(583.8)	(583.8)	50
Excitation Transformers Replacement - Bay d'Espoir	-	-	-	636.7	636.7	360.0	996.7	-	-	381.0	255.7	360.0	996.7	-	(255.7)	51
Transformer Capacity Addition - Wabush Substation	-	-	-	958.8	958.8	-	958.8	-	-	867.6	-	-	867.6	(91.2)	(91.2)	
Replace Unit #1 Air Compressor - Holyrood	-	-	-	259.5	259.5	61.1	320.6	-	-	113.9	145.6	61.1	320.6	-	(145.6)	52
Purchase of Critical Spares	-	-	-	491.8	491.8	-	491.8	-	-	-	491.8	-	491.8	-	(491.8)	53
230 kV Transmission Line - Bay d'Espoir to Western Avalon	-	-	-	2,412.6	2,412.6	289,245.4	291,658.0	-	-	-	2,412.6	289,245.4	291,658.0	-	(2,412.6)	54
2013 Projects																
Purchase Equipotential Bonding and Grounding Equipment	-	158.3	158.3	-	158.3	-	158.3	-	-	95.4	-	-	95.4	(62.9)	(62.9)	
Increase 230 kV Transformer Capacity - Oxen Pond	0.0	3,823.6	3,670.0	15,310.4	18,980.4	0.0	19,134.0	-	153.6	14,611.3	4,369.1	-	19,134.0	-	(4,369.1)	55
2012 Projects																
Increase Generation - Mary's Harbour	321.4	1,295.0	496.0	-	496.0	-	1,616.4	51.0	1,069.4	121.0	-	-	1,241.4	(375.0)	(375.0)	56
Total Supplemental Projects Approved by PUB	321.4	5,276.9	4,324.3	180,776.9	185,101.2	300,141.9	486,517.1	51.0	1,307.5	130,682.7	24,051.4	300,141.9	456,234.5	(30,282.6)	(54,418.5)	

Projects Less than $50,000

	Capital Budget							Actual Expenditure and Forecast								
	2012	2013	Carryover 2013	Original 2014	Revised 2014	2015 and Beyond	Total	2012	2013	2014	Carryover to 2015	2015 and Beyond	Total	Variance	Annual Variance	Notes
2014 Projects																
Purchase Three-Phase Circuit Analyzer	-	-	-	42.0	42.0	-	42.0	-	-	43.2	-	-	43.2	1.2	1.2	
Replace HVY GT Air Start Compressor	-	-	-	41.5	41.5	-	41.5	-	-	30.8	-	-	30.8	(10.7)	(10.7)	
Replace Generator Unit 2073 - Port Hope Simpson	-	-	-	43.3	43.3	-	43.3	-	-	24.7	-	-	24.7	(18.6)	(18.6)	
Replace Call Pilot (Hydro Place)	-	-	-	28.5	28.5	-	28.5	-	-	31.2	-	-	31.2	2.7	2.7	
House 14 Rehabilitation - Bay d'Espoir	-	-	-	49.5	49.5	-	49.5	-	-	48.8	-	-	48.8	(0.7)	(0.7)	
High voltage Breaker Timing Sets - Bishop's Falls Terminals	-	-	-	33.0	33.0	-	33.0	-	-	33.6	-	-	33.6	0.6	0.6	
High voltage Breaker Timing Sets - Bishop's Falls Salvage Stores	-	-	-	33.0	33.0	-	33.0	-	-	33.6	-	-	33.6	0.6	0.6	
Purchase Pressure Relief Valves - Various TS	-	-	-	48.3	48.3	-	48.3	-	-	29.1	-	-	29.1	(19.2)	(19.2)	
Purchase Insulating Blanket - Stephenville Gas Turbine	-	-	-	35.0	35.0	-	35.0	-	-	35.3	-	-	35.3	0.3	0.3	
Purchase Insulating Blanket - Hardwoods Gas Turbine	-	-	-	35.0	35.0	-	35.0	-	-	32.8	-	-	32.8	(2.2)	(2.2)	
Replace Air Conditioner - Come by Chance Terminal Station	-	-	-	25.0	25.0	-	25.0	-	-	28.1	-	-	28.1	3.1	3.1	
ECC Air Conditioner Unit #9 Emergency Replacement	-	-	-	25.4	25.4	-	25.4	-	-	24.6	-	-	24.6	(0.8)	(0.8)	
BDE-Level 2 Condition Assessment	-	-	-	45.6	45.6	-	45.6	-	-	40.8	-	-	40.8	(4.8)	(4.8)	
Total Projects Less than $50,000	-	-	-	485.1	485.1	-	485.1	-	-	436.6	-	-	436.6	(48.5)	(48.5)	

[6] The construction of the Labrador West Transmission was approved by OC2014-033, February 2, 2014. The capital expenditures associated with this project are $10,996,000 as at December 31, 2014 and are included in Work In Progress and as a result are currently excluded from average rate base. The costs to be included in rate base will be subject to review by the Board of Commissioners of Public Utilities.

[7] Includes Insurance Proceeds relating to Sunnyside - Transformer T1 Replacement ($1.8M).

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($000)

The projects discussed in the following section have variances of more than 10% and $100,000 when comparing budget to the 2014 expenditure, whether it is a single year project or a multiyear project. Also discussed are projects where there is a total project variance that is greater than 10% and $100,000. The projects are ordered and numbered for explanation below based on the order and number they appear in the preceding set of tables.

The majority of projects noted were executed against a Class 3 estimate that was completed for the Capital Budget Application. A Class 3 estimate is considered to have an accuracy range of -20% to +30% based on the total project budget. There is also generally a 20% contingency applied to the projects.

Hydraulic Generation Projects

1. Automated Fuel Monitoring System at West Salmon Spillway – Bay d'Espoir (2014)

Budget: $193.2 Total: $0 Variance: ($193.2)

This project has been cancelled. The project justification was based on a positive cost benefit analysis. The contractor bids received were higher than those included in the project estimate that was used in the cost benefit analysis. Therefore, the project is no longer economically justified.

2. Rewind Stator Unit 3 – Bay d'Espoir (2014)

Budget: $4,343.9 Total: $2,833.4 Variance: ($1,510.5)

This one year project is complete. This project was to install windings purchased in the 2013-2014 Replace Stator Windings project. The project costs for internal labour and material were lower than estimated. The lower costs resulted in lower than estimated project interest cost. Variance is also attributable to contingency funds not required to be utilized.

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($000)

3. Upgrade North Cut-Off Dam Access Road – Bay d'Espoir (2014)

Budget: $631.7 Total: $474.1 Variance: ($157.6)

This project is complete. The project costs for construction labour and material were lower than estimated. The lower costs resulted in lower than estimated project interest cost. Variance also attributable to contingency funds not required to be utilized.

4. Refurbish Surge Tank – Bay d'Espoir (2014)

Budget: $2,265.0 Total: $1,497.0 Variance: ($768.0)

This one year project is complete. The project contract costs were lower than estimated. The lower costs resulted in lower than estimated project interest cost. Variance is also attributable to contingency funds not required to be utilized.

5. Automate Generator Deluge Systems Units 3 and 6 – Bay d'Espoir (2014)

Budget: $612.0 Total: $457.9 Variance: ($154.1)

This one year project is complete. Due to unforeseen changes in generation outage schedules, Hydro was unable to perform that work on Units 3 and 6 and, Units 1 and 2 were completed instead. The project contract costs were lower than estimated. The lower costs resulted in lower than estimated project interest cost. Variance is also attributable to contingency funds not required to be utilized.

6. Upgrade Victoria Control Structure – Bay d'Espoir (2014)

Budget: $495.1 Total: $79.6 Variance: ($415.5)

This is a one year project started in 2014 and carried over to 2015. Construction is rescheduled to the spring/summer of 2015. Work was ongoing at Burnt Dam Spillway during the same planned construction period, and Hydro decided not to proceed with having both water control structure out of service for upgrades at the same time. The total project forecast at completion has not changed.

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($000)

7. Upgrade Public Safety Around Dams and Waterways – Bay d'Espoir (2014)

Budget: $352.8 Total: $246.7 Variance: ($106.1)

This one year project is complete. The project material costs were lower than estimated. Variance is also attributable to contingency funds not required to be utilized.

8. Replace Automatic Transfer Switches – Hinds Lake (2013)

Budget: $314.7 Total: $417.2 Variance: $102.5

This is a one-year project that was initiated in 2013, carried over and completed in 2014. The higher than estimated costs were a result of additional travel and labor costs due to rescheduled unit outages.

9. Install Automatic Fuel Monitoring System – Upper Salmon (2013)

Budget: $192.7 Total: $0 Variance: ($192.7)

This project has been cancelled. The project justification was based on a positive cost benefit analysis. The contractor bids received were higher than those included in the project estimate that was used in the cost benefit analysis. Therefore, the project is no longer economically justified.

10. Replace Stator Windings Units 1, 3 and 4 – Bay d'Espoir (2013)

Budget: $5,663.5 Total: $4,407.0 Variance: ($1,256.5)

This is a one-year project that was carried over and completed in 2014. This project was to install the stator windings purchased in the 2012-2013 Replace Stator Windings Project and to procure stator windings for another unit. The project costs for engineering, materials and internal labor were lower than estimated. The lower costs resulted in lower than estimated project interest cost. Variance is also attributable to contingency funds not required to be utilized.

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($000)

11. Automate Generator Deluge Systems – Bay d'Espoir (2013)

Budget: $532.0 Total: $383.2 Variance: ($148.8)

This is a one-year project that was initiated in 2013, carried over and completed in 2014. The project scope was to automate the generator deluge fire protection systems on two units. Hydro completed the work on Units 4 and 7 in this project. The project costs for engineering, construction labor and material were lower than estimated. The lower costs resulted in lower than estimated project interest cost. Variance is also attributable to contingency funds not required to be utilized.

12. Upgrade Generator Bearings – Bay d'Espoir (2013)

Budget: $480.9 Total: $236.9 Variance: ($244.0)

This is a one-year project that was initiated in 2013, carried over and completed in 2014. The project engineering and contract costs were lower than estimated due to the implementation of a more cost effective solution determined during detailed engineering. An additional cost saving was realized as a result of re-babbitting of the bearings not being required.

13. Upgrade Intake Gate Controls – Bay d'Espoir (2011-2012)

Budget: $820.3 Total: $1,115.3 Variance: $295.0

This is a two-year project initiated in 2011, carried over and completed in 2014. The total project variance is primarily due to increased labour. The timing and the complexity of the work resulted in increased labor costs. The work planned for 2011 was completed; the work which was planned for 2012 could not be completed in 2013 due to operational issues with the intake gate, which had to be corrected before the planned upgrade work proceeded. This work was completed in 2014.

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($000)

Thermal Generation Projects

14. Install Fire Protection Upgrades – Holyrood (2014-2015)

Budget: $56.6 **Total: $312.0** **Variance: $255.4**

This is a two-year project initiated in 2014. The schedule was compressed and the project was substantially completed in 2014 and therefore minor work is required in 2015. The total project forecast at completion has not changed.

15. Replace DC Distribution Panels and Breakers – Holyrood (2014)

Budget: $174.2 **Total: $25.6** **Variance: ($148.6)**

This is a one-year project initiated in 2014 and carried over into 2015. Construction was delayed due to the inability to establish safe work protection during concurrent planned annual maintenance. The new equipment has been procured and will be installed during the planned outage in 2015. The total project forecast at completion has not changed.

16. Upgrade Waste Water Basin Building – Holyrood (2014)

Budget: $136.7 **Total: $36.3** **Variance: ($100.4)**

This is a one-year project completed in 2014. This project was to engage an external consultant to complete the necessary work to provide a Phase 1 engineering assessment for the refurbishment of the Waste Water Basin Building. The condition assessment and preliminary engineering were completed. Based on the initial assessment, further review of the building's future utilization is required considering Holyrood's long term plan, before more in depth engineering can continue.

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($000)

17. Install Variable Frequency Drives on Forced Draft Fans – Holyrood (2013-2014)

Budget: $3,137.5 Total: $2,746.8 Variance: ($390.7)

This is a two-year project initiated in 2013 and carried over into 2015. Technical issues during commissioning of the equipment in 2014 for Unit 3 resulted in engineering rework and a completion of Unit 2 and 3 later than originally planned. The variance from 2014 planned expenditure is due to moving the completion of Unit 1 work to 2015. The total project forecast at completion has not changed.

18. Upgrade Hydrogen System – Holyrood (2011-2012)

Budget: $1,992.3 Total: $3,619.1 Variance: $1,626.8

This is a two-year project initiated in 2011, carried over and completed in 2014. The project variance is due to an increase in costs for engineering, materials and construction. The project was initially planned to be completed in 2013, however, a forced outage of Holyrood Unit 1 in January 2013 resulted in a reduced outage window for work associated with this project, and a portion of the work was deferred to 2014. The work is now complete and the system is in service.

Gas Turbine Generation Projects

19. Upgrade Gas Turbine PLC – Happy Valley (2013-2014)

Budget: $1,165.1 Total: $430.9 Variance: ($734.2)

This is a two-year project initiated in 2013 and carried over into 2015. The variance from planned 2014 expenditure is related to a delay in material delivery. While construction in late 2014 could have then proceeded, the equipment installation was rescheduled to spring 2015 to mitigate risk to unit reliability associated with the installation of a new control systems heading into winter. Factory acceptance and delivery of the new equipment to site was completed in 2014. The forecast completion cost remains within the total project budget.

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Terminal Stations Projects

20. Upgrade Circuit Breakers – Various Sites (2014-2015)

Budget: $3,695.4 Total: $1,571.7 Variance: ($2,123.7)

This is a two-year project initiated in 2014. The variance from planned 2014 expenditure is attributed to a shift in the scheduled receipt of materials from 2014 to 2015. The delivery time for breakers at the budget estimate stage was four to six months. The delivery time for breakers in the current market conditions is nine months for gang-operated type breakers and 12 months for independent pole type breakers. The total project forecast at completion has not changed.

21. Replace Surge Arrestors – Various Sites (2014)

Budget: $181.9 Total: $61.9 Variance: ($120.0)

This is a one-year project that was completed in 2014. The scope of the project was to purchase and install surge arrestors at seven locations. Three of the planned installations were not completed due to delays in receipt of materials and outage constraints. Variance is also attributable to contingency funds not required to be utilized.

This project is part of an overall replacement program for surge arrestors which will be adjusted in future years to incorporate the installations which could not be completed in 2014.

22. Replace Disconnect Switches – Various Sites (2014-2015)

Budget: $815.9 Total: $148.4 Variance: ($667.5)

This is a two-year project initiated in 2014. The variance from 2014 planned expenditure is attributed to a shift in the scheduled receipt of materials from 2014 to 2015. The delivery time for disconnect switches at the budget estimate stage was four to six months, with expected delivery in the fall of 2014. The actual delivery time for disconnect switches in the current market conditions is seven to eight months. There were no compliant bids in the initial public tender for the supply of these disconnect

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switches, resulting in a further delay. A second public tender was a success and materials were ordered in August 2014. The total project forecast at completion has not changed.

23. Replace Instrument Transformers – Various Sites (2013-2017)

Budget: $905.7 Total: $699.0 Variance: ($206.7)

This is a five-year project initiated in 2013. The work completed in 2014 included the 2013 scope. Insulator replacements were completed in 2014 at Western Avalon, Parsons Pond, Holyrood, Buchans, Hardwoods, Deer Lake, Oxen Pond, Sunnyside, and Stony Brook terminal stations. All work planned in the multi-year project is expected to be completed over the next three years. The total project forecast at completion has not changed.

24. Replace Compressed Air System – Various Sites (2013-2014)

Budget: $2,408.9 Total: $1,043.9 Variance: ($1,365.0)

This is a two-year project that was initiated in 2013 and completed in 2014. The scope of the project included, but was not limited to, installation of back-up air dryers on air blast circuit breakers. These back-up air dryers were removed from the project scope following a change in the long term asset plan for air blast circuit breakers which are supplied by these compressed air systems. The long term asset plan is to replace the air blast breakers with SF-6 breakers; therefore, the back-up air dryers are no longer necessary. Variance is due to removal of back up air dryers and also is attributable to contingency funds not required to be utilized.

25. Replace Compressed Air Piping and Install Dew Point Monitor – Buchans (2012-2013)

Budget: $306.7 Total: $735.4 Variance: $428.7

This is a two-year project initiated in 2012, carried over and completed in 2014. The variance in the total project cost is related to several factors. The contract costs were higher than estimated. Additional construction labor and engineering were required to complete the project.

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Transmission Projects

26. Refurbish Anchors and Footings TL202 and TL206 – Bay d'Espoir to Sunnyside (2014-2015)

Budget: $1,191.7 Total: $211.5 Variance: ($980.2)

This is a two-year project initiated in 2014. Engineering was completed and materials have been received. The variance in 2014 planned expenditures is due to rescheduling the construction to 2015. Due to outage restrictions, the construction work scheduled for September 2014 was deferred until 2015. The total project forecast at completion has not changed.

Distribution Projects

27. Provide Service Extensions – All Service Areas (2014)

Budget: $6,290.0 Total: $5,233.8 Variance: ($1,056.2)

This is an annual budget created based on previous three years expenditures to provide service extensions to customers. The budget and actual expenditures in 2014 are shown by area in the table below. The variance is primarily due to fewer service extension requests in Labrador West in 2015 than in the previous three years.

	Budget ($000)	Actual ($000)	Variance ($000)
Central	1,555.0	1,652.4	97.4
Northern	1,485.0	1,710.3	225.3
Labrador	3,250.0	1,871.2	(1,378.8)
Total	**6,290.0**	**5,233.8**	**(1,056.2)**

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28. Provide Service Extensions – All Service Areas – CIAC (2014)

Budget: $120.0 Total: $419.5 Variance: $299.5

This is an annual budget created based on past CIACs to provide service extensions to customers. The budget and actual expenditures in 2014 are shown by area in the table below. The variance is primarily due to the Daniel's Harbour Fish Hatchery Line Extension in TRO Northern that was not planned for in the budget.

	Budget ($000)	Actual ($000)	Variance ($000)
Central	65.0	52.1	(12.9)
Northern	25.0	344.4	319.4
Labrador	30.0	23.0	(7.0)
Total	**120.0**	**419.5**	**299.5**

29. Upgrade Distribution Systems – Various Sites (2014-2015)

Budget: $2,499.8 Total: $2,142.5 Variance: ($357.3)

This is a two-year project that was initiated in 2014. The variance in 2014 planned expenditure is related to material delivery. Material originally budgeted for receipt in 2014 was delayed until 2015 to match material delivery timing to the year in which the material was scheduled for installation. The total project forecast at completion has not changed.

30. Voltage Conversion – Labrador City (2010-2015)

Budget: $608.9 Total: $1,243.4 Variance: $634.5

This multi-year project commenced in 2010, with additional budget approved in P.U. 45(2014) and a completion date of 2015. Variance in 2014 planned expenditure is partially due to advancement of material procurement into 2014. The total project forecast at completion has not changed.

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Rural Generation Projects

31. Overhaul Diesel Units – Various Sites (2014)

Budget: $823.5 **Total: $1,242.3** **Variance: $418.8**

This is a one-year project to overhaul diesel units. The variance in project cost is primarily due to required unplanned overhauls of diesel units in Port Hope Simpson and L'anse-au-Loup.

32. Construct Storage Facility – Postville (2014)

Budget: $183.8 **Total: $66.7** **Variance: ($117.1)**

This is a one-year project initiated in 2014 and carried over into 2015. The 2014 variance from planned expenditure is due to a carry-over of a portion of the construction work. The siding material was damaged beyond repair during delivery to site. New siding was ordered; however it was unable to be supplied prior to the last ferry service to Postville in 2014. The remaining work is planned for the spring of 2015.

33. Upgrade Diesel Plant Production Data Collection Equipment – Various (2014-2016)

Budget: $268.9 **Total: $107.8** **Variance: ($161.1)**

This is a three-year project initiated in 2014. All year 1 scope was completed as planned. The variance in 2014 planned expenditure is due to materials and labour being less than estimated. The total project forecast at completion has not changed.

34. Additions for Load – Isolated Generation Stations-Various Sites (2013-2014)

Budget: $10,173.9 **Total: $6,853.5** **Variance: ($3,320.4)**

This is a two-year project initiated in 2013, and carried over into 2015. The variance in the 2014 planned expenditure was due to rescheduling of work to allow the most critical work be completed to ensure winter readiness. The critical work was identified and completed prior to winter peak in 2014. Further, seasonal limitations on transport of equipment to site necessitated a portion of the 2014 scope be

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completed in 2015. The remaining project scope, including associated protection and control upgrades, plant ventilation upgrades, and plant automation is planned for completion in 2015.

35. Perform Arc Flash Remediation – Various Sites (2011-2015)

Budget: $1,257.6 Total: $511.3 Variance: ($746.3)

This is a five-year project initiated in 2011. The variance from 2014 planned expenditure is due to rescheduling work into 2015. A portion of the highest priority work remaining in this program was completed in 2014 and the remaining priority sites will be completed in 2015. Any residual scope will be reassessed for completion in a subsequent year. The total project forecast at completion has not changed.

36. Replace Mini Hydro Turbine – Roddickton (2011-2012)

Budget: $322.2 Total: $466.1 Variance: $143.9

This is a two-year project initiated in 2011, carried over and completed in 2014. The increase in project cost compared to budget is due to a scope change to include a generator replacement. The generator rotor shaft failed in 2010 after the project proposal was submitted for approval. A cost benefit analysis was performed to compare the feasibility of replacing the generator at additional cost under the same project, postponing work, or cancelling the current project and shutting down the plant. The results of the cost benefit analysis favored proceeding with the turbine overhaul and replacement of the generator. The project was carried over into 2014 due to the additional time required for procurement of a replacement generator.

Properties Projects

37. Install Additional Washrooms – Various Sites

Budget: $251.0 Total: $0 Variance: ($251.0)

The 2014 planned expenditure was cancelled and the multi-year program has also been cancelled. After the project was proposed and approved, the Occupational Health and Safety Branch of Service NL

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provided Hydro with a deviation from the Occupational Health and Safety Regulations. Hydro communicated plans to Occupational Health and Safety that were an acceptable alternative to the construction of additional washrooms, and these plans formed the basis for the variance.

For buildings that currently do not have any washrooms in place, Hydro will review the legislative and operational requirements and determine if such structures require washroom facilities. This review may result in a future project to install washroom facilities where no such facilities currently exist.

Tools and Equipment Projects

38. Replace Light Duty Mobile Equipment – Various Sites (2014)

Budget: $579.1 Total: $465.3 Variance: ($113.8)

This project is complete. The 2014 expenditures in this project were lower than budget due to a decision to not purchase heavy equipment trailers. A Hydro line truck was involved in a serious accident while towing a piece of heavy equipment. While there were no injuries, there was a high potential for injuries. Therefore, Hydro is reassessing the practice of towing heavy equipment.

39. Tools and Equipment Less than $50,000 (2014)

Budget: $553.3 Total: $448.0 Variance: ($105.3)

The variance in this project is related to the late arrival of furniture that was ordered in 2014.

Telecontrol Projects

40. Replace Radomes – Various Sites (2014)

Budget: $324.9 Total: $222.5 Variance: ($102.4)

This is a one-year project that was completed in 2014. The project costs for construction were lower than the 2014 planned expenditure, primarily due to a shorter than scheduled construction period. Variance is also attributable to contingency funds not required to be utilized.

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41. Upgrade IP SCADA Network – Various Sites (2014-2015)

Budget: $254.2 Total: $144.8 Variance: ($109.4)

This is a two-year project initiated in 2014. The variance from 2014 planned expenditure is related to timing of completing detailed engineering and implementation. The materials were procured in 2014 and detailed engineering and remaining tasks, will be completed in 2015. The total project forecast at completion has not changed.

42. Replace MDR 4000 Microwave Radio (West) – Various Sites (2013-2014)

Budget: $1,245.9 Total: $675.5 Variance: ($570.4)

This is two-year project that was initiated in 2013 and completed in 2014. The project costs for materials and construction labor were lower than estimated. The savings were primarily attributed to a technology improvement that allowed Hydro to eliminate some of the components and the associated engineering. The lower costs resulted in lower than estimated project interest cost. Variance is also attributable to contingency funds not required to be utilized.

Transportation Projects

43. Replace Vehicles and Aerial Devices Hydro System (2014-2015)

Budget: $1,809.1 Total: $900.5 Variance: ($908.6)

This is a two year project initiated in 2014. The scope of this project remains unchanged. The variance from 2014 planned expenditure is related to timing of material delivery. Delivery of eight chassis planned for 2014 was delayed to 2015 due to supplier not receiving components from their supplier in time to complete delivery to Hydro. The total project forecast at completion has not changed.

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44. Allowance For Unforeseen

Budget: $1,580.0 **Total: $669.7** **Variance: $904.0**

The Allowance for Unforeseen is an annual allotment that permits Hydro to act expeditiously to deal with events affecting the electrical system which cannot wait for specific approval of the Board. Unforeseen expenditures for 2014 under this account include costs associated with refurbishment of a Forced Draft Fan Motor at Holyrood, overhauls of 230 kV breakers at Holyrood and Sunnyside and the replacement of the Excitation Transformer at Unit 6 Bay d'Espoir. Reports on these items have been filed with the Board of Commissioners of Public Utilities (the Board).

The annual budget for Allowance for Unforeseen is $1,000,000. Hydro applied for and the Board approved a supplementary amount of $580,000 to be added to the balance in the Allowance For Unforeseen (P.U. 23(2014)).

Supplemental Projects

45. Blackstart Capability Upgrade – Holyrood (2013-2014)

Budget: $1,263.4 **Total: $846.5** **Variance: ($416.9)**

This is a one-year project that was initiated in 2013, carried over and completed in 2014. During project execution the site layout was adjusted, resulting in the elimination of significant civil excavation work and contract costs. The lower project costs resulted in lower than estimated interest cost. Variance is also attributable to contingency funds not required to be utilized.

46. 100 MW (Nominal) Combustion Turbine Addition – Holyrood (2014-2015)

Budget: $109,677.0 **Total: $95,435.5** **Variance: ($14,241.5)**

This is a two-year project initiated in 2014. The variance from 2014 planned expenditure is mainly attributed to the scheduled completion for the final combustion turbine milestones pushed from December 2014 into 2015. In addition, the costs for project management and construction labour were less than estimated. The total project forecast at completion has not changed.

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Hydro submits regular reports on this project to the Board.

47. Labrador West Transmission Project – Construction Phase

Budget: $37,484.2 Total: $10,996.0 Variance: ($26,488.2)

In 2014, the Provincial Government approved the construction of the third transmission line in Labrador to help supply power for planned new developments in Labrador West, such as the Kami Iron Ore Project, and improve reliability for all customers in the region.

In September 2014, work on the line was temporarily suspended until completion of Alderon's financing plan which resulted in 2014 expenditures being lower than budgeted. All project costs incurred to date are covered by the security Alderon has already provided. Construction will proceed once additional funding is secured.

48. Transformer T1 Replacement – Sunnyside (2014-2015)

Budget: $7,197.8 Total: $3,236.7 Variance: ($3,961.1)

This is a two-year project initiated in 2014. The variance in 2014 planned expenditure is primarily a result of lower than estimated material and construction contract pricing and no contingency funds being utilized in 2014. Variance is also attributable to the deferral of the initial portion of the purchase of the new 230 kV breaker B1T1 to 2015 and lower than planned project management and engineering costs. Hydro also received insurance proceeds related to events at Sunnyside terminal station of which $1,826 was applied against the project costs.

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49. Western Avalon Transformer T5 Upgrade (2014)

Budget: $1,452.5 Total: $1,013.9 Variance: ($438.6)

This is a one-year project initiated and completed in 2014. The variance from planned expenditure is primarily due to lower than estimated material and construction contract pricing and no contingency funds being utilized, as well as some savings in lower than planned project management and engineering costs.

50. Transmission Lines TL201/TL203 Insulator Replacement (2014)

Budget: $3,632.2 Total: $3,048.4 Variance: ($583.8)

This is a one-year project that was completed in 2014. The variance from 2014 planned expenditure is due to lower construction costs than estimated. Variance is also attributable to contingency funds not required to be utilized.

51. Excitation Transformers Replacement – Bay d'Espoir (2014-2015)

Budget: $636.7 Total: $381.0 Variance: ($255.7)

This is a two-year project initiated in 2014. The variance from 2014 planned expenditure is related to timing of arrival of materials. Unit 7 transformer was replaced. Remaining transformers arrived too late in the outage season to be placed in service as outages would have had to extend outside planned outage time. The transformers were maintained on site in the event of a failure. The remaining installation work will be completed in 2015. The total project forecast at completion has not changed.

52. Replace Unit #1 Air Compressor – Holyrood

Budget: $259.5 Total: $113.9 Variance: ($145.6)

This is a two-year project initiated in 2014. The variance from 2014 planned expenditure is due to the late arrival of the compressor in 2014. The install commenced before year end with final commissioning in 2015. The total project forecast at completion has not changed.

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53. Purchase of Critical Spares – Holyrood (2014)

Budget: $491.8 Total: $0 Variance: ($491.8)

This project is for the purchase of critical spare motors for the generating units at Holyrood. Approval was received from the Board in November 2014. Variance is due to motors not received in 2014. Delays in manufacturing that developed after order placement have delayed delivery of motors to Holyrood. Motors are expected to be delivered in February and March 2015 (P.U. 46(2014)).

54. 230 kV Transmission Line – Bay d'Espoir to Western Avalon (2014-2018)

Budget: $2,412.6 Total: $0 Variance: ($2,412.6)

This is a multi-year project approved in 2014 and will be completed in 2018. Approval for this project was received in P.U. 53(2014) on December 12, 2014. The variance to the 2014 planned expenditure is due to no work being completed in 2014 as compared to plan. Work previously planned to be completed in 2014 will now be completed in 2015.

55. 230 kV Transformer Capacity – Oxen Pond Terminal Station (2013-2014)

Budget: $18,980.4 Total: $14,611.3 Variance: ($4,369.1)

This is a two-year project initiated in 2013 and carried over into 2015. The project scope includes: replacement of two transformers and associated 66 kV breakers and disconnect switches at Oxen Pond Terminal Station; replacement of one transformer and associated disconnect switch at Hardwoods Terminal Station; relocation of Transmission Line TL218 and associated 230 kV equipment at Oxen Pond; and installation of a 230 kV bus tie breaker at Oxen Pond.

In order to ensure winter readiness (2014-2015), the project work was re-planned to prioritize the completion of the two new transformers at Oxen Pond in 2014. These two new transformers were successfully installed in 2014. The variance from 2014 planned expenditure is due to moving the remaining work to be completed into 2015.

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56. Increase Generation – Mary's Harbour (2012-2013)

Budget: $1,616.4 Total: $1,241.4 Variance: ($375.0)

This is a two-year project initiated in 2012 and was carried over and completed in 2014. The project costs for contracts and materials were lower than estimated. The lower costs resulted in lower than estimated project interest cost. Variance is also attributable to contingency funds not required to be utilized.

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Capital Budgets/Expenditures 2004-2014 ($000)

Year	Budget	Actual Expenditures	Variance	Percentage Variance
2004	31,435	27,984	3,451	11.0%
2005	47,760	33,952	13,808	28.9%
2006	49,024	41,217	7,807	15.9%
2007	43,304	35,669	7,635	17.6%
2008	53,579	46,246	7,333	13.7%
2009	61,544	54,152	7,392	12.0%
2010	63,297	55,553	7,744	12.2%
2011	67,454	63,116	4,338	6.4%
2012	93,840	77,252	16,588	17.7%
2013	116,373	84,755	31,618	27.2%
2014	280,601	204,728	75,873	27.0%

The 2014 variance in actual expenditures compared to budget is primarily attributable to:

- $26,488 associated with work that was planned to be completed in 2014 on the Labrador West Transmission Line[1] however was not completed due to a temporary suspension of the work in September. Work is suspended until Alderon completes the financing plan for the Kami mine.
- $35,770 associated with work that was planned for completion in 2014 but is now carried into 2015. Key drivers of the $35,770:
    - $14,241 for the new Combustion Turbine at Holyrood;
    - $4,369 for the Oxen Pond Transformer Capacity project;
    - $4,310 for the Additions for Load at Isolated Generating Stations;
    - $2,412 for the new Transmission Line from Bay d'Espoir to Western Avalon;
    - $2,135 for Sunnyside Transformer project; and

[1] The construction of the Labrador West Transmission was approved by OC2014-033, February 2, 2014. The capital expenditures associated with this project are $10,996,000 as at December 31, 2014 and are included in Work In Progress and as a result are currently excluded from average rate base. The costs to be included in rate base will be subject to review by the Board of Commissioners of Public Utilities.

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  - $2,123 for Upgrade Circuit Breakers.

- $1,826 received from insurance proceeds associated with January 2014 events at Sunnyside terminal station.
- An additional driver largely related to favorable contract pricing as well as lower than estimated labour and materials on a number of projects.

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Project Name	PUB Approved Budget 2014	Revised Budget 2014	Total Actual Expenditures 2014	Carryover Amount	Original Completion Year
Replace Spherical By Pass Valve Assemblies - Bay d'Espoir	129.4	129.4	172.5	(43.1)	2014
Upgrade Burnt Dam Spillway Structure - Bay d'Espoir	647.7	647.7	635.4	12.3	2014
Upgrade Victoria Control Structure - Bay d'Espoir	495.1	495.1	79.6	415.5	2014
Purchase Critical Spares - Holyrood	491.8	491.8	0.0	491.8	2014
Install Variable Frequency Drives on Forced Draft Fans - Holyrood	2,659.7	3,137.5	2,746.8	390.7	2014
Upgrade Plant Elevators - Holyrood	533.2	533.2	579.9	(46.7)	2014
Upgrade Vibration Monitoring System - Holyrood	524.9	524.9	476.8	48.1	2014
Replace DC Distribution Panels and Breakers - Holyrood	174.2	174.2	25.6	148.6	2014
Remove Safety Hazards - Various Sites	257.8	257.8	207.6	50.2	2014
Replace Insulators - Various Sites	287.9	402.9	361.3	41.6	2014
230 kV Transformer Capacity - Oxen Pond Terminal Station	15,310.4	18,980.4	14,611.3	4,369.1	2014
Construct Storage Building - Postville	183.8	244.5	66.7	177.8	2014
Tools and Equipment Less than $50,000	553.3	37.2	5.9	31.3	2014
Upgrade Gas Turbine PLC - Happy Valley	1,128.6	1,165.1	430.9	734.2	2014
Purchase Tools and Equipment Less than $50,000	59.2	15.1	0.0	15.1	2014
Additions for Load Isolator Generation Stations - Various Sites	9,357.6	11,163.6	6,853.5	4,310.1	2014
Purchase Meters, Equipment & Metering Tanks	199.0	199.0	137.6	61.4	2014
Labrador City - Voltage Conversion	0.0	608.9	1,243.4	(634.5)	2014
Install Automatic Meter Reading - English Harbour West and Barachoix	356.9	356.9	333.2	23.7	2015
Replace Battery Banks and Chargers - Various Sites	267.0	267.0	293.5	(26.5)	2015
Upgrade IP SCADA Network - Various Sites	254.2	254.2	144.8	109.4	2015
Upgrade Burnt Dam Spillway - Bay d'Espoir	110.2	110.2	126.1	(15.9)	2015
Upgrade Generator Bearings Unit 2 - Bay d'Espoir	18.9	18.9	9.4	9.5	2015
Replace Spherical By Pass Valve Assemblies Units 1 and 2 - Bay d'Espoir	57.5	57.5	12.8	44.7	2015

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Project Name	PUB Approved Budget 2014	Revised Budget 2014	Total Actual Expenditures 2014	Carryover Amount	Original Completion Year
Install Handheld Pendant to Overhead Crane - Bay d'Espoir	49.9	49.9	45.0	4.9	2015
Excitation Transformers Replacement - Bay d'Espoir	636.7	636.7	381.0	255.7	2015
Replace Economizer Inlet Valves - Holyrood	192.0	192.0	133.6	58.4	2015
Install Cold-Reheat Condensate Drains and High Pressure Heater Trip Level Unit 3 - Holyrood	49.8	49.8	101.3	(51.5)	2015
Replace Unit #1 Air Compressor - Holyrood	259.5	259.5	113.9	145.6	2015
Install Fire Protection Upgrades - Holyrood	56.6	56.6	312.0	(255.4)	2015
100 MW (Nominal) Combustion Turbine Addition - Holyrood	109,677.0	109,677.0	95,435.5	14,241.5	2015
Perform Grounding Upgrades - Various Sites	337.1	275.8	224.0	51.8	2015
Upgrade Circuit Breakers - Various Sites	3,695.4	3,695.4	1,571.7	2,123.7	2015
Replace Disconnect Switches - Various Sites	815.9	815.9	148.4	667.5	2015
Replace Optimho Relays on TL203 - Western Avalon to Sunnyside	89.1	89.1	18.2	70.9	2015
Transformer T1 Replacement - Sunnyside	7,197.8	7,197.8	5,062.7	2,135.1	2015
Perform Arc Flash Remediation - Various Sites	401.8	1,257.6	511.3	746.3	2015
Install Fire Protection System - Nain	107.1	107.1	40.7	66.4	2015
Replace Vehicles and Aerial Devices Hydro System (2014 - 2015)	1,809.1	1,809.1	900.5	908.6	2015
Refurbish Anchors and Footings TL202 and TL206 - Bay d'Espoir to Sunnyside	1,191.7	1,191.7	211.5	980.2	2015
Replace Recloser Control Panels - Various Sites	111.3	111.3	85.0	26.3	2015
Legal Survey of Primary Distribution Line Right of Ways - Various Sites (2014 - 2015)	156.8	156.8	247.4	(90.6)	2015
Upgrade Microsoft Project - Hydro Place	455.1	492.2	477.8	14.4	2015
Cost Recoveries	(163.8)	(177.1)	(172.0)	(5.1)	2015
Upgrade Distribution Systems - Various Sites (2014/2015)	370.2	370.2	193.1	177.1	2015
Upgrade Diesel Plant Production Data Collection Equipment-Various	268.9	268.9	107.8	161.1	2016
Replace Instrument Transformers - Various Sites	552.8	905.7	699.0	206.7	2017
230 kV Transmission Line, Bay d'Espoir to Western Avalon	2,412.6	2,412.6	0.0	2,412.6	2018
Total Carryover amount				35,770.6	

NEWFOUNDLAND AND LABRADOR HYDRO
2014 REMOVE SAFETY HAZARDS
FOR THE YEAR ENDING DECEMBER 31, 2014
($000)

Total Approved Budget: **$257,800**
Total Expenditure: **$207,565**

Board Order P.U. 38(2010)

As part of Board Order No. P.U. 38(2010) 2011 Capital Budget, the following was included: "Because of the nature of this project the Board would expect to see an explanation in Hydro's annual report on capital expenditures as to each project that was undertaken, setting out the safety hazard that was identified, the location, the steps taken to address the issue and the amount of the expenditure." Please see the following table for projects undertaken in 2014:

Safety Hazards

Project Title/Location	Expenditure	Safety Hazard Identified	Project Scope
Provide Safe Means of Access to Repair Needles – Cat Arm	$27.3	The platform supports are necessary to perform maintenance on the needle, turbine runner, and other components. With the broken beams in the support structure it is not safe to install a platform. This hinders maintenance activities for equipment in that area. This work is necessary to avoid any unwanted maintenance delay and to perform the maintenance work safely. Please refer to SWOP# 201401270.	Fabrication and installation of a platform at Cat Arm Unit#2 below the needles
Install Emergency Egress to Waste Water Treatment Plant – Holyrood	$85.4	A National Building Code assessment was completed and it was determined without an emergency egress, it failed to meet code. The installation of a new emergency exit from the second floor on the east side of the WWTP, is an important safety improvement with sufficient justification to warrant prompt completion. Project was carried over to 2015 due to contractor delays with material fabrication.	Fabrication of new emergency stairwell and door.

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NEWFOUNDLAND AND LABRADOR HYDRO
2014 REMOVE SAFETY HAZARDS
FOR THE YEAR ENDING DECEMBER 31, 2014
($000)

Safety Hazards

Project Title/Location	Expenditure		Safety Hazard Identified	Project Scope
Install Tote Storage Platform -Holyrood	$52.2		The bulk tanks are refilled through portable 1000L totes placed into position using a forklift. The totes used to transport cortrol and ammonia was changed and the old design was no longer available. This newly designed transportation tote could no longer be safely placed on the bulk storage tank. Clearances with existing piping and orientation of valves prevented the tote from being properly supported. There are four SWOPs associated with the issue: 2014000491, 2013005537, 2013002295, 2012003321. Project was carried over to 2015 due to contractor delays with material fabrication.	Fabrication of a new tote storage platform for cortrol and ammonia totes
Install Ramps to Steel Towers - #85 - #95	$42.7		There are a total of 27 ramps of which 12 ramps have been identified as a safety hazard due to the steel being stacked approximately 3-4ft high and the rotting timbers can result in the steel pieces tipping and falling. Please refer to SWOP# 2013002420.	Replacement of wooden timbers with new.

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newfoundland labrador hydro
a nalcor energy company

Hydro Place. 500 Columbus Drive.
P.O. Box 12400. St. John's. NL
Canada A1B 4K7
t. 709.737.1400 f. 709.737.1800
www.nlh.nl.ca

March 2, 2016

The Board of Commissioners of Public Utilities
Prince Charles Building
120 Torbay Road, P.O. Box 21040
St. John's, NL A1A 5B2

ATTENTION: Ms. Cheryl Blundon
Director of Corporate Services & Board Secretary

Dear Ms. Blundon:

Re: 2015 Capital Expenditures and Carryover – Year End (Revision 1)

Enclosed please find the original and 12 copies of Newfoundland and Labrador Hydro's (Hydro) report on 2015 Capital Expenditures and Carryover for the year ended December 31, 2015, Revision 1. The revision is necessary to fix the footnote on page 8 and has been shaded for ease of reference.

Should you have any questions, please contact the undersigned.

Yours truly,

NEWFOUNDLAND AND LABRADOR HYDRO

Geoffrey P. Young
Senior Legal Counsel

GPY/cp

A REPORT TO
THE BOARD OF COMMISSIONERS OF PUBLIC UTILITIES

CAPITAL EXPENDITURES AND CARRYOVER REPORT

For Year Ending December 31, 2015

March 2016

newfoundland labrador hydro
a nalcor energy company

NEWFOUNDLAND AND LABRADOR HYDRO
CAPITAL EXPENDITURES AND CARRYOVER REPORT
For Year Ending December 31, 2015

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Total Capital Project Variance
2015 Overview
($000)

Asset Type	Board Approved Budget	Total Project Expenditures and Forecast	Variance
HYDRAULIC	14,243.1	13,558.6	(684.5)
THERMAL	9,953.5	10,740.1	786.6
GAS TURBINES	6,855.0	6,905.9	50.9
TERMINAL STATIONS	42,910.1	43,223.2	313.1
TRANSMISSION	5,010.5	5,238.4	227.9
DISTRIBUTION	31,384.6	29,862.3	(1,522.3)
RURAL GENERATION	25,574.3	23,121.4	(2,452.9)
PROPERTIES	3,312.8	3,230.4	(82.4)
METERING	2,054.0	2,010.4	(43.6)
RURAL SYSTEMS TOOLS AND EQUIPMENT	2,069.3	1,871.5	(197.8)
INFORMATION SYSTEMS	3,391.6	3,519.0	127.4
TELECONTROL	1,794.2	1,813.1	18.9
TRANSPORTATION	5,502.5	5,419.0	(83.5)
ADMINISTRATIVE	1,549.6	1,372.7	(176.9)
ALLOWANCE FOR UNFORESEEN	1,250.0	945.1	(304.9)
SUPPLEMENTAL PROJECTS	773,585.1	462,469.7	(311,115.4)
PROJECTS APPROVED FOR LESS THAN $50,000	554.5	493.2	(61.3)
TOTAL CAPITAL BUDGET	**930,994.7**	**615,794.0**	**(315,200.7)**

2015 Capital Expenditures By Year ($000)

Summary	Capital Budget[1]										Actual Expenditure and Forecast											
	A					B	C	D (B+C)	E	F (A+C+E)	G					H	I	J	K (G+H+I+J)	K-F	H-D
	2010	2011	2012	2013	2014	Carryover 2015	Original 2015[3]	Revised 2015[3]	2016 and Beyond	Total	2010	2011	2012	2013	2014[2]	2015	2016 and Beyond	Carryovers to 2016	Total	Project Variance	Annual Variance
2015 Projects							65,471.2	65,471.2	29,309.7	94,780.9						55,850.2	29,269.4	4,792.1	89,911.7	(4,869.2)	(9,621.0)
2014 Projects					173,298.2	25,576.1	207,102.1	232,678.2	399,524.0	779,924.3					119,176.6	55,028.4	289,475.7	3,324.3	467,005.0	(312,919.3)	(177,649.8)
2013 Projects				8,851.1	29,588.6	10,030.9	836.1	10,867.0	1,983.5	41,259.3			76.6	2,505.4	26,816.5	12,157.1	1,983.5	183.1	43,722.2	2,462.9	1,290.1
2012 Projects			110.4	-	-	-	-	-	-	110.4			43.6	69.2	-	-	-	-	112.8	2.4	-
2011 Projects		750.7	704.3	720.0	738.9	798.1	758.5	1,556.6	-	3,672.4		391.1	332.4	657.0	735.3	1,228.8	-	-	3,344.6	(327.8)	(327.8)
2010 Projects	1,088.9	3,501.2	3,840.7	969.5	608.9	(634.5)	1,238.2	603.7	-	11,247.4	1,524.6	2,825.0	4,120.6	1,129.8	1,243.4	854.3	-	-	11,697.7	450.3	250.6
Grand Total	1,088.9	4,251.9	4,655.4	10,540.6	204,234.6	35,770.6	275,406.1	311,176.7	430,817.2	930,994.7	1,524.6	3,216.1	4,573.2	4,361.4	147,971.8	125,118.8	320,728.6	8,299.5	615,794.0	(315,200.7)	(186,057.9)

2015 Capital Budget Approved by Board Order No. P.U. 50(2014)	76,832.9
New Project Approved by Board Order No. 16(2014)	9,248.8
New Project Approved by Board Order No. 29(2014)	1,226.4
New Project Approved by Board Order No. 34(2014)	360.0
New Project Approved by Board Order No. 38(2014)	61.1
New Project Approved by Board Order No. 45(2014)[3]	1,238.2
New Project Approved by Board Order No. 53(2014)	18,964.7
New Project Approved by (O.C. 2014-033)[4]	163,145.3
New Project Approved by Board Order No. 24(2015)	1,536.3
New Project Approved by Board Order No. 27(2015)	327.9
New Project Approved by Board Order No. 29(2015)	1,249.3
New Project Approved by Board Order No. 31(2015)	500.1
New Project Approved by Board Order No. 34(2015)	250.0
2015 New Projects under $50,000 Approved by Hydro	465.1
Total Approved Capital Budget Before Carryovers	275,406.1
Carryovers from 2014 to 2015	35,770.6
TOTAL APPROVED CAPITAL BUDGET	311,176.7

[1] Annual budgets previous to 2015 pertain to projects that have expenditures in 2015.

[2] Includes Insurance Proceeds relating to Sunnyside - Transformer T1 Replacement ($1.8M).

[3] As per Board Order No. P.U. 45(2014) the Board did not approve the $0.2M Voltage Conversion - Labrador City actual costs over budget from 2010 to 2013. Hydro has excluded the $0.2M from average rate base.

[4] The construction of the Labrador West Transmission was approved by OC2014-033, February 2, 2014 of which $163.1M was included in the 2015 Capital Budget. The capital expenditures associated with this project are $11.6M as at December 31, 2015 and are included in Work In Progress and as a result are currently excluded from average rate base. The costs to be included in rate base will be subject to review by the Board of Commissioners of Public Utilities.

2015 Capital Expenditures By Category ($000)

Hydraulic Generation Projects	Capital Budget								Actual Expenditure and Forecast									
	A			B	C	D (B+C)	E	F (A+C+E)	G			H	I	J	K (G+H+I+J)	K-F	H-D	
	2012	2013	2014	Carryover 2014	Original 2015	Revised 2015	2016 and Beyond	Total	2012	2013	2014	2015	2016 and Beyond	Carryovers to 2016	Total	Project Variance	Annual Variance	Notes
2015 Projects																		
Refurbish Unit Relay Protection - Paradise River	-	-	-	-	8.7	8.7	79.7	88.4	-	-	-	9.0	79.7	(0.3)	88.4	-	0.3	
Refurbish Generation Unit - Snook's Arm	-	-	-	-	352.9	352.9	-	352.9	-	-	-	315.0	-	-	315.0	(37.9)	(37.9)	
Replace Station Service Breakers - Cat Arm	-	-	-	-	644.9	644.9	363.4	1,008.3	-	-	-	646.1	363.4	(1.2)	1,008.3	-	1.2	
Refurbish Access Road - Cat Arm	-	-	-	-	990.0	990.0	-	990.0	-	-	-	939.8	-	-	939.8	(50.2)	(50.2)	
Replace ABB Exciter Unit 2 - Cat Arm	-	-	-	-	845.9	845.9	-	845.9	-	-	-	680.8	-	-	680.8	(165.1)	(165.1)	1
Replace Interior Coating on Surge Tank 3 - Bay d'Espoir	-	-	-	-	1,629.3	1,629.3	-	1,629.3	-	-	-	1,262.7	-	-	1,262.7	(366.6)	(366.6)	2
Rehabilitate Salmon River Spillway - Bay d'Espoir	-	-	-	-	745.6	745.6	556.8	1,302.4	-	-	-	522.9	556.8	222.7	1,302.4	-	(222.7)	3
Upgrade Generator Bearings Units 1 and 3 - Bay d'Espoir	-	-	-	-	14.7	14.7	633.3	648.0	-	-	-	8.1	633.3	6.6	648.0	-	(6.6)	
Automate Generator Deluge Systems - Bay d'Espoir	-	-	-	-	645.2	645.2	-	645.2	-	-	-	567.9	-	-	567.9	(77.3)	(77.3)	
Replace Pump House and Associated Equipment - Bay d'Espoir	-	-	-	-	22.7	22.7	522.5	545.2	-	-	-	137.0	522.5	(114.3)	545.2	-	114.3	4
Upgrade Public Safety Around Dams and Waterways - Various Sites	-	-	-	-	483.9	483.9	-	483.9	-	-	-	468.7	-	-	468.7	(15.2)	(15.2)	
Install Hydrometeorological Stations - Various Sites	-	-	-	-	377.9	377.9	-	377.9	-	-	-	372.2	-	-	372.2	(5.7)	(5.7)	
Upgrade Equipment Doors - Various Sites	-	-	-	-	348.5	348.5	-	348.5	-	-	-	285.4	-	63.1	348.5	-	(63.1)	
Refurbish Intakes - Bay d'Espoir	-	-	-	-	72.6	72.6	262.3	334.9	-	-	-	26.4	262.3	46.2	334.9	-	(46.2)	
Replace Automatic Greasing Systems Units 2 and 4 - Bay d'Espoir	-	-	-	-	254.4	254.4	-	254.4	-	-	-	231.5	-	-	231.5	(22.9)	(22.9)	
Install Infrared View Ports - Various Sites	-	-	-	-	83.7	83.7	113.1	196.8	-	-	-	54.7	113.1	29.0	196.8	-	(29.0)	
Replace Generator Bearing Coolers - Bay d'Espoir	-	-	-	-	153.8	153.8	-	153.8	-	-	-	132.2	-	-	132.2	(21.6)	(21.6)	
Overhaul Turbine/Generator Units - Bay d'Espoir and Paradise River	-	-	-	-	304.4	304.4	-	304.4	-	-	-	325.8	-	-	325.8	21.4	21.4	
Purchase Tools and Equipment Less than $50,000	-	-	-	-	108.6	108.6	-	108.6	-	-	-	75.2	-	-	75.2	(33.4)	(33.4)	
2014 Projects																		
Upgrade Burnt Dam Spillway - Bay d'Espoir	-	-	110.2	(15.9)	1,201.9	1,186.0	-	1,312.1	-	-	126.1	640.2	-	545.8	1,312.1	-	(545.8)	5
Upgrade Victoria Control Structure - Bay d'Espoir	-	-	495.1	415.5	-	415.5	-	495.1	-	-	79.6	235.0	-	180.5	495.1	-	(180.5)	6
Upgrade Generator Bearings Unit 2 - Bay d'Espoir	-	-	18.9	9.5	396.0	405.5	-	414.9	-	-	9.4	252.8	-	-	262.2	(152.7)	(152.7)	7
Replace Spherical By Pass Valve Assemblies Units 1 and 2 - Bay d'Espoir	-	-	57.5	44.7	96.3	141.0	-	153.8	-	-	12.8	169.5	-	53.5	235.8	82.0	28.5	
Install Handheld Pendant to Overhead Crane - Bay d'Espoir	-	-	49.9	4.9	170.8	175.7	-	220.7	-	-	45.0	19.3	-	156.4	220.7	-	(156.4)	8
2013 Projects																		
Upgrade Units 1 to 6 By-Pass Valves - Bay d'Espoir	-	141.9	-	(43.1)	-	(43.1)	-	141.9	3.0	9.5	172.5	35.5	-	-	220.5	78.6	78.6	
Upgrade Burnt Dam Spillway - Bay d'Espoir	-	885.8	-	12.3	-	12.3	-	885.8	15.0	223.1	635.4	94.4	-	-	967.9	82.1	82.1	
Total Hydraulic Generation Projects	-	1,027.7	731.6	427.9	9,952.7	10,380.6	2,531.1	14,243.1	18.0	232.6	1,080.8	8,508.1	2,531.1	1,188.0	13,558.6	(684.5)	(1,872.5)	

2015 Capital Expenditures By Category ($000)

Thermal Generation Projects	Capital Budget								Actual Expenditure and Forecast									
	A			B	C	D (B+C)	E	F (A+C+E)	G			H	I	J	K (G+H+I+J)	K-F	H-D	
	2012	2013	2014	Carryover 2014	Original 2015	Revised 2015	2016 and Beyond	Total	2012	2013	2014	2015	2016 and Beyond	Carryovers to 2016	Total	Project Variance	Annual Variance	Notes
2015 Projects																		
Overhaul Turbine Valves Unit 1 - Holyrood	-	-	-	-	1,577.5	1,577.5	-	1,577.5	-	-	-	1,707.6	-	-	1,707.6	130.1	130.1	
Overhaul Boiler Feed Pump East Unit 1 - Holyrood	-	-	-	-	196.3	196.3	-	196.3	-	-	-	215.2	-	-	215.2	18.9	18.9	
Replace DC Distribution Panels and Breakers - Holyrood	-	-	-	-	127.9	127.9	-	127.9	-	-	-	131.5	-	-	131.5	3.6	3.6	
Upgrade Powerhouse Roofing - Holyrood	-	-	-	-	1,047.8	1,047.8	-	1,047.8	-	-	-	802.9	-	244.9	1,047.8	-	(244.9)	9
Upgrade Quarry Brook Dam Equipment - Holyrood	-	-	-	-	498.7	498.7	-	498.7	-	-	-	490.9	-	-	490.9	(7.8)	(7.8)	
Upgrade Fire Protection (Main Warehouse) - Holyrood	-	-	-	-	46.2	46.2	197.6	243.8	-	-	-	76.4	197.6	(30.2)	243.8	-	30.2	
Overhaul Extraction Pumps - Holyrood	-	-	-	-	189.6	189.6	-	189.6	-	-	-	192.5	-	-	192.5	2.9	2.9	
Purchase Tools and Equipment Less than $50,000	-	-	-	-	15.7	15.7	-	15.7	-	-	-	15.5	-	-	15.5	(0.2)	(0.2)	
2014 Projects																		
Replace Economizer Inlet Valves - Holyrood	-	-	192.0	58.4	329.1	387.5	-	521.1	-	-	133.6	409.1	-	-	542.7	21.6	21.6	
Install Cold-Reheat Condensate Drains and High Pressure Heater Trip Level Unit 3 - Holyrood	-	-	49.8	(51.5)	467.4	415.9	-	517.2	-	-	101.3	453.9	-	-	555.2	38.0	38.0	
Upgrade Plant Elevators - Holyrood	-	-	533.2	(46.7)	-	(46.7)	-	533.2	-	-	579.9	309.3	-	-	889.2	356.0	356.0	10
Upgrade Vibration Monitoring System - Holyrood	-	-	524.9	48.1	-	48.1	-	524.9	-	-	476.8	31.7	-	-	508.5	(16.4)	(16.4)	
Install Fire Protection Upgrades - Holyrood	-	-	56.6	(255.4)	312.5	57.1	-	369.1	-	-	312.0	20.6	-	-	332.6	(36.5)	(36.5)	
Replace DC Distribution Panels and Breakers - Holyrood	-	-	174.2	148.6	-	148.6	-	174.2	-	-	25.6	159.7	-	-	185.3	11.1	11.1	
Purchase Tools and Equipment Less than $50,000	-	-	59.2	15.1	-	15.1	-	59.2	-	-	37.7	11.8	-	-	49.5	(9.7)	(3.3)	
2013 Projects																		
Install Variable Frequency Drives on Forced Draft Fans - Holyrood	-	697.6	2,659.7	390.7	-	390.7	-	3,357.3	13.8	206.0	2,746.8	665.7	-	-	3,632.3	275.0	275.0	11
Total Thermal Generation Projects	-	697.6	4,249.6	307.3	4,808.7	5,116.0	197.6	9,953.5	13.8	206.0	4,413.7	5,694.3	197.6	214.7	10,740.1	786.6	578.3	

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2015 Capital Expenditures By Category ($000)

Gas Turbine Generation Projects	Capital Budget								Actual Expenditure and Forecast										
	A			B	C	D (B+C)	E	F (A+C+E)	G			H	I	J	K (G+H+I+J)	K-F	H-D	
	2012	2013	2014	Carryover 2014	Original 2015	Revised 2015	2016 and Beyond	Total	2012	2013	2014	2015	2016 and Beyond	Carryover to 2016	Total	Project Variance	Annual Variance	Notes
2015 Projects																		
Upgrade Gas Turbine Plant Life Extension - Stephenville	-	-	-	-	2,655.2	2,655.2	2,525.4	5,180.6	-	-	-	2,613.6	2,525.4	41.6	5,180.6	-	(41.6)	
Replace Alternator Shaft - Happy Valley	-	-	-	-	484.4	484.4	-	484.4	-	-	-	131.1	-	320.0	451.1	(33.3)	(353.3)	12
2013 Projects																		
Upgrade Gas Turbine PLC - Happy Valley	-	61.4	1,128.6	734.2	-	734.2	-	1,190.0	2.3	22.6	430.9	818.4	-	-	1,274.2	84.2	84.2	
Total Gas Turbine Generation Projects	-	61.4	1,128.6	734.2	3,139.6	3,873.8	2,525.4	6,855.0	2.3	22.6	430.9	3,563.1	2,525.4	361.6	6,905.9	50.9	(310.7)	

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Page 8 of 39

2015 Capital Expenditures By Category ($000)

Terminal Stations Projects	Capital Budget									Actual Expenditure and Forecast									
	A				B	C	D (B+C)	E	F (A+C+E)	G				H	I	J	K (G+H+I+J)	K-F	H-D	
	2011	2012	2013	2014	Carryover 2014	Original 2015	Revised 2015	2016 and Beyond	Total	2011	2012	2013	2014	2015	2016 and Beyond	Carryovers to 2016	Total	Project Variance	Annual Variance	Notes
2015 Projects																				
Upgrade Circuit Breakers - Various Sites (2015-2016)	-	-	-	-	-	6,189.1	6,189.1	6,873.8	13,062.9	-	-	-	-	7,570.4	6,873.8	(1,381.3)	13,062.9	-	1,381.3	13
Replace Surge Arrestors - Various Sites	-	-	-	-	-	198.1	198.1	-	198.1	-	-	-	-	172.2	-	-	172.2	(25.9)	(25.9)	
Install Transformer On line Gas Monitoring - Various Sites	-	-	-	-	-	700.5	700.5	975.7	1,676.2	-	-	-	-	786.5	975.7	(86.0)	1,676.2	-	86.0	
Upgrade Power Transformers - Various Sites	-	-	-	-	-	4,440.4	4,440.4	7,002.3	11,442.7	-	-	-	-	2,357.3	7,002.3	2,083.1	11,442.7	-	(2,083.1)	14
Replace Disconnect Switches - Various Sites (2015-2016)	-	-	-	-	-	963.7	963.7	642.9	1,606.6	-	-	-	-	563.1	642.9	400.6	1,606.6	-	(400.6)	15
Design and Install Fire Protection in 230 kV Station - Various Sites	-	-	-	-	-	67.6	67.6	424.3	491.9	-	-	-	-	74.9	424.3	(7.3)	491.9	-	7.3	
Perform Site Work for Mobile Substation - Barachoix	-	-	-	-	-	489.3	489.3	-	489.3	-	-	-	-	516.5	-	-	516.5	27.2	27.2	
Upgrade Terminal Station Protection and Control - Various Sites	-	-	-	-	-	172.7	172.7	307.2	479.9	-	-	-	-	162.5	307.2	10.2	479.9	-	(10.2)	
Upgrade Terminal Station Foundations - Various Sites	-	-	-	-	-	302.3	302.3	-	302.3	-	-	-	-	313.1	-	-	313.1	10.8	10.8	
Upgrade Control Wiring Phase 1 to Terminal Station 1 - Bay d'Espoir	-	-	-	-	-	301.0	301.0	-	301.0	-	-	-	-	336.3	-	-	336.3	35.3	35.3	
Install Support Structures C2 Capacitor Bank - Hardwoods	-	-	-	-	-	199.3	199.3	-	199.3	-	-	-	-	58.0	-	26.4	84.4	(114.9)	(141.3)	16
Replace Station Lighting - Bay d'Espoir	-	-	-	-	-	16.7	16.7	160.3	177.0	-	-	-	-	20.0	160.3	(3.3)	177.0	-	3.3	
Upgrade Transformer Differential Protection - Grandy Brook	-	-	-	-	-	154.0	154.0	-	154.0	-	-	-	-	75.0	-	-	75.0	(79.0)	(79.0)	
2014 Projects																				
Upgrade Circuit Breakers - Various Sites	-	-	-	3,695.4	2,123.7	1,642.5	3,766.2	-	5,337.9	-	-	-	1,571.7	4,167.5	-	-	5,739.2	401.3	401.3	17
Replace Disconnect Switches - Various Sites	-	-	-	815.9	667.5	189.5	857.0	-	1,005.4	-	-	-	148.4	939.7	-	-	1,088.1	82.7	82.7	
Replace Optimho Relays on TL203 - Western Avalon to Sunnyside	-	-	-	89.1	70.9	96.9	167.8	-	186.0	-	-	-	18.2	200.7	-	-	218.9	32.9	32.9	
2013 Projects																				
Replace Instrument Transformers - Various Sites	-	-	593.2	552.8	206.7	538.4	745.1	1,983.5	3,667.9	-	9.6	230.7	699.0	755.5	1,983.5	(10.4)	3,667.9	-	10.4	
Replace Insulators - Various Sites	-	-	187.1	287.9	41.6	-	41.6	-	475.0	-	5.1	67.0	361.3	68.0	-	-	501.4	26.4	26.4	
2011 Projects																				
Perform Grounding Upgrades - Various Sites	321.2	324.0	329.0	337.1	51.8	345.4	397.2	-	1,656.7	287.6	240.7	507.2	224.0	313.5	-	-	1,573.0	(83.7)	(83.7)	
Total Terminal Stations Projects	321.2	324.0	1,109.3	5,778.2	3,162.2	17,007.4	20,169.6	18,370.0	42,910.1	287.6	255.4	804.9	3,022.6	19,450.7	18,370.0	1,032.0	43,223.2	313.1	(718.9)	

2015 Capital Expenditures by Category ($000)

Transmission Projects	Capital Budget						Actual Expenditure and Forecast								
	A	B	C	D (B+C)	E	F (A+C+E)	G	H	I	J	K (G+H+I+J)	K-F	H-D	
	Original 2014	Carryover 2014	Original 2015	Revised 2015	2016 and Beyond	Total	2014	2015	2016 and Beyond	Carryovers to 2016	Total	Project Variance	Annual Variance	Notes
2015 Projects														
Perform Wood Pole Line Management Program - Various Sites	-	-	2,830.6	2,830.6	-	2,830.6	-	3,058.5	-	-	3,058.5	227.9	227.9	
2014 Projects														
Refurbish Anchors and Footings TL202 and TL206														
- Bay d'Espoir to Sunnyside	1,191.7	980.2	988.2	1,968.4	-	2,179.9	211.5	28.2	1,940.0	0.2	2,179.9	-	(1,940.2)	18
Total Transmission Projects	1,191.7	980.2	3,818.8	4,799.0	-	5,010.5	211.5	3,086.7	1,940.0	0.2	5,238.4	227.9	(1,712.3)	

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2015 Capital Expenditures By Category ($000)

Distribution Projects	Capital Budget										Actual Expenditure and Forecast											
	A					B	C	D (B+C)	E	F (A+C+E)	G					H	I	J	K (G+H+I+J)	K-F	H-D	
	2010	2011	2012	2013	2014	Carryover 2014	Original 2015	Revised 2015	2016 and Beyond	Total	2010	2011	2012	2013	2014	2015	2016 and Beyond	Carryovers to 2016	Total	Project Variance	Annual Variance	Notes
2015 Projects																						
Construct Second Distribution Feeder - Nain	-	-	-	-	-	-	1,050.3	1,050.3	-	1,050.3	-	-	-	-	-	1,139.4	-	-	1,139.4	89.1	89.1	
Relocate Voltage Regulator - Hawkes Bay	-	-	-	-	-	-	166.4	166.4	-	166.4	-	-	-	-	-	116.6	-	-	116.6	(49.8)	(49.8)	
Provide Service Extensions - All Service Areas	-	-	-	-	-	-	6,328.0	6,328.0	-	6,328.0	-	-	-	-	-	4,797.0	-	-	4,797.0	(1,531.0)	(1,531.0)	19
Provide Service Extensions - All Service Areas - CIAC	-	-	-	-	-	-	(248.0)	(248.0)	-	(248.0)	-	-	-	-	-	(214.7)	-	-	(214.7)	33.3	33.3	
Upgrade Distribution Systems - All Service Areas	-	-	-	-	-	-	3,402.0	3,402.0	-	3,402.0	-	-	-	-	-	2,985.7	-	-	2,985.7	(416.3)	(416.3)	20
Upgrade Distribution Systems - All Service Areas - CIAC	-	-	-	-	-	-	(62.0)	(62.0)	-	(62.0)	-	-	-	-	-	0.8	-	-	0.8	62.8	62.8	
Upgrade Distribution Systems - Various Sites (2015/2016)	-	-	-	-	-	-	1,136.1	1,136.1	818.8	1,954.9	-	-	-	-	-	1,379.1	818.8	(243.0)	1,954.9	-	243.0	21
2014 Projects																						
Replace Recloser Control Panels - Various Sites	-	-	-	-	111.3	26.3	84.4	110.7	-	195.7	-	-	-	-	85.0	147.7	-	-	232.7	37.0	37.0	
Upgrade Distribution Systems - Various Sites (2014/2015)	-	-	-	-	2,499.8	177.1	4,850.1	5,027.2	-	7,349.9	-	-	-	-	2,142.5	5,009.7	-	-	7,152.2	(197.7)	(17.5)	
2010 Projects																						
Voltage Conversion - Labrador City[5]	1,088.9	3,501.2	3,840.7	969.5	608.9	-634.5	1238.2	603.7	-	11,247.4	1,524.6	2,825.0	4,120.6	1,129.8	1,243.4	854.3	-	-	11,697.7	450.3	250.6	22
Total Distribution Projects	1,088.9	3,501.2	3,840.7	969.5	3,220.0	(431.1)	17,945.5	17,514.4	818.8	31,384.6	1,524.6	2,825.0	4,120.6	1,129.8	3,470.9	16,215.6	818.8	(243.0)	29,862.3	(1,522.3)	(1,298.8)	

[3] As per Board Order No. P.U. 45(2014) the Board did not approve the $0.2M Voltage Conversion - Labrador City actual costs over budget from 2010 to 2013. Hydro has excluded the $0.2M from average rate base.

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2015 Capital Expenditures By Category ($000)

Rural Generation Projects	Capital Budget									Actual Expenditure and Forecast										
	A				B	C	D (B+C)	E	F (A+C+E)	G				H	I	J	K (G+H+I+J)	K-F	H-D	
	2011	2012	2013	2014	Carryover 2014	Original 2015	Revised 2015	2016 and Beyond	Total	2011	2012	2013	2014	2015	2016 and Beyond	Carryovers to 2016	Total	Project Variance	Annual Variance	Notes
2015 Projects																				
Overhaul Diesel Units - Various Sites	-	-	-	-	-	1,199.2	1,199.2	-	1,199.2	-	-	-	-	958.4	-	240.8	1,199.2	-	(240.8)	23
Install Disconnect Switches for Mobile Generators - Various Sites	-	-	-	-	-	10.0	10.0	189.3	199.3	-	-	-	-	7.8	189.3	2.2	199.3	-	(2.2)	
Inspect Fuel Storage Tanks - Various Sites	-	-	-	-	-	1,761.1	1,761.1	-	1,761.1	-	-	-	-	769.3	-	-	769.3	(991.8)	(991.8)	24
Increase Fuel Storage - Rigolet	-	-	-	-	-	1,666.8	1,666.8	-	1,666.8	-	-	-	-	837.1	-	-	837.1	(829.7)	(829.7)	25
Upgrade Ventilation Systems - Various Sites	-	-	-	-	-	175.9	175.9	317.3	493.2	-	-	-	-	245.6	317.3	(69.7)	493.2	-	69.7	
Upgrade Building Exterior - Makkovik	-	-	-	-	-	309.5	309.5	-	309.5	-	-	-	-	229.8	-	-	229.8	(79.7)	(79.7)	
Increase Generation Capacity - Makkovik	-	-	-	-	-	272.6	272.6	-	272.6	-	-	-	-	221.3	-	-	221.3	(51.3)	(51.3)	
Replace Unit 2038 - Mary's Harbour	-	-	-	-	-	103.5	103.5	1,241.5	1,345.0	-	-	-	-	101.7	1,241.5	1.8	1,345.0	-	(1.8)	
Replace Unit 254 - Paradise River	-	-	-	-	-	66.8	66.8	429.3	496.1	-	-	-	-	80.5	429.3	(13.7)	496.1	-	13.7	
Replace Programmable Logic Controllers - Various Sites	-	-	-	-	-	366.9	366.9	591.1	958.0	-	-	-	-	397.2	591.1	(30.3)	958.0	-	30.3	
Install Fire Protection - L'Anse au Loup	-	-	-	-	-	220.6	220.6	1,126.2	1,346.8	-	-	-	-	96.4	1,126.2	124.2	1,346.8	-	(124.2)	26
2014 Projects																				
Install Fire Protection System - Nain	-	-	-	107.1	66.4	892.2	958.6	-	999.3	-	-	-	40.7	33.1	-	-	73.8	(925.5)	(925.5)	27
Construct Storage Facility - Postville	-	-	-	183.8	177.8	-	177.8	-	183.8	-	-	-	66.7	164.2	-	-	230.9	47.1	(13.6)	
Upgrade Diesel Plant Production Data Collection Equipment - Various Sites	-	-	-	268.9	161.1	269.8	430.9	280.7	819.4	-	-	-	107.8	57.8	280.7	3.1	449.4	(370.0)	(373.1)	28
2013 Projects																				
Additions for Load Isolator Generation Stations - Various Sites	-	-	2,040.2	9,357.9	4,310.1	-	4,310.1	-	11,398.1	-	27.8	1196.4	6,853.5	3,916.4	-	393.7	12,387.8	989.7	(393.7)	
2012 Projects																				
Perform FEED for Diesel Plant Remediation - Various Sites	-	110.4	-	-	-	-	-	-	110.4	-	43.6	69.2	-	-	-	-	112.8	2.4	-	
2011 Projects																				
Perform Arc Flash Remediation - Various Sites	429.5	380.3	391.0	401.8	746.3	413.1	1,159.4	-	2,015.7	103.5	91.7	149.8	511.3	915.3	-	-	1,771.6	(244.1)	(244.1)	29
Total Rural Generation Projects	429.5	490.7	2,431.2	10,319.5	5,461.7	7,728.0	13,189.7	4,175.4	25,574.3	103.5	163.1	1,415.4	7,580.0	9,031.9	4,175.4	652.1	23,121.4	(2,452.9)	(4,157.8)	

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2015 Capital Expenditures By Category ($000)

Properties Projects	Capital Budget						Actual Expenditure and Forecast							
	A	B	C	D (B+C)	E	F (A+C+E)	G	H	I	J	K (G+H+I+J)	K-F	H-D	
	2014	Carryover 2014	Original 2015	Revised 2015	2016 and Beyond	Total	2014	2015	2016 and Beyond	Carryovers to 2016	Total	Project Variance	Annual Variance	Notes
2015 Projects														
Replace Accommodations and Septic System - Ebbegunbaeg	-	-	489.4	489.4	1,061.4	1,550.8	-	94.2	1,061.4	395.2	1,550.8	-	(395.2)	30
Upgrade Line Depots - Various Sites	-	-	953.3	953.3	-	953.3	-	877.0	-	-	877.0	(76.3)	(76.3)	
Reshingle Roof - Stephenville	-	-	76.8	76.8	-	76.8	-	74.9	-	-	74.9	(1.9)	(1.9)	
Install Fall Protection Equipment - Various Sites	-	-	198.9	198.9	-	198.9	-	180.7	-	-	180.7	(18.2)	(18.2)	
Upgrade HVAC System - Port Saunders	-	-	137.0	137.0	-	137.0	-	150.2	-	-	150.2	13.2	13.2	
Legal Survey of Primary Distribution Line Right of Ways - Various Sites 2015	-	-	158.6	158.6	40.3	198.9	-	200.0	-	-	200.0	1.1	41.4	
2014 Projects														
Legal Survey of Primary Distribution Line Right of Ways - Various Sites 2014	156.8	(90.6)	40.3	(50.3)	-	197.1	247.3	(50.5)	-	-	196.8	(0.3)	(0.2)	
Total Properties Projects	156.8	(90.6)	2,054.3	1,963.7	1,101.7	3,312.8	247.3	1,526.5	1,061.4	395.2	3,230.4	(82.4)	(437.2)	

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2015 Capital Expenditures By Category ($000)

Metering Projects	Capital Budget						Actual Expenditure and Forecast							
	A	B	C	D (B+C)	E	F (A+C+E)	G	H	I	J	K (G+H+I+J)	K-F	H-D	
	2014	Carryover 2014	Original 2015	Revised 2015	2016 and Beyond	Total	2014	2015	2016 and Beyond	Carryovers to 2016	Total	Project Variance	Annual Variance	Notes
2015 Projects														
Purchase Meters, Equipment and Metering Tanks - Various Sites	-	-	196.2	196.2	-	196.2	-	235.0	-	-	235.0	38.8	38.8	
Install Automatic Meter Reading - Various Sites (2015-2016)	-	-	559.9	559.9	401.8	961.7	-	90.6	401.8	469.3	961.7	-	(469.3)	31
2014 Projects														
Purchase Meters, Equipment and Metering Tanks - Various Sites	199.0	61.4	-	61.4	-	199.0	137.6	12.3	-	-	149.9	(49.1)	(49.1)	
Install Automatic Meter Reading - Various Sites (2014-2015)	356.9	23.7	340.2	363.9	-	697.1	333.2	330.6	-	-	663.8	(33.3)	(33.3)	
Total Metering Projects	555.9	85.1	1,096.3	1,181.4	401.8	2,054.0	470.8	668.5	401.8	469.3	2,010.4	(43.6)	(512.9)	

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2015 Capital Expenditures By Category ($000)

Tools and Equipment	Capital Budget						Actual Expenditure and Forecast							
	A	B	C	D (B+C)	E	F (A+C+E)	G	H	I	J	K (G+H+I+J)	K-F	H-D	
	2014	Carryover 2014	Original 2015	Revised 2015	2016 and Beyond	Total	2014	2015	2016 and Beyond	Carryovers to 2016	Total	Project Variance	Annual Variance	Notes
2015 Projects														
Replace Light Duty Mobile Equipment - Various Sites	-	-	494.4	494.4	-	494.4	-	423.1	-	-	423.1	(71.3)	(71.3)	
Replace Off Road Track Vehicles - Unit 7861, Stephenville (2015-2016)	-	-	1.1	1.1	397.8	398.9	-	176.8	397.8	(175.7)	398.9	-	175.7	32
Tools and Equipment Less than $50,000	-	-	622.7	622.7	-	622.7	-	563.1	-	35.8	598.9	(23.8)	(59.6)	
2014 Projects														
Tools and Equipment Less than $50,000	553.3	31.3	-	31.3	-	553.3	416.7	33.9	-	-	450.6	(102.7)	2.6	33
Total Tools and Equipment	553.3	31.3	1,118.2	1,149.5	397.8	2,069.3	416.7	1,196.9	397.8	(139.9)	1,871.5	(197.8)	47.4	

2015 Capital Expenditures By Category ($000)

Information Systems Projects	Capital Budget							Actual Expenditure and Forecast								
	A		B	C	D (B+C)	E	F (A+C+E)	G		H	I	J	K (G+H+I+J)	K-F	H-D	
	2013	2014	Carryover 2014	Original 2015	Revised 2015	2016 and Beyond	Total	2013	2014	2015	2016 and Beyond	Carryovers to 2016	Total	Project Variance	Annual Variance	Notes
2015 Projects																
Perform Minor Application Enhancements - Hydro Place	-	-	-	329.5	329.5	-	329.5	-	-	482.1	-	-	482.1	152.6	152.6	34
Cost Recoveries	-	-	-	(141.6)	(141.6)	-	(141.6)	-	-	(205.9)	-	-	(205.9)	(64.3)	(64.3)	
Upgrade Energy Management System - Hydro Place	-	-	-	194.9	194.9	-	194.9	-	-	185.1	-	-	185.1	(9.8)	(9.8)	
Upgrade Lotus Notes - Hydro Place	-	-	-	635.4	635.4	-	635.4	-	-	559.2	-	-	559.2	(76.2)	(76.2)	
Cost Recoveries	-	-	-	(273.1)	(273.1)	-	(273.1)	-	-	(240.4)	-	-	(240.4)	32.7	32.7	
Replace Customer Care System - Hydro Place	-	-	-	134.9	134.9	-	134.9	-	-	141.0	-	-	141.0	6.1	6.1	
Replace Peripheral Infrastructure - Various Sites	-	-	-	200.5	200.5	-	200.5	-	-	201.7	-	-	201.7	1.2	1.2	
Upgrade Enterprise Storage Capacity - Hydro Place	-	-	-	621.3	621.3	-	621.3	-	-	627.7	-	-	627.7	6.4	6.4	
Cost Recoveries	-	-	-	(267.0)	(267.0)	-	(267.0)	-	-	(269.9)	-	-	(269.9)	(2.9)	(2.9)	
Replace Personal Computers - Various Sites	-	-	-	573.3	573.3	-	573.3	-	-	570.5	-	-	570.5	(2.8)	(2.8)	
Upgrade Server Technology Program - Hydro Place	-	-	-	601.3	601.3	-	601.3	-	-	639.8	-	-	639.8	38.5	38.5	
Cost Recoveries	-	-	-	(227.1)	(227.1)	-	(227.1)	-	-	(234.1)	-	-	(234.1)	(7.0)	(7.0)	
2013 Projects																
Upgrade Microsoft Project - Hydro Place	656.7	455.1	14.4	465.2	479.6	-	1,577.0	619.6	477.8	562.3	-	-	1,659.7	82.7	82.7	
Cost Recoveries	(236.4)	(163.8)	(5.1)	(167.5)	(172.6)	-	(567.7)	(223.1)	(172.0)	(202.4)	-	-	(597.5)	(29.8)	(29.8)	
Total Information Systems Projects	420.3	291.3	9.3	2,680.0	2,689.3	-	3,391.6	396.5	305.8	2,816.7	-	-	3,519.0	127.4	127.4	

2015 Capital Expenditures By Category ($000)

Telecontrol Projects	Capital Budget						Actual Expenditure and Forecast							
	A	B	C	D (B+C)	E	F (A+C+E)	G	H	I	J	K (G+H+I+J)	K-F	H-D	
	2014	Carryover 2014	Original 2015	Revised 2015	2016 and Beyond	Total	2014	2015	2016 and Beyond	Carryovers to 2016	Total	Project Variance	Annual Variance	Notes
2015 Projects														
Purchase Tools and Equipment less than $50,000	-	-	45.6	45.6	-	45.6	-	49.6	-	-	49.6	4.0	4.0	
Replace Network Communications Equipment - Various Sites	-	-	169.5	169.5	-	169.5	-	170.2	-	-	170.2	0.7	0.7	
Upgrade Site Facilities - Various Sites	-	-	48.3	48.3	-	48.3	-	51.7	-	-	51.7	3.4	3.4	
Replace Telephone Systems - Various Sites	-	-	132.7	132.7	-	132.7	-	145.5	-	-	145.5	12.8	12.8	
Replace WIFI Access Points - Various Sites	-	-	126.3	126.3	-	126.3	-	137.8	-	-	137.8	11.5	11.5	
Replace GDC Metroplex - Various Sites	-	-	69.2	69.2	-	69.2	-	38.7	-	30.5	69.2	-	(30.5)	
Replace DTI Phone Turrets Energy Control Center - Hydro Place	-	-	44.7	44.7	-	44.7	-	29.8	-	-	29.8	(14.9)	(14.9)	
2014 Projects														
Replace Battery Banks and Chargers - Various Sites	267.0	(26.5)	398.0	371.5	-	665.0	293.5	275.4	-	-	568.9	(96.1)	(96.1)	
Upgrade IP SCADA Network - Various Sites	254.2	109.4	238.7	348.1	-	492.9	144.8	445.6	-	-	590.4	97.5	97.5	
Total Telecontrol Projects	521.2	82.9	1,273.0	1,355.9	-	1,794.2	438.3	1,344.3	-	30.5	1,813.1	18.9	(11.6)	

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2015 Capital Expenditures By Category ($000)

Transportation	Capital Budget						Actual Expenditure and Forecast								
	A	B	C	D (B+C)	E	F (A+C+E)	G	H	I	J	K (G+H+I+J)	K-F	H-D	
	2014	Carryover 2014	Original 2015	Revised 2015	2016 and Beyond	Total	2014	2015	2016 and Beyond	Carryovers to 2016	Total	Project Variance	Annual Variance	Notes
2015 Projects														
Replace Vehicles and Aerial Devices - Hydro System (2015-2016)	-	-	2377.1	2,377.1	225.3	2,602.4	-	1,734.9	225.3	642.2	2,602.4	-	(642.2)	35
2014 Projects														
Replace Vehicles and Aerial Devices - Various Sites (2014-2015)	1809.1	908.6	1,091.0	1,999.6	-	2,900.1	900.5	1,916.1	-	-	2,816.6	(83.5)	(83.5)	
Total Transportation	1,809.1	908.6	3,468.1	4,376.7	225.3	5,502.5	900.5	3,651.0	225.3	642.2	5,419.0	(83.5)	(725.7)	

Administrative	Capital Budget						Actual Expenditure and Forecast							
	2014	Carryover 2014	Original 2015	Revised 2015	2016 and Beyond	Total	2014	2015	2016 and Beyond	Carryovers to 2016	Total	Variance	Annual Variance	Notes
2015 Projects														
Remove Safety Hazards - Various Sites - 2015	-	-	194.9	194.9	-	194.9	-	176.9	-	-	176.9	(18.0)	(18.0)	
Replace Roof - Hydro Place	-	-	671.9	671.9	-	671.9	-	623.2	-	-	623.2	(48.7)	(48.7)	
Replace Cooling Tower and Auxiliaries - Hydro Place	-	-	45.7	45.7	311.3	357.0	-	52.5	311.3	(6.8)	357.0	-	6.8	
Purchase Tools and Equipment less than $50,000	-	-	68.0	68.0	-	68.0	-	18.6	-	-	18.6	(49.4)	(49.4)	
2014 Projects														
Remove Safety Hazards - Various Sites - 2014	257.8	50.2	-	50.2	-	257.8	207.6	(10.6)	-	-	197.0	(60.8)	(60.8)	
Total Administrative	257.8	50.2	980.5	1,030.7	311.3	1,549.6	207.6	860.6	311.3	(6.8)	1,372.7	(176.9)	(170.1)	

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2015 Capital Expenditures By Category ($000)

Allowance For Unforeseen	Capital Budget							Actual Expenditure and Forecast								
	A		B	C	D (B+C)	E	F (A+C+E)	G		H	I	J	K (G+H+I+J)	K-F	H-D	
	2013	2014	Carryover 2014	Original 2015	Revised 2015	2016 and Beyond	Total	2013	2014	2015	2016 and Beyond	Carryover to 2016	Total	Project Variance	Annual Variance	Notes
2015 Projects																
Contingency Fund	-	-	-	1,000.0	1,000.0	-	1,000.0	-	-	-	-	-	-	(1,000.0)	(1,000.0)	
Additional Allowance for Unforeseen - Board Order No. P.U. 34(2015)	-	-	-	250.0	250.0	-	250.0	-	-	-	-	-	-	(250.0)	(250.0)	
Unit Service Transformer for Unit 3 - Holyrood Thermal Generating Station								-	-	75.8	-	-	75.8	75.8	75.8	
Perform Upgrades - Western Avalon Transformer T5 Tap Changer								-	-	869.3	-	-	869.3	869.3	869.3	
Total Allowance For Unforeseen	-	-	-	1,250.0	1,250.0	-	1,250.0	-	-	945.1	-	-	945.1	(304.9)	(304.9)	36

Supplemental Projects	Capital Budget							Actual Expenditure and Forecast								
	2013	2014	Carryover 2014	Original 2015	Revised 2015	2016 and Beyond	Total	2013	2014	2015	2016 and Beyond	Carryover to 2016	Total	Project Variance	Annual Variance	Notes
2015 Projects																
Purchase Critical Spares Generation Stations	-	-	-	1,536.3	1,536.3	-	1,536.3	-	-	495.2	-	1,041.1	1,536.3	-	(1,041.1)	37
Replace Rectifier Transformers - Holyrood Units 1 and 2	-	-	-	327.9	327.9	428.3	756.2	-	-	32.0	428.3	295.9	756.2	-	(295.9)	38
Hardwoods Gas Turbine Engine Refurbishment	-	-	-	1,249.3	1,249.3	-	1,249.3	-	-	1,252.1	-	-	1,252.1	2.8	2.8	
Internal Assessment and Repair of Transformer VBN T1	-	-	-	500.1	500.1	-	500.1	-	-	321.7	-	178.4	500.1	-	(178.4)	39
2014 Projects																
100 MW (Nominal) Combustion Turbine Addition - Holyrood	-	109,677.0	14,241.5	9,248.8	23,490.3	-	118,925.8	-	95,435.5	33,061.3	-	-	128,496.8	9,571.0	9,571.0	40
Labrador West Transmission Project - Construction Phase[6]	-	37,484.2	-	163,145.3	163,145.3	128,962.6	329,592.1	-	10,996.0	628.0	-	-	11,624.0	(317,968.1)	(162,517.3)	41
Transformer T1 Replacement - Sunnyside[7]	-	7,197.8	2,135.1	1,226.4	3,361.5	-	8,424.2	-	3,236.7	1,549.7	-	-	4,786.4	(3,637.8)	(1,811.8)	42
Excitation Transformers Replacement - Bay d'Espoir	-	636.7	255.7	360.0	615.7	-	996.7	-	381.0	659.6	-	-	1,040.6	43.9	43.9	
Replace Unit #1 Air Compressor - Holyrood	-	259.5	145.6	61.1	206.7	-	320.6	-	113.9	205.5	-	-	319.4	(1.2)	(1.2)	
Purchase of Critical Spares	-	491.8	491.8	-	491.8	-	491.8	-	-	491.8	-	-	491.8	-	-	
230 kV Transmission Line - Bay d'Espoir to Western Avalon	-	2,412.6	2,412.6	18,964.7	21,377.3	270,280.7	291,658.0	-	-	2,018.2	287,255.0	2,384.8	291,658.0	-	(19,359.1)	43
2013 Projects																
Increase 230 kV Transformer Capacity - Oxen Pond	3,823.6	15,310.4	4,369.1	-	4,369.1	-	19,134.0	153.6	14,611.3	5,443.3	-	(200.2)	20,008.0	874.0	1,074.2	44
Total Supplemental Projects Approved by PUB	3,823.6	173,470.0	24,051.4	196,619.9	220,671.3	399,671.6	773,585.1	153.6	124,774.4	46,158.4	287,683.3	3,700.0	462,469.7	(311,115.4)	(174,512.9)	

Projects Less than $50,000	Capital Budget							Actual Expenditure and Forecast								
	2013	2014	Carryover 2014	Original 2015	Revised 2015	2016 and Beyond	Total	2013	2014	2015	2016 and Beyond	Carryover to 2016	Total	Variance	Annual Variance	Notes
2015 Projects																
Replace Pumps on Mobile Transformer P235 - Bishop's Falls	-	-	-	30.4	30.4	-	30.4	-	-	30.2	-	-	30.2	(0.2)	(0.2)	
Replace Generator Unit # 580 - William's Harbour	-	-	-	9.8	9.8	-	9.8	-	-	10.0	-	-	10.0	0.2	0.2	
Purchase Pick-Up - Holyrood Gas Turbine	-	-	-	36.7	36.7	-	36.7	-	-	27.2	-	-	27.2	(9.5)	(9.5)	
Replace 125 VDC Battery Bank - Paradise River Hydro Plant	-	-	-	45.9	45.9	-	45.9	-	-	29.1	-	-	29.1	(16.8)	(16.8)	
Elevator Fire Alarm Tie-in - Holyrood	-	-	-	41.7	41.7	-	41.7	-	-	46.0	-	-	46.0	4.3	4.3	
Replace Unit 7 Carbon Seal - Bay d'Espoir	-	-	-	49.2	49.2	-	49.2	-	-	46.6	-	-	46.6	(2.6)	(2.6)	
Replace Unit 7 Turbine Base Plate - Bay d'Espoir	-	-	-	49.4	49.4	-	49.4	-	-	46.4	-	-	46.4	(3.0)	(3.0)	
Spare Turbine Bearing Refurbishment Unit 1-6 - Bay d'Espoir	-	-	-	47.4	47.4	-	47.4	-	-	37.2	-	-	37.2	(10.2)	(10.2)	
Replace Unit 1 Turbine Guide Gearing - Bay d'Espoir	-	-	-	40.3	40.3	-	40.3	-	-	49.5	-	-	49.5	9.2	9.2	
Replace Valve Breaker B12L42 - Holyrood TS	-	-	-	34.0	34.0	-	34.0	-	-	-	-	-	-	(34.0)	(34.0)	
Purchase Portable Generating Unit - Oxen Pond TS	-	-	-	28.0	28.0	-	28.0	-	-	28.0	-	-	28.0	-	-	
Replace Horizontal Fuel Tanks - St. Anthony Diesel Plant	-	-	-	48.8	48.8	-	48.8	-	-	50.1	-	-	50.1	1.3	1.3	
Thrust Bearing Refurbishment Units 1 - 6, Bay d'Espoir	-	-	-	2.5	2.5	41.2	43.7	-	-	0.1	41.2	2.4	43.7	-	(2.4)	
Replace Interupter Bottom Brook Breaker B3L50	-	-	-	1.0	1.0	48.2	49.2	-	-	-	48.2	1.0	49.2	-	(1.0)	
Total Projects Less than $50,000	-	-	-	465.1	465.1	89.4	554.5	-	-	400.4	89.4	3.4	493.2	(61.3)	(64.7)	

[6] The construction of the Labrador West Transmission was approved by OC2014-033, February 2, 2014. The capital expenditures associated with this project are $11.6M as at December 31, 2015 and are included in Work In Progress and as a result are currently excluded from average rate base. The costs to be included in rate base will be subject to review by the Board of Commissioners of Public Utilities.

[7] Includes Insurance Proceeds relating to Sunnyside - Transformer T1 Replacement ($1.8M).

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($000)

The projects discussed in the following section have variances of more than 10% and $100,000 when comparing budget to the 2015 expenditure, whether it is a single year project or a multiyear project. Also discussed are projects where there is a total project variance that is greater than 10% and $100,000. The projects are ordered and numbered for explanation below based on the order and number they appear in the preceding set of tables.

The majority of projects noted were executed against a Class 3 estimate that was completed for the Capital Budget Application. A Class 3 estimate is considered to have an accuracy range of -20% to +30% based on the total project budget. There is also generally a 20% contingency applied to the projects.

Hydraulic Generation Projects

1. Replace ABB Exciter Unit 2 - Cat Arm (2015)

Budget: $845.9 **Total: $680.8** **Variance: ($165.1)**

This project is complete. The project costs for exciter manufacturing were lower than estimated. The variance is also attributable to contingency funds not being required.

2. Replace Interior Coating on Surge Tank 3 - Bay d'Espoir (2015)

Budget: $1,629.3 **Total: $1,262.7** **Variance: ($366.6)**

This project is complete. The approved budget included a structural inspection as well as anticipated repairs resulting from the findings of the inspection report. The inspection report determined that structural repairs and associated costs were not required. The variance is also attributable to the contingency funds not being required.

3. Rehabilitate Salmon River Spillway - Bay d'Espoir (2015-2016)

Budget: $745.6 **Total: $522.9** **Variance: ($222.7)**

This is a two-year project that commenced in 2015. A portion of the scope has been rescheduled from 2015 to 2016. There is no change to the total project budget, scope or completion date. The installation of the gate drive brakes was rescheduled from 2015 to 2016 due to a vendor supply issue. The gate

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heater replacement was rescheduled from 2015 to 2016 to allow for re-planning of the work to lower the safety risk during construction.

4. Replace Pump House and Associated Equipment - Bay d'Espoir (2015-2016)

Budget: $22.7 Total: $137.0 Variance: $114.3

This is a two-year project that commenced in 2015. The original project schedule included engineering design from November 2015 to February 2016. The annual variance is due to the fact that engineering work was advanced and largely completed in 2015. There is no change to the overall project scope, budget or completion date.

5. Upgrade Burnt Dam Spillway - Bay d'Espoir (2014-2015)

Budget: $1,186.0 Total: $640.2 Variance: ($545.8)

This project is partially complete with the remaining scope carried into for 2016. The engineering and procurement of the diesel generator units took longer than estimated in order to ensure best available control technology in compliance with Air Pollution Control Regulations. Electrical upgrades to the Burnt Dam structure and replacement of the stop-log seals were completed later in 2015 than originally scheduled. In order to avoid congestion at site and ensure safe execution of the remaining work, the upgrades to the emergency backup hydraulic system and the mechanical gate inspection were rescheduled for 2016. The total project budget is presently being re-forecasted, and any resultant material change will be discussed with the Board.

6. Upgrade Victoria Control Structure - Bay d'Espoir (2014-2015)

Budget: $415.5 Total: $235.0 Variance: ($180.5)

This is a two-year project that commenced in 2014. The project is partially complete with the remaining scope carried into for 2016. Electrical scope and civil assessment portions of this project were completed in 2015. Due to ongoing work at Burnt Dam in 2015, the start of work at Victoria Control Structure was delayed, so as not to have both Burnt Dam and Victoria systems out of service concurrently. The late

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start resulted in the mechanical scope being rescheduled to 2016. The total project budget is presently being re-forecasted, and any resultant material change will be discussed with the Board.

7. Upgrade Generator Bearings Unit 2 - Bay d'Espoir (2014)

Budget: $414.9 Total: $262.2 Variance: ($152.7)

This project is complete. The original project scope included modification of the guide bearing segments and modifications to the bearing oil pot covers in order to reduce generator bearing oil leakage. Upon reviewing the impacts of the modification to the bearing guide, as completed on Unit 2 in 2014 (a separate project), it was decided to only replace bearing oil pot covers and not modify the generator guide bearing segments for remaining generating units, as this achieved the desired project intent. The variance is also attributable to the contingency funds not being required.

8. Install Handheld Pendant to Overhead Crane - Bay d'Espoir (2014-2015)

Budget: $175.7 Total: $19.3 Variance: ($156.4)

This is a two-year project that commenced in 2014. The engineering and procurement for this project are complete and construction is rescheduled for 2016. This is a carryover but not a change to the total project budget or scope. During acceptance testing of the replacement parts, it was determined that additional parts were required which were not available until late December 2015. The cost of the additional parts was the responsibility of the vendor and thus did not impact the project cost.

Thermal Generation Projects

9. Upgrade Powerhouse Roofing - Holyrood (2015)

Budget: $1,047.8 Total: $802.9 Variance: ($244.9)

This was a single year project scheduled for completion in 2015. This project is partially complete with the remaining scope rescheduled for 2016. There is no change to the total project budget or scope. Due to weather delays that exceeded the estimated weather allowance originally included in the project plan, a portion of the roofing work was rescheduled to 2016.

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10. Upgrade Plant Elevators - Holyrood (2014)

Budget: $533.2 Total: $889.2 Variance: $356.0

This project is complete. The overall project costs included labour associated with working in a confined space. This cost was not included in the original estimate as it was not identified as a confined space. Additionally, prior to a return of service, a provincial inspector required additional upgrades that were not included in the original budget.

11. Install Variable Frequency Drives on Forced Draft Fans - Holyrood

Budget: $390.7 Total: $665.7 Variance: $275.0

This project is complete. This was a two year project that was originally planned to be completed in 2014 but was carried over into 2015. The project was completed within 10% of the total approved budget. The annual variance is attributable to engineering rework required to address issues identified during commissioning.

Gas Turbine Generation Projects

12. Replace Alternator Shaft - Happy Valley (2015)

Budget: $484.4 Total: $131.1 Variance: ($353.3)

This was a single year project scheduled for completion in 2015. The project engineering and procurement are complete and construction has been rescheduled for 2016. There is no change to the project total budget or scope. Upon delivery of the long lead equipment in the fall of 2015 it was decided, from a winter readiness perspective, that it would be more prudent to complete this work in the spring of 2016. The unit's availability through the winter was not impacted by this carry over.

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Terminal Stations Projects

13. Upgrade Circuit Breakers - Various Sites (2015-2016)

Budget: $6,189.1 **Total: $7,570.4** **Variance: $1,381.3**

This is a two year project that commenced in 2015 and is a portion of an ongoing program to replace circuit breakers. Some breaker procurement was advanced from 2016 to 2015 to allow implementation flexibility and to enhance early 2016 work implementation to meet winter readiness timelines. The project is expected to be completed on budget.

14. Upgrade Power Transformers - Various Sites (2015-2016)

Budget: $4,440.4 **Total: $2,357.3** **Variance: ($2,083.1)**

This is a two year project that commenced in 2015. The variance from the planned 2015 expenditures is primarily attributable to Cat Arm and Bay d'Espoir Generating Stations transformer orders being placed later than planned.

15. Replace Disconnect Switches - Various Sites (2015-2016)

Budget: $963.7 **Total: $563.1** **Variance: ($400.6)**

This is a two year project that commenced in 2015. There is no change to the overall project scope, budget, or completion date. The detailed project planning completed in early 2015 resulted in more of the procurement being scheduled in 2015 and a greater portion of the construction scheduled for 2016. This resulted in a net negative variance in 2015 actual expenditure against the original planned expenditure, but no impact on overall project budget.

16. Install Support Structures C2 Capacitor Bank - Hardwoods (2015)

Budget: $199.3 **Total: $58.0** **Variance: ($141.3)**

This was a single year project scheduled for completion in 2015. The project engineering and procurement are complete and construction has been rescheduled for 2016. A less costly design to address the original issue is anticipated to result in an overall budget reduction. The deferral of the

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construction work to 2016 was based on winter readiness planning and a review of impacts on system capacity and reliability; the work was rescheduled to coordinate with the replacement of a disconnect switch (another project), thereby further reducing costs.

17. Upgrade Circuit Breakers - Various Sites (2014-2015)

Budget: $3,766.2 Total: $4,167.5 Variance: $401.3

This project is complete and the overall project variance was within 10% of approved budget. The variance from the annual planned 2015 expenditure is attributable to increased engineering and field work associated with breaker controls.

Transmission Projects

18. Refurbish Anchors and Footings TL202 and TL206 - Bay d'Espoir to Sunnyside (2014)

Budget: $1,968.4 Total: $28.2 Variance: ($1,940.2)

This project commenced in 2014. The engineering is complete and during project planning, it was decided to align construction with execution of the new transmission line between Bay d'Espoir and Western Avalon Terminal Stations, which is along the same corridor. The new line was approved by the Board under Order No. P. U. 53(2014) on December 12, 2014. The alignment of this project with the construction of the transmission line will result in overall cost savings to the project as well as a reduced environmental impact.

Distribution Projects

19. Provide Service Extensions - All Service Areas (2015)

Budget: $6,328.0 Total: $4,797.0 Variance: ($1,531.0)

This is a one year project with budget based on previous years expenditures to provide service extensions to customers. The budget and actual expenditures in 2015 are shown by area in table below. The annual variance is primarily due to less than expected service extensions in Labrador than in

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previous years due to the economic climate in Labrador, resulting in fewer customer requests requiring extensions. The service extension numbers in Labrador are customer driven.

	Budget ($000)	Actual ($000)	Variance ($000)
Central	1,710.0	1,869.7	159.7
Northern	1,570.0	1,661.5	91.5
Labrador	3,048.0	1,265.8	(1,782.2)
Total	6,328.0	4,797.0	(1,531.0)

20. Upgrade Distribution Systems - All Service Areas (2015)

Budget: $3,402.0 Total: $2,985.7 Variance: ($416.3)

This is a one year project with budget based on previous years expenditures to provide distribution upgrades to customers. The budget and actual expenditures in 2015 are shown by area in table below. The variance is primarily due to less than expected distribution upgrades in Northern than in the previous years.

	Budget ($000)	Actual ($000)	Variance ($000)
Central	1,735.0	1,900.0	165.0
Northern	1,217.0	735.7	(481.3)
Labrador	450.0	350.0	(100.0)
Total	3,402.0	2,985.7	(416.3)

21. Upgrade Distribution Systems - Various Sites (2015-2016)

Budget: $1,136.1 Total: $1,379.1 Variance: $243.0

This is a multiyear project that began in 2015. There is no overall change to the project budget or completion date. The annual variance is attributable to work on the Farewell Head distribution system which included the replacement of additional cross arms and hardware to facilitate insulator replacement on Fogo Island. The cost of the additional cross arms was absorbed through the project contingency. As well, for the Bottom Waters system upgrade, a portion of the engineering design was advanced from 2016 to 2015.

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($000)

22. Voltage Conversion - Labrador City (2010)

Budget: $603.7 **Total: $854.3** **Variance: $250.6**

This multi-year project is complete and the overall project variance was within 10% of approved budget. Annual variance is due to higher than planned execution costs.

Rural Generation Projects

23. Overhaul Diesel Units - Various Sites (2015)

Budget: $1,199.2 **Total: $958.4** **Variance: ($240.8)**

This is a one year project to overhaul diesel units that are being carried over into 2016. The variance in project cost is mostly due to the late delivery of material.

24. Inspect Fuel Storage Tanks - Various Sites (2015)

Budget: $1,761.1 **Total: $769.3** **Variance: ($991.8)**

This one-year project is complete. Resultant work from inspections was less than expected at Hardwoods Gas Turbine, McCallum and Port Hope Simpson Diesel Plants. In addition, the project contract prices were lower than estimated. One tank in L'Anse au Loup was inspected and condemned by the inspector. Following consultation with the Board, it was agreed to replace the tank under this project using available budget as any attempt to repair the tank would have exceeded the cost to replace.

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25. Increase Fuel Storage - Rigolet (2015)

Budget: $1,666.8 Total: $837.1 Variance: ($829.7)

This one-year project is complete. The contract and corresponding on-site supervision costs were significantly lower than estimated. The variance is also attributable to the contingency funds not being required.

26. Install Fire Protection - L'Anse au Loup (2015-2016)

Budget: $220.6 Total: $96.4 Variance: ($124.2)

This is a two year project that commenced in 2015. The annual variance is attributed to rescheduling a portion of the engineering design and procurement activity into 2016 Q1.

27. Install Fire Protection System - Nain (2014)

Budget: $999.3 Total: $73.8 Variance: ($925.5)

This is a multi-year project that commenced in 2014. Early in 2015, project spending was suspended when it was determined that the approved budget was inadequate to complete the planned scope of work. A revised project proposal was submitted as part of the 2016 Capital Budget Application and subsequently approved. This project will now be executed as part of the 2016 budget.

28. Upgrade Diesel Plant Production Data Collection Equipment - Various Sites (2014-2016)

Budget: $430.9 Total: $57.8 Variance: ($373.1)

This is a three-year project that commenced in 2014. There is no change to the overall scope or completion date. The variance from the planned 2015 expenditure is primarily related to an overestimation of engineering and construction costs. It is anticipated that the project will be completed in 2016 under budget.

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29. Perform Arc Flash Remediation - Various Sites (2011-2015)

Budget: $2,015.7 Total: $1,771.6 Variance: ($244.1)

This was a five year project initiated in 2011 to perform arc flash hazard remediation. The planned work is complete and the project is closed. The variance is primarily attributable to the contingency funds not being required.

Properties Projects

30. Replace Accommodations and Septic System - Ebbegunbaeg (2015-2016)

Budget: $489.4 Total: $94.2 Variance: ($395.2)

This is a two year project that commenced in 2015. There is no change to the total project budget, scope or completion date. Due to the requirement for an environmental assessment and flood study, the bridge installation and road upgrades planned for 2015 were rescheduled to 2016.

Metering Projects

31. Install Automatic Meter Reading - Various Sites (2015-2016)

Budget: $559.9 Total: $90.6 Variance: ($469.3)

This is a two year project that commenced in 2015. There is no change to the total project budget, scope or completion date. The procurement of the new meters was originally planned to be received in December 2015. Delivery is now expected in 2016 Q1 with no risk to overall project completion.

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Tools and Equipment Projects

32. Replace Off Road Track Vehicles - Unit 7861 - Stephenville (2015-2016)

Budget: $1.1 Total: $176.8 Variance: $175.7

This is a two-year project, with two years required due to the timing of delivery post ordering. The variance in the 2015 planned expenditure is primarily due to early arrival of the equipment.

33. Tools and Equipment Less than $50,000 (2014)

Budget: $555.3 Total: $450.6 Variance: ($102.7)

The overall project variance is primarily due to the cancellation of the replacement of a material ramp until the completion of a condition assessment.

Information Systems Projects

34. Perform Minor Application Enhancements - Hydro Place (2015)

Budget: $329.5 Total: $482.1 Variance: $152.6

This is a one-year project that was completed in 2015. The variance was primarily for additional minor enhancements that were not anticipated.

Transportation Projects

35. Replace Vehicles and Aerial Devices - Hydro System (2015-2016)

Budget: $2,377.1 Total: $1,734.9 Variance: ($642.2)

This is a two-year project initiated in 2015. The variance from 2015 planned expenditure is related to timing of material delivery. Various chassis manufacturers were delayed in supplying chassis to the up fitters, including five chassis and six van conversions.

NEWFOUNDLAND AND LABRADOR HYDRO
2015 VARIANCE EXPLANATIONS
FOR THE YEAR ENDING DECEMBER 31, 2015
(Greater than $100,000 and 10% Variance from Budget)
($000)

36. Allowance For Unforeseen

Budget: $1,250.0 Total: $945.1 Variance: ($304.9)

The Allowance for Unforeseen is an annual allotment that permits Hydro to act expeditiously to deal with events affecting the electrical system which cannot wait for specific approval of the Board. Unforeseen expenditures for 2015 under this account include costs associated with the Inspection and Repair of Unit Service Transformer (UST-3) for Unit 3 at Holyrood Thermal Generating Station and Performing Upgrades to the Western Avalon Terminal Station Transformer T5 Tap Changer. Reports on these items have been filed with the Board of Commissioners of Public Utilities (the Board).

The annual budget for Allowance for Unforeseen is $1,000,000. Hydro applied for and the Board approved a supplementary amount of $250,000 to be added to the balance in the Allowance for Unforeseen (P.U. 34(2015)).

Supplemental Projects

37. Purchase Critical Spares - Generation Stations (2015)

Budget: $1,563.3 Total: $495.2 Variance: ($1,041.1)

A number of the critical spares included in this project have lead times in excess of nine months. Orders for materials were placed upon Board approval, and therefore, materials will be received in 2016. While no additional funding is required to complete the project, the project will not be completed until 2016.

38. Replace Excitation Transformers - Holyrood Units 1 and 2 (2015)

Budget: $327.9 Total: $32.0 Variance: ($295.9)

This is a supplemental project approved by the Board in 2015 Q4. There is no overall change to the total project budget, scope or completion date. The transformers were originally planned to be received in 2015 Q4 but were actually received in 2016 Q1.

NEWFOUNDLAND AND LABRADOR HYDRO
2015 VARIANCE EXPLANATIONS
FOR THE YEAR ENDING DECEMBER 31, 2015
(Greater than $100,000 and 10% Variance from Budget)
($000)

39. Internal Assessment and Repair of Transformer VBN T1 (2015)

Budget: $500.1 Total: $321.7 Variance: ($178.4)

This is a supplemental project approved by the Board in 2015 Q4. This project was initiated and substantially completed in 2015. The scope included a major internal inspection and an allowance for repairs; however substantial repairs were not required. The project carried into 2016 for final testing and project completion. It is anticipated that the project will close under budget.

40. 100 MW (Nominal) Combustion Turbine Addition - Holyrood (2014)

Budget: $23,490.3 Total: $33,061.3 Variance: $9,571.0

This was a two year project initiated in 2014 and is now complete. The overall project variance was within 10% of approved budget. The variance from the planned 2015 expenditure was mainly attributed to the higher than budgeted cost for the building. The main contributors to the higher than budgeted cost for the building were generally as follows:

1. Building construction progress was impacted for safety considerations associated with constructing the building in parallel with and around other work fronts. Also, there were many interruptions of heavy lifts and other aerial work due to high winds and inclement weather.

2. As the priority was to get the CT into operation, a phased approach to building construction was implemented to accommodate priority work fronts. This significantly extended the construction phase of the building.

3. Increased building complexity due to interface with the turbine generator. In particular, the Heating Ventilation Air Conditioning (HVAC) system is complex due to the nature of the equipment that is being housed in the building. Also, the fire protection system is complex due to the nature of the equipment that is being protected and integrated with the HVAC system. Fire protection system design is in full compliance with FM Global standards.

NEWFOUNDLAND AND LABRADOR HYDRO
2015 VARIANCE EXPLANATIONS
FOR THE YEAR ENDING DECEMBER 31, 2015
(Greater than $100,000 and 10% Variance from Budget)
($000)

41. Labrador West Transmission Project - Construction Phase (2014)

Budget: $163,145.3 Total: $628.0 Variance: ($162,517.3)

In 2014, the Provincial Government approved the construction of the third transmission line in Labrador to help supply power for planned new developments in Labrador West, such as the Kami Iron Ore Project, and improve reliability for all customers in the region. In September 2014, work on the line was temporarily suspended until completion of Alderon's financing plan which resulted in 2015 expenditures being lower than budgeted. All project costs incurred to date, including the 2015 Interest During Constriction costs, are covered by the security Alderon has already provided. Construction will proceed should additional funding be secured.

42. Transformer T1 Replacement - Sunnyside (2014-2015)

Budget: $8,424.2 Total: $4,786.4 Variance: ($3,637.8)

This project is complete. The variance from 2015 planned expenditure is attributed to a cost recovery from insurance proceeds and lower than estimated materials and installation costs. The variance is also attributable to the contingency funds not being required.

43. 230 kV Transmission Line - Bay d'Espoir to Western Avalon (2014-2018)

Budget: $21,377.3 Total: $2,018.2 Variance: ($19,359.1)

The original budget for 2015 was $21.4M. The revised 2015 expenditure for TL267 as submitted to the Board in the 2016 Capital Budget Application on August 1 was $4.4M. As of the end of 2015, the actual expenditure was $2.018M. The noted differences were in the areas of Project Management and Engineering, where efficiencies have been realized by expanding upon the work already completed for similar designs. The work plan to this point is on schedule, with only engineering possible at this time given that the project has not been released from Environmental Assessment. The unused funds will be carried over to 2016 for the continuation and completion of engineering and the start of construction, given the relatively early stage of the project.

NEWFOUNDLAND AND LABRADOR HYDRO
2015 VARIANCE EXPLANATIONS
FOR THE YEAR ENDING DECEMBER 31, 2015
(Greater than $100,000 and 10% Variance from Budget)
($000)

44. Increase 230 kV Transformer Capacity - Oxen Pond (2013-2014)

Budget: $4,369.1 **Total: $5,443.3** **Variance: $1,074.2**

This is a multiyear project that commenced in 2013, was substantially completed in 2014 and 2015, and has been carried into 2016 to complete project deficiencies. The approved project scope included work at both Oxen Pond and Hardwoods Terminal Stations. The overall project variance at completion will be within 10% of approved budget. The annual variance from the 2015 planned expenditures is attributed to higher than anticipated contract costs associated with additional purchase and processing of transformer oil to achieve required quality, and overall higher contract pricing.

NEWFOUNDLAND AND LABRADOR HYDRO
2015 VARIANCE EXPLANATIONS
FOR THE YEAR ENDING DECEMBER 31, 2015
(Greater than $100,000 and 10% Variance from Budget)
($000)

Captial Budgets/Expenditures 2006-2015

Year	Budget	Actual Expenditures	Variance	Percentage Variance
2006	49,024	41,217	7,807	15.9%
2007	43,304	35,669	7,635	17.6%
2008	53,579	46,246	7,333	13.7%
2009	61,544	54,152	7,392	12.0%
2010	63,297	55,553	7,744	12.2%
2011	67,454	63,116	4,338	6.4%
2012	93,840	77,252	16,588	17.7%
2013	116,373	84,755	31,618	27.2%
2014	280,601	204,728	75,873	27.0%
2015	311,177	125,119	186,058	59.8%

The 2015 variance in actual expenditures compared to budget is primarily attributable to:

- $163.0M associated with work that was planned to be completed in 2015 on the Labrador West Transmission Line[1] however was not completed due to a temporary suspension of the work in September 2014. Work is suspended until completion of Alderon's financing plan for the Kami mine.
- $19.4M variance is related to the original 2015 budget for 230 kV Transmission Line - Bay d'Espoir to Western Avalon (TL267) project. This budget was revised in early 2015 to $4.4M, and the actual expenditure in 2015 was $2.0M.

[1] The construction of the Labrador West Transmission was approved by OC2014-033, February 2, 2014. The capital expenditures associated with this project are $11,624,000 as at December 31, 2015 and are included in Work In Progress and as a result are currently excluded from average rate base. The costs to be included in rate base will be subject to review by the Board.

2015 Carryover Report
For the Year Ending December 31, 2015
($000)

Project Name	PUB Approved Budget 2015	Revised Budget 2015	Total Actual Expenditures 2015	Carryover Amount	Original Completion Year
Replace GDC Metroplex - Various Sites	69.2	69.2	38.7	30.5	2015
Upgrade Burnt Dam Spillway - Bay d'Espoir	1,186.0	1,186.0	640.2	545.8	2015
Upgrade Victoria Control Structure - Bay d'Espoir	415.5	415.5	235.0	180.5	2015
Replace Spherical By Pass Valve Assemblies Units 1 and 2 - Bay d'Espoir	141.0	223.0	169.5	53.5	2015
Install Handheld Pendant to Overhead Crane - Bay d'Espoir	175.7	175.7	19.3	156.4	2015
Upgrade Equipment Doors - Various Sites	348.5	348.5	285.4	63.1	2015
Purchase of Critical Spares - Generation Stations	1,536.3	1,536.3	495.2	1,041.1	2015
Upgrade Powerhouse Roofing - Holyrood	1,047.8	1,047.8	802.9	244.9	2015
Increase 230kV Transformer Capacity - Oxen Pond	4,369.1	5,243.1	5,443.3	(200.2)	2015
Install Support Structures C2 Capacitor Bank - Hardwoods	199.3	84.4	58.0	26.4	2015
Internal Assessment and Repair of Transformer VBN T1	500.1	500.1	321.7	178.4	2015
Overhaul Diesel Units - Various Sites	1,199.2	1,199.2	958.4	240.8	2015
Additions for Load Isolator Generation Stations - Various Sites	4,310.1	4,310.1	3,916.4	393.7	2014
Tools and Equipment Less than $50,000	622.7	622.7	0.0	35.8	2015
Replace Alternator Shaft - Happy Valley	484.4	451.1	131.1	320.0	2015
Install Automatic Meter Reading - Various Sites (2015-2016)	559.9	559.9	90.6	469.3	2016
Refurbish Unit Relay Protection - Paradise River	8.7	8.7	9.0	(0.3)	2016
Replace Station Service Breakers - Cat Arm	644.9	644.9	646.1	(1.2)	2016
Rehabilitate Salmon River Spillway - Bay d'Espoir	745.6	745.6	522.9	222.7	2016
Upgrade Generator Bearings Units 1 and 3 - Bay d'Espoir	14.7	14.7	8.1	6.6	2016
Replace Pump House and Associated Equipment - Bay d'Espoir	22.7	22.7	137.0	(114.3)	2016
Refurbish Intakes - Bay d'Espoir	72.6	72.6	26.4	46.2	2016
Install Infrared View Ports - Various Sites	83.7	83.7	54.7	29.0	2016
Replace Accommodations and Septic System - Ebbegunbaeg	489.4	489.4	94.2	395.2	2016

2015 Carryover Report
For the Year Ending December 31, 2015
($000)

Project Name	PUB Approved Budget 2015	Revised Budget 2015	Total Actual Expenditures 2015	Carryover Amount	Original Completion Year
Thrust Bearing Refurbishment Units 1 - 6, Bay d'Espoir	2.5	2.5	0.1	2.4	2016
Replace Rectifier Transformers - Holyrood Units 1 and 2	327.9	327.9	32.0	295.9	2016
Upgrade Fire Protection (Main Warehouse) - Holyrood	46.2	46.2	76.4	(30.2)	2016
Replace Instrument Transformers - Various Sites	745.1	745.1	755.5	(10.4)	2017
Upgrade Circuit Breakers - Various Sites (2015-2016)	6,189.1	6,189.1	7,570.4	(1,381.3)	2016
Install Transformer On line Gas Monitoring - Various Sites	700.5	700.5	786.5	(86.0)	2016
Upgrade Power Transformers - Various Sites	4,440.4	4,440.4	2,357.3	2,083.1	2016
Replace Disconnect Switches - Various Sites (2015-2016)	963.7	963.7	563.1	400.6	2016
Design and Install Fire Protection in 230 kV Station - Various Sites	67.6	67.6	74.9	(7.3)	2016
Upgrade Terminal Station Protection and Control - Various Sites	172.7	172.7	162.5	10.2	2016
Replace Station Lighting - Bay d'Espoir	16.7	16.7	20.0	(3.3)	2016
Replace Interupter Bottom Brook Breaker B3L50	1.0	1.0	0.0	1.0	2016
Upgrade Gas Turbine Plant Life Extension - Stephenville	2,655.2	2,655.2	2,613.6	41.6	2016
Upgrade Diesel Plant Production Data Collection Equipment-Various	430.9	60.9	57.8	3.1	2016
Install Disconnect Switches for Mobile Generators - Various Sites	10.0	10.0	7.8	2.2	2016
Replace Vehicles and Aerial Devices Hydro System (2015-2016)	2,377.1	2,377.1	1,734.9	642.2	2016
Replace Off Road Track Vehicles - Unit 7861, Stephenville (2015-2016)	1.1	1.1	176.8	(175.7)	2016
Refurbish Anchors and Footings TL202 and TL206 - Bay d'Espoir to Sunnyside	1,968.4	28.4	28.2	0.2	2017
Construct 230kV Transmission Line - Bay d'Espoir to Western Avalon	21,377.3	4,403.0	2,018.2	2,384.8	2018
Upgrade Distribution Systems - Various Sites (2015/2016)	1,136.1	1,136.1	1,379.1	(243.0)	2016
Upgrade Ventilation Systems - Various Sites	175.9	175.9	245.6	(69.7)	2016
Replace Unit 2038 - Mary's Harbour	103.5	103.5	101.7	1.8	2016
Replace Unit 254 - Paradise River	66.8	66.8	80.5	(13.7)	2016
Replace Programmable Logic Controllers - Various Sites	366.9	366.9	397.2	(30.3)	2017
Install Fire Protection - L'Anse au Loup	220.6	220.6	96.4	124.2	2016
Replace Cooling Tower and Auxiliaries - Hydro Place	45.7	45.7	52.5	(6.8)	2016
Total Carryover Amount				8,299.5	

NEWFOUNDLAND AND LABRADOR HYDRO
2015 REMOVE SAFETY HAZARDS
FOR THE YEAR ENDING DECEMBER 31, 2015
($000)

Total Approved Budget: **$194,900**
Total Expenditure: **$176,891**

Board Order P.U. 38(2010)

As part of Board Order No. P.U. 38(2010) 2011 Capital Budget, the following was included: "Because of the nature of this project the Board would expect to see an explanation in Hydro's annual report on capital expenditures as to each project that was undertaken, setting out the safety hazard that was identified, the location, the steps taken to address the issue and the amount of the expenditure." Please see the following table for projects undertaken in 2014:

Safety Hazards

Project Title/Location	Expenditure	Safety Hazard Identified	Project Scope
Resurface deteriorated concrete floor to remove safety hazards	$34.9	The concrete floor of the Wastewater Treatment Plant (WWTP) dyke is in rough shape with the majority of the concrete surface eroded. This poses a safety issue. When a chemical spill occurs it is difficult to do a proper clean up. The chemical residue will become lodged in the cracked and peeling concrete surface leaving behind hazardous waste in the dyke. The deteriorating surface no longer has any chemical resistant coating remaining, therefore the problem will continue to progress. This has also created a tripping hazard when working in the WWTP dyke. The concrete floor in the Chemical Storage Building poses similar safety risks. The rough uneven surface interferes with the proper clean-up of a spill due to hazardous chemicals becoming lodge in the cracked concrete. If spills cannot be cleaned up properly, hazardous waste is left behind posing a safety risk to those entering the storage facility. The concrete sealer is deteriorating and sections are pealing from the floor creating a slipping and tripping hazard from the dislodged sections.	Resurfacing of the concrete floors in the WWTP dyke and the chemical storage building.

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NEWFOUNDLAND AND LABRADOR HYDRO
2015 REMOVE SAFETY HAZARDS
FOR THE YEAR ENDING DECEMBER 31, 2015
($000)

Safety Hazards

Project Title/Location	Expenditure	Safety Hazard Identified	Project Scope
Install safe walkway on Oil Tank #1 roof	$142.0	Testing concluded that the roof plate for Tank #1 was under the minimal required thickness. An evaluation of the fuel oil storage tanks, associated pipelines and dyked drainage system was carried out at Holyrood by SGE Acres Limited. The study concluded that large areas of the Tank #1 roof plate were below the minimum required thickness of 0.09 inches; based on samples that were taken for testing. There is a risk of a worker falling through the roof plate into a large batch of bunker C oil which can result in death.	Construction of a walkway on the heavy fuel oil Tank #1 roof to allow safe access for operation of the east and west fuel oil suction heater valves.

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newfoundland labrador hydro
a nalcor energy company

Hydro Place. 500 Columbus Drive.
P.O. Box 12400. St. John's. NL
Canada A1B 4K7
t. 709.737.1400 f. 709.737.1800
www.nlh.nl.ca

April 13, 2017

The Board of Commissioners of Public Utilities
Prince Charles Building
120 Torbay Road, P.O. Box 21040
St. John's, NL A1A 5B2

Attention: Cheryl Blundon
Director of Corporate Services & Board Secretary

Dear Ms. Blundon:

Re: 2016 Capital Expenditures and Carryover Report – Revisions

Enclosed please find 9 copies of Hydro's revised 2016 Capital Expenditures and Carryover Report.

The 2016 Supplemental Capital Project amount for the Purchase of 12 MW Diesel Generation at Holyrood was incorrectly stated, and required modification to account for the complete $4.7 million 2016-approved amount, as reflected in Order No. P.U. 23(2016), and subsequent carryover amount to 2017 required to complete the permanent installation. Financial tables were updated to reflect the change and a variance (item 62) was also added to explain the carryover. Finally, a modification to the wording on carryover item 34 was incorporated in the report text.

Hydro trusts that you will find the enclosed to be in order and satisfactory. Should you have any questions or comments about any of the enclosed, please contact the undersigned.

Yours truly,

NEWFOUNDLAND AND LABRADOR HYDRO

Tracey Pennell

Tracey L. Pennell
Senior Counsel, Regulatory

TLP/lb

Capital Expenditures and Carryover Report
For the Year Ended December 31, 2016

A Report to the Board of Commissioners of Public Utilities

newfoundland labrador hydro
a nalcor energy company

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1.0 Capital Budget Overview

During 2016, Hydro invested $205 million to execute capital projects to contribute to the provision of safe, reliable and least-cost electricity to the people of the province. This included $59 million expended for the construction of a new transmission line between Bay d'Espoir and Western Avalon Terminal Stations. This project was released from environmental assessment in June of 2016. Significant engineering, procurement and construction activities were completed in 2016 and will continue in 2017. A significant portion of the overall capital investment included sustaining capital to replace boiler tubes for Units 1 and 2 and to overhaul the turbine and generator for Unit 3 at Holyrood Thermal Generating Station. There were also significant investments in power transformers and circuit breakers.

Table 1

Total Capital Project Variance
2016 Overview
($000)

Asset Type	Board Approved Budget	Total Project Expenditures and Forecast	Variance
HYDRAULIC	28,981	28,312	(669)
THERMAL	17,094	19,500	2,406
GAS TURBINES	6,125	6,656	531
TERMINAL STATIONS	122,691	125,064	2,373
TRANSMISSION	326,871	327,155	284
DISTRIBUTION	19,464	19,210	(255)
RURAL GENERATION	34,197	34,589	392
PROPERTIES	4,553	4,193	(360)
METERING	2,119	2,588	468
RURAL SYSTEMS TOOLS AND EQUIPMENT	2,159	1,762	(396)
INFORMATION SYSTEMS	4,433	4,363	(69)
TELECONTROL	5,583	5,683	100
TRANSPORTATION	5,135	5,069	(66)
ADMINISTRATIVE	1,633	1,382	(251)
ALLOWANCE FOR UNFORESEEN	3,000	13,667	10,667
SUPPLEMENTAL PROJECTS	361,387	42,500	(318,888)
PROJECTS APPROVED FOR LESS THAN $50,000	362	333	(29)
TOTAL CAPITAL BUDGET	**945,787**	**642,024**	**(303,764)**

2.0 Capital Expenditures by Year

The following tables provide a summary of Hydro's Capital Expenditures by Year for the period 2012-2017.

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Table 2

2016 Capital Expenditures By Year
($000)

Summary	Capital Budget[1]									Actual Expenditure and Forecast									
	A				B	C	D (B+C)	E	F (A+C+E)	G				H	I	J	K (G+H+I+J)	K-F	H-D
	2012	2013	2014	2015	Carryover 2016	Original 2016	Revised 2016	2017 and Beyond	Total	2012	2013	2014	2015	2016	2017 and Beyond	Carryovers to 2017	Total	Project Variance	Annual Variance
2016 Projects						106,199.7	106,199.7	120,950.2	227,149.9					105,800.6	120,950.2	9,556.0	236,306.8	9,156.9	(399.1)
2015 Projects				28,736.9	4,792.1	29,024.3	33,816.4	245.1	58,006.3				23,772.8	34,334.5	245.1	1,118.2	59,470.6	1,464.3	518.1
2014 Projects			38,677.3	169,315.5	3,324.3	205,566.0	208,890.3	212,872.3	626,431.1			11,578.8	3,796.2	62,032.2	205,115.0	27,270.5	309,792.7	(316,638.4)	(146,858.1)
2013 Projects		6,457.0	25,221.1	538.4	183.1	1,511.7	1,694.8	471.9	34,200.1	37.4	1,580.7	22,163.8	10,115.2	1,773.7	471.9	311.0	36,453.7	2,253.6	78.9
Grand Total	-	6,457.0	63,898.4	198,590.8	8,299.5	342,301.7	350,601.2	334,539.5	945,787.4	37.4	1,580.7	33,742.6	37,684.2	203,941.0	326,782.2	38,255.7	642,023.8	(303,763.6)	(146,660.2)

2016 Capital Budget Approved by Board Order No. P.U. 33(2015)	183,082.8
New Project Approved by (O.C. 2014-033)[2]	128,962.6
New Project Approved by Board Order No. P.U. 27(2015)	428.3
New Project Approved by Board Order No. P.U. 8(2016)	1,000.0
New Project Approved by Board Order No. P.U. 17 & P.U. 23 (2016)	4,700.0
New Project Approved by Board Order No. 19 (2016)	11,800.0
New Project Approved by Board Order No. 20 (2016)	717.0
New Project Approved by Board Order No. 22 (2016)	3,047.1
New Project Approved by Board Order No. 28 (2016)	1,977.3
New Project Approved by Board Order No. 37 (2016)	490.0
New Project Approved by Board Order No. 40 (2016)	4,738.3
New Project Approved by Board Order No. 48 (2016)	1,000.0
2016 New Projects under $50,000 Approved by Hydro	358.3
Total Approved Capital Budget Before Carryovers	342,301.7
Carryovers from 2015 to 2016	8,299.5
TOTAL APPROVED CAPITAL BUDGET	350,601.2

[1] Annual budgets previous to 2016 pertain to projects that have expenditures in 2016.

[2] The construction of the Labrador West Transmission was approved by OC2014-033, February 2, 2014. The capital expenditures associated with this project are included in Work In Progress and as a result are currently excluded from average rate base. The costs to be included in rate base will be subject to review by the Board of Commissioners of Public Utilities.

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3.0 Capital Expenditures by Category

The following tables provide Hydro's Capital Expenditures by category including: Hydraulic Generation, Thermal Generation, Gas Turbine Generation, Terminal Stations, Transmission, Distribution, Rural Generation, Properties, Metering, Tools and Equipment, Information Systems, and Telecontrol Projects.

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Table 3

2016 Capital Expenditures By Category
($000)

Hydraulic Generation Projects	Capital Budget							Actual Expenditure and Forecast						K–F	H–D	
	A		B	C	D (B+C)	E	F (A+C+E)	G		H	I	J	K (G+H+I+J)			
	2014	2015	Carryover 2015	Original 2016	Revised 2016	2017 and Beyond	Total	2014	2015	2016	2017 and Beyond	Carryovers to 2017	Total	Project Variance	Annual Variance	Notes
2016 Projects																
Install Hydrometeorological Equipment – Various Sites	-	-	-	314.1	314.1	-	314.1	-	-	4.3	-	309.8	314.1	-	(309.8)	1
Perform Condition Assessment of Control Structures – Hinds Lake	-	-	-	323.4	323.4	-	323.4	-	-	351.1	-	-	351.1	27.7	27.7	
Replace Generator Cooling Water Piping – Hinds Lake	-	-	-	181.7	181.7	-	181.7	-	-	278.4	-	-	278.4	96.7	96.7	
Replace Control Room/Communications Room Air Conditioning – Hinds Lake	-	-	-	41.3	41.3	53.0	94.3	-	-	31.0	53.0	10.3	94.3	-	(10.3)	
Refurbish Station Water System – Upper Salmon	-	-	-	96.6	96.6	197.6	294.2	-	-	38.3	197.6	58.3	294.2	-	(58.3)	
Upgrade Work – Cat Arm	-	-	-	558.3	558.3	1,353.0	1,911.3	-	-	240.4	1,353.0	317.9	1,911.3	-	(317.9)	2
Rehabilitate Shoreline Protection – Cat Arm	-	-	-	112.2	112.2	1,030.7	1,142.9	-	-	104.7	1,030.7	7.5	1,142.9	-	(7.5)	
Replace Site Facilities – Bay d'Espoir	-	-	-	928.3	928.3	11,053.0	11,981.3	-	-	270.4	11,053.0	657.9	11,981.3	-	(657.9)	3
Replace Interior and Exterior Protective Coating on Surge Tank 2 – Bay d'Espoir	-	-	-	2,959.6	2,959.6	-	2,959.6	-	-	2,735.7	-	-	2,735.7	(223.9)	(223.9)	
Upgrade Public Safety Around Dams and Waterways – Bay d'Espoir	-	-	-	477.6	477.6	-	477.6	-	-	334.7	-	-	334.7	(142.9)	(142.9)	4
Replace PH1 Station Service Transformer – Bay d'Espoir	-	-	-	46.7	46.7	354.5	401.2	-	-	45.0	354.5	1.7	401.2	-	(1.7)	
Replace Monitoring Vibration System Unit 7 – Bay d'Espoir	-	-	-	366.0	366.0	-	366.0	-	-	272.1	-	-	272.1	(93.9)	(93.9)	
Replace Spherical By-Pass Valves Units 1 and 2 – Bay d'Espoir	-	-	-	183.6	183.6	167.9	351.5	-	-	154.8	167.9	28.8	351.5	-	(28.8)	
Assess Vent Chambers Units 1 to 6 – Bay d'Espoir	-	-	-	85.7	85.7	-	85.7	-	-	85.7	-	-	85.7	-	-	
Overhaul Turbine/Generator Units #6 and #7 – Bay d'Espoir	-	-	-	1,345.6	1,345.6	-	1,345.6	-	-	544.5	-	56.2	600.7	(744.9)	(801.1)	5
Purchase Tools and Equipment Less than $ 50,000	-	-	-	96.1	96.1	-	96.1	-	-	90.8	-	-	90.8	(5.3)	(5.3)	
2015 Projects																
Refurbish Unit Relay Protection – Paradise River	-	8.7	(0.3)	79.7	79.4	-	88.4	-	9.0	129.1	-	-	138.1	49.7	49.7	
Replace Station Service Breakers – Cat Arm	-	644.9	(1.2)	363.4	362.2	-	1,008.3	-	646.1	185.9	-	176.3	1,008.3	-	(176.3)	6
Rehabilitate Salmon River Spillway – Bay d'Espoir	-	745.6	222.7	556.8	779.5	-	1,302.4	-	522.9	871.1	-	-	1,394.0	91.6	91.6	
Upgrade Generator Bearings Units 1 and 3 – Bay d'Espoir	-	14.7	6.6	633.3	639.9	-	648.0	-	8.1	277.1	-	-	285.2	(362.8)	(362.8)	7
Replace Pump House and Associated Equipment – Bay d'Espoir	-	22.7	(114.3)	522.5	408.2	-	545.2	-	137.0	128.6	-	279.6	545.2	-	(279.6)	8
Upgrade Equipment Doors – Various Sites	-	348.5	63.1	0.0	63.1	-	348.5	-	285.4	115.4	-	46.7	447.5	99.0	52.3	
Refurbish Intakes – Bay d'Espoir	-	72.6	46.2	262.3	308.5	-	334.9	-	26.4	262.2	-	-	288.6	(46.3)	(46.3)	
Install Infrared View Ports – Various Sites	-	83.7	29.0	113.1	142.1	-	196.8	-	54.7	151.3	-	-	206.0	9.2	9.2	
2014 Projects																
Upgrade Burnt Dam Spillway – Bay d'Espoir	110.2	1,201.9	545.8	-	545.8	-	1,312.1	126.1	640.2	740.2	-	-	1,506.5	194.4	194.4	9
Upgrade Victoria Control Structure – Bay d'Espoir	495.1	-	180.5	-	180.5	-	495.1	79.6	235.0	446.9	-	-	761.5	266.4	266.4	10
Replace Spherical By Pass Valve Assemblies Units 1 and 2 – Bay d'Espoir	57.5	96.3	53.5	-	53.5	-	153.8	12.8	169.5	77.2	-	-	259.5	105.7	23.7	11
Install Handheld Pendant to Overhead Crane – Bay d'Espoir	49.9	170.8	156.4	-	156.4	-	220.7	45.0	19.3	166.8	-	-	231.1	10.4	10.4	
Total Hydraulic Generation Projects	712.7	3,410.4	1,188.0	10,647.9	11,835.9	14,209.7	28,980.7	263.5	2,753.6	9,133.7	14,209.7	1,951.0	28,311.5	(669.2)	(2,702.2)	

Table 4

2016 Capital Expenditures By Category
($000)

Thermal Generation Projects	Capital Budget						Actual Expenditure and Forecast							
	A	B	C	D (B+C)	E	F (A+C+E)	G	H	I	J	K (G+H+I+J)	K-F	H-D	
	2015	Carryover 2015	Original 2016	Revised 2016	2017 and Beyond	Total	2015	2016	2017 and Beyond	Carryovers to 2017	Total	Project Variance	Annual Variance	Notes
2016 Projects														
Upgrade Powerhouse Building Envelope - Holyrood	-	-	2,723.8	2,723.8	3,754.0	6,477.8	-	2,239.9	3,754.0	483.9	6,477.8	-	(483.9)	12
Overhaul Steam Turbine Generator Unit 3 - Holyrood	-	-	5,868.6	5,868.6	-	5,868.6	-	8,147.9	-	-	8,147.9	2,279.3	2,279.3	13
Rewind Rotor and Install Flux Probe Unit 3 - Holyrood	-	-	2,755.5	2,755.5	-	2,755.5	-	2,879.8	-	-	2,879.8	124.3	124.3	
Study of Space Heating and Boiler Startup Assistance - Holyrood	-	-	148.7	148.7	-	148.7	-	154.0	-	-	154.0	5.3	5.3	
Overhaul Pumps - Holyrood	-	-	536.2	536.2	-	536.2	-	532.4	-	-	532.4	(3.8)	(3.8)	
Purchase Tools and Equipment Less than $ 50,000	-	-	15.8	15.8	-	15.8	-	13.7	-	-	13.7	(2.1)	(2.1)	
2015 Projects														
Upgrade Powerhouse Roofing - Holyrood	1,047.8	244.9	-	244.9	-	1,047.8	802.9	218.8	-	-	1,021.7	(26.1)	(26.1)	
Upgrade Fire Protection (Main Warehouse) - Holyrood	46.2	(30.2)	197.6	167.4	-	243.8	76.4	196.1	-	-	272.5	28.7	28.7	
Total Thermal Generation Projects	1,094.0	214.7	12,246.2	12,460.9	3,754.0	17,094.2	879.3	14,382.6	3,754.0	483.9	19,499.8	2,405.6	1,921.7	

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Table 5

2016 Capital Expenditures By Category
($000)

Gas Turbine Generation Projects	Capital Budget						Actual Expenditure and Forecast							
	A	B	C	D (B+C)	E	F (A+C+E)	G	H	I	J	K (G+H+I+J)	K-F	H-D	
	2015	Carryover 2015	Original 2016	Revised 2016	2017 and Beyond	Total	2015	2016	2017 and Beyond	Carryover to 2017	Total	Project Variance	Annual Variance	Notes
2016 Projects														
Replace Fuel Piping - Hardwoods and Stephenville	-	-	44.8	44.8	267.0	311.8	-	11.6	267.0	33.2	311.8	-	(33.2)	
Install Transfer Switches for Diesel Automation - Happy Valley	-	-	148.4	148.4	-	148.4	-	147.7	-	-	147.7	(0.7)	(0.7)	
2015 Projects														
Upgrade Gas Turbine Plant Life Extension - Stephenville	2,655.2	41.6	2,525.4	2,567.0	-	5,180.6	2,613.6	3,107.4	-	-	5,721.0	540.4	540.4	14
Replace Alternator Shaft - Happy Valley	484.4	320.0	-	320.0	-	484.4	131.1	344.1	-	-	475.2	(9.2)	24.1	
Total Gas Turbine Generation Projects	3,139.6	361.6	2,718.6	3,080.2	267.0	6,125.2	2,744.7	3,610.8	267.0	33.2	6,655.7	530.5	530.6	

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Table 6

2016 Capital Expenditures By Category
($000)

Terminal Stations Projects	Capital Budget								Actual Expenditure and Forecast										
	A			B	C	D (B+C)	E	F (A+C+E)	G				H	I	J	K (G+H+I+J)	K-F	H-D	
	2013	2014	2015	Carryover 2015	Original 2016	Revised 2016	2017 and Beyond	Total	2012	2013	2014	2015	2016	2017 and Beyond	Carryovers to 2017	Total	Project Variance	Annual Variance	Notes
2016 Projects																			
Upgrade Circuit Breakers - Various Sites (2016-2020)	-	-	-	-	6,969.1	6,969.1	54,491.3	61,460.4	-	-	-	-	5,599.5	54,491.3	1,369.6	61,460.4	-	(1,369.6)	15
Replace Surge Arrestors - Various Sites	-	-	-	-	144.4	144.4	53.0	197.4	-	-	-	-	175.1	53.0	(30.7)	197.4	-	30.7	
Replace Protective Relays - Various Sites	-	-	-	-	700.6	700.6	1,156.4	1,857.0	-	-	-	-	1,425.8	1,156.4	(725.2)	1,857.0	-	725.2	16
Replace Disconnect Switches - Various Sites (2016-2017)	-	-	-	-	646.9	646.9	1,320.9	1,967.8	-	-	-	-	131.7	1,320.9	515.2	1,967.8	-	(515.2)	17
Upgrade Digital Fault Recorders - Various Sites	-	-	-	-	197.9	197.9	304.6	502.5	-	-	-	-	221.2	304.6	(23.3)	502.5	-	23.3	
Upgrade Roof - Indian River	-	-	-	-	48.3	48.3	-	48.3	-	-	-	-	46.0	-	-	46.0	(2.3)	(2.3)	
Upgrade Aluminum Support Structure - Holyrood	-	-	-	-	401.1	401.1	-	401.1	-	-	-	-	186.1	-	-	186.1	(215.0)	(215.0)	18
Upgrade Terminal Station Equipment Foundations - Various Sites	-	-	-	-	319.9	319.9	-	319.9	-	-	-	-	300.2	-	-	300.2	(19.7)	(19.7)	
Upgrade Data Alarm Systems - Various Sites	-	-	-	-	74.4	74.4	234.1	308.5	-	-	-	-	49.7	234.1	24.7	308.5	-	(24.7)	
Install Breaker Failure Protection - Various Sites	-	-	-	-	65.7	65.7	211.3	277.0	-	-	-	-	81.8	211.3	(16.1)	277.0	-	16.1	
Install Fire Protection in 230 kV Stations - Bay d'Espoir	-	-	-	-	200.0	200.0	566.0	766.0	-	-	-	-	91.4	566.0	108.6	766.0	-	(108.6)	19
Install Spare Transformer - Happy Valley	-	-	-	-	2,040.9	2,040.9	-	2,040.9	-	-	-	-	2,026.8	-	-	2,026.8	(14.1)	(14.1)	
Upgrade Terminal Station for Mobile Substation - Cow Head	-	-	-	-	40.0	40.0	444.7	484.7	-	-	-	-	27.5	444.7	12.5	484.7	-	(12.5)	
Replace Air Receivers and Compressors - St. Anthony	-	-	-	-	120.7	120.7	-	120.7	-	-	-	-	215.4	-	-	215.4	94.7	94.7	
2015 Projects																			
Upgrade Circuit Breakers - Various Sites (2015-2016)	-	-	6,189.1	(1,381.3)	6,873.8	5,492.5	-	13,062.9	-	-	-	7,570.4	6,022.4	-	-	13,592.8	529.9	529.9	
Install Transformer On line Gas Monitoring - Various Sites	-	-	700.5	(86.0)	975.7	889.7	-	1,676.2	-	-	-	786.5	1,065.6	-	-	1,852.1	175.9	175.9	20
Upgrade Power Transformers - Various Sites	-	-	4,440.4	2,083.1	7,002.3	9,085.4	-	11,442.7	-	-	-	2,357.3	9,472.8	-	-	11,830.1	387.4	387.4	
Replace Disconnect Switches - Various Sites (2015-2016)	-	-	963.7	400.6	642.9	1,043.5	-	1,606.6	-	-	-	563.1	946.3	-	-	1,509.4	(97.2)	(97.2)	
Design and Install Fire Protection in 230 kV Station - Various Sites	-	-	67.6	(7.3)	424.3	417.0	-	491.9	-	-	-	74.9	458.7	-	-	533.6	41.7	41.7	
Upgrade Terminal Station Protection and Control - Various Sites	-	-	172.7	10.2	307.2	317.4	-	479.9	-	-	-	162.5	734.9	-	-	897.4	417.5	417.5	21
Install Support Structures C2 Capacitor Bank - Hardwoods	-	-	199.3	26.4	-	26.4	-	199.3	-	-	-	58.0	21.7	-	-	79.7	(119.6)	(4.7)	22
Replace Station Lighting - Bay d'Espoir	-	-	16.7	(3.3)	160.3	157.0	-	177.0	-	-	-	20.0	178.4	-	-	198.4	21.4	21.4	
2013 Projects																			
Replace Instrument Transformers - Various Sites	593.2	552.8	538.4	(10.4)	1,511.7	1,501.3	471.9	3,668.0	9.6	230.7	699.0	755.5	1,190.3	471.9	311.0	3,668.0	-	(311.0)	23
Increase 230 kV Transformer Capacity - Oxen Pond	3,823.6	15,310.4	-	(200.2)	-	(200.2)	-	19,134.0	-	153.6	14,611.3	5,443.3	98.3	-	-	20,306.5	1,172.5	298.5	24
Total Terminal Stations Projects	4,416.8	15,863.2	13,288.4	831.8	29,868.1	30,699.9	59,254.2	122,690.7	9.6	384.3	15,310.3	17,791.5	30,767.6	59,254.2	1,546.3	125,063.8	2,373.1	67.7	

Table 7

2016 Capital Expenditures by Category
($000)

Transmission Projects	Capital Budget							Actual Expenditure and Forecast								
	A		B	C	D	E	F (A+C+E)	G		H	I	J	K(G+H+I+J)	K-F	H-D	
	2014	2015	Carryover 2015	Original 2016	Revised 2016	2017 and Beyond	Total	2014	2015	2016	2017 and Beyond	Carryovers to 2017	Total	Project Variance	Annual Variance	Notes
2016 Projects																
Construct 230 kV Transmission Line - Soldiers Pond to Hardwoods	-	-	-	3,699.0	3,699.0	22,861.9	26,560.9	-	-	3,501.6	22,861.9	197.4	26,560.9	-	(197.4)	
Replace Insulators - TL203	-	-	-	1,985.6	1,985.6	-	1,985.6	-	-	2,008.2	-	-	2,008.2	22.6	22.6	
Replace Aircraft Markers at Grand Lake Crossing - TL228	-	-	-	589.6	589.6	978.3	1,567.9	-	-	61.8	978.3	527.8	1,567.9	-	(527.8)	25
Perform Wood Pole Line Management Program - Various Sites	-	-	-	2,919.0	2,919.0	-	2,919.0	-	-	3,180.1	-	-	3,180.1	261.1	261.1	
2014 Projects																
Refurbish Anchors and Footings TL202 and TL206 - Bay d'Espoir to Sunnyside	211.5	28.4	0.2	1,038.4	1,038.6	901.6	2,179.9	211.5	28.2	19.9	901.6	1,018.7	2,179.9	-	(1,018.7)	26
230 kV Transmission Line - Bay d'Espoir to Western Avalon	-	4,403.0	2,384.8	75,284.3	77,669.1	211,970.7	291,658.0	-	2,018.2	59,317.8	204,213.4	26,108.6	291,658.0	-	(18,351.3)	27
Total Transmission Projects	211.5	4,431.4	2,385.0	85,515.9	87,900.9	236,712.5	326,871.3	211.5	2,046.4	68,089.4	228,955.2	27,852.5	327,155.0	283.7	(19,811.5)	

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Table 8

2016 Capital Expenditures By Category
($000)

Distribution Projects	Capital Budget						Actual Expenditure and Forecast							
	A	B	C	D (B+C)		F (A+C+E)	G	H	I	J	K (G+H+I+J)	K-F	H-D	
	2015	Carryover 2015	Original 2016	Revised 2016	2017 and Beyond	Total	2015	2016	2017 and Beyond	Carryovers to 2017	Total	Project Variance	Annual Variance	Notes
2016 Projects														
Provide Service Extensions - All Service Areas	-	-	5,350.0	5,350.0	-	5,350.0	-	6,021.5	-	-	6,021.5	671.5	671.5	28
Provide Service Extensions - All Service Areas - CIAC	-	-	(200.0)	(200.0)	-	(200.0)	-	(833.1)	-	-	(833.1)	(633.1)	(633.1)	29
Upgrade Distribution Systems - All Service Areas	-	-	3,990.0	3,990.0	-	3,990.0	-	3,357.4	-	-	3,357.4	(632.6)	(632.6)	30
Upgrade Distribution Systems - All Service Areas - CIAC	-	-	(100.0)	(100.0)	-	(100.0)	-	(153.7)	-	-	(153.7)	(53.7)	(53.7)	
Upgrade Distribution Systems - Various Sites (2016/2017)	-	-	285.6	285.6	6,350.3	6,635.9	-	361.8	6,350.3	(76.2)	6,635.9	-	76.2	
Construct Overhead Distribution Line - Pilley's Island to Long Island	-	-	1,239.9	1,239.9	-	1,239.9	-	1,509.0	-	-	1,509.0	269.1	269.1	31
Additions for Load Growth - Happy Valley	-	-	593.7	593.7	-	593.7	-	582.6	-	-	582.6	(11.1)	(11.1)	
2015 Projects														
Upgrade Distribution Systems - Various Sites (2015-2016)	1,136.1	(243.0)	818.8	575.8	-	1,954.9	1,379.1	710.8	-	-	2,089.9	135.0	135.0	32
Total Distribution Projects	1,136.1	(243.0)	11,978.0	11,735.0	6,350.3	19,464.4	1,379.1	11,556.3	6,350.3	(76.2)	19,209.5	(254.9)	(178.7)	

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Table 9

2016 Capital Expenditures By Category
($000)

Rural Generation Projects	Capital Budget								Actual Expenditure and Forecast										
	A			B	C	D	E	(A+C+E)	G				H	I	J	(G+H+I+J)	K-F	H-D	
	2013	2014	2015	Carryover 2015	Original 2016	Revised 2016	2017 and Beyond	Total	2012	2013	2014	2015	2016	2017 and Beyond	Carryovers to 2017	Total	Project Variance	Annual Variance	Notes
2016 Projects																			
Overhaul Diesel Units - Various Sites	-	-	-	-	2,078.4	2,078.4	-	2,078.4	-	-	-	-	2,526.4	-	-	2,526.4	448.0	448.0	33
Upgrade Human Machine Interface - Various Sites	-	-	-	-	114.0	114.0	320.0	434.0	-	-	-	-	125.3	320.0	(11.3)	434.0	-	11.3	
Install Variable Frequency Drives - Grey River	-	-	-	-	46.9	46.9	123.0	169.9	-	-	-	-	49.7	123.0	(2.8)	169.9	-	2.8	
Inspect Fuel Storage Tanks - Various Sites	-	-	-	-	1,326.9	1,326.9	-	1,326.9	-	-	-	-	1,024.5	-	-	1,024.5	(302.4)	(302.4)	34
Replace Diesel Unit - Charlottetown	-	-	-	-	1,384.9	1,384.9	46.1	1,431.0	-	-	-	-	1,442.2	46.1	-	1,488.3	57.3	57.3	
Install Fire Protection Systems - Cartwright and Nain	-	-	-	-	3,030.7	3,030.7	1,376.4	4,407.1	-	-	-	-	782.8	1,376.4	1,557.1	3,716.3	(690.8)	(2,247.9)	35
Upgrade Transformer Systems - Postville and Cartwright	-	-	-	-	465.2	465.2	-	465.2	-	-	-	-	296.0	-	169.2	465.2	-	(169.2)	36
Additions for Load Growth - Various Sites	-	-	-	-	883.4	883.4	4,746.0	5,629.4	-	-	-	-	190.4	4,746.0	693.0	5,629.4	-	(693.0)	37
2015 Projects																			
Overhaul Diesel Units - Various Sites	-	-	1,199.2	240.8	-	240.8	-	1,199.2	-	-	-	958.4	249.6	-	-	1,208.0	8.8	8.8	
Install Disconnect Switches for Mobile Generators - Various Sites	-	-	10.0	2.2	189.3	191.5	-	199.3	-	-	-	7.8	287.5	-	-	295.3	96.0	96.0	
Upgrade Ventilation Systems - Various Sites	-	-	175.9	(69.7)	317.3	247.6	-	493.2	-	-	-	245.6	290.3	-	-	535.9	42.7	42.7	
Replace Unit 2038 - Mary's Harbour	-	-	103.5	1.8	1,241.5	1,243.3	-	1,345.0	-	-	-	101.7	1,059.3	-	-	1,161.0	(184.0)	(184.0)	38
Replace Unit 254 - Paradise River	-	-	66.8	(13.7)	429.3	415.6	-	496.1	-	-	-	80.5	434.0	-	-	514.5	18.4	18.4	
Replace Programmable Logic Controllers - Various Sites	-	-	366.9	(30.3)	346.0	315.7	245.1	958.0	-	-	-	397.2	345.5	245.1	(29.8)	958.0	-	29.8	
Install Fire Protection - L'Anse au Loup	-	-	220.6	124.2	1,126.2	1,250.4	-	1,346.8	-	-	-	96.4	1,067.3	-	-	1,163.7	(183.1)	(183.1)	39
2014 Projects																			
Upgrade Diesel Plant Production Data Collection Equipment-Various	-	268.9	269.8	3.1	280.7	283.8	-	819.4	-	-	107.8	57.8	510.6	-	143.2	819.4	-	226.8	40
2013 Projects																			
Additions for Load Isolator Generation Stations - Various Sites	2,040.2	9,357.9	-	393.7	-	393.7	-	11,398.1	27.8	1,196.4	6,853.5	3,916.4	485.1	-	-	12,479.2	1,081.1	91.4	
Total Rural Generation Projects	2,040.2	9,626.8	2,412.7	652.1	13,260.7	13,912.8	6,856.6	34,197.0	27.8	1,196.4	6,961.3	5,861.8	11,166.5	6,856.6	2,518.6	34,589.0	392.0	(2,746.3)	

Table 10

2016 Capital Expenditures By Category
($000)

Properties Projects	Capital Budget						Actual Expenditure and Forecast							
	A	B	C	D	E	F (A+C+E)	G	H	I	J	K (G+H+I+J)	K-F	H-D	
	2015	Carryover 2015	Original 2016	Revised 2016	2017 and Beyond	Total	2015	2016	2017 and Beyond	Carryovers to 2017	Total	Project Variance	Annual Variance	Notes
2016 Projects														
Upgrade Warehouse Lighting - Bishop's Falls	-	-	15.2	15.2	180.4	195.6	-	28.1	180.4	(12.9)	195.6	-	12.9	
Upgrade Line Depots - Various Sites	-	-	861.4	861.4	-	861.4	-	955.5	-	-	955.5	94.1	94.1	
Upgrade Office Facilities and Control Buildings - Various Sites	-	-	1,134.0	1,134.0	-	1,134.0	-	675.0	-	-	675.0	(459.0)	(459.0)	41
Replace Roof on Service Building - Bishop's Falls	-	-	612.8	612.8	-	612.8	-	327.8	-	285.0	612.8	-	(285.0)	42
Install Fall Protection Equipment - Various Sites	-	-	198.8	198.8	-	198.8	-	203.6	-	-	203.6	4.8	4.8	
2015 Projects														
Replace Accommodations and Septic System - Ebbegunbaeg	489.4	395.2	1,061.4	1,456.6	-	1,550.8	94.2	811.2	-	645.4	1,550.8	-	(645.4)	43
Total Properties Projects	489.4	395.2	3,883.6	4,278.8	180.4	4,553.4	94.2	3,001.2	180.4	917.5	4,193.3	(360.1)	(1,277.6)	

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Table 11

2016 Capital Expenditures By Category
($000)

Metering Projects	Capital Budget						Actual Expenditure and Forecast							
	A	B	C	D	E	F (A+C+E)	G	H	I	J	K (G+H+I+J)	K-F	H-D	
	2015	Carryover 2015	Original 2016	Revised 2016	2017 and Beyond	Total	2015	2016	2017 and Beyond	Carryovers to 2017	Total	Project Variance	Annual Variance	Notes
2016 Projects														
Install Automated Meter Reading - Labrador West	-	-	433.8	433.8	533.4	967.2	-	130.4	533.4	303.4	967.2	-	(303.4)	44
Purchase Meters, Equipment and Metering Tanks - Various Sites	-	-	190.4	190.4	-	190.4	-	155.6	-	-	155.6	(34.8)	(34.8)	
2015 Projects														
Install Automatic Meter Reading - Various Sites (2015-2016)	559.9	469.3	401.8	871.1	-	961.7	90.6	1,374.1	-	-	1,464.7	503.0	503.0	45
Total Metering Projects	559.9	469.3	1,026.0	1,495.3	533.4	2,119.3	90.6	1,660.1	533.4	303.4	2,587.5	468.2	164.8	

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Table 12

2016 Capital Expenditures By Category
($000)

Tools and Equipment	Capital Budget						Actual Expenditure and Forecast							
	A	B	C	D	E	F (A+C+E)	G	H	I	J	K (G+H+I+J)	K-F	H-D	
	2015	Carryover 2015	Original 2016	Revised 2016	2017 and Beyond	Total	2015	2016	2017 and Beyond	Carryovers to 2017	Total	Project Variance	Annual Variance	Notes
2016 Projects														
Replace Light Duty Mobile Equipment - Various Sites	-	-	348.0	348.0	-	348.0	-	351.4	-	-	351.4	3.4	3.4	
Purchase Excavator - Bay d'Espoir	-	-	312.0	312.0	-	312.0	-	187.0	-	35.0	222.0	(90.0)	(125.0)	46
Tools and Equipment Less than $ 50,000	-	-	477.0	477.0	-	477.0	-	418.5	-	-	418.5	(58.5)	(58.5)	
2015 Projects														
Replace Off Road Track Vehicles - Unit 7861, Stephenville (2015 - 2016)	1.1	(175.7)	397.8	222.1	-	398.9	176.8	-	-	-	176.8	(222.1)	(222.1)	47
Tools and Equipment Less than $ 50,000	622.7	35.8	-	35.8	-	622.7	563.1	30.4	-	-	593.5	(29.2)	(5.4)	
Total Tools and Equipment	623.8	(139.9)	1,534.8	1,394.9	-	2,158.6	739.9	987.3	-	35.0	1,762.2	(396.4)	(407.6)	

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Table 13

2016 Capital Expenditures By Category
($000)

Information Systems Projects	Capital Budget						Actual Expenditure and Forecast							
	A	B	C	D	E	F (A+C+E)	G	H	I	J	K (G+H+I+J)	K-F	H-D	
	2015	Carryover 2015	Original 2016	Revised 2016	2017 and Beyond	Total	2015	2016	2017 and Beyond	Carryovers to 2017	Total	Project Variance	Annual Variance	Notes
2016 Projects														
Perform Minor Application Enhancements - Hydro Place	-	-	346.7	346.7	-	346.7	-	360.5	-	-	360.5	13.8	13.8	
Cost Recoveries	-	-	(148.8)	(148.8)	-	(148.8)	-	(154.6)	-	-	(154.6)	(5.8)	(5.8)	
Implement Industrial Billing Software - Hydro Place	-	-	443.1	443.1	-	443.1	-	169.5	-	273.6	443.1	-	(273.6)	48
Upgrade Microsoft Project - Hydro Place	-	-	683.7	683.7	1,910.7	2,594.4	-	656.9	1,910.7	26.8	2,594.4	-	(26.8)	
Cost Recoveries	-	-	(317.1)	(317.1)	(886.2)	(1,203.3)	-	(304.8)	(886.2)	(12.3)	(1,203.3)	-	12.3	
Upgrade Sharepoint/Document Repository - Hydro Place	-	-	267.6	267.6	-	267.6	-	260.3	-	-	260.3	(7.3)	(7.3)	
Cost Recoveries	-	-	(124.1)	(124.1)	-	(124.1)	-	(120.8)	-	-	(120.8)	3.3	3.3	
Upgrade Energy Management System - Hydro Place	-	-	246.2	246.2	-	246.2	-	256.5	-	-	256.5	10.3	10.3	
Refresh Security Software - Hydro Place	-	-	230.4	230.4	-	230.4	-	230.5	-	-	230.5	0.1	0.1	
Cost Recoveries	-	-	(106.9)	(106.9)	-	(106.9)	-	(107.0)	-	-	(107.0)	(0.1)	(0.1)	
Replace Peripheral Infrastructure - Various Sites	-	-	611.3	611.3	-	611.3	-	507.3	-	-	507.3	(104.0)	(104.0)	49
Cost Recoveries	-	-	(186.8)	(186.8)	-	(186.8)	-	(154.7)	-	-	(154.7)	32.1	32.1	
Upgrade Enterprise Storage Capacity - Hydro Place	-	-	628.8	628.8	-	628.8	-	464.5	-	164.3	628.8	-	(164.3)	50
Cost Recoveries	-	-	(291.6)	(291.6)	-	(291.6)	-	(215.5)	-	(76.1)	(291.6)	-	76.1	
Replace Personal Computers - Various Sites	-	-	861.7	861.7	-	861.7	-	850.0	-	-	850.0	(11.7)	(11.7)	
Upgrade Server Technology Program - Hydro Place	-	-	492.5	492.5	-	492.5	-	451.1	-	41.4	492.5	-	(41.4)	
Cost Recoveries	-	-	(228.5)	(228.5)	-	(228.5)	-	(209.3)	-	(19.2)	(228.5)	-	19.2	
Total Information Systems Projects	-	-	3,408.2	3,408.2	1,024.5	4,432.7	-	2,940.4	1,024.5	398.5	4,363.4	(69.3)	(467.8)	

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Table 14

2016 Capital Expenditures By Category
($000)

Telecontrol Projects	Capital Budget						Actual Expenditure and Forecast					K-F	H-D	
	A	B	C	D	E	F (A+C+E)	G	H	I	J	K (G+H+I+J)	K-F	H-D	
	2015	Carryover 2015	Original 2016	Revised 2016	2017 and Beyond	Total	2015	2016	2017 and Beyond	Carryovers to 2017	Total	Project Variance	Annual Variance	Notes
2016 Projects														
Purchase Tools and Equipment less than $50,000	-	-	45.6	45.6	-	45.6	-	51.9	-	-	51.9	6.3	6.3	
Replace Battery Banks and Chargers - Various Sites	-	-	425.0	425.0	456.6	881.6	-	365.7	456.6	59.3	881.6	-	(59.3)	
Replace MDR 4000 Microwave Radio East - Various Sites	-	-	77.4	77.4	1,093.1	1,170.5	-	113.4	1,093.1	(36.0)	1,170.5	-	36.0	
Replace UPS Systems - Hydro Place	-	-	889.8	889.8	-	889.8	-	928.6	-	(38.8)	889.8	-	38.8	
Replace Network Communication Equipment - Various Sites	-	-	186.4	186.4	-	186.4	-	183.0	-	-	183.0	(3.4)	(3.4)	
Upgrade Site Facilities - Various Sites	-	-	49.5	49.5	-	49.5	-	56.1	-	-	56.1	6.6	6.6	
Replace Radomes - Various Sites	-	-	235.2	235.2	-	235.2	-	230.1	-	-	230.1	(5.1)	(5.1)	
Replace Air Conditioners - Various Sites	-	-	39.9	39.9	152.0	191.9	-	51.2	152.0	(11.3)	191.9	-	11.3	
Replace Video Conferencing Bridge - Hydro Place	-	-	182.6	182.6	-	182.6	-	213.8	-	-	213.8	31.2	31.2	
Upgrade Access Roads to Microwave Sites - Various Sites	-	-	141.1	141.1	-	141.1	-	161.3	-	-	161.3	20.2	20.2	
Upgrade Remote Terminal Units - Various Sites	-	-	89.6	89.6	-	89.6	-	106.2	-	-	106.2	16.6	16.6	
Replace Wescom Transceivers - Various Sites	-	-	49.3	49.3	-	49.3	-	55.2	-	-	55.2	5.9	5.9	
Replace Powerline Carrier - Various Sites	-	-	73.4	73.4	763.4	836.8	-	77.4	763.4	(4.0)	836.8	-	4.0	
Upgrade Telecontrol Facilities - Sandy Brook Hill	-	-	101.6	101.6	462.4	564.0	-	81.7	462.4	19.9	564.0	-	(19.9)	
2015 Projects														
Replace GDC Metroplex - Various Sites	69.2	30.5	-	30.5	-	69.2	38.7	51.7	-	-	90.4	21.2	21.2	
Total Telecontrol Projects	69.2	30.5	2,586.4	2,616.9	2,927.5	5,583.1	38.7	2,727.3	2,927.5	(10.9)	5,682.6	99.5	110.4	

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Table 15

2016 Capital Expenditures By Category
($000)

Transportation	Capital Budget						Actual Expenditure and Forecast							
	A	B	C	D	E	F (A+C+E)	G	H	I	J	K (G+H+I+J)	K-F	H-D	
	2015	Carryover 2015	Original 2016	Revised 2016	2017 and Beyond	Total	2015	2016	2017 and Beyond	Carryovers to 2017	Total	Project Variance	Annual Variance	Notes
2016 Projects														
Replace Vehicles and Aerial Devices - Various Sites (2016-2017)	-	-	1,443.3	1,443.3	534.2	1,977.5	-	1,032.7	534.2	410.6	1,977.5	-	(410.6)	51
Purchase Vehicles and Aerial Devices - Various Sites	-	-	382.5	382.5	172.7	555.2	-	470.4	172.7	(87.9)	555.2	-	87.9	
2015 Projects														
Replace Vehicles and Aerial Devices Hydro System (2015-2016)	2,377.1	642.2	225.3	867.5	-	2,602.4	1,734.9	801.8	-	-	2,536.7	(65.7)	(65.7)	
Total Transportation	2,377.1	642.2	2,051.1	2,693.3	706.9	5,135.1	1,734.9	2,304.9	706.9	322.7	5,069.4	(65.7)	(388.4)	

Administrative	Capital Budget						Actual Expenditure and Forecast							
	2015	Carryover 2015	Original 2016	Revised 2016	2017 and Beyond	Total	2015	2016	2017 and Beyond	Carryovers to 2017	Total	Variance	Annual Variance	Notes
2016 Projects														
Remove Safety Hazards - Various Sites - 2015	-	-	199.3	199.3	-	199.3	-	175.4	-	-	175.4	(23.9)	(23.9)	
Replace Roof - Hydro Place	-	-	639.5	639.5	-	639.5	-	576.2	-	-	576.2	(63.3)	(63.3)	
Replace Air Conditioning Units 8 and 14 - Hydro Place	-	-	34.6	34.6	229.5	264.1	-	31.0	229.5	3.6	264.1	-	(3.6)	
Purchase Tools and Equipment less than $50,000	-	-	172.6	172.6	-	172.6	-	55.1	-	-	55.1	(117.5)	(117.5)	52
2015 Projects														
Replace Cooling Tower and Auxiliaries - Hydro Place	45.7	(6.8)	311.3	304.5	-	357.0	52.5	258.5	-	-	311.0	(46.0)	(46.0)	
Total Administrative	45.7	(6.8)	1,357.3	1,350.5	229.5	1,632.5	52.5	1,096.2	229.5	3.6	1,381.8	(250.7)	(254.3)	

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Table 16

2016 Capital Expenditures By Category
($000)

Allowance For Unforeseen	Capital Budget							Actual Expenditure and Forecast								
	A		B	C	D	E	F (A+C+E)	G		H	I	J	K (G+H+I+J)	K-F	H-D	
	2014	2015	Carryover 2015	Original 2016	Revised 2016	2017 and Beyond	Total	2014	2015	2016	2017 and Beyond	Carryover to 2017	Total	Project Variance	Annual Variance	Notes
2016 Projects																
Contingency Fund	-	-	-	1,000.0	1,000.0	-	1,000.0	-	-	-	-	-	0.0	(1,000.0)	(1,000.0)	
Perform Upgrades - Western Avalon Transformer T5 Tap Changer	-	-	-	-	-	-	-	-	-	474.0	-	-	474.0	474.0	474.0	
Boiler Tube Replacement - Holyrood Generating Station Unit 2	-	-	-	-	-	-	-	-	-	1,565.6	-	-	1,565.6	1,565.6	1,565.6	
Boiler Tube Replacement - Holyrood Generating Station Unit 1	-	-	-	-	-	-	-	-	-	928.3	-	-	928.3	928.3	928.3	
Transmission Line TL 259 Rerouting - Sally's Cove	-	-	-	-	-	-	-	-	-	1,387.2	-	-	1,387.2	1,387.2	1,387.2	
Penstock #1 Weld Refurbishment - Bay d'Espoir				-	-	-	-	-	-	6,589.2	-	-	6,589.2	6,589.2	6,589.2	
Access Road Rehabilitations - Bay d'Espoir				-	-	-	-	-	-	2,722.6	-	-	2,722.6	2,722.6	2,722.6	
Contingency Top Up - P.U.8 (2016)	-	-	-	1,000.0	1,000.0	-	1,000.0	-	-	-	-	-	-	(1,000.0)	(1,000.0)	
Contingency Top Up -P.U.48 (2016)	-	-	-	1,000.0	1,000.0	-	1,000.0	-	-	-	-	-	-	(1,000.0)	(1,000.0)	
Total Allowance For Unforeseen	-	-	-	3,000.0	3,000.0	-	3,000.0	-	-	13,666.9	-	-	13,666.9	10,666.9	10,666.9	53

Supplemental Projects	Capital Budget							Actual Expenditure and Forecast								
	2014	2015	Carryover 2015	Original 2016	Revised 2016	2017 and Beyond	Total	2014	2015	2016	2017 and Beyond	Carryover to 2017	Total	Project Variance	Annual Variance	Notes
2016 Projects																
Upgrade Units 1 and 2 Lower Reheaters	-	-	-	11,800.0	11,800.0	-	11,800.0	-	-	11,734.4	-	-	11,734.4	(65.6)	(65.6)	
Purchase of 12 MW Diesel Generation - Holyrood	-	-	-	4,700.0	4,700.0	[. . .]	4,700.0	-	-	3,784.0	[. . .]	916.0	4,700.0	-	(916.0)	62
TL 227 Distribution Line Sally's Cove L1	-	-	-	717.0	717.0	1,533.0	2,250.0	-	-	186.3	1,533.0	530.7	2,250.0	-	(530.7)	54
Refurbish Gas Generator Engines - Hardwoods and Stephenville	-	-	-	3,047.1	3,047.1	-	3,047.1	-	-	2,538.7	-	508.4	3,047.1	-	(508.4)	55
Unit 4 Turbine Primary Seal Clearance - Bay d'Espoir	-	-	-	1,977.3	1,977.3	-	1,977.3	-	-	1,517.9	-	-	1,517.9	(459.4)	(459.4)	56
CT - Combustion Inspection and Overhaul - Holyrood	-	-	-	4,738.3	4,738.3	-	4,738.3	-	-	3,967.2	-	-	3,967.2	(771.1)	(771.1)	57
Purchase Wabush Terminal Station	-	-	-	490.0	490.0	-	490.0	-	-	464.1	-	-	464.1	(25.9)	(25.9)	
2015 Projects																
Purchase Critical Spares Generation Stations	-	1,536.3	1,041.1	-	1,041.1	-	1,536.3	-	495.2	731.2	-	-	1,226.4	(309.9)	(309.9)	58
Replace Rectifier Transformers - Holyrood Units 1 and 2	-	327.9	295.9	428.3	724.2	-	756.2	-	32.0	838.4	-	-	870.4	114.2	114.2	59
Transformer VBN T1 Major Internal Assessment	-	500.1	178.4	-	178.4	-	500.1	-	321.7	23.8	-	-	345.5	(154.6)	(154.6)	60
2014 Projects																
Labrador West Transmission Project - Construction Phase[1]	37,484.2	163,145.3	-	128,962.6	128,962.6	-	329,592.1	10,996.0	628.0	752.8	-	-	12,376.8	(317,215.3)	(128,209.8)	61
Total Supplemental Projects Approved by PUB	37,484.2	165,509.6	1,515.4	156,860.6	158,376.0	1,533.0	361,387.4	10,996.0	1,476.9	26,538.8	1,533.0	1,955.1	42,499.8	(318,887.6)	(131,837.2)	

Projects Less than $50,000	Capital Budget							Actual Expenditure and Forecast								
	2014	2015	Carryover 2015	Original 2016	Revised 2016	2017 and Beyond	Total	2014	2015	2016	2017 and Beyond	Carryover to 2017	Total	Project Variance	Annual Variance	Notes
2016 Projects																
Hardwoods Station Service Artificial Neutral	-	-	-	42.1	42.1	-	42.1	-	-	42.2	-	-	42.2	0.1	0.1	
Tank 1 External Inspection and Condition Assessment - Holyrood	-	-	-	39.8	39.8	-	39.8	-	-	24.4	-	-	24.4	(15.4)	(15.4)	
Exciter Refurbishment - Corner Brook Frequency Converter (CBFC)	-	-	-	49.0	49.0	-	49.0	-	-	46.9	-	-	46.9	(2.1)	(2.1)	
HWD Snow Door Overhaul	-	-	-	46.7	46.7	-	46.7	-	-	48.4	-	-	48.4	1.7	1.7	
Replace Radiator Unit 2029 Makkovik	-	-	-	49.0	49.0	-	49.0	-	-	27.5	-	21.5	49.0	-	(21.5)	
St. Anthony, Mary's Harbour, Port Hope Simpson - Lighting Replacement	-	-	-	42.3	42.3	-	42.3	-	-	40.4	-	-	40.4	(1.9)	(1.9)	
2015 Projects																
Thrust Bearing Refurbishment Units 1 - 6, Bay d'Espoir	-	2.5	2.4	41.2	43.6	-	43.7	-	0.1	32.7	-	-	32.8	(10.9)	(10.9)	
Replace Interrupter Bottom Brook Breaker B3L50	-	1.0	1.0	48.2	49.2	-	49.2	-	-	48.5	-	-	48.5	(0.7)	(0.7)	
Total Projects Less than $50,000	-	3.5	3.4	358.3	361.7	-	361.8	-	0.1	311.0	-	21.5	332.6	(29.2)	(50.7)	

[1] The construction of the Labrador West Transmission was approved by OC2014-033, February 2, 2014. The capital expenditures associated with this project are included in Work In Progress and as a result are currently excluded from average rate base. The costs to be included in rate base will be subject to review by the Board of Commissioners of Public Utilities.

4.0 Variance Explanations (Greater than $100,000 and 10% Variance from Budget)

The projects discussed in the following section have 2016 variances of more than 10% and $100,000 when comparing the approved budget to the 2016 expenditures, whether it is a single year project or a multiyear project. Also discussed are projects where there is a total project variance greater than 10% and $100,000. The projects are ordered and numbered based upon the order and number they appear in the preceding set of tables.

4.1 Hydraulic Generation Projects

1. Install Hydrometeorological Equipment - Various Sites (2016)

Budget: $314.1 Total: $4.3 Variance: ($309.8)

This is a one year project that has been carried over into 2017 for further evaluation of the technology prior to construction. In 2015, prior to this project, a snow water equivalent sensor was loaned to Hydro and installed at Victoria Hydrometeorological Station. The 2016 project was to purchase the loaner and an additional three snow water equivalent sensors for other sites. The data collected from the loaner sensor in the spring of 2016 was not accurate, so the project was put on hold. The sensor supplier believes the problem to be a calibration error. Hydro has requested to keep the loaner for an additional year with recalibration. If the recalibration gives acceptable results in spring of 2017, then the project will proceed.

2. Upgrade Work – Cat Arm (2016)

Budget: $558.3 Total: $240.4 Variance: ($317.9)

This is a two year project that commenced in 2016. Procurement of the deflector servo motor was originally scheduled for late 2016 and will now be procured in early 2017 with no effect on the overall execution schedule. The budget, scope and schedule remain unchanged.

3. Replace Site Facilities – Bay d'Espoir (2016)

Budget: $928.3 Total: $270.4 Variance: ($657.9)

This is a three year project that commenced in 2016. The less than forecasted spend in the first year was due to lower than expected design consultant cost. The project remains on schedule with no change to the overall budget, scope or completion date.

4. Upgrade Public Safety Around Dams and Waterways - Bay d'Espoir (2016)

Budget: $477.6 Total: $334.7 Variance: ($142.9)

This was a one year project that is part of an ongoing program to upgrade public safety around dams and waterways. The 2016 work was cut short due to Hurricane Matthew's impact on crew availability, and therefore the project was closed in 2016. Remaining scope will be completed in 2017 as part of the next Public Safety Around Dams Project. The scope of work that has been moved into 2017 is within the contingency for the 2017 project. The variance is also attributable to the 2016 contingency funds not being required.

5. Overhaul Turbine/Generator Units #6 and #7 – Bay d'Espoir (2016)

Budget: $1,345.6 Total: $544.5 Variance: ($801.1)

This was a one year project and due to unresolved contract terms with the original equipment manufacturer, and schedule conflicts with other on-going work, it was decided to limit part of the rotor scope that was included in the whole project. The rotor scope was to address unacceptable vibration levels and was limited to design only, with construction deferred until 2017. The generator bearing was replaced during the outage and resulted in a significant improvement to the operating vibration levels. Based on this improved performance, it was decided to cancel the remaining rotor scope instead of deferring it to 2017 in order to provide a timeframe to assess the long term performance of the generator with the new bearing. Approximately $60,000 of the project funds was carried into 2017 to allow time for the old generator bearing to be refurbished and returned as a capital critical spare.

6. Replace Station Service Breakers – Cat Arm (2015)

Budget: $362.2 Total: $185.9 Variance: ($176.3)

This is a two year project that commenced in 2015 and was carried over to 2017. The primary scope of this project, accounting for approximately 65% of the project budget, was the replacement of the breakers, which was completed in 2015. The programmable logic controller upgrade was scheduled for 2016 during the planned outage to Cat Arm Units 1 and 2. That planned outage was compressed as a result of the need for emergency refurbishment of Penstock 1 in Bay d'Espoir. The risk of completing this project in a compressed 2016 outage was weighed against the risk of carrying the project over to 2017 and it was determined that moving the project to 2017 would be the least risk option.

7. Upgrade Generator Bearings Units 1 and 3 – Bay d'Espoir (2015)

Budget: $648.0 Total: $285.2 Variance: ($362.8)

This is a two year project that commenced in 2015 and is now complete. The original project scope included bearing modifications to reduce generator bearing oil leakage. Upon reviewing the impacts of bearing modifications that were completed on Unit 2 in 2014 (a separate project), it was decided to reduce the scope to only what was necessary and the desired project intent was still achieved.

8. Replace Pump House and Associated Equipment – Bay d'Espoir (2015)

Budget: $408.2 Total: $128.6 Variance: ($279.6)

This is a two year project that commenced in 2015 and is being carried over into 2017/2018. Engineering work commenced, and the construction was tendered but not awarded in early 2016, since tendered prices were significantly higher than the budget. The project was carried over to realign on scope and determine if any savings could be realized in pairing this project with the construction of the Replace Site Facilities Project in Bay d'Espoir. The site facilities construction project is planned to commence in 2017 with completion in fall of 2018. The schedule for the Replace Pump House and Associated Equipment project has been modified to align with the construction schedule for the Replace Site Facilities Project.

9. Upgrade Burnt Dam Spillway – Bay d'Espoir (2014)

Budget: $1,312.1 Total: $1,506.5 Variance: $194.4

This project is complete. This was a two year project that commenced in 2014 with partial scope carried over to 2016. Additional funds were required to complete 2016 construction due to higher than expected engineering and operations support costs. The higher costs were attributed to the lack of suitable accommodations close to site resulting in longer travel time, extended construction schedules, and additional vehicle and helicopter cost. The material supply cost for the new diesel generator sets was also higher than the original estimate.

10. Upgrade Victoria Control Structure - Bay d'Espoir (2014)

Budget: $495.1 Total: $761.5 Variance: $266.4

This project is complete. This was a two year project that commenced in 2014 with partial scope carried over to 2016. Additional funds were required to complete 2016 construction due to higher than expected contractor and operations support costs. The higher costs were attributed to the lack of suitable accommodation close to site resulting in longer travel time, extended construction schedules, and additional vehicle and helicopter cost.

11. Replace Spherical By Pass Valve Assemblies Units 1 and 2 – Bay d'Espoir (2014)

Budget: $153.8 Total: $259.5 Variance: $105.7

This project is complete. The cost of the replacement by-pass valves and actuator, and the amount of construction labour required, was higher than originally budgeted.

4.2 Thermal Generation Projects

12. Upgrade Powerhouse Building Envelope - Holyrood (2016)

Budget: $2,723.8 Total: $2,239.9 Variance: ($483.9)

This is a three year project that commenced in 2016. A portion of the planned construction in 2016 has been deferred to 2017. The delay was a result of the need to tender the construction work a second time (after the first tender call was unsuccessful due to bidders

not meeting the safety requirements), as well as greater than expected weather delays. There is no change to the overall budget, scope or completion date for this project.

13. Overhaul Steam Turbine Generator Unit 3 - Holyrood (2016)

Budget: $5,868.6 Total: $8,147.9 Variance: $2,279.3

This is a one year project. The variance is due to several factors. Internal labor costs were higher than estimated due to the removal and reinstallation of the synchronous condenser skid. The contractor experienced difficulty in dismantling the unit due to the fact that the last major overhaul was 9 years ago, resulting in additional labour hours and broken parts. Finally, findings during the inspection and discovery phase of the overhaul resulted in more repairs and parts replaced than estimated.

4.3 Gas Turbine Generation Projects

14. Upgrade Gas Turbine Plant Life Extension - Stephenville (2015)

Budget: $5,180.6 Total: $5,721.0 Variance: $540.4

This is a two year project that commenced in 2015 and is complete. The total project variance is attributed to higher than expected publicly tendered prices for the fire protection upgrades, and the requirement of more extensive refurbishment of the exhaust stacks than expected. The extent of the stack refurbishment could only be accurately determined once the unit was disassembled for the work.

4.4 Terminal Stations Projects

15. Upgrade Circuit Breakers - Various Sites (2016-2020)

Budget: $6,969.1 Total: $5,599.5 Variance: ($1,369.6)

This is a five year project that commenced in 2016 and is a part of an ongoing program to replace circuit breakers in terminal stations. Some breaker procurement and engineering work was advanced from 2016 to 2015 (against the Upgrade Circuit Breakers - Various Sites (2015-2016) Project) to allow implementation flexibility in 2016 and to ensure successful completion of breaker installations for winter readiness timelines. The overall project is

currently expected to be completed on budget. An overall reforecast of the project will be undertaken at the end of 2017

16. Replace Protective Relays – Various Sites (2016)

Budget: $700.6 Total: $1,425.8 Variance: $725.2

This is a two year project that commenced in 2016. During the design phase of the project, Hydro's design standard for protection relays was revised to address lessons learned from system events experienced since 2014. The updated standard significantly impacted the overall design for all protection relays. This increased the engineering design effort on the project and resulted in increased procurement and construction costs due to the requirement for additional components to adhere to the new standard.

17. Replace Disconnect Switches - Various Sites (2016-2017)

Budget: $646.9 Total: $131.7 Variance: ($515.2)

This is a two-year project that commenced in 2016. The variance in the first year expenditure is attributable to a delay in receipt of materials. The new disconnect switches were originally expected to be delivered in Q4 of 2016, but are delayed until Q1 of 2017. This delay in materials delivery does not impact the construction schedule. The original budget included an allowance in 2016 for any unforeseen construction for early failures, but this was not required. There is no change to the overall project scope, budget or completion date.

18. Upgrade Aluminum Support Structure – Holyrood (2016)

Budget: $401.1 Total: $186.1 Variance: ($215.0)

This was a single year project completed in 2016. This project was executed in parallel with a separate project to Upgrade Terminal Station Equipment Foundations. This allowed Hydro to realize efficiencies and cost savings for engineering, procurement and construction.

19. Install Fire Protection in 230 kV Stations – Bay d'Espoir (2016)

Budget: $200.0 Total: $91.4 Variance: ($108.6)

This is a two year project that commenced in 2016. During detailed project planning, it was determined that the procurement of materials could wait until 2017 without impacting the construction schedule. There is no change to the overall project scope, budget or schedule.

20. Install Transformer On line Gas Monitoring – Various Sites (2015)

Budget: $1,676.2 Total: $1,852.1 Variance: $175.9

This was a two-year project that commenced in 2015 and was completed in 2016. The overall project variance was within 10.5% of approved budget. The variance is attributed to higher than anticipated engineering efforts to integrate the new technology to existing transformers, as well as telecommunications upgrades to support the new equipment.

21. Upgrade Terminal Station Protection and Control – Various Sites (2015)

Budget: $479.9 Total: $897.4 Variance: $417.5

This is a two year project that commenced in 2015 and was completed in 2016. During the design phase of the project, Hydro's design standard for breaker failure protection was revised. The changes to the standard were made to address lessons learned from system events experienced since 2014. The updated standard significantly impacted the overall design for breaker failure protection. This increased the engineering design effort on this project and resulted in increased procurement and construction costs due to the requirement for additional components to adhere to the new standard.

22. Install Support Structures C2 Capacitor Bank - Hardwoods (2015)

Budget: $199.3 Total: $79.7 Variance: ($119.6)

This was a one year project that commenced in 2015 and was carried over and completed in 2016. During detailed engineering, a less expensive design was identified, resulting in savings for materials and construction.

23. Replace Instrument Transformers – Various Sites (2013)

Budget: $1,501.3 Total: $1,190.3 Variance: ($311.0)

This is a five-year project that commenced in 2013. The variance in 2016 expenditure is attributed to a small portion of the 2016 scope being rescheduled for 2017, due to the inability to secure the necessary equipment outages to perform the work. The remaining work on the project is expected to be completed in 2017 with no change to the overall project scope, budget or schedule.

24. Increase 230 kV Transformer Capacity – Oxen Pond (2013)

Budget: ($200.2) Total: $98.3 Variance: $298.5

This was a two year project that commenced in 2013 and was substantially completed through 2014 and 2015. It was carried over into 2016 for completion of project. The identified items were completed at a cost of $98.3k and the project was completed at an overall cost of 6.1% over the approved budget.

4.5 Transmission Projects

25. Replace Aircraft Markers at Grand Lake Crossing – TL228 (2016)

Budget: $589.6 Total: $61.8 Variance: ($527.8)

This is a two-year project that commenced in 2016 to replace four aircraft marker systems that are located on four 230 kV transmission crossing tower structures that span over a section of Grand Lake at Glover's Island. The variance in the first year expenditure is attributed to the materials procurement being deferred to Q1 of 2017. There is no change to the overall project scope, budget and completion date.

26. Refurbish Anchors and Footings TL202 and TL206 – Bay d'Espoir to Sunnyside (2014)

Budget: $1,038.6 Total: $19.9 Variance: ($1,018.7)

This project commenced in 2014. During project planning, it was decided to align construction with execution of the new transmission line between Bay d'Espoir and Western Avalon Terminal Stations, which is along the same corridor. The new line was approved by the Board under Order No. P. U. 53(2014) on December 12, 2014. The alignment of this

project with the construction of the new transmission line will result in overall cost savings to the project as well as a reduced environmental impact. Access roads for the new transmission line were originally anticipated to be completed in the fall of 2016; however, they will not be ready until 2017. For this reason, all construction work for this project will take place in 2017 instead of being spread across 2016 and 2017 as previously planned.

27. 230 kV Transmission Line – Bay d'Espoir to Western Avalon (2015)

Budget: $77,669.1 Total: $59,317.8 Variance: ($18,351.3)

The approved capital budget for 2016 (including 2015 carryover) was $77.7M. As of the end of 2016, the actual expenditure was $59.3M. As per the TL267 Monthly Status Update Report submitted to the PUB this project has undergone schedule and cash flow changes. The anticipated in service date has been accelerated from May 2018 to October 2017 with no change to the overall project budget.

4.6 Distribution Projects

28. Provide Service Extensions - All Service Areas (2016)

Budget: $5,350.0 Total: $6,021.5 Variance: $671.5

This is an annual budget that is based on data from past experience to provide service extensions to customers. The variance is primarily due to the Duley Lake Cottage Development, which had 26 customers request connections in 2016, at a cost of approximately $750k.

29. Provide Service Extensions - All Service Areas - CIAC (2016)

Budget: ($200.0) Total: ($833.1) Variance: ($633.1)

This is an annual budget that is based on past Contributions in Aid of Construction (CIAC) to provide service extensions to customers. The variance is primarily due to the Duley Lake Cottage area line extension and Hampden Tap – LCP Repeater site. As per Board Order P.U.16(2016), the Board approved $13,900 per customer for Duley Lake, and as of December 31, 2016, 26 customers have requested connections and provided their funding, resulting in contributions of approximately $350k. The installation of the Hampden Tap – LCP Repeater

site, executed by Hydro, carried a CIAC from the Muskrat Falls project of approximately $350k.

30. Upgrade Distribution Systems - All Service Areas (2016)

Budget: $3,990.0 Total: $3,357.4 Variance: ($632.6)

This is a one year project to provide distribution upgrades to customers, with a budget based on 2015 expenditures. The budget and actual expenditures in 2016 are shown by area in the table below. The variance is primarily due to less than expected distribution upgrade requests across all areas.

Table 17

	Budget ($000)	Actual ($000)	Variance ($000)
Central	1,910.0	1,702.3	(207.7)
Northern	1,150.0	937.1	(212.9)
Labrador	930.0	718.0	(212.0)
Total	3,990.0	3,357.4	(632.6)

31. Construct Overhead Distribution Line – Pilley's Island to Long Island (2016)

Budget: $1,239.9 Total: $1,509.0 Variance: $269.1

This was a one year project completed in 2016. During the budget stage, Hydro determined the least cost alternative to provide reliable power to Long Island was construction of an overhead distribution line. This was based on standard requirements for navigable waters, including a 24 m wire clearance over the water. After this project had been submitted for approval in the 2016 Capital Budget Application, the Canadian Coast Guard increased their wire clearance requirement to a minimum of 40 m to allow for their largest ice breaking vessel to safely pass underneath. This extra 16 m of clearance resulted in a change in the overhead design, and the project estimate increased to approximately $3.6 M dollars. The evaluation of project alternatives was revisited and an updated cost benefit analysis concluded that the least cost option was to replace the original submarine cables with new cables. The supply and installation of two submarine cables was completed.

32. Upgrade Distribution Systems – Various Sites (2015-2016)

Budget: $575.8 Total: $710.8 Variance: $135.0

This was a two year project that commenced in 2015 and is complete. The variance in the annual expenditure is attributable to work on the Bottom Waters distribution system that was planned to be performed under de-energized conditions but was carried out under energized conditions, to manage customer impact. This resulted in higher construction costs. The total project expenditure was within 7% of the approved budget.

4.7 Rural Generation Projects

33. Overhaul Diesel Units - Various Sites (2016)

Budget: $2,078.4 Total: $2,526.4 Variance: $448.0

This was a one year project completed in 2016. The project is part of an ongoing program to overhaul diesel engines at diesel generating plants to sustain reliability of the generating equipment. Project estimates are based on the projected number of engines that will reach the criteria for overhaul (20,000 hours of operation), and typical extent of refurbishment. The project variance is attributable to more extensive refurbishment than typically required for some of the engines, which was unknown until the engines were disassembled for the overhauls. Additionally, the higher United States dollar exchange rate resulted in an increase in material costs.

34. Inspect Fuel Storage Tanks - Various Sites (2016)

Budget: $1,326.9 Total: $1,024.5 Variance: ($302.4)

This was a one year project completed in 2016. The project is part of an ongoing program to inspect fuel storage tanks for diesel plants. After a detailed review and prioritization of the sites to be inspected in 2016, an update was made to the schedule as provided for in the Capital Budget Application for this project. Nain tank inspections were deferred to 2018, and Rigolet tank inspections were advanced to 2016. This change resulted in significant savings for contracted work in 2016. Additionally, after an external inspection, tanks in St. Brendan's were discovered to be leaking. As detailed in the 2016 Capital Budget Application, "Hydro

may inspect a higher priority tank should conditions change and defer a lower priority tank." The St. Brendan's tank, having failed, was replaced as it became a higher priority, given that fuel leakage was occurring. Other tanks inspected in 2016 did not require significant refurbishment, contributing to the project underspend.

35. Install Fire Protection Systems – Cartwright and Nain (2016)

Budget: $3,030.7 Total: $782.8 Variance: ($2,247.9)

This is a two year project that commenced in 2016. Design is complete and procurement is in progress. Most of the procurement and construction activity planned to be completed in late 2016 will now be completed in the first quarter of 2017. This schedule change was made to balance the overall capital work plan and to reduce the project schedule and delivery risks. There is no change to the overall project scope, budget or completion date.

36. Upgrade Transformer Systems – Postville and Cartwright (2016)

Budget: $465.2 Total: $296.0 Variance: ($169.2)

This was a one year project that has been carried over into 2017. The project is to replace transformers at Postville and Cartwright. The work at Postville was completed in 2016. The transformers purchased for Cartwright were determined to have incorrect secondary voltages and have been returned to the manufacturer for rewind. Construction is rescheduled for early 2017, ahead of the anticipated load growth (i.e. the transformers will be installed prior to start-up of the fish plant). There is no change to the overall project scope or budget.

37. Additions For Load Growth – Various Sites (2016)

Budget: $883.4 Total: $190.4 Variance: ($693.0)

This is a multi-year project that commenced in 2016. The annual variance in 2016 expenditure is attributable to delay in material purchases from Q4 2016 to Q1 2017. There is no change to the overall project scope, budget or completion date.

38. Replace Unit 2038 – Mary's Harbour (2015)

Budget: $1,345.0 Total: $1,161.0 Variance: ($184.0)

This was a two year project that commenced in 2015 and was completed as planned. A portion of the project contingency was not required.

39. Install Fire Protection – L'anse Au Loup (2015)

Budget: $1,346.8 Total: $1,163.7 Variance: ($183.1)

This was a two-year project that commenced in 2015 and was completed as planned. A portion of the project contingency was not required.

40. Upgrade Diesel Plant Production Data Collection Equipment - Various (2014)

Budget: $283.8 Total: $510.6 Variance: $226.8

This is a three year project that commenced in 2014. At commencement of the detailed engineering in year three for the sites that are included in year three of the project, it was determined that the design and construction would be more complex than the sites completed in the first two years of the project, which attributes to additional cost of the project for additional engineering, construction labour and materials. This prompted a review of the overall project scope and justification. From this review, it was determined that the diesel plant production data is not critical for three of the diesel plants that are connected to the Island Interconnected System (St. Anthony, Hawkes Bay, and Little Bay Islands), since these plants are not prime power. The diesel plant production data collection equipment work for these plants was subsequently removed from the project scope, mitigating the impact of cost overrun. The work is complete for all isolated diesel plants, with the exception of the construction for L'Anse au Loup, which has been carried into 2017. The project is expected to be completed in 2017 within 10% of the total project budget.

4.8 Properties Projects

41. Upgrade Office Facilities and Control Buildings – Various Sites (2016)

Budget: $1,134.0 Total: $675.0 Variance: ($459.0)

This was a one year project completed as planned in 2016. Publicly tendered prices for the construction at all three sites were lower than estimated.

42. Replace Roof on Service Building – Bishop's Falls (2016)

Budget: $612.8 Total: $327.8 Variance: ($285.0)

This was a one year project scheduled for completion in 2016, and carried over into 2017. Engineering and procurement are complete with construction partially completed in 2016. Due to factors including contractor resource issues, unforeseen design issues, and frequent inclement weather, the full roof replacement could not be completed before winter conditions set in. The building is weather tight and remaining roof work will be completed in the spring of 2017, when conditions allow. There is no change to the overall project scope or budget.

43. Replace Accommodations and Septic System - Ebbegunbaeg (2015)

Budget: $1,456.6 Total: $811.2 Variance: ($645.4)

This is a two year project that commenced in 2015 and is being carried over to 2017. The project scope includes installation of new accommodations and septic system, installation of a bridge at Noel Paul Brook, and access road upgrades. The bridge and road upgrades were completed as planned. The manufacturer was unable to deliver the new accommodations in accordance with the planned schedule. Delivery has been deferred to the spring of 2017 and construction will be completed in the summer of 2017. There is no change to the overall project scope or budget.

4.9 Metering Projects

44. Install Automatic Meter Reading – Labrador West (2016)

Budget: $433.8 Total: $130.4 Variance: ($303.4)

This is a two-year project that commenced in 2016. Engineering is complete and materials with long lead times have been ordered. The original budget estimate included receipt of materials in Q4 2016, but materials will be received in Q1 2017. There is no change to the overall project budget or completion date.

45. Install Automatic Meter Reading – Various Sites (2015-2016)

Budget: $961.7 Total: $1,464.7 Variance: $503.0

This is a two year project completed in 2016. The two primary drivers of the cost variance were higher than estimated equipment costs and higher than expected meter installation costs. Equipment costs were higher than budgeted due to a higher cost of the United States Dollar exchange rate, and estimates that were based on equipment costs of an earlier, less sophisticated generation of the equipment. Higher installation costs were incurred due to: greater than anticipated number of failed meter bases related to corrosive (salty) environmental conditions; low residential densities; long distances between communities; and the requirement for a dedicated line crew to ensure prompt restoration of service. An updated project cost estimate and updated assumptions for project benefits were used to re-evaluate the project. The updated cost-benefit analysis confirmed that the project remains the least cost alternative versus the status quo.

4.10 Tools and Equipment Projects

46. Purchase Excavator – Bay d'Espoir (2016)

Budget: $312.0 Total: $187.0 Variance: ($125.0)

The cost of the excavator was less than the original budget as it was a new product line for the supplier and a lower cost than historical similar purchases. The mulcher head attachment procurement was delayed to ensure the compatibility with the unit. The project will be completed by March 2017.

47. Replace Off Road Track Vehicles – Unit 7861, Stephenville (2015-2016)

Budget: $398.9 Total: $176.8 Variance: ($222.1)

This was budgeted as a two year project with the actual purchase completed in 2015 due to early availability and at a reduced cost.

4.11 Information Systems Projects

48. Implement Industrial Billing Software - Hydro Place (2016)

Budget: $443.1 Total: $169.5 Variance: ($273.6)

Vendor resources, when required, were unavailable resulting in a delay in commencement of the project and a carryover to 2017.

49. Replace Peripheral Infrastructure - Various Sites (2016)

Budget: $611.3 Total: $507.3 Variance: ($104.0)

An evaluation of the number of required printers indicated that some that were removed from service did not require replacement, thereby reducing the number of printers acquired.

50. Upgrade Enterprise Storage Capacity – Hydro Place (2016)

Budget: $628.8 Total: $464.5 Variance: ($164.3)

Resources were not available to work on the upgrade due to demands of other projects, causing a delay in execution; however, the Project is scheduled for completion in Q1 2017.

4.12 Transportation Projects

51. Replace Vehicles and Aerial Devices - Various Sites (2016-2017)

Budget: $1,443.3 Total: $1,032.7 Variance: ($410.6)

This is a two year project. There was a limitation on vehicle availability; however, the vehicles will be delivered in 2017.

4.13 Administrative

52. Purchase Tools and Equipment less than $50,000 (2016)

Budget: $172.6 Total: $55.1 Variance: ($117.5)

The overall project variance is primarily due to overall cost savings to the project due to items such as reduction in the estimated requirements for office equipment, and lower than estimated costs for some equipment.

4.14 Allowance for Unforeseen Items

53. Allowance for Unforeseen Items

Budget: $3,000.0 Total: $13,666.9 Variance: $10,666.9

The Allowance for Unforeseen is an annual allotment that permits Hydro to act expeditiously to deal with events affecting the electrical system which cannot wait for specific approval of the Board. Unforeseen expenditures for 2016 under this account include costs associated with Performing Upgrades to the Western Avalon Terminal Station Transformer T5 Tap Changer, Holyrood Units 1 and 2 – Boiler Re-Heat Tubes, Sally's Cove Transmission Line Reroutes, Bay d'Espoir-Penstock 1 and Access Roads Refurbishments. Reports on these items have been filed with the Board of Commissioners of Public Utilities.

4.15 Supplemental Projects

54. TL 227 Distribution Line Sally's Cove L1 (2016)

Budget: $717.0 Total: $186.3 Variance: ($530.7)

This is a two year supplemental project that commenced in 2016. In early 2016, a coastal landslide occurred south of Sally's Cove on the Northern Peninsula. This project is required to re-route a section of transmission line TL227 and distribution line L1 away from the high-risk zone surrounding the landslide. The variance in the first year expenditure is attributed to a delay in material delivery that was scheduled for November 2016, but was not received until early 2017. This late delivery of materials does not impact the construction schedule. There is no change to the overall project scope, budget or completion date.

55. Refurbish Gas Generator Engines – Hardwoods and Stephenville (2016)

Budget: $3,047.1 Total: $2,538.7 Variance: ($508.4)

This is a supplemental project approved in 2016 and carried into 2017. The engine for Hardwoods Gas Turbine was refurbished and successfully returned to service. The engine for the Stephenville Gas Turbine was refurbished and reinstalled, but experienced vibration issues during commissioning. The project is carried over into 2017 to assess and resolve the vibration issues.

56. Unit 4 Turbine Primary Seal Clearance – Bay d'Espoir (2016)

Budget: $1,977.3 Total: $1,517.9 Variance: ($459.4)

This project is complete. This was a supplementary project approved and executed in 2016. The contract cost to complete the refurbishment of the turbine seal (concrete grouting and seal machining) of the turbine was less than original estimate. The variance is also attributed to the contingency funds not being required.

57. CT – Combustion Inspection and Overhaul - Holyrood (2016)

Budget: $4,738.3 Total: $3,967.2 Variance: ($771.1)

This is a supplemental project approved and completed in 2016. The variance from the planned expenditure is primarily attributed to the fact that the contingency was not required.

58. Purchase Critical Spares Generation Stations (2015)

Budget: $1,536.3 Total: $1,226.4 Variance: ($309.9)

This is a supplemental project approved in 2015 for procurement in 2016. The variance was due to material costs being lower than budgeted and the contingency not being required.

59. Replace Rectifier Transformers – Holyrood Units 1 and 2 (2015)

Budget:	**$756.2**	**Total:**	**$870.4**	**Variance:**	**$114.2**

This is a two-year project that commenced in 2015 and is complete. The project variance is due to higher than anticipated remediation costs required for the proper disposal of the removed rectifying transformers for Units 1 and 2.

60. Transformer VBN T1 Major Internal Assessment (2015)

Budget:	**$500.1**	**Total:**	**$345.5**	**Variance:**	**($154.6)**

This is a supplemental project that was substantially completed in 2015, with final testing in 2016. The project is now complete. The scope included a major internal assessment of a transformer. The budget included an allowance for refurbishment, but the level of refurbishment estimated was not required.

61. Labrador West Transmission Project – Construction Phase (2014)

Budget:	**$329,592.1**	**Total:**	**$12,376.8**	**Variance:**	**($317,215.3)**

In 2014, the provincial Government approved the construction of the third transmission line in Labrador to help supply power for planned new development in Labrador West, such as the Kami Iron Ore Project, and improved reliability for all customers in the region. In September 2014, work on the line was temporarily suspended until completion of Alderson's financing plan which resulted in overall expenditures being lover than budgeted. All project costs to date, including the 2016 Interest During Construction costs, are covered by the security Alderon has already provided. Construction will proceed should additional funding be secured.

62. Purchase of 12 MW Diesel Generation - Holyrood

Budget:	**$4,700.0**	**Total:**	**$3,784.0**	**Variance:**	**($916.0)**

This supplemental capital project was initially envisioned as a one year project. Once approved, the purchase of the 6 diesel engines was completed in 2016. The remaining scope to make the new infrastructure permanent, including the environmental modeling and

changes to the exhaust stacks, could not be completed in the available time frame and was carried over to 2017. There is no change to the original budget.

4.16 Units 1 and 2 Boilers Lower Re-heater Boiler Tube Replacement and Reliability Improvements, Holyrood Thermal Generating Station

This supplemental project was approved and completed in 2016, with the actual expenditure within 1% of the approved project budget. The project scope included replacement of boiler lower re-heater tubes and a number of other reliability improvements. Item 10 of the reliability improvements (Section 3.3.2. of the supplementary application) was stated as:

> "While Hydro has not currently identified additional equipment for immediate replacement, it is possible an additional component may require replacement during the annual outages. Hydro proposes that any item, material in dollar value, that meets capitalization criteria, is required to be replaced to mitigate an unplanned outage in the coming winter season, and that can be replaced within this project's contingency, would be replaced and communicated to the Board via the year end Capital Expenditures Variance report."

The Board of Commissioners of Public Utilities approved this project with Board Order No. P.U. 19(2016) and ordered that: "Hydro shall report on the contingency expenditures associated with additional component replacements arising from this project, setting out in detail the work which was done, the associated costs and the justification, as a part of its year-end capital expenditures variance report."

Hydro identified and completed four items under these criteria, as summarized in Table 18.

Table 18

Item	Description	Cost ($,000)	Scope of Work and Justification
1	Boiler Floor Tube Refurbishment Unit 3	47.3	This work was based on an ultrasonic thickness inspection that was carried out that found pitting in the tubing, and tubing approaching minimum wall thickness. Welding refurbishment was completed to bring these tubes to an acceptable level.
2	Thermal Performance Study on Unit 3	210.9	This work included a review of Holyrood de-rate assessment analysis to identify any derating that should be applied to the power boilers, after the 2016 annual outages and the planned tube replacements were made. Tube samples were taken and specialized non-destructive examination were completed to confirm or deny the theoretical analysis, which induced the de-rate on Unit 3. The results of this work ensured that the de-rate of Unit 3 could be lifted. This would allow Hydro to operate reliably as planned to the end of service in 2021.
3	Steam Coil Air Heaters (SCAH) (Units 1 & 2)	124.4	This work was based on a condition identified during the unit outages. The SCAH were replaced because they were determined to be fouled and damaged beyond repair. Replacement was necessary prior to unit start-up.
4	Corrosion Mapping for 9 Air Receivers	73.0	During replacement of the #2 air compressor (an approved reliability scope item for this project), it was determined that a level 2 condition assessment of the nine associated air receivers (storage tanks) was required. This assessment was completed to ensure the long term reliability of the compressed air system.
TOTAL		455.6	

5.0 Capital Budget Verses Actual Expenditures 2007 – 2016

Table 19 provides a summary of Hydro's Capital Budget Variances for the years 2007-2016.

Table 19

Capital Budgets/Expenditures 2007-2016

Year	Budget	Actual Expenditures	Variance	Percentage Variance
2007	43,304	35,669	7,635	17.6%
2008	53,579	46,246	7,333	13.7%
2009	61,544	54,152	7,392	12.0%
2010	63,297	55,553	7,744	12.2%
2011	67,454	63,116	4,338	6.4%
2012	93,840	77,252	16,588	17.7%
2013	116,373	84,755	31,618	27.2%
2014	280,601	204,728	75,873	27.0%
2015	311,177	125,119	186,058	59.8%
2016	350,601	203,941	146,660	41.8%

The 2016 variance in actual expenditures compared to budget, an underspend of $145.9M, is attributable to two major projects, the 230 kV transmission line from Bay d'Espoir to Western Avalon (TL 267 – Variance #27), and the 230 kV line from Churchill Falls to Wabush (Labrador West Transmission Line – Variance #61). TL 267 includes a project underspend of $18.4M in relation to the original 2016 budget. The Labrador West Transmission Line work is suspended until completion of Alderson's financing plan for the Kami mine. Therefore, $129.0M associated with work that was planned to be completed in 2016 on the Labrador West Transmission Line was not completed due to a temporary suspension of the work in September 2014. These two projects account for approximately $147M.

6.0 Carryover Report

Table 20 provides a summary listing of the carryovers from 2010-2017.

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Table 20

2016 Carryover Report
For the Year Ending December 31, 2016
($000)

Project Name	PUB Approved Budget 2016	Revised Budget 2016	Total Actual Expenditures 2016	Carryover Amount	Original Completion Year
Replace Pump House and Associated Equipment - Bay d'Espoir	522.5	408.2	128.6	279.6	2016
Upgrade Equipment Doors - Various Sites	0.0	162.1	115.4	46.7	2015
Replace UPS Systems - Hydro Place	889.8	889.8	928.6	(38.8)	2016
Install Hydrometeorological Equipment - Various Sites	314.1	314.1	4.3	309.8	2016
Overhaul Turbine/Generator Units #6 and #7 - Bay d'Espoir	1,213.5	466.4	410.2	56.2	2016
Refurbish Gas Generator Engines - Hardwoods and Stephenville	0.0	3,047.1	2,538.7	508.4	2016
Purchase Excavator - Bay d'Espoir	312.0	222.0	187.0	35.0	2016
Replace Roof on Service Building – Bishop's Falls	612.8	612.8	327.8	285.0	2016
Replace Radiator Unit 2029 Makkovik	0.0	49.0	27.5	21.5	2016
Upgrade Transformer Systems - Postville and Cartwright	465.2	465.2	296.0	169.2	2016
Implement Industrial Billing Software - Hydro Place	443.1	443.1	169.5	273.6	2016
Upgrade Enterprise Storage Capacity - Hydro Place	628.8	628.8	464.5	164.3	2016
Cost Recoveries	(291.6)	(291.6)	(215.5)	(76.1)	2016
Upgrade Server Technology Program - Hydro Place	492.5	492.5	451.1	41.4	2016
Cost Recoveries	(228.5)	(228.5)	(209.3)	(19.2)	2016
Replace Station Service Breakers - Cat Arm	363.4	362.2	185.9	176.3	2016
Replace Accommodations and Septic System - Ebbegunbaeg	1,061.4	1,456.6	811.2	645.4	2016
Upgrade Diesel Plant Production Data Collection Equipment-Various	280.7	653.8	510.6	143.2	2016
Purchase of 12 MW Diesel Generation - Holyrood	0.0	4,700.0	3,784.0	916.0	2016
Install Automated Meter Reading - Labrador West	433.8	433.8	130.4	303.4	2017
Replace Battery Banks and Chargers - Various Sites	425.0	425.0	365.7	59.3	2017
Replace MDR 4000 Microwave Radio East - Various Sites	77.4	77.4	113.4	(36.0)	2017
Replace Air Conditioners - Various Sites	39.9	39.9	51.2	(11.3)	2017
Replace Powerline Carrier - Various Sites	73.4	73.4	77.4	(4.0)	2017
Upgrade Telecontrol Facilities - Sandy Brook Hill	101.6	101.6	81.7	19.9	2017
Replace Control Room/Communications Room Air Conditioning – Hinds Lake	41.3	41.3	31.0	10.3	2017
Refurbish Station Water System – Upper Salmon	96.6	96.6	38.3	58.3	2017
Upgrade Work – Cat Arm	558.3	558.3	240.4	317.9	2017
Rehabilitate Shoreline Protection – Cat Arm	112.2	112.2	104.7	7.5	2017
Replace PH1 Station Service Transformer – Bay d'Espoir	46.7	46.7	45.0	1.7	2017
Replace Spherical By-Pass Valves Units 1 and 2 – Bay d'Espoir	183.6	183.6	154.8	28.8	2017
[					}
Replace Instrument Transformers – Various Sites	1,511.7	1,501.3	1,190.3	311.0	2017
Replace Surge Arrestors – Various Sites	144.4	144.4	175.1	(30.7)	2017

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Replace Protective Relays – Various Sites	700.6	700.6	1,425.8	(725.2)	2017
Replace Disconnect Switches – Various Sites (2016-2017)	646.9	646.9	131.7	515.2	2017
Upgrade Digital Fault Recorders – Various Sites	197.9	197.9	221.2	(23.3)	2017
Upgrade Data Alarm Systems – Various Sites	74.4	74.4	49.7	24.7	2017
Install Breaker Failure Protection – Various Sites	65.7	65.7	81.8	(16.1)	2017
Install Fire Protection in 230 kV Stations – Bay d'Espoir	200.0	200.0	91.4	108.6	2017
Upgrade Warehouse Lighting – Bishop's Falls	15.2	15.2	28.1	(12.9)	2017
Replace Fuel Piping – Hardwoods and Stephenville	44.8	44.8	11.6	33.2	2017
Upgrade Human Machine Interface – Various Sites	114.0	114.0	125.3	(11.3)	2017
Install Variable Frequency Drives – Grey River	46.9	46.9	49.7	(2.8)	2017
Replace Vehicles and Aerial Devices – Hydro System (2016-2017)	1,443.3	1,443.3	1,032.7	410.6	2017
Purchase Vehicles and Aerial Devices – Various Sites	382.5	382.5	470.4	(87.9)	2017
Refurbish Anchors and Footings TL202 and TL206 – Bay d'Espoir to Sunnyside	1,038.4	1,038.6	19.9	1,018.7	2017
Replace Aircraft Markers at Grand Lake Crossing – TL228	589.6	589.6	61.8	527.8	2017
Upgrade Distribution Systems – Various Sites (2016-2017)	285.6	285.6	361.8	(76.2)	2017
Additions for Load Growth – Various Sites	883.4	883.4	190.4	693.0	2017
Install Fire Protection Systems – Cartwright and Nain	3,030.7	2,339.9	782.8	1,557.1	2017
Replace Programmable Logic Controllers – Various Sites	346.0	315.7	345.5	(29.8)	2017
TL 227 Distribution Line Sally's Cove L1	0.0	717.0	186.3	530.7	2017
Upgrade Terminal Station for Mobile Substation – Cow Head	40.0	40.0	27.5	12.5	2017
Replace Air Conditioning Units 8 and 14 – Hydro Place	34.6	34.6	31.0	3.6	2017
Replace Site Facilities – Bay d'Espoir	928.3	928.3	270.4	657.9	2018
Upgrade Powerhouse Building Envelope – Holyrood	2,723.8	2,723.8	2,239.9	483.9	2018
230 kV Transmission Line – Bay d'Espoir to Western Avalon	75,284.3	85,426.4	59,317.8	26,108.6	2018
Construct 230 kV Transmission Line – Soldiers Pond to Hardwoods	3,699.0	3,699.0	3,501.6	197.4	2018
Upgrade Microsoft Project – Hydro Place	366.6	366.6	352.1	14.5	2018
Upgrade Circuit Breakers – Various Sites (2016-2020)	6,969.1	6,969.1	5,599.5	1,369.6	2020
				38,255.7	

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7.0 Safety Hazards

In Board Order No. P.U. 38(2010) 2011 Capital Budget, the Board directed Hydro to include an explanation in Hydro's annual. Please see the following Table 21 for projects undertaken in 2016.

Total Approved Budget: **$199,300**
Total Expenditure: **$175,378**

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Table 21

Safety Hazards			
Project Title/Location	**Expenditure**	**Safety Hazard Identified**	**Project Scope**
Holyrood Unit 3 – Upgrade Continuous Blowdown Throttling Valve	$57.1	Prior to this improvement, the piping and manual throttling valve configuration for the boiler blowdown tank for Holyrood Unit 3 did not allow quick egress in the event that a failure occurred, resulting in emitted steam. If a release occurred, steam would have quickly filled the area, creating a visibility hazard and making egress more difficult. In addition to this concern, the valve location required an operator to extend beyond the range of safe ergonomics to operate the valve. As this throttling valve is required to be continuously adjusted while the boiler is online, the ability to operate the valve in a safe location, using proper ergonomics is required.	To address the hazard, an upgrade to the Unit 3 continuous blowdown tank throttling valve was completed. The manually operated valve was upgraded to an actuated throttling valve, which allows the operator to adjust it while outside the valve location. This removes the plant operator from any potential safety or ergonomic hazards, eliminating the need for a plant operator to enter an unsafe location while the boiler is online. The valve was equipped with a digital controller that adjusts the position of the throttling valve; this allows the operator to verify the valve is operating correctly.

Safety Hazards			
Project Title/Location	**Expenditure**	**Safety Hazard Identified**	**Project Scope**
Holyrood Unit 3 – Upgrade Main Steam Seat Drain Valves	$25.3	Prior to this improvement, a plant operator had to descend a ladder to operate a main steam valve which is located above the seat drain valves. The existing piping and valve configuration did not allow quick egress in the event that a failure occurred, resulting in emitted steam. If a release occurred, steam would quickly fill the area, creating a visibility hazard and making egress more difficult.	To address this hazard, an upgrade to the two Unit 3 main steam stop valves was completed. The existing y-pattern main steam valves were replaced with t-pattern valves complete with handle extensions. This allows operation from the plant floor

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			level and eliminates the need for a plant operator to enter a hazardous location.
Holyrood – Install Chemical Shower & Eye Wash Station Water Heaters	$93.0	Prior to this improvement, equipment did not include any form of heating for the domestic water used by the critical emergency showers and eye wash stations at the Holyrood Thermal Generating Station. Emergency showers and eye wash stations are required safety equipment and have a defined required performance, as outlined in ANSI Z358.1-2014. Emergency showers must provide tepid water, between 16°C and 38°C, with a minimum flow of 20 gallons per minute for the required decontamination time. The chemical showers currently meet flow requirements but provided water at 4°C to 12°C, depending on the seasonal temperature of Quarry Brook, the water source. Based on the treatment requirements of the chemical exposures, the minimum required shower time is 20 minutes creating a safety hazard due to the exposure time at potentially cold temperatures.	To address this hazard, water heaters and automatic mixing valves were installed for critical emergency showers and eye wash stations at the Holyrood Thermal Generating Station.

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Hydro Place. 500 Columbus Drive.
P.O. Box 12400. St. John's. NL
Canada A1B 4K7
t. 709.737.1400 f. 709.737.1800
www.nlh.nl.ca

April 2, 2018

The Board of Commissioners of Public Utilities
Prince Charles Building
120 Torbay Road, P.O. Box 21040
St. John's, NL A1A 5B2 Canada

ATTENTION: Ms. Cheryl Blundon
Director of Corporate Services & Board Secretary

Dear Ms. Blundon:

Re: 2017 Capital Expenditures and Carryover Report

Pursuant to Board Order No. P.U. 45(2016), enclosed please find one (1) original and ten (10) copies of Newfoundland and Labrador Hydro's ("Hydro") 2017 Capital Expenditures and Carryover Report (the "Report") for the year ending December 31, 2017.

This Report provides information on Hydro's Capital Expenditures approval by Order No. P.U. 45(2016) (the Capital Budget); Order No. P.U. 20(2016), P.U. 5(2017), P.U. 7(2017), P.U. 10(2017), P.U. 11(2017), P.U. 13(2017), P.U. 15(2017), P.U. 20(2017), P.U. 21(2017), P.U. 27(2017) (the Supplemental Capital Budgets); and the variance between actual expenditures to the Capital Budget and the Supplemental Capital Budgets, by project.

One project (Acquisition of two 230 kV Transmission Lines - Labrador West) in Hydro's Capital Expenditures and Carryover Report (submitted on March 1, 2018) was incorrectly reported with an approved budget of $2,731.5M. Board Order P.U. 7(2017) had an approved budget of $3,168,944, as was in Hydro's original application. The actual expenditure amount in the Capital Expenditures and Carryover Report has been correctly reported; however, the original Board Order amount should have been carried into the report, with the variance caused by the exclusion of the inventory items. The approved Board Order amount has been corrected in the report, with subsequent changes in Tables 1, 2, 16, and 17 (formerly Table 19). Please note that there was an error in the table numbering from Table 17 to the end of the report, which has also been corrected in this revision.

Should you have any questions, please contact the undersigned.

Yours truly,

NEWFOUNDLAND AND LABRADOR HYDRO

Geoff P. Young
Corporate Secretary and General Counsel
GPY/skc

cc: Gerard Hayes - Newfoundland Power

Capital Expenditures and Carryover Report
For the Year Ended December 31, 2017

March 1, 2018

Revised: April 2, 2018

A Report to the Board of Commissioners of Public Utilities

newfoundland labrador hydro
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1.0 Capital Expenditure Overview

During 2017, Hydro invested $341M to execute capital projects to contribute to the provision of safe, reliable, and least-cost electricity to the people of the province. A significant portion of the expenditure is in new transmission infrastructure, including $213.7M expended for the construction of a new transmission line between Bay d'Espoir and Western Avalon Terminal Stations (TL 267), which went to service on December 6, 2017, and $11M on the construction of a new line between Soldiers Pond Terminal Station and Hardwoods Terminal Station (TL 266), with expenditure of the remaining 50% of the cost of TL 266 planned for 2018. Both projects remain within their approved budgets. Sustaining capital for Terminal Station infrastructure totaled $21.5M, including $8.9M in the *Upgrade Circuit Breakers Project*. Expenditures to maintain the Hydraulic Generation equipment and infrastructure across the province totaled $13M, and $16.5M was expended to maintain the Thermal Generation equipment and infrastructure at Holyrood. The distribution system also required $13.6M for service extensions and distribution system upgrades. This report includes details about the capital expenditures and reportable variances for 2017, and projects carryovers to 2018.

2.0 Capital Expenditures and Variance Summary

Table 1 provides a summary of Hydro's Capital Expenditures by Year for the period 2012-2017 for all capital projects that were active in 2017, and Table 2 provides a breakdown of the summary by asset type.

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Table 1: 2017 Capital Expenditures by Year ($000)

Summary										Actual Expenditure and Forecast									
	A				B	C	D (B+C)	E	F (A+C+E)	G				H	I	J	K (G+H+I+J)	K-F	H-D
	2013	2014	2015	2016	Carryover 2017	Original 2017	Revised 2017	2018 and Beyond	Total	2013	2014	2015	2016	2017	2018 and Beyond	Carryovers to 2018	Total	Project Variance	Annual Variance
2017 Projects						86,449.2	86,449.2	49,339.8	135,789.0					69,782.3	48,756.4	10,529.1	129,067.8	(6,721.2)	(16,666.9)
2016 Projects				40,698.9	9,556.0	64,281.4	73,837.4	56,668.9	161,649.2				29,674.5	54,017.6	63,173.3	12,954.0	159,819.4	(1,829.8)	(19,819.8)
2015 Projects			1,872.4	2,293.3	1,118.2	245.1	1,363.3	-	4,410.8			1,559.9	1,586.6	1,791.4	-	305.1	5,243.0	832.2	428.1
2014 Projects		37,964.6	167,846.5	205,566.0	27,270.5	150,797.3	178,067.8	62,075.0	624,249.4		11,315.3	2,732.2	60,601.1	214,438.5	17,418.3	1,069.8	307,575.2	(316,674.2)	36,370.7
2013 Projects	593.2	552.8	538.4	1,511.7	311.0	471.9	782.9	-	3,668.0	240.3	699.0	755.5	1,190.3	711.0	-	31.9	3,628.0	(40.0)	(71.9)
Grand Total	**593.2**	**38,517.4**	**170,257.3**	**250,069.9**	**38,255.7**	**302,244.9**	**340,500.6**	**168,083.7**	**929,766.4**	**240.3**	**12,014.3**	**5,047.6**	**93,052.5**	**340,740.8**	**129,348.0**	**24,889.9**	**605,333.4**	**(324,433.0)**	**240.2**

2017 Capital Budget Approved by Board Order No. P.U. 4[1]	271,265.6
New Project Approved by Board Order No. 20 (2016)	1,533.0
New Project Approved by Board Order No. 5 (2017)	3,045.0
New Project Approved by Board Order No. 7 (2017)	3,168.9
New Project Approved by Board Order No. 10 (2017)	1,349.2
New Project Approved by Board Order No. 11 (2017)	2,585.2
New Project Approved by Board Order No. 13 (2017)	11,425.2
New Project Approved by Board Order No. 20 (2017)	2,610.0
New Project Approved by Board Order No. 21 (2017)	3,714.8
New Project Approved by Board Order No. 15 (2017)	500.0
New Project Approved by Board Order No. 27 (2017)	540.0
2017 New Projects under $50,000 Approved by Hydro	508.0
Total Approved Capital Budget Before Carryovers	302,244.9
Carryover Projects 2016 to 2017	38,255.7
Total Approved Capital Budget	**340,500.6**

[1] Annual budgets previous to 2017 pertain to projects that have expenditures in 2017.

Table 2: Total Capital Variance Summary ($000) by Asset Type

Asset Type	Board Approved Budget	Total Project Expenditures and Forecast	Variance
Hydraulic	36,468	35,921	(547)
Thermal	14,273	15,687	1,414
Gas Turbines	2,807	1,884	(923)
Terminal Stations	107,460	106,933	(527)
Transmission	327,299	328,048	749
Distribution	16,726	16,287	(439)
Rural Generation	25,824	23,523	(2,301)
Properties	7,666	6,903	(763)
Metering	3,333	3,817	484
Rural Systems Tools and Equipment	1,139	907	(232)
Information Systems	3,264	3,224	(40)
Telecontrol	6,649	6,337	(312)
Transportation	4,933	4,854	(79)
Administrative	1,470	996	(474)
Allowance for Unforeseen	2,040	5,646	3,606
Supplemental Projects	367,815	43,792	(324,023)
Projects Approved for less than $50,000	601	574	(27)
Total Capital Budget	**929,766**	**605,333**	**(324,434)**

3.0 Capital Expenditures by Category

The following tables provide Hydro's Capital Expenditures by category including: Hydraulic Generation, Thermal Generation, Gas Turbine Generation, Terminal Stations, Transmission, Distribution, Rural Generation, Properties, Metering, Tools and Equipment, Information Systems, Telecontrol projects, Transportation, Administration, Allowance for Unforeseen Items, Supplemental Capital projects, and projects less than $50,000.

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Table 3: 2017 Capital Expenditures – Hydraulic Generation ($000)

Hydraulic Generation Projects	Capital Budget							Actual Expenditure and Forecast								
	A		B	C	D (B+C)	E	F (A+C+E)	G		H	I	J	K (G+H+I)	K-F	H-D	
	2015	2016	Carryover 2016	2017	Revised 2017	2018 and Beyond	Total	2015	2016	2017	2018 and Beyond	Carryovers to 2018	Total	Project Variance	Annual Variance	Notes
2017 Projects																
Install Asset Health Monitoring System - Upper Salmon	-	-	-	438.0	438.0	203.4	641.4	-	-	214.9	203.4	223.1	641.4	(0.0)	(223.1)	1
Refurbish Main Generator Breaker - Upper Salmon	-	-	-	271.1	271.1	-	271.1	-	-	123.2	-	147.9	271.1	0.0	(147.9)	2
Water System Replacements - Bay d'Espoir and Cat Arm	-	-	-	265.5	265.5	2,288.3	2,553.8	-	-	176.7	2,288.3	88.8	2,553.8	(0.0)	(88.8)	
Refurbish Powerhouse Station Services - Bay d'Espoir	-	-	-	413.2	413.2	3,933.9	4,347.1	-	-	43.0	3,933.9	370.2	4,347.1	0.0	(370.2)	3
Replace Exciter Controls Units 1 to 6 - Bay d'Espoir	-	-	-	119.2	119.2	3,227.8	3,347.0	-	-	182.7	3,227.8	(63.5)	3,347.0	0.0	63.5	
Upgrade Ventilation in Powerhouse 1 and 2 - Bay d'Espoir	-	-	-	134.1	134.1	863.8	997.9	-	-	111.8	863.8	22.3	997.9	(0.0)	(22.3)	
Upgrade Public Safety Around Dams and Waterways - Bay d'Espoir	-	-	-	489.0	489.0	-	489.0	-	-	355.5	-	-	355.5	(133.5)	(133.5)	4
Purchase Capital Spares - Hydraulic	-	-	-	487.4	487.4	-	487.4	-	-	325.2	-	362.2	687.4	200.0	(162.2)	5
Replace Slip Rings Units 1-6 - Bay d'Espoir	-	-	-	312.6	312.6	159.7	472.3	-	-	102.4	159.7	210.2	472.3	0.0	(210.2)	6
Refubish Sump Level System for Powerhouse 2 - Bay d'Espoir	-	-	-	38.7	38.7	264.5	303.2	-	-	10.6	264.5	28.1	303.2	0.0	(28.1)	
Install Wind Monitoring Station North Salmon Dam SD-2 - Bay d'Espoir	-	-	-	165.5	165.5	-	165.5	-	-	52.3	-	113.2	165.5	0.0	(113.2)	7
Replace Floor Annunciator Panels - Bay d'Espoir	-	-	-	46.8	46.8	-	46.8	-	-	45.5	-	-	45.5	(1.3)	(1.3)	
Control Structure Refurbishments	-	-	-	1,735.3	1,735.3	452.9	2,188.2	-	-	991.4	452.9	743.9	2,188.2	(0.0)	(743.9)	8
Overhaul Turbine/Generators - Cat Arm	-	-	-	305.4	305.4	-	305.4	-	-	334.1	-	-	334.1	28.7	28.7	
Purchase Tools and Equipment Less than $ 50,000	-	-	-	113.4	113.4	-	113.4	-	-	112.0	-	-	112.0	(1.4)	(1.4)	
2016 Projects																
Install Hydrometeorological Equipment - Various Sites	-	314.1	309.8	0.0	309.8	-	314.1	-	4.3	179.0	-	-	183.3	(130.8)	(130.8)	9
Replace Control Room/Communications Room Air Conditioning - Hinds Lake	-	41.3	10.3	53.0	63.3	-	94.3	-	31.0	65.4	-	-	96.4	2.1	2.1	
Refurbish Station Water System - Upper Salmon	-	96.6	58.3	197.6	255.9	-	294.2	-	38.3	161.0	-	94.9	294.2	(0.0)	(94.9)	
Upgrade Work - Cat Arm	-	558.3	317.9	1,353.0	1,670.9	-	1,911.3	-	240.4	760.6	-	910.3	1,911.3	(0.0)	(910.3)	10
Rehabilitate Shoreline Protection - Cat Arm	-	112.2	7.5	1,030.7	1,038.2	-	1,142.9	-	104.7	61.0	-	977.2	1,142.9	(0.0)	(977.2)	11
Replace Site Facilities - Bay d'Espoir	-	928.3	657.9	4,736.3	5,394.2	6,316.7	11,981.3	-	270.4	2,231.6	6,316.7	3,162.6	11,981.3	0.0	(3,162.6)	12
Replace PH1 Station Service Transformer - Bay d'Espoir	-	46.7	1.7	354.5	356.2	-	401.2	-	45.0	488.1	-	-	533.1	131.9	131.9	13
Replace Spherical By-Pass Valves Units 1 and 2 - Bay d'Espoir	-	183.6	28.8	167.9	196.7	-	351.5	-	154.8	51.8	-	144.9	351.5	0.0	(144.9)	14
Overhaul Turbine/Generator Units #6 and #7 - Bay d'Espoir	-	1,345.6	56.2	0.0	56.2	-	1,345.6	-	544.5	65.3	-	-	609.8	(735.8)	9.1	15
2015 Projects																
Replace Station Service Breakers - Cat Arm	644.9	363.4	176.3	0.0	176.3	-	1,008.3	646.1	185.9	204.8	-	-	1,036.8	28.5	28.5	
Replace Pump House and Associated Equipment - Bay d'Espoir	22.7	522.5	279.6	0.0	279.6	-	545.2	137.0	128.6	26.0	-	253.6	545.2	(0.0)	(253.6)	16
Upgrade Equipment Doors - Various Sites	348.5	-	46.7	0.0	46.7	-	348.5	285.4	115.4	11.9	-	-	412.7	64.2	(34.8)	
Total Hydraulic Generation Projects	**1,016.1**	**4,512.6**	**1,951.0**	**13,228.2**	**15,179.2**	**17,711.0**	**36,467.9**	**1,068.5**	**1,863.3**	**7,488.0**	**17,711.0**	**7,789.9**	**35,920.7**	**(547.2)**	**(7,691.2)**	

Table 4: 2017 Capital Expenditures – Thermal Generation ($000)

Thermal Generation Projects	Capital Budget						Actual Expenditure and Forecast							
	A	B	C	D (B+C)	E	F (A+C+E)	G	H	J	J	K (G+H+I+J)	K-F	H-D	
	2016	Carryover 2016	Original 2017	Revised 2017	2018 and Beyond	Total	2016	2017	2018 and Beyond	Carryovers to 2018	Total	Project Variance	Annual Variance	Notes
2017 Projects														
Overhaul Turbine Valves Unit 2 - Holyrood	-	-	2,302.1	2,302.1	-	2,302.1	-	2,496.6	-	-	2,496.6	194.5	194.5	
Purchase Capital Spares Holyrood	-	-	321.5	321.5	-	321.5	-	338.3	-	-	338.3	16.8	16.8	
Condition Assessment and Miscellaneous Upgrades - Holyrood	-	-	2,437.3	2,437.3	-	2,437.3	-	3,058.1	-	-	3,058.1	620.8	620.8	17
Upgrade Holyrood Access Road - Holyrood	-	-	579.3	579.3	583.4	1,162.7	-	825.7	-	-	825.7	(337.0)	246.4	18
Upgrade Underground Plant Drainage System - Holyrood	-	-	923.1	923.1	-	923.1	-	1,825.2	-	(10.7)	1,814.5	891.4	902.1	19
Overhaul Pumps - Holyrood	-	-	633.0	633.0	-	633.0	-	661.3	-	-	661.3	28.3	28.3	
Purchase Tools and Equipment Less than $ 50,000	-	-	16.1	16.1	-	16.1	-	15.0	-	-	15.0	(1.1)	(1.1)	
2016 Projects														
Upgrade Powerhouse Building Envelope - Holyrood	2,723.8	483.9	2,969.9	3,453.8	784.1	6,477.8	2,239.9	2,378.2	784.1	1,075.6	6,477.8	(0.0)	(1,075.6)	20
Total Thermal Generation Projects	**2,723.8**	**483.9**	**10,182.3**	**10,666.2**	**1,367.5**	**14,273.6**	**2,239.9**	**11,598.5**	**784.1**	**1,064.9**	**15,687.4**	**1,413.8**	**932.3**	

Table 5: 2017 Capital Expenditures – Gas Turbine Generation ($000)

Gas Turbine Generation Projects	Capital Budget						Actual Expenditure and Forecast							
	A	B	C	D (B+C)	E	F (A+C+E)	G	H	I	J	K (G+H+I+J)	K-F	H-D	
	2016	Carryover 2016	Original 2017	Revised 2017	2018 and Beyond	Total	2016	2017	2018 and Beyond	Carryover to 2018	Total	Project Variance	Annual Variance	Notes
2017 Projects														
Gas Turbine Life Extension - Stephenville	-	-	847.5	847.5	505.7	1,353.2	-	342.2	505.7	24.1	872.0	(481.2)	(505.3)	21
Gas Turbine Life Extension - Hardwoods	-	-	675.3	675.3	281.4	956.7	-	273.6	281.4	28.3	583.3	(373.4)	(401.7)	22
Purchase Capital Spares - Gas Turbines	-	-	185.0	185.0	-	185.0	-	161.2	-	-	161.2	(23.8)	(23.8)	
2016 Projects														
Replace Fuel Piping - Hardwoods and Stephenville	44.8	33.2	267.0	300.2	-	311.8	11.6	256.3	-	-	267.9	(43.9)	(43.9)	
Total Gas Turbine Generation Projects	**44.8**	**33.2**	**1,974.8**	**2,008.0**	**787.1**	**2,806.7**	**11.6**	**1,033.3**	**787.1**	**52.4**	**1,884.4**	**(922.3)**	**(974.7)**	

Table 6: 2017 Capital Expenditures – Terminal Stations ($000)

Terminal Stations Projects	Capital Budget									Actual Expenditure and Forecast										
	A				B	C	D (B+C)	E	F (A+C+E)	G				H	I	J	K (G+H+I+J)	K-F	H-D	
	2013	2014	2015	2016	Carryover 2016	Original 2017	Revised 2017	2018 and Beyond	Total	2013	2014	2015	2016	2017	2018 and Beyond	Carryovers to 2018	Total	Project Variance	Annual Variance	Notes
2017 Projects																				
Upgrade Corner Brook Frequency Converter - Corner Brook	-	-	-	-	-	194.6	194.6	2,749.2	2,943.8	-	-	-	-	42.2	2,749.2	152.4	2,943.8	0.0	(152.4)	23
Replace 66 kV Station Service Feed - Holyrood	-	-	-	-	-	62.8	62.8	1,198.6	1,261.4	-	-	-	-	80.7	1,198.6	(17.9)	1,261.4	0.0	17.9	
Replace Substation - Holyrood	-	-	-	-	-	439.4	439.4	758.6	1,198.0	-	-	-	-	115.4	758.6	324.0	1,198.0	(0.0)	(324.0)	24
Replace Power Transformers - Oxen Pond	-	-	-	-	-	297.5	297.5	850.1	1,147.6	-	-	-	-	109.1	850.1	188.4	1,147.6	0.0	(188.4)	25
In-Service Failures - Various Sites	-	-	-	-	-	1,000.0	1,000.0	-	1,000.0	-	-	-	-	1,437.2	-	-	1,437.2	437.2	437.2	26
Purchase Capital Spares - Terminal Stations	-	-	-	-	-	495.8	495.8	-	495.8	-	-	-	-	397.8	-	-	397.8	(98.0)	(98.0)	
Upgrade Aluminum Support Structures - Holyrood	-	-	-	-	-	352.9	352.9	-	352.9	-	-	-	-	190.8	-	-	190.8	(162.1)	(162.1)	27
Purchase Backup Diesel For Station Service - Grand Falls and Buchans	-	-	-	-	-	188.9	188.9	-	188.9	-	-	-	-	149.3	-	-	149.3	(39.6)	(39.6)	
Terminal Station Refurbishment and Modernization - Various Sites	-	-	-	-	-	10,831.3	10,831.3	16,550.8	27,382.1	-	-	-	-	5,852.1	16,550.8	3,138.3	25,541.2	(1,840.9)	(4,979.2)	28
2016 Projects																				
Upgrade Circuit Breakers - Various Sites (2016-2020)	-	-	-	6,969.1	1,369.6	10,808.7	12,178.3	43,682.7	61,460.5	-	-	-	5,599.5	8,877.8	43,682.7	3,300.5	61,460.5	(0.0)	(3,300.5)	29
Replace Surge Arrestors - Various Sites	-	-	-	144.4	(30.7)	53.0	22.3	-	197.4	-	-	-	175.1	-	-	-	175.1	(22.3)	(22.3)	
Replace Protective Relays - Various Sites	-	-	-	700.6	(725.2)	1,156.4	431.2	-	1,857.0	-	-	-	1,425.8	1,134.5	-	267.5	2,827.8	970.8	703.3	30
Replace Disconnect Switches - Various Sites (2016-2017)	-	-	-	646.9	515.2	1,320.9	1,836.1	-	1,967.8	-	-	-	131.7	1,064.9	-	771.2	1,967.8	(0.0)	(771.2)	31
Upgrade Digital Fault Recorders - Various Sites	-	-	-	197.9	(23.3)	304.6	281.3	-	502.5	-	-	-	221.2	328.8	-	-	550.0	47.5	47.5	
Upgrade Data Alarm Systems - Various Sites	-	-	-	74.4	24.7	234.1	258.8	-	308.5	-	-	-	49.7	116.0	-	142.8	308.5	0.0	(142.8)	32
Install Breaker Failure Protection - Various Sites	-	-	-	65.7	(16.1)	211.3	195.2	-	277.0	-	-	-	81.8	382.4	-	22.2	486.4	209.4	187.2	33
Install Fire Protection in 230 kV Stations - Bay d'Espoir	-	-	-	200.0	108.6	566.0	674.6	-	766.0	-	-	-	91.4	100.7	-	681.7	873.8	107.8	(573.9)	34
Upgrade Terminal Station for Mobile Substation - Cow Head	-	-	-	40.0	12.5	444.7	457.2	-	484.7	-	-	-	27.5	359.9	-	-	387.4	(97.3)	(97.3)	
2013 Projects																				
Replace Instrument Transformers - Various Sites	593.2	552.8	538.4	1,511.7	311.0	471.9	782.9	-	3,668.0	240.3	699.0	755.5	1,190.3	711.0	-	31.9	3,628.0	(40.0)	(71.9)	
Total Terminal Stations Projects	**593.2**	**552.8**	**538.4**	**10,550.7**	**1,546.3**	**29,434.8**	**30,981.1**	**65,790.0**	**107,459.9**	**240.3**	**699.0**	**755.5**	**8,994.0**	**21,450.7**	**65,790.0**	**9,003.0**	**106,932.5**	**(527.4)**	**(9,530.4)**	

Table 7: 2017 Capital Expenditures – Transmission ($000)

Transmission Projects	Capital Budget								Actual Expenditure and Forecast									
	A			B	C	D	E	F (A+C+E)	G			H	I	J	K(G+H+I+J)	K-F	H-D	
	2014	2015	2016	Carryover 2016	Original 2017	Revised 2017	2018 and Beyond	Total	2014	2015	2016	2017	2018 and Beyond	Carryovers to 2018	Total	Project Variance	Annual Variance	Notes
2017 Projects																		
Transmission Line Upgrades - TL212 and TL218	-	-	-	-	1,378.2	1,378.2	1,133.3	2,511.5	-	-	-	287.1	1,133.3	1,091.1	2,511.5	0.0	(1,091.1)	35
Replace Insulators - TL227	-	-	-	-	145.6	145.6	271.3	416.9	-	-	-	16.7	271.3	128.9	416.9	(0.0)	(128.9)	36
Wood Pole Line Management Program - Various Sites	-	-	-	-	2,404.1	2,404.1	-	2,404.1	-	-	-	3,234.6	-	-	3,234.6	830.5	830.5	37
2016 Projects																		
Construct 230 kV Transmission Line - Soldiers Pond to Hardwoods	-	-	3,699.0	197.4	17,489.8	17,687.2	5,372.1	26,560.9	-	-	3,501.6	11,210.6	11,876.5	(27.8)	26,560.9	(0.0)	(6,476.6)	38
Replace Aircraft Markers at Grand Lake Crossing - TL228	-	-	589.6	527.8	978.3	1,506.1	-	1,567.9	-	-	61.8	1,424.6	-	-	1,486.4	(81.5)	(81.5)	
2014 Projects																		
Refurbish Anchors and Footings TL202 and TL206 - Bay d'Espoir to Sunnyside	211.5	28.4	1,038.4	1,018.7	901.6	1,920.3	-	2,179.9	211.5	28.2	19.9	90.5	-	1,829.8	2,179.9	0.0	(1,829.8)	39
230 kV Transmission Line - Bay d'Espoir to Western Avalon	-	4,403.0	75,284.3	26,108.6	149,895.7	176,004.3	62,075.0	291,658.0	-	2,018.2	59,317.8	213,663.7	17,418.3	(760.0)	291,658.0	(0.0)	37,659.4	40
Total Transmission Projects	**211.5**	**4,431.4**	**80,611.3**	**27,852.5**	**173,193.3**	**201,045.8**	**68,851.7**	**327,299.2**	**211.5**	**2,046.4**	**62,901.1**	**229,927.8**	**30,699.4**	**2,262.0**	**328,048.2**	**749.0**	**28,882.0**	

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Table 8: 2017 Capital Expenditures – Distribution ($000)

Distribution Projects	Capital Budget						Actual Expenditure and Forecast							
	A	B	C	D (B+C)	E	F (A+C+E)	G	H	I	J	K (G+H+I+J)	K-F	H-D	
	2016	Carryover 2016	Original 2017	Revised 2017	2018 and Beyond	Total	2016	2017	2018 and Beyond	Carryovers to 2018	Total	Project Variance	Annual Variance	Notes
2017 Projects														
Provide Service Extensions - All Service Areas	-	-	4,530.0	4,530.0	-	4,530.0	-	4,545.6	-	-	4,545.6	15.6	15.6	
Provide Service Extensions - All Service Areas - CIAC	-	-	(200.0)	(200.0)	-	(200.0)	-	(323.6)	-	-	(323.6)	(123.6)	(123.6)	41
Upgrade Distribution Systems - All Service Areas	-	-	3,910.0	3,910.0	-	3,910.0	-	3,745.0	-	-	3,745.0	(165.0)	(165.0)	
Upgrade Distribution Systems - All Service Areas - CIAC	-	-	(100.0)	(100.0)	-	(100.0)	-	(165.8)	-	-	(165.8)	(65.8)	(65.8)	
Distribution Upgrades - Various Sites (2017-2018)	-	-	64.2	64.2	1,130.9	1,195.1	-	78.7	1,130.9	(14.5)	1,195.1	0.0	14.5	
Install Recloser Remote Control - Bottom Waters	-	-	47.1	47.1	418.6	465.7	-	63.9	418.6	(16.8)	465.7	(0.0)	16.8	
Install Demand Metering - Various Sites	-	-	89.7	89.7	-	89.7	-	73.4	-	-	73.4	(16.3)	(16.3)	
Replace Recloser - Wabush	-	-	199.2	199.2	-	199.2	-	116.0	-	-	116.0	(83.2)	(83.2)	
2016 Projects														
Upgrade Distribution Systems - Various Sites (2016/2017)	285.6	(76.2)	6,350.3	6,274.1	-	6,635.9	361.8	5,363.1	-	911.0	6,635.9	0.0	(911.0)	42
Total Distribution Projects	**285.6**	**(76.2)**	**14,890.5**	**14,814.3**	**1,549.5**	**16,725.6**	**361.8**	**13,496.4**	**1,549.5**	**879.7**	**16,287.4**	**(438.2)**	**(1,317.9)**	

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Table 9: 2017 Capital Expenditures – Rural Generation ($000)

Rural Generation Projects	Capital Budget								Actual Expenditure and Forecast									
	A			B	C	D	E	F (A+C+E)	G			H	I	J	K (G+H+I+J)	K-F	H-D	
	2014	2015	2016	Carryover 2016	Original 2017	Revised 2017	2018 and Beyond	Total	2014	2015	2016	2017	2018 and Beyond	Carryovers to 2018	Total	Project Variance	Annual Variance	Notes
2017 Projects																		
Overhaul Diesel Engines - Various Sites	-	-	-	-	2,095.9	2,095.9	-	2,095.9	-	-	-	1,619.8	-	-	1,619.8	(476.1)	(476.1)	43
Diesel Plant Engine Auxiliary Upgrades - Various Sites	-	-	-	-	790.6	790.6	416.3	1,206.9	-	-	-	644.7	416.3	145.9	1,206.9	0.0	(145.9)	44
Inspect Fuel Storage Tanks - Various Sites	-	-	-	-	1,058.8	1,058.8	-	1,058.8	-	-	-	717.3	-	-	717.3	(341.5)	(341.5)	45
Replace Automation Equipment - Mary's Harbour	-	-	-	-	120.3	120.3	1,021.7	1,142.0	-	-	-	87.4	1,021.7	32.9	1,142.0	(0.0)	(32.9)	
Replace Fuel Tank 22E - St. Anthony	-	-	-	-	199.8	199.8	-	199.8	-	-	-	139.0	-	-	139.0	(60.8)	(60.8)	
Diesel Genset Replacements - Port Hope Simpson and Charlottetown	-	-	-	-	658.8	658.8	5,148.0	5,806.8	-	-	-	213.6	5,148.0	445.2	5,806.8	0.0	(445.2)	46
2016 Projects																		
Upgrade Human Machine Interface - Various Sites	-	-	114.0	(11.3)	320.0	308.7	-	434.0	-	-	125.3	235.7	-	73.0	434.0	(0.0)	(73.0)	
Install Variable Frequency Drives - Grey River	-	-	46.9	(2.8)	123.0	120.2	-	169.9	-	-	49.7	207.8	-	-	257.5	87.6	87.6	
Install Fire Protection Systems - Cartwright and Nain	-	-	3,030.7	1,557.1	1,376.4	2,933.5	-	4,407.1	-	-	782.8	2,869.3	-	-	3,652.1	(755.0)	(64.2)	47
Upgrade Transformer Systems - Postville and Cartwright	-	-	465.2	169.2	-	169.2	-	465.2	-	-	296.0	169.2	-	-	465.2	(0.0)	(0.0)	
Additions for Load Growth - Various Sites	-	-	883.4	693.0	4,746.0	5,439.0	-	5,629.4	-	-	190.4	4,402.1	-	-	4,592.5	(1,036.9)	(1,036.9)	48
Replace Diesel Units - Charlottetown			1,384.9	-	46.1	46.1	-	1,431.0	-	-	1,442.2	-	-	-	1,442.2	11.2	(46.1)	
2015 Projects																		
Replace Programmable Logic Controllers - Various Sites	-	366.9	346.0	(29.8)	245.1	215.3	-	958.0	-	397.2	345.5	410.5	-	51.5	1,204.7	246.7	195.2	49
2014 Projects																		
Upgrade Diesel Plant Production Data Collection Equipment-Various	268.9	269.8	280.7	143.2	-	143	-	819.4	107.8	57.8	510.6	166.5	-	-	842.7	23.3	23.3	
Total Rural Generation Projects	**268.9**	**636.7**	**6,551.8**	**2,518.6**	**11,780.8**	**14,299.4**	**6,586.0**	**25,824.2**	**107.8**	**455.0**	**3,742.5**	**11,882.8**	**6,586.0**	**748.5**	**23,522.6**	**(2,301.6)**	**(2,416.6)**	

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Table 10: 2017 Capital Expenditures – Properties ($000)

Properties Projects	Capital Budget							Actual Expenditure and Forecast								
	A		B	C	D	E	F (A+C+E)	G		H	I	J	K (G+H+I+J)	K-F	H-D	
	2015	2016	Carryover 2016	Original 2017	Revised 2017	2018 and Beyond	Total	2015	2016	2017	2018 and Beyond	Carryovers to 2018	Total	Project Variance	Annual Variance	Notes
2017 Projects																
Upgrade Office Facilities & Control Buildings - Various Sites	-	-	-	2,197.3	2,197.3	-	2,197.3	-	-	1,815.2	-	-	1,815.2	(382.1)	(382.1)	50
Line Depot Condition Assessment and Refurbishment Program - Various Sites	-	-	-	1,458.8	1,458.8	-	1,458.8	-	-	689.4	-	-	689.4	(769.4)	(769.4)	51
Construct New Facilities - Various Sites	-	-	-	422.0	422.0	1,034.1	1,456.1	-	-	237.8	1,034.1	184.2	1,456.1	(0.0)	(184.2)	52
Install Fall Protection Equipment - Various Sites	-	-	-	194.7	194.7	-	194.7	-	-	161.3	-	-	161.3	(33.4)	(33.4)	
2016 Projects																
Upgrade Warehouse Lighting - Bishop's Falls	-	15.2	(12.9)	180.4	167.5	-	195.6	-	28.1	93.6	-	-	121.7	(73.9)	(73.9)	
Replace Roof on Service Building - Bishop's Falls	-	612.8	285.0	-	285.0	-	612.8	-	327.8	288.5	-	-	616.3	3.5	3.5	
2015 Projects																
Replace Accommodations and Septic System - Ebbegunbaeg	489.4	1,061.4	645.4	-	645.4	-	1,550.8	94.2	811.2	1,138.1	-	-	2,043.5	492.7	492.7	53
Total Properties Projects	**489.4**	**1,689.4**	**917.5**	**4,453.2**	**5,370.7**	**1,034.1**	**7,666.1**	**94.2**	**1,167.1**	**4,423.9**	**1,034.1**	**184.2**	**6,903.5**	**(762.6)**	**(946.8)**	

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Table 11: 2017 Capital Expenditures – Metering ($000)

Metering Projects	Capital Budget						Actual Expenditure and Forecast							
	A	B	C	D	E	F (A+C+E)	G	H	I	J	K (G+H+I+J)	K-F	H-D	
	2016	Carryover 2016	Original 2017	Revised 2017	2018 and Beyond	Total	2016	2017	2018 and Beyond	Carryovers To 2018	Total	Project Variance	Annual Variance	Notes
2017 Projects														
Install Automated Meter Reading - Happy Valley (2017-2018)	-	-	78.6	78.6	1,891.6	1,970.2	-	183.8	1,891.6	(105.2)	1,970.2	0.0	105.2	54
Purchase Meters and Metering Equipment - Various Sites	-	-	198.8	198.8	-	198.8	-	273.9	-	-	273.9	75.1	75.1	
Purchase New Meter Calibration Test Console - Hydro Place	-	-	196.9	196.9	-	196.9	-	0.1	-	212.7	212.8	15.9	(196.8)	55
2016 Projects														
Install Automated Meter Reading - Labrador West	433.8	303.4	533.4	836.8	-	967.2	130.4	1,232.8	-	(3.2)	1,360.0	392.8	396.0	56
Total Metering Projects	**433.8**	**303.4**	**1,007.7**	**1,311.1**	**1,891.6**	**3,333.1**	**130.4**	**1,690.6**	**1,891.6**	**104.3**	**3,816.9**	**483.8**	**379.5**	

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Table 12: 2017 Capital Expenditures – Tools and Equipment ($000)

Tools and Equipment	Capital Budget						Actual Expenditure and Forecast							
	A	B	C	D	E	F (A+C+E)	G	H	I	J	K (G+H+I+J)	K-F	H-D	
	2016	Carryover 2016	Original 2017	Revised 2017	2018 and Beyond	Total	2016	2017	2018 and Beyond	Carryovers to 2018	Total	Project Variance	Annual Variance	Notes
2017 Projects														
Replace Light Duty Mobile Equipment - Various Sites	-	-	270.9	270.9	-	270.9	-	179.8	-	-	179.8	(91)	(91.1)	
Purchase Front End Loader with Backhoe - Wabush	-	-	133.2	133.2	-	133.2	-	132.8	-	-	132.8	(0)	(0.4)	
Tools and Equipment Less than $ 50,000	-	-	423.0	423.0	-	423.0	-	371.0	-	-	371.0	(52)	(52.0)	
2016 Projects														
Purchase Excavator - Bay d'Espoir	312.0	35.0	-	35.0	-	312.0	187.0	36.5	-	-	223.5	(88.5)	1.5	
Total Tools and Equipment	**312.0**	**35.0**	**827.1**	**862.1**	**-**	**1,139.1**	**187.0**	**720.1**	**-**	**-**	**907.1**	**(232.0)**	**(142.0)**	

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Table 13: 2017 Capital Expenditures – Information Systems ($000)

Information Systems Projects	Capital Budget						Actual Expenditure and Forecast							
	A	B	C	D	E	F (A+C+E)	G	H	I	J	K (G+H+I+J)	K-F	H-D	
	2016	Carryover 2016	Original 2017	Revised 2017	2018 and Beyond	Total	2016	2017	2018 and Beyond	Carryovers to 2018	Total	Project Variance	Annual Variance	Notes
2017 Projects														
Upgrade Energy Management System - Hydro Place	-	-	427.0	427.0	-	427.0	-	433.4	-	-	433.4	6.4	6.4	
Replace Personal Computers - Hydro Place	-	-	401.4	401.4	-	401.4	-	394.4	-	-	394.4	(7.0)	(7.0)	
2016 Projects														
Implement Industrial Billing Software - Hydro Place	443.1	273.6	-	273.6	-	443.1	169.5	245.6	-	-	415.1	(28.0)	(28.0)	
Upgrade Microsoft Project - Hydro Place	683.7	26.8	953.4	980.2	957.3	2,594.4	656.9	960.0	957.3	20.2	2,594.4	(0.0)	(20.2)	
Cost Recoveries	(317.1)	(12.3)	(442.2)	(454.5)	(444.0)	(1,203.3)	(304.8)	(445.5)	(444.0)	(9.0)	(1,203.3)	0.0	9.0	
Upgrade Enterprise Storage Capacity - Hydro Place	628.8	164.3	-	164.3	-	628.8	464.5	97.8	-	-	562.3	(66.5)	(66.5)	
Cost Recoveries	(291.6)	(76.1)	-	(76.1)	-	(291.6)	(215.5)	(45.4)	-	-	(260.9)	30.7	30.7	
Upgrade Server Technology Program - Hydro Place	492.5	41.4	-	41.4	-	492.5	451.1	86.3	-	-	537.4	44.9	44.9	
Cost Recoveries	(228.5)	(19.2)	-	(19.2)	-	(228.5)	(209.3)	(39.1)	-	-	(248.4)	(19.9)	(19.9)	
Total Information Systems Projects	**1,410.9**	**398.5**	**1,339.6**	**1,738.1**	**513.3**	**3,263.8**	**1,012.4**	**1,687.4**	**513.3**	**11.2**	**3,224.3**	**(39.5)**	**(50.7)**	

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Table 14: 2017 Capital Expenditures – Telecontrol ($000)

Telecontrol Projects	Capital Budget						Actual Expenditure and Forecast							
	A	B	C	D	E	F (A+C+E)	G	H	I	J	K (G+H+I+J)	K-F	H-D	
	2016	Carryover 2016	Original 2017	Revised 2017	2018 and Beyond	Total	2016	2017	2018 and Beyond	Carryovers to 2018	Total	Project Variance	Annual Variance	Notes
2017 Projects														
Purchase Tools and Equipment less than $50,000	-	-	45.2	45.2	-	45.2	-	48.7	-	-	48.7	3.5	3.5	
Replace Battery Banks and Chargers - Various Sites (2017-2018)	-	-	379.3	379.3	566.2	945.5	-	217.6	566.2	(4.3)	779.5	(166.0)	(161.7)	57
Replace Network Communications Equipment - Various Sites	-	-	199.3	199.3	-	199.3	-	228.6	-	-	228.6	29.3	29.3	
Upgrade Site Facilities	-	-	49.0	49.0	-	49.0	-	49.9	-	-	49.9	0.9	0.9	
Upgrade Access Roads to Microwave Sites - Various Sites	-	-	118.4	118.4	-	118.4	-	121.1	-	-	121.1	2.7	2.7	
Upgrade Telecontrol Facilities - Mary March Hill and Blue Grass Hill	-	-	91.2	91.2	665.9	757.1	-	123.3	665.9	(32.1)	757.1	(0.0)	32.1	
2016 Projects														
Replace Battery Banks and Chargers - Various Sites	425.0	59.3	456.6	515.9	-	881.6	365.7	279.6	-	-	645.3	(236.3)	(236.3)	58
Replace MDR 4000 Microwave Radio East - Various Sites	77.4	(36.0)	1,093.1	1,057.1	-	1,170.5	113.4	1,041.0	-	-	1,154.4	(16.1)	(16.1)	
Replace UPS Systems - Hydro Place	889.8	(38.8)	-	-38.8	-	889.8	928.6	49.9	-	-	978.5	88.7	88.7	
Replace Air Conditioners - Various Sites	39.9	(11.3)	152.0	140.7	-	191.9	51.2	145.1	-	-	196.3	4.4	4.4	
Replace Powerline Carrier - Various Sites	73.4	(4.0)	763.4	759.4	-	836.8	77.4	684.7	-	-	762.1	(74.7)	(74.7)	
Upgrade Telecontrol Facilities - Sandy Brook Hill	101.6	19.9	462.4	482.3	-	564.0	81.7	533.5	-	-	615.2	51.2	51.2	
Total Telecontrol Projects	**1,607.1**	**(10.9)**	**3,809.9**	**3,799.0**	**1,232.1**	**6,649.1**	**1,618.0**	**3,523.2**	**1,232.1**	**(36.4)**	**6,336.9**	**(312.2)**	**(275.8)**	

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Table 15: 2017 Capital Expenditures – Transportation and Administration

Transportation	Capital Budget						Actual Expenditure and Forecast							
	A	B	C	D	E	F (A+C+E)	G	H	J	J	K (G+H+I+J)	K-F	H-D	
	2016	Carryover 2016	Original 2017	Revised 2017	2018 and Beyond	Total	2016	2017	Beyond	Carryovers to 2018	Total	Project Variance	Annual Variance	Notes
2017 Projects														
Replace Vehicles and Aerial Devices - Various Sites (2017-2018)	-	-	2,001.4	2,001.4	398.8	2,400.2	-	1,275.8	398.8	725.6	2,400.2	0.0	(725.6)	59
2016 Projects														
Replace Vehicles and Aerial Devices - Various Sites (2016-2017)	1,443.3	410.6	534.2	944.8	-	1,977.5	1,032.7	815.5	-	-	1,848.2	(129.3)	(129.3)	60
Purchase Vehicles and Aerial Devices - Various Sites	382.5	(87.9)	172.7	84.8	-	555.2	470.4	135.3	-	-	605.7	50.5	50.5	
Total Transportation	**1,825.8**	**322.7**	**2,708.3**	**3,031.0**	**398.8**	**4,932.9**	**1,503.1**	**2,226.6**	**398.8**	**725.6**	**4,854.1**	**(78.8)**	**(804.4)**	

Administrative	Capital Budget						Actual Expenditure and Forecast							
	2016	Carryover 2016	Original 2017	Revised 2017	2018 and Beyond	Total	2016	2017	Beyond	Carryovers to 2018	Total	Project Variance	Annual Variance	Notes
2017 Projects														
Remove Safety Hazards - Various Sites	-	-	198.6	198.6	-	198.6	-	185.9	-	-	185.9	(12.7)	(12.7)	
Replace Roof - Hydro Place	-	-	923.4	923.4	-	923.4	-	503.5	-	-	503.5	(419.9)	(419.9)	61
Purchase Tools and Equipment less than $50,000	-	-	83.6	83.6	-	83.6	-	42.0	-	-	42.0	(41.6)	(41.6)	
2016 Projects														
Replace Air Conditioning Units 8 and 14 - Hydro Place	34.6	3.6	229.5	233.1	-	264.1	31.0	213.6	-	19.5	264.1	(0.0)	(19.5)	
Total Administrative	**34.6**	**3.6**	**1,435.1**	**1,438.7**	**-**	**1,469.7**	**31.0**	**945.0**	**-**	**19.5**	**995.5**	**(474.2)**	**(493.7)**	

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Table 16: 2017 Capital Expenditures – Allowance for Unforeseen Items, Supplemental Capital Projects, and Projects less than $50,000

Allowance For Unforeseen	Capital Budget								Actual Expenditure and Forecast									
	A			B	C	D	E	F (A+C+E)	G			H	I	J	K (G+H+I+J)	K-F	H-D	
	2014	2015	2016	Carryover 2016	Original 2017	Revised 2017	2018 and Beyond	Total	2014	2015	2016	2017	2018 and Beyond	Carryover to 2018	Total	Project Variance	Annual Variance	Notes
2017 Projects																		
Contingency Fund	-	-	-	-	1,000.0	1,000.0	-	1,000.0	-	-	-	-	-	-	-	(1,000.0)	(1,000.0)	
Transmission Line Emergency Refurbishments	-	-	-	-	-	-	-	-	-	-	-	506.2	-	-	506.2	506.2	506.2	
Holyrood Unit 2 Fire Damage Rehabilitation	-	-	-	-	-	-	-	-	-	-	-	540.8	-	-	540.8	540.8	540.8	
Allowance for Unforeseen Top Up P.U. No. 15 (2017)	-	-	-	-	500.0	500.0	-	500.0				-	-	-	-	(500.0)	(500.0)	
Contingency Top Up	-	-	-	-	540.0	540.0	-	540.0				-	-	-	-	(540.0)	(540.0)	
Emergency Repairs Penstock #1 - Bay d'Espoir	-	-	-	-	-	-	-	-				4,598.8	-	-	4,598.8	4,598.8	4,598.8	
Total Allowance For Unforeseen	**-**	**-**	**-**	**-**	**2,040.0**	**2,040.0**	**-**	**2,040**	**-**	**-**	**-**	**5,645.8**	**-**	**-**	**5,645.8**	**3,605.8**	**3,605.8**	**62**

Supplemental Projects	Capital Budget								Actual Expenditure and Forecast									
	2014	2015	2016	Carryover 2016	Original 2017	Revised 2017	2018 and Beyond	Total	2014	2015	2016	2017	2018 and Beyond	Carryover to 2018	Total	Project Variance	Annual Variance	Notes
2017 Projects																		
Additions for Load Growth - Bottom Waters	-	-	-	-	3,045.0	3,045.0	-	3,045.0	-	-	-	3,024.8	-	-	3,024.8	(20.2)	(20.2)	
Acquisition of two 230 kV Transmission Lines - Labrador West	-	-	-	-	3,168.9	3,168.9	-	3,168.9	-	-	-	2,913.1	-	-	2,913.1	(255.8)	(255.8)	
Unit 3 Turbine Rehabilitation - Bay d'Espoir	-	-	-	-	2,361.5	2,361.5	-	2,361.5	-	-	-	1,905.4	-	-	1,905.4	(456.1)	(456.1)	63
Exciter Controls Replacement - Holyrood	-	-	-	-	1,349.2	1,349.2	-	1,349.2	-	-	-	1,339.9	-	-	1,339.9	(9.3)	(9.3)	
Terminal Station Upgrades - Wabush	-	-	-	-	2,585.2	2,585.2	327.3	2,912.5	-	-	-	940.7	327.3	1,644.5	2,912.5	(0.0)	(1,644.5)	64
Penstock #2 Refurbishment - Bay d'Espoir	-	-	-	-	9,063.7	9,063.7	-	9,063.7	-	-	-	3,586.3	-	-	3,586.3	(5,477.4)	(5,477.4)	65
Reliability Improvements - Holyrood	-	-	-	-	2,610.0	2,610.0	-	2,610.0	-	-	-	3,586.6	-	16.7	3,603.3	993.3	976.6	66
Repair and Advanced Overhaul of the Happy Valley Gas Turbine	-	-	-	-	3,714.8	3,714.8	-	3,714.8	-	-	-	2,049.3	-	-	2,049.3	(1,665.5)	(1,665.5)	67
2016 Projects																		
Purchase of 12 MW Diesel Generation - Holyrood	-	-	4,700.0	916.0	-	916.0	-	4,700.0	-	-	3,784.0	497.1	-	418.9	4,700.0	(0.0)	(418.9)	68
TL 227 Distribution Line Sally's Cove L1	-	-	717.0	530.7	1,533.0	2,063.7	-	2,250.0	-	-	186.3	1,708.2	-	-	1,894.5	(355.5)	(355.5)	69
Refurbish Gas Generator Engines - Hardwoods and Stephenville	-	-	3,047.1	508.4	-	508.4	-	3,047.1	-	-	2,538.7	429.6	-	-	2,968.3	(78.8)	(78.8)	
2014 Projects																		
Labrador West Transmission Project - Construction Phase[1]	37,484.2	163,145.3	128,962.6	-	-	-	-	329,592.1	10,996.0	628.0	752.8	517.8	-	-	12,894.6	(316,697.5)	517.8	70
Total Supplemental Projects Approved by PUB	**37,484.2**	**163,145.3**	**137,426.7**	**1,955.1**	**29,431**	**31,386.4**	**327.3**	**367,814.8**	**10,996.0**	**628.0**	**7,261.8**	**22,498.8**	**327.3**	**2,080.1**	**43,792.0**	**(324,022.8)**	**(8,887.6)**	

Projects Less than $50,000	Capital Budget								Actual Expenditure and Forecast									
	2014	2015	2016	Carryover 2016	Original 2017	Revised 2017	2018 and Beyond	Total	2014	2015	2016	2017	2018 and Beyond	Carryover to 2018	Total	Project Variance	Annual Variance	Notes
2017 Projects																		
Three Phase Construction - Bishop's Falls	-	-	-	-	49.6	49.6	-	49.6	-	-	-	43.2	-	-	43.2	(6.4)	(6.4)	
Tools Procurement - Hardwoods and Stephenville Gas Turbine	-	-	-	-	47.2	47.2	-	47.2	-	-	-	35.5	-	-	35.5	(11.7)	(11.7)	
Replace Powerhouse #2 Lighting - Bay d'Espoir	-	-	-	-	48.0	48.0	-	48.0	-	-	-	46.1	-	-	46.1	(1.9)	(1.9)	
Replace Powerhouse Lighting - Paradise River	-	-	-	-	43.9	43.9	-	43.9	-	-	-	36.2	-	-	36.2	(7.7)	(7.7)	
Domestic Waterline Replacement - Holyrood	-	-	-	-	49.6	49.6	-	49.6	-	-	-	56.9	-	-	56.9	7.3	7.3	
Stage 1 Pumphouse Siding Replacement - Holyrood	-	-	-	-	49.9	49.9	-	49.9	-	-	-	51.9	-	-	51.9	2.0	2.0	
Line Replacement and New Valve - Holyrood	-	-	-	-	49.9	49.9	-	49.9	-	-	-	50.3	-	-	50.3	0.4	0.4	
Construct Smoking Shelter and Security Fence - Hydro Place	-	-	-	-	20.4	20.4	-	20.4	-	-	-	13.8	-	-	13.8	(6.6)	(6.6)	
Replace Generator Bearing Coolers - Upper Salmon	-	-	-	-	48.7	48.7	-	48.7	-	-	-	46.2	-	-	46.2	(2.5)	(2.5)	
Purchase 10 Aclara KV2C and Meters	-	-	-	-	49.9	49.9	-	49.9	-	-	-	40.1	-	-	40.1	(9.8)	(9.8)	
Replace Tracks for V7601 Groomer - Bay d'Espoir	-	-	-	-	1.0	1.0	43.7	44.7	-	-	-	-	43.7	1.0	44.7	-	(1.0)	
PA System Repairs - Holyrood	-	-	-	-	49.9	49.9	-	49.9				54.1	-	-	54.1	4.2	4.2	
2016 Projects																		
Replace Radiator Unit 2029 Makkovik	-	-	49.0	21.5	-	21.5	-	49.0	-	-	27.5	27.6	-	-	55.1	6.1	6.1	
Total Projects Less than $50,000	**-**	**-**	**49.0**	**21.5**	**508.0**	**529.5**	**43.7**	**600.7**	**-**	**-**	**27.5**	**501.8**	**43.7**	**1.0**	**574.0**	**(26.7)**	**(27.7)**	

[1] The construction of the Labrador West Transmission was approved by OC2014-033, February 2, 2014. The capital expenditures associated with this project are included in Work In Progress and as a result are currently excluded from average rate base. The costs to be included in rate base will be subject to review by the Board of Commissioners of Public Utilities.

4.0 Variance Explanations (Greater than $100,000 and 10% Variance from Budget)

The projects discussed in the following section have 2017 variances (project total or annual as indicated) of more than 10% and $100,000 when comparing the approved budget to the 2017 expenditures, whether it is a single year project or a multiyear project. The projects are ordered and numbered based upon the order and number they appear in the preceding set of tables.

4.1 Hydraulic Generation Projects

1. ***Install Asset Health Monitoring System – Upper Salmon***

Annual Variance ($000)

Budget: 438.0 Expenditures: 214.9 Variance: (223.1)

This is a two-year project (2017-2018) that commenced in 2017. The 2017 construction activities were estimated based on construction executed by a contractor. Hydro was able to leverage an opportunity to execute the activities using internal operations and maintenance resources, resulting in a first year expenditure less than budgeted. The planned scope of work for 2017 is complete. The project remains on schedule with no change to the overall budget, scope or completion date.

2. ***Refurbish Main Generator Breaker – Upper Salmon***

Annual Variance ($000)

Budget: 271.1 Expenditures: 123.2 Variance: (147.9)

This is a one-year project that commenced in 2017 and carried over to 2018. The variance in 2017 expenditure is attributed to rescheduling the construction activity from 2017 to 2018. The rescheduling of the work was necessary when the generation unit outage was advanced from the planned outage in October 2017 to a new outage window in August 2017 due to a change in the overall generation outage schedule. The work on the unit breaker can only be completed during a generating unit outage

and the parts required for the work were not available for the advanced outage date. There is no change to the overall project scope or budget.

3. ***<u>Refurbish Powerhouse Station Services – Bay d'Espoir</u>***

Annual Variance ($000)

Budget: 413.2 Expenditures: 43.0 Variance (370.2)

This is a three-year project (2017-2019) that commenced in 2017. Engineering commenced in late 2017 and the project schedule is expected to recover in 2018. There is no change to the overall project scope, budget or completion date.

4. ***<u>Upgrade Public Safety around Dams and Waterways – Bay d'Espoir</u>***

Project Variance ($000)

Budget: 489.0 Expenditures: 355.5 Variance: (133.5)

This was a one-year project (2017) that is part of an ongoing program to U*pgrade Public Safety around Dams and Waterways*. The construction activity for this project was planned for construction by internal operations and maintenance resources. A portion of the 2017 construction was incomplete due to operations and maintenance resources being re-deployed to address higher priority work including emergency work associated with leakage on Bay d'Espoir Penstock 1. As this is an ongoing program, the 2017 project was closed and the incomplete scope will be completed in 2018 as part of the next *Upgrade Public Safety around Dams and Waterways Project*.

5. ***<u>Purchase Capital Spares – Hydraulic</u>***

Annual Variance ($000)

Budget: 487.4 Expenditures: 325.2 Variance: (162.2)

Project Variance ($000)

Budget: 487.4 Expenditures & Forecast: 687.4 Variance: 200.0

This is a one-year project that commenced in 2017 and carried over to 2018. Some of the capital spares components that were ordered in 2017 did not arrive by year end. Spare excitation transformers for Hinds Lake and Bay d'Espoir Unit 7 arrived in January 2018 following weather delays during transportation. Spare exciter slip rings for Hinds Lake are being procured from the original equipment manufacturer with a longer lead time than originally anticipated. The slip rings have been ordered with an expected delivery in May 2018.

In 2017, Hydro experienced failures of generator bearing coolers in Hinds Lake, and determined that spare coolers were required in the event of additional failures in the 2017-2018 winter season. A spare set of coolers were ordered under this project and received in 2017.

The annual variance in 2017 expenditure is attributed to the delay in delivery from 2017 to 2018 of the transformers and slip rings, partially off-set by the procurement of coolers for Hinds Lake. The forecasted variance in total project expenditure is attributed to the addition of the Hinds Lake coolers to the project scope.

6. ***Replace Slip Rings Units 1-6 – Bay d'Espoir***

Annual Variance ($000)

Budget: 312.6 Expenditures: 102.4 Variance: (210.2)

This is a two-year project (2017-2018) that commenced in 2017. The original project cash flow assumed that the procurement cost to acquire the slip rings would be incurred in 2017. As the slip rings are in inventory, the new slip rings will be sourced from inventory when required in 2018, at which time the cost will be assigned to the capital project. There is no change to the overall project scope, budget or schedule.

7. ***Install Wind Monitoring Station North Salmon Dam SD-2 – Bay d'Espoir***

Annual Variance ($000)

Budget: 165.5 Expenditures: 52.3 Variance: (113.2)

This is a one-year project that commenced in 2017 and carried over to 2018. This work was planned for construction by internal operations and maintenance resources late in 2017, following the resource intense outage maintenance season. The work was then delayed due to operations and maintenance resources being re-deployed to address higher priority work including emergency work associated with leakage on Bay d'Espoir Penstock 1. The work has been rescheduled for completion in early 2018 when internal resources are expected to be available. All materials have been procured and are located at North Salmon. There is no change to overall project scope or budget.

8. ***Control Structure Refurbishments***

Annual Variance ($000)

Budget: 1,735.3 Expenditures: 991.4 Variance: (743.9)

This is a two-year project that commenced in 2017. The assignment of critical supplemental capital projects to the project team resulted in adjustments being

required in engineering design and material procurement originally planned for 2017. The project schedule is expected to recover in 2018. There is no change to the overall project scope, budget or completion date.

9. ***<u>Install Hydrometeorological Equipment – Various Sites</u>***

Project Variance ($000)

Budget: 314.1 Expenditures: 183.3 Variance: (130.8)

This is a one-year project that commenced in 2016, and was carried over and completed in 2017. The variance in overall project expenditures is attributed to lower than estimated construction costs.

10. ***<u>Upgrade Work – Cat Arm</u>***

Annual Variance ($000)

Budget: 1,670.9 Expenditures: 760.6 Variance: (910.3)

This is a two-year project (2016-2017) that commenced in 2016 and carried over to 2018. The carryover is attributed to a delay in procurement of deflector servomotors and a delay in the construction for the spherical controls upgrades. The deflector servomotors were planned to be ordered from the original equipment manufacturer. Prior to placing the order, Hydro tested the original equipment manufacturer's design and deemed it to be unsatisfactory; a new design is required. A new servomotor has been designed and manufactured and is ready for installation in 2018. The spherical valve controls upgrade was scheduled for construction in the fall of 2017. Due to contractor material delivery issues for the valve controls upgrade, the risk of starting installation of the spherical valve controls without the necessary materials on site was assessed and determined to be too high. The work has been rescheduled to 2018. There is no change to overall project scope or budget.

11. ***<u>Rehabilitate Shoreline Protection – Cat Arm</u>***

Annual Variance ($000)

Budget: 1,038.2 Expenditures: 61.0 Variance: (977.2)

This is a two-year project (2016-2017) that commenced in 2016 and carried over to 2018. Failures in the mountain slope in the area sent large boulders directly into the proposed shoreline construction site. A consultant was engaged to develop a plan to mitigate the safety risk of further rock fall during construction. Hydro is evaluating the safety risk and the impact that it may have on the project, and has therefore carried the project over to 2018 to allow for time to complete this evaluation. The project cost and schedule is also being assessed in light of the requirement for safety risk mitigation.

12. ***<u>Replace Site Facilities – Bay d'Espoir</u>***

Annual Variance ($000)

Budget: 5,394.2 Expenditures: 2,231.6 Variance: (3,162.6)

This is a three-year project (2016-2018) that commenced in 2016. The variance in 2017 expenditure can be attributed to the late delivery of structural steel, which delayed portions of the schedule by over a month, delaying some steel installation and subsequent construction tasks into 2018. The contractor has committed extra resources in the first quarter of 2018 to recover the schedule. There is no change to the overall project budget, scope or completion date.

13. ***<u>Replace PH1 Station Service Transformer – Bay d'Espoir</u>***

Project Variance ($000)

Budget: 401.2 Expenditures: 533.1 Variance: 131.9

This was a two-year project (2016-2017) that commenced in 2016 and was completed in 2017. The variance in overall project expenditures is attributed to the publically tendered construction cost being higher than originally estimated.

14. ***<u>Replace Spherical By-Pass Valves Units 1 and 2 – Bay d'Espoir</u>***

Annual Variance ($000)

Budget: 196.7 Expenditures: 51.8 Variance: (144.9)

This is a two-year project (2016-2017) that commenced in 2016 and carried over to 2018. Project construction requires an outage of Bay d'Espoir Penstock 1, and, when this project was proposed in the *2016 Capital Budget Application*, was planned to coincide with the project to refurbish Surge Tank 1, which, at the time, was also planned for 2017, and which also requires an outage to Penstock 1. Given that the execution plan for Surge Tank 1 was changed to 2018, construction for the spherical valve by-pass valves has therefore been rescheduled to 2018 for execution in conjunction with the *2018 Surge Tank 1 Project*. There is no change to the overall project budget or scope.

15. ***<u>Overhaul Turbine/Generator Units #6 and #7 – Bay d'Espoir</u>***

Project Variance ($000)

Budget: 1,345.6 Expenditures: 609.8 Variance: (735.8)

This was a one-year project (2016) and due to unresolved contract terms with the original equipment manufacturer, and schedule conflicts with other on-going work, it was decided to limit part of the rotor scope for Unit 7 that was included in the whole project. The Unit 7 rotor scope was to address unacceptable vibration levels and was

limited to design only, with construction deferred until 2017. The generator bearing was replaced during the outage and resulted in a significant improvement to the operating vibration levels. Based on this improved performance, it was decided to cancel the remaining rotor scope instead of deferring it to 2017 in order to provide a timeframe to assess the long term performance of the generator with the new bearing. Throughout 2017 Unit 7 has had acceptable vibration levels. Approximately $60,000 of the project funds was carried from 2016 to 2017 to allow time for the old generator bearing to be refurbished and returned as a capital critical spare. This work was completed in 2017, and this project is now closed.

16. ***<u>Replace Pump House and Associated Equipment – Bay d'Espoir</u>***

Annual Variance ($000)

Budget: 279.6 Expenditures: 26.0 Variance: (253.6)

This is a two-year project (2015-2016) that commenced in 2015 and is a carryover to 2017/2018. The total carryover budget was assigned to 2017 resulting in the variance in 2017.

The overall project cost for this project remains a concern. Engineering work commenced in 2016, and the construction was tendered but not awarded in 2016, since tendered prices were significantly higher than the budget. The project was carried over to reassess the execution and determine if any savings could be realized in pairing this project with the construction of the *Replace Site Facilities Project* in Bay d'Espoir. It was determined in 2017 that significant savings could not be realized. Furthermore, following Hurricane Matthew in October 2016, Hydro completed a flood study of this area in 2017, and those results may further increase the project scope and cost. Hydro is evaluating next steps for this project prior to proceeding.

4.2 Thermal Generation Projects

17. ***<u>Condition Assessment and Miscellaneous Upgrades – Holyrood</u>***

Project Variance ($000)

Budget: 2,437.3 Expenditures: 3,058.1 Variance: 620.8

This was a one-year project completed in 2017. The variance in expenditure is attributed to the requirement for additional work identified during the discovery phase of the project. The extent of testing required to accurately track degradation of the high energy piping due to flow accelerated corrosion was more than originally anticipated. In addition, the number of expansion joints requiring replacement increased for Units 1 and 2, due to the identification of additional leaks.

During the condition assessment of the boiler feedwater piping, it was determined that some piping components required immediate replacement prior to returning to service. This scope was completed as part of this project. In 2018, this type of replacement due to failure will be covered in the Thermal In-service Failures project.

18. ***<u>Upgrade Holyrood Access Road – Holyrood</u>***

Project Variance ($000)

Budget: 1,162.7 Expenditures: 825.7 Variance: (337.0)

This was a two-year project (2017-2018) that commenced in 2017 and was completed in 2017. Hydro tendered the construction work with optional pricing to complete all of the construction in the first year. The optional pricing was favorable and Hydro proceeded to complete the project in 2017. The variance in project expenditures is attributed to lower than estimated contract pricing as well as savings associated with completing the project in a single year.

19. ***<u>Upgrade Underground Plant Drainage System – Holyrood</u>***

Annual Variance ($000)

Budget: 923.1 Expenditures: 1,825.2 Variance: 902.1

Project Variance ($000)

Budget: 923.1 Expenditures and Forecast: 1,814.5 Variance: 891.4

This is a one-year project that commenced in 2017 and carried over to 2018. The project is substantially complete and in service. It was determined during construction that one section of piping planned to be replaced during a generating unit outage in 2017 could only be completed during a total plant outage. This portion of the project construction has been rescheduled to the next available total plant outage in 2018.

The variance in annual expenditures, and forecasted variance in total project expenditures, is attributed to the requirement to replace more piping that originally estimated (due to further deterioration of the piping from the time of the budget proposal), higher than expected contract tender prices, and the requirement for asbestos removal, which was not included in the original estimate.

20. ***<u>Upgrade Powerhouse Building Envelope – Holyrood</u>***

Annual Variance ($000)

Budget: 3,453.8 Expenditures: 2,378.2 Variance: (1,075.6)

This is a three-year project (2016-2018) that commenced in 2016. As part of a construction safety risk review, it was determined that the roof and siding work in the vicinity of the unit transformers could only be safely completed during a total plant outage, and not concurrently. Priority was placed on completing the roofing in 2017 and the siding installation was rescheduled to the total plant outage in 2018. There is no change to the overall project scope, budget or completion date.

4.3 Gas Turbine Generation Projects

21. ***<u>Gas Turbine Life Extension – Stephenville</u>***

Annual Variance ($000)

Budget: 847.5 Expenditures: 342.2 Variance: (505.3)

Project Variance ($000)

Budget: 1,353.2 Expenditures & Forecast: 872.0 Variance: (481.2)

This is a two-year project (2017-2018) that commenced in 2017. The variance in 2017 expenditures, and forecast variance in total project expenditures, is attributed to the removal of a portion of the project scope. As a result of the uncertainty around the longer term requirements of the Hardwoods and Stephenville gas turbines, Hydro continues to assess any proposed capital expenditures for these units. As a result of a comprehensive review of the project scope prior to project execution, Hydro removed from the scope the installation of closed circuit television cameras, and planned instrumentation upgrades were revised to include only those requiring immediate replacement, based on function testing and evaluation results. Project scope pertaining to the replacement of lube oil and fuel filters will be reviewed in 2018. There is no change to the overall project schedule.

22. ***<u>Gas Turbine Life Extension – Hardwoods</u>***

Annual Variance ($000)

Budget: 675.3 Expenditures: 273.6 Variance: (401.7)

Project Variance ($000)

Budget: 956.7 Expenditures & Forecast: 583.3 Variance: (373.4)

This is a two-year project (2017-2018) that commenced in 2017. The variance in 2017 expenditures, and forecast variance in total project expenditures, is attributed to the removal of a portion of the project scope. As a result of the uncertainty around the

longer term requirements of the Hardwoods and Stephenville gas turbines, Hydro continues to assess any proposed capital expenditures for these units. As a result of a comprehensive review of the project scope prior to project execution, Hydro removed from the scope the installation of closed circuit television cameras, and planned instrumentation upgrades were revised to include only those requiring immediate replacement, based on function testing and evaluation results. Project scope pertaining to the replacement of lube oil and fuel filters will be reviewed in 2018. There is no change to the overall project schedule.

4.4 Terminal Stations Projects

23. ***Upgrade Corner Brook Frequency Converter – Corner Brook***

Annual Variance ($000)

Budget: 194.6 Expenditures: 42.2 Variance: (152.4)

This is a two-year project (2017-2018) that commenced in 2017 and was placed on hold to confirm alignment with the customer. Activity in 2017 was limited to the level of engineering required for successful execution in 2018, should the project proceed. There is no change to the overall project scope, budget, or schedule.

24. ***Replace Substation – Holyrood***

Annual Variance ($000)

Budget: 439.4 Expenditures: 115.4 Variance: (324.0)

This is a two-year project (2017-2018) that commenced in 2017. The variance in 2017 expenditure is attributed to the rescheduling of civil construction to 2018. It was identified during planning that it would be more effective to execute the civil work in conjunction with the electrical work. There is no change to the overall project scope, budget or completion date.

25. ***Replace Power Transformers – Oxen Pond***

Annual Variance ($000)

Budget: 297.5 Expenditures: 109.1 Variance: (188.4)

This is a two-year project (2017-2018) that commenced in 2017. The variance in 2017 expenditures is attributed to a rescheduling of some of the engineering and procurement activity from 2017 to early 2018. This delay is not expected to impact the project construction schedule. There is no change to the overall project scope, budget or completion date.

26. ***Terminal Station In-Service Failures – Various Sites***

Project Variance ($000)

Budget: 1,000.0 Expenditures: 1,437.2 Variance: 437.2

This was a one-year project completed in 2017. The 2017 project variance is attributed to the actual number of failures incurred. A detailed list of work executed under this project is found in Section 8.0 of this report.

27. ***Upgrade Aluminum Support Structures – Holyrood***

Project Variance ($000)

Budget: 352.9 Expenditures: 190.8 Variance: (162.1)

This was a one-year project completed in 2017. The variance in project expenditures is attributed to cost savings measures determined during project planning and engineering. Existing temporary support structures were able to be used during construction of the permanent support structures, eliminating the need to fabricate additional temporary support structures. The project was executed in parallel with the *Terminal Station Refurbishment and Modernization Project*, allowing Hydro to realize efficiencies for engineering, procurement and construction effort.

28. ***<u>Terminal Station Refurbishment and Modernization – Various Sites</u>***

Annual Variance ($000)

Budget: 10,831.3 Expenditures: 5,852.1 Variance: (4,979.2)

This is a two-year project (2017-2018) that commenced in 2017 and includes a number of consolidated program-type terminal station projects. The variance in 2017 expenditure is primarily associated with the capital programs for power transformers, instrument transformers, disconnect switches and grounding systems, and is primarily attributed to the cancellation or rescheduling of various project scope items due to new condition information, changing priorities for system reliability, and balancing of the overall work plan. Items removed from the project scope due to newly acquired condition assessment information indicating that the work was not immediately required include: St. Anthony Airport transformer T1 bushing replacement, and Buchans transformer T1 leak repair. Items rescheduled to 2018 due to reassessment and modification of priority level include: procurement of Holyrood transformer T3 coolers, replacement of Bay d'Espoir transformer T1 radiators, Stony Brook transformer T2 tap changer overhaul, Holyrood transformer T6 oil refurbishment, procurement of various disconnect switches and instrument transformers, and engineering for grounding upgrades.

29. ***<u>Upgrade Circuit Breakers – Various Sites (2016-2020)</u>***

Annual Variance ($000)

Budget: 12,178.3 Expenditures: 8,877.8 Variance: (3,300.5)

This is a five-year project (2016-2020) that commenced in 2016. The variance in 2017 expenditures is attributed to changes in the timing of several breaker upgrades reflecting changes in priorities since the plan was established and requirements to balance the overall work plan. A significant year of activity in terminal stations for other critical projects, including the terminal station work related to the construction of the new transmission line from Western Avalon to Bay d'Espoir (TL 267),

contributed to the rescheduling of scope for this project to future years. Breakers deferred to future years include two at Bay d'Espoir (B3B4 and B2B3) and one at Massey Drive (B1L28). There are no changes to the overall project scope, budget or completion date.

30. ***<u>Replace Protective Relays – Various Sites</u>***

Annual Variance ($000)

Budget: 431.2 Expenditures: 1,134.5 Variance: 703.3

Project Variance ($000)

Budget: 1,857.0 Expenditures & Forecast: 2,827.8 Variance: 970.8

This is a two-year project (2016-2017) that commenced in 2016 and carried over to 2018 for a portion of the work.

The carryover is attributed to changes in the timing of protective relay replacements at Holyrood and Bay d'Espoir reflecting changes in priorities since the plan was established and requirements to balance the overall work plan. A significant year of activity in terminal stations for other critical projects, including the terminal station aspects of the construction of the new transmission line from Western Avalon to Bay d'Espoir (TL 267), contributed to the rescheduling of scope for this project to future years. Work deferred to 2018 includes protective relay upgrades for Bay d'Espoir Transformer T6 and Generating Unit G6, line protection upgrade for Holyrood 39L, and protection upgrade for Holyrood Transformer T5.

The variance in 2017 expenditures, and forecast variance in total project expenditure, is attributed to higher than estimated engineering, procurement and construction cost. During the design phase of the project, Hydro's design standard for protective relays was revised. The changes to the standard were made to address lessons learned from system events. The updated standard significantly impacted the

overall design for these protection systems. This increased the engineering design effort on this project and resulted in increased procurement and construction costs due to the requirement for additional components to adhere to the new standard.

31. ***<u>Replace Disconnect Switches – Various Sites (2016-2017)</u>***

Annual Variance ($000)

Budget: 1,836.1 Expenditures: 1,064.9 Variance: (771.2)

This is a two-year project (2016-2017) that commenced in 2016 and carried over to 2018. The installation and commissioning for four of sixteen disconnect switches was carried over for completion in 2018. Due to a review of workload for internal construction resources and the demands on internal resources, the construction work for two disconnect switches in Bay d'Espoir (B1B2-1 and B3B4-1) and one disconnect switch in Sunnyside (B1L02-2/L02G) was scheduled to 2018. A significant year of activity in terminal stations for other critical projects, including the construction of the new transmission line from Western Avalon to Bay d'Espoir (TL 267), contributed to the rescheduling of this scope. A fourth disconnect switch in Churchill Falls (L13G) could not be completed in 2017 due to operational issues with the Happy Valley Gas Turbine, and this work has also been rescheduled to 2018. The variance in 2017 expenditure is attributed to rescheduling of the construction activity for those four disconnect switches. There is no change to the overall project scope or budget.

32. ***<u>Upgrade Data Alarm Systems – Various Sites</u>***

Annual Variance ($000)

Budget: 258.8 Expenditures: 116.0 Variance: (142.8)

This is a two-year project (2016-2017) that commenced in 2016 and carried over to 2018. The variance in 2017 expenditure is attributed to rescheduling some of the construction activity from 2017 to 2018. Due to a review of workload for internal

construction resources and the demands on protection and control resources, the construction work for most of the data alarm system upgrade activity was rescheduled to 2018. A significant year of activity in terminal stations for other critical projects, including the construction of the new transmission line from Western Avalon to Bay d'Espoir (TL 267), contributed to the rescheduling of scope for this project. There is no change to the overall project scope or budget.

33. ***<u>Install Breaker Failure Protection – Various Sites</u>***

Annual Variance ($000)

Budget: 195.2 Expenditures: 382.4 Variance: 187.2

Project Variance ($000)

Budget: 277.0 Expenditures & Forecast: 486.4 Variance: 209.4

This is a two-year project (2016-2017) that commenced in 2016 and carried over to 2018. Due to a review of workload for internal construction resources and the demands on protection and control resources, some of the construction work for the breaker failure protection installations has been rescheduled to 2018. A significant year of activity in terminal stations for other critical projects, including the construction of the new transmission line from Western Avalon to Bay d'Espoir (TL 267), contributed to the rescheduling of scope for this project to 2018.

The variance in 2017 expenditures, and forecast variance in total project expenditure, is attributed to higher than estimated engineering, procurement and construction cost. During the design phase of the project, Hydro's design standard for breaker failure protection was revised. The changes to the standard were made to address lessons learned from system events. The updated standard significantly impacted the overall design for breaker failure protection. This increased the engineering design effort on this project and resulted in increased procurement and construction costs due to the requirement for additional components to adhere to the new standard.

34. ***Install Fire Protection in 230 kV Stations – Bay d'Espoir***

Annual Variance ($000)

Budget: 674.6 Expenditures: 100.7 Variance: (573.9)

Project Variance ($000)

Budget: 766.0 Expenditures & Forecast: 873.8 Variance: 107.8

This is a two-year project (2016-2017) that commenced in 2016 and carried over to 2018. The carryover and the variance in 2017 expenditures are attributed to a rescheduling of the construction into 2018. This project is to construct a new fire protection system to protect the Bay d'Espoir Terminal Station 2 Control Building. That building was modified in 2017 as part of the separate project to construct a transmission line from Bay d'Espoir to Western Avalon (TL 267). Modifications included a building extension and new ventilation equipment, which impact the design of the fire protection system. It was therefore logical to delay the fire protection engineering and construction until the building modifications were complete. The building modifications were completed in 2017 and the fire protection project is on track for construction in 2018. The forecasted variance in overall project expenditures is attributed to the fire protection system design changes to incorporate protection of the extension to the building.

4.5 Transmission Projects

35. ***Transmission Line Upgrades – TL 212 and TL 218***

Annual Variance ($000)

Budget: 1,378.2 Expenditures: 287.1 Variance: (1,091.1)

This is a two-year project (2017-2018) that commenced in 2017. The variance in 2017 expenditures is attributed to the rescheduling of procurement and construction activities from 2017 to 2018. For TL 212, the work included working within a water body. Once the design was completed and work plans were developed the necessary

environmental permits to backfill the water body around the structure were unable to be obtained in 2017. The permits have been obtained to complete work in 2018. An unanticipated lead time on the delivery of insulator for TL 218 has necessitated rescheduling construction to 2018. There is no change to the overall project scope or budget.

36. ***Replace Insulators – TL 227***

Annual Variance ($000)

Budget: 145.6 Expenditures: 16.7 Variance: (128.9)

This is a two-year project (2017-2018) that commenced in 2017. The variance in 2017 expenditures is attributed to longer than estimated lead time for the insulators, resulting in procurement costs to be incurred in 2018 versus 2017. The longer delivery time does not impact project construction schedules. There is no change to the overall project scope, schedule or budget.

37. ***Wood Pole Line Management Program – Various Sites***

Project Variance ($000)

Budget: 2,404.1 Expenditures: 3,234.6 Variance: 830.5

This was a one-year project completed in 2017. The variance in expenditures is partially attributed to an unforeseen quantity of refurbishment work required on L1301 (TL 240) and TL 232. Critically damaged cross arms and a critical pole were identified during helicopter patrols on L1301, and these items were refurbished when the line was de-energized in November. On TL 232, an unforeseen number of critically deteriorated cross braces were identified and replaced.

38. ***Construct 230 kV Transmission Line – Soldiers Pond to Hardwoods***

Annual Variance ($000)

Budget: 17,687.2 Expenditures: 11,210.6 Variance: (6,476.6)

This is a three-year project (2016-2018) to that commenced in 2016. The variance in 2017 expenditures is attributed to the deferral of some of the work on TL 266 from Soldiers Pond to Hardwoods, to 2018. A portion of the project construction was executed in 2017, including the two kilometer link to Soldiers Pond Terminal Station. The remainder of the work was rescheduled to 2018 in order to allow the contractor to be re-deployed in 2017 to the TL 267 construction effort to reduce risk of schedule slippage on TL 267. The in-service date of TL 266 changed from October 2017 to August 2018. There is no change to the overall project scope or budget.

39. ***Refurbish Anchors and Footings TL 202 and TL 206 - Bay d'Espoir to Sunnyside***

Annual Variance ($000)

Budget: 1,920.3 Expenditures: 90.5 Variance: (1,829.8)

This is a two-year project (2014-2015) that commenced in 2014 and has been carried over again to 2018. Initially carried over to be executed during the construction of TL 267, taking advantage of the access required for TL 267, the project was carried over again to take place after TL 267 was constructed and in service, which now improves the ability to obtain outages while maintaining system reliability, to enable safer anchor replacement during planned outages to TL 202 and TL 206 versus replacing them while the lines are energized. There is no change to the overall project scope or budget.

40. ***<u>230 kV Transmission Line – Bay d'Espoir to Western Avalon (TL 267)</u>***

Annual Variance ($000)

Budget: 176,004.3 Expenditures: 213,663.7 Variance: 37,659.4

This is a five-year project (2014-2018) that commenced in 2014. The variance in 2017 expenditure is attributed to the redistribution of funds from 2018 back to 2017 in the fall of 2017 to take into account the accelerated in-service date and to better reflect when they would be expended, as most work was to be completed in 2017. The contingency funds were utilized in 2017. There is no change to the overall project budget, and the project was energized ahead of schedule. Project close-out will occur in 2018, as planned.

4.6 Distribution Projects

41. ***<u>Provide Service Extensions – All Service Areas – CIAC</u>***

Project Variance ($000)

Budget: (200.0) Expenditures: (323.6) Variance: (123.6)

This is an annual project that tracks the Contributions in Aid of Construction received against the project executed under "*Provide Service Extensions – All Service Areas*". Contributions in Aid of Construction are based on a calculated formula, are highly variable, and depend on the customer requests for electrical service. In 2017 the CIAC amount included $50,000 received for Smokey Mountain Lodge, a project that is planned and approved for 2018, which contributed to a higher than anticipated recovery of CIAC funds in 2017.

42. ***Upgrade Distribution Systems – Various Sites (2016-2017)***

Annual Variance ($000)

Budget: 6,274.1 Expenditures: 5,363.1 Variance: (911.0)

This is a two-year project (2016-2017) that commenced in 2016 and carried over to 2018. Most of the project scope for this project was completed in 2017. This carryover was necessary as the final decision to proceed with work on the existing underground distribution system in Bay d'Espoir was delayed until August 2017, resulting in the materials delivery dates of underground materials moving into 2018. There is no change to the overall project scope or budget.

4.7 Rural Generation Projects

43. ***Overhaul Diesel Engines – Various Sites***

Project Variance ($000)

Budget: 2,095.9 Expenditures: 1,619.8 Variance: (476.1)

This was a one-year project completed in 2017. The project is part of an ongoing program to overhaul diesel engines to sustain reliability of diesel generating plants. Project estimates are based on the projected number of engines that will reach the criteria for overhaul (20,000 hours of operation), and typical extent of refurbishment. The project variance is attributable to less refurbishment than typically required for some of the engines, which was unknown until the engines were disassembled for the overhauls.

44. ***Diesel Plant Engine Auxiliary Upgrades – Various Sites***

Annual Variance ($000)

Budget: 790.6 Expenditures: 644.7 Variance: (145.9)

This is a two-year project (2017-2018) that commenced in 2017. The variance in 2017 expenditures is attributed to a portion of the construction planned for 2017 being

rescheduled to 2018. Construction for McCallum is complete. Significant progress was made in 2017 on construction for Ramea and Francois, but was put on hold to allow construction resources to respond to operational issues at other diesel plants. Recovery of the construction schedule is expected in 2018. There is no change to the overall project scope, budget or completion date.

45. ***Inspect Fuel Storage Tanks – Various Sites***

Project Variance ($000)

Budget: 1,058.8 Expenditures: 717.3 Variance: (341.5)

This was a one-year project completed in 2017. The variance in project expenditures is attributed to requiring less than estimated costs for the engineering and construction contract, as well as unutilized project contingency.

46. ***Diesel Genset Replacements – Port Hope Simpson and Charlottetown***

Annual Variance ($000)

Budget: 658.8 Expenditures: 213.6 Variance: (445.2)

This is a two-year project (2017-2018) that commenced in 2017. The variance in 2017 expenditures is attributed to the electrical, protection and control engineering being delayed from late 2017 to early 2018. The replacement gensets have been ordered and the delay in engineering is not expected to impact the construction schedule. There is no change to the overall project scope, budget or completion date.

47. ***Install Fire Protection Systems – Cartwright and Nain***

Project Variance ($000)

Budget: 4,407.1 Expenditures: 3,652.1 Variance: (755.0)

This was a two-year project (2016-2017) that commenced in 2016 and was completed in 2017. The variance in total project expenditures is attributed to lower than estimated material and installation costs and unutilized project contingency.

48. ***<u>Additions for Load Growth – L'Anse au Loup and Postville</u>***

Project Variance ($000)

Budget: 5,629.4 Expenditures: 4,592.5 Variance: (1,036.9)

This was a two-year project (2016-2017) that commenced in 2016 and was completed in 2017. The variance in total project expenditures is attributed to lower than estimated engineering, procurement and construction costs and unutilized project contingency.

49. ***<u>Replace Programmable Logic Controllers – Various Sites</u>***

Annual Variance ($000)

Budget: 215.3 Expenditures: 410.5 Variance: 195.2

Project Variance ($000)

Budget: 958.0 Expenditures & Forecast: 1,204.7 Variance: 246.7

This is a three-year project (2015-2017) that commenced in 2015 and carried over to 2018. The carryover to 2018 expenditure is attributed to rescheduling the construction activity for Ramea. Replacement of the programmable logic controller at Ramea requires an extended outage to the wind turbines owned by Frontier Energy. Following a review of the construction schedule with Frontier Energy, it was decided to reschedule the work to a non-peak production period in 2018.

Following a review of the existing control systems at St. Anthony Diesel Plant, the replacement of the programmable logic controller for this location was removed from the project scope. It was determined that the existing control systems are significantly different than the other diesel sites and would require substantially more effort to convert. Upgrade of the controls for St. Anthony are included in the scope of a separate 2018-2019 project "*Replace Automation Equipment (2018-2019) – St. Anthony Diesel Plant*", as part of Hydro's *2018 Capital Budget Application.*

The variance in 2017 project expenditures, and the forecasted variance in total project expenditures, is attributed to more engineering and construction effort required compared to the original estimates.

4.8 Properties Projects

50. ***<u>Upgrade Office Facilities and Control Buildings – Various Sites</u>***

Project Variance ($000)

Budget: 2,197.3 Expenditures: 1,815.2 Variance: (382.1)

This was a one-year project completed in 2017. The variance in project expenditures is attributed to unutilized project contingency.

51. ***<u>Line Depot Condition Assessment and Refurbishment Program – Various Sites</u>***

Project Variance ($000)

Budget: 1,458.8 Expenditures: 689.4 Variance: (769.4)

This was a one-year project completed in 2017. The variance in project expenditures is attributed to lower than estimated publicly tendered contract prices for construction.

52. ***<u>Construct New Facilities – Various Sites</u>***

Annual Variance ($000)

Budget: 422.0 Expenditures: 237.8 Variance: (184.2)

This is a two-year project that commenced in 2017. The variance in 2017 expenditures is attributed to a cost savings through the utilization of internal operations and maintenance resources rather than contractors for construction of the Charlottetown storage building. There is no change to the overall project scope, budget or completion date.

53. ***Replace Accommodations and Septic System – Ebbegunbaeg***

Project Variance ($000)

Budget: 1,550.8 Expenditures: 2,043.5 Variance: 492.7

This was a two-year project (2015-2016) that commenced in 2015, carried over to 2017 and was completed in 2017. The variance in project expenditures is attributed to higher than estimated costs for the procurement and installation of the accommodations building, the bridge at Noel Paul's Brook, and access road upgrades, as well as unanticipated upgrades required for the provision of electrical service to the new accommodations. In addition, some of the road upgrades required re-work following road washouts associated with Hurricane Matthew.

4.9 Metering Projects

54. ***Install Automated Meter Reading – Happy Valley (2017-2018)***

Annual Variance ($000)

Budget: 78.6 Expenditures: 183.8 Variance: 105.2

This is a two-year project (2017-2018) that commenced in 2017. The variance in 2017 expenditure is attributed to the advancement of a portion of the construction activity from 2018 into 2017. As a work efficiency opportunity, the installation of automatic meter reading equipment at the Happy Valley Terminal Station was advanced and completed in conjunction with similar work that was being executed for a separate project in the same terminal station. There is no change to the overall project scope, budget or completion date.

55. ***Purchase New Meter Calibration Test Console – Hydro Place***

Annual Variance ($000)

Budget: 196.9 Expenditures: 0.1 Variance: (196.8)

This is a one-year project that commenced in 2017 and carried over to 2018. This carryover is attributed to the calibration test console having a lead time of thirteen

months. The test console has been ordered and is expected to arrive in April 2018. There is no change to the project scope or budget.

56. ***Install Automated Meter Reading – Labrador West***

Annual Variance ($000)

Budget: 836.8 Expenditures: 1,232.8 Variance: 396.0

Project Variance ($000)

Budget: 967.2 Expenditures & Forecast: 1,360.0 Variance: 392.8

This is a two-year project (2016-2017) that commenced in 2016 and carried over into 2018. The new meters have been procured and installed and a portion of the terminal station equipment has been installed. During construction planning, it was determined that additional components were required for the terminal station. These components were ordered and received in 2017, and are scheduled to be installed in early 2018.

The variance in 2017 expenditures, and the forecast variance in total project expenditure, is attributed to the requirement for additional terminal station equipment as well as higher than estimated unit pricing for the new automatic meter readers. An updated project cost estimate and updated assumptions for project benefits were used to reevaluate the project. The updated cost-benefit analysis confirmed that the project remains the least cost alternative versus the status quo.

4.10 Information Systems Projects

There are no reportable variances under Information Systems Projects.

4.11 Tools and Equipment Projects

There are no reportable variances under Tools and Equipment Projects.

4.12 Telecontrol Projects

57. ***Replace Battery Banks and Chargers – Various Sites (2017-2018)***

Annual Variance ($000)

Budget: 379.3 Expenditures: 217.6 Variance: (161.7)

Project Variance ($000)

Budget: 945.5 Expenditures & Forecast: 779.5 Variance: (166.0)

This is a two-year project (2017-2018) that commenced in 2017. The variance in 2017 expenditures, and the forecasted variance in total project expenditures, are attributed to lower than estimated construction and procurement costs. There is no change to the overall project scope or completion date.

58. ***Replace Battery Banks and Chargers – Various Sites***

Project Variance ($000)

Budget: 881.6 Expenditures: 645.3 Variance: (236.3)

This was a two-year project (2016-2017) that commenced in 2016 and was completed in 2017. The variance in total project expenditures is attributed to lower than estimated construction and procurement costs and unutilized project contingency.

4.12 Transportation Projects

59. ***Replace Vehicles and Aerial Devices – Various Sites (2017-2018)***

Annual Variance ($000)

Budget: 2,001.4 Expenditures: 1,275.8 Variance: (725.6)

This is a two-year project (2017-2018) that commenced in 2017. The annual variance in expenditure is attributed to a delivery delay of seven chassis' and booms for crew cab boom trucks ordered for the coast of Labrador Diesel Plants. The original delivery

was scheduled for December 2017 with a new forecasted delivery of late March 2018.

60. ***<u>Replace Vehicles and Aerial Devices – Various Sites (2016-2017)</u>***

Annual Variance ($000)

Budget: 944.8 Expenditures: 815.5 Variance: (129.3)

This is a two year project (2016-2017) that commenced in 2016. The variance in expenditure is attributed to the procurement of an off the lot material handling boom truck, suitable for the purpose for which it was purchased, resulting in a savings of $60,000. Hydro also implemented a specification change by utilizing slide in caps and 3/4 ton double cab pickups versus purchasing 4X4 vans for Protection and Control and Terminal Station Electricians. This change in specification reduced the cost by a total of $70,000 for the purchase of 4 vehicles and caps versus vans.

4.13 Administrative

61. ***<u>Replace Roof – Hydro Place</u>***

Project Variance ($000)

Budget: 923.4 Expenditures: 503.5 Variance: (419.9)

This was a one-year project completed in 2017. The variance in project expenditures is attributed to publicly tendered contractor pricing being less than estimated, and the project contingency not being required. There was no change to the overall project scope.

4.14 Allowance for Unforeseen Items

62. ***<u>Allowance for Unforeseen Items</u>***

Project Variance ($000)

Budget: 2,040 Expenditures: 5,645.8 Variance: 3,605.8

The Allowance for Unforeseen is an annual allotment that permits Hydro to act expeditiously to deal with events affecting the electrical system that cannot wait for specific approval of the Board. Unforeseen expenditures for 2017 under this account include costs associated with emergency structure replacement for Transmission Lines TL 212 and TL 201, Holyrood Unit 2 fire damage refurbishment, and Bay d'Espoir Penstock 1 reinforcement. Two top-up applications were approved by the Board, adding an additional $500,000 and $540,000 respectively. Reports on these items have been filed with the Board.

4.15 Supplemental Projects

63. ***<u>Unit 3 Turbine Rehabilitation – Bay d'Espoir</u>***

Project Variance ($000)

Budget : 2,361.5 Expenditures : 1,905.4 Variance : (456.1)

This was a one-year supplemental project approved and completed in 2017. The variance in project expenditure is attributed to lower than estimated construction contract costs.

64. ***<u>Terminal Station Upgrades – Wabush</u>***

Annual Variance ($000)

Budget : 2,585.2 Expenditures: 940.7 Variance: (1,644.5)

This is a two-year supplemental project (2017-2018) approved in 2017. The 2017 variance is attributed to the rescheduling of a portion of the work to 2018. The scope of this project includes major inspections and replacement of resistive rings on

Synchronous Condensers SC-1 and SC-2. The work was completed on SC-1 but the resistive rings for SC-2 failed the manufacturer's quality control tests and a new set of resistive rings had to be manufactured. The new rings arrived in October 2017, too late in the year to secure the required three-week outage for installation. This work was therefore rescheduled to 2018. The project scope also included the replacement of one 46 kV circuit breaker. The engineering activity was delayed and installation of the breaker has been rescheduled to 2018. There is no change to the overall project scope, budget or completion date.

65. ***<u>Penstock #2 Refurbishment – Bay d'Espoir</u>***

Project Variance ($000)

Budget: 9,063.7 Expenditures: 3,586.3 Variance: (5,477.4)

This was a one-year supplemental project approved and completed in 2017. The variance in project expenditure is attributed to lower than estimated quantity of weld refurbishment. The budget estimate allowed for 920 meters of weld repair, a similar magnitude as was required for refurbishment of Penstock #1 on a previous project. The actual extent of weld refurbishment required could only be determined during the detailed inspection work that was part of this project. Detailed inspection determined that 440 meters of welds required refurbishment.

66. ***<u>Reliability Improvements – Holyrood</u>***

Annual Variance ($000)

Budget: 2,610.0 Expenditures: 3,586.6 Variance: 976.6

Project Variance ($000)

Budget: 2,610.0 Expenditures & Forecast: 3,603.3 Variance: 993.3

This is a one-year supplemental project approved in 2017 and carried over to 2018. The project work is complete with the exception of the replacement of a section of

condenser cooling water piping for Unit 1. This is a large, specially designed section of piping with long delivery time. It was necessary to reschedule this work due to a change in the generation outage schedule, advancing the planned outage for Unit 1 to earlier in 2017, and prior to delivery of the replacement piping. The material is now on site and will be installed during the Unit 1 outage in 2018.

The variance in project expenditure is attributed to five new capital scope items identified during the discovery and execution phases of the project, as summarized in Section 9, Table 21, Items 2 to 6.

67. ***<u>Repair and Advanced Overhaul of the Happy Valley Gas Turbine</u>***

Project Variance ($000)

Budget: 3,714.8 Expenditures: 2,049.3 Variance: (1,665.5)

This was a one-year supplemental project approved and completed in 2017. The variance in project expenditure is attributed to lower than estimated refurbishment costs to overhaul the gas turbine engine. The extent of engine refurbishment could not have been known at the project proposal stage and the initial project budget was based upon a worst case estimate provided by the original equipment manufacturer. Refurbishment scope was fully defined following disassembly and inspection at the repair facility and was less than expected.

68. ***<u>Purchase of 12 MW Diesel Generation – Holyrood</u>***

Annual Variance ($000)

Budget: 916.0 Expenditures: 497.1 Variance: (418.9)

This is a two-year supplemental project 2016-2017) approved in 2016 and carried over to 2018. The carryover and variance in 2017 expenditures is attributed to the change in delivery times of stacks and silencers that are necessary to meet environmental requirements to early 2018. There is no change to the overall project scope or budget.

69. ***Reroute TL 227 and Distribution Line Sally's Cove L1***

Project Variance ($000)

Budget: 2,250.0 Expenditures: 1,894.5 Variance: (355.5)

This is a two-year supplemental project (2016-2017) approved in 2016 and completed in 2017. The variance is attributable to favourable contract construction costs.

70. ***Labrador West Transmission Project – Construction Phase***[1]

Annual Variance ($000)

Budget: - Expenditures: 517.8 Variance: 517.8

Project Variance ($000)

Budget: 329,592.1 Expenditures & Forecast: 12,894.6 Variance: (316,697.5)

In 2014, the provincial Government approved the construction of the third transmission line in Labrador to help supply power for planned new development in Labrador West, such as the *Kami Iron Ore Project*, and improve reliability for all customers in the region. In September 2014, work on the line was temporarily suspended until completion of Alderon's financing plan, which resulted in overall expenditures on the project being lower than budgeted.

In September 2017, Hydro executed a settlement agreement with The Kami Mine Limited Partnership in relation to the outstanding balance. Project costs up to September 2017 were included in the work in progress account, but excluded from average rate base, were $12.4M. Settlement proceeds of $9.5M were received, and the remaining $3.4M was expensed as a loss.

[1] The construction of the Labrador West Transmission was approved by OC2014-033, February 2, 2014. The capital expenditures associated with this project are included in Work In Progress and as a result are currently excluded from average rate base. The costs to be included in rate base will be subject to review by the Board of Commissioners of Public Utilities.

5.0 Capital Budget versus Actual Expenditures 2007 – 2017

Table 17 provides a summary of Hydro's Capital Budget Variances for the years 2007-2017.

Table 17 Capital Budgets/Expenditures 2007-2017

Year	Budget ($000)	Actual Expenditures ($000)	Variance ($000)	Variance (%)
2008	53,579	46,246	7,333	13.7
2009	61,544	54,152	7,392	12.0
2010	63,297	55,553	7,744	12.2
2011	67,454	63,116	4,338	6.4
2012	93,840	77,252	16,588	17.7
2013	116,373	84,755	31,618	27.2
2014	280,601	204,728	75,873	27.0
2015	311,177	125,119	186,058	59.8
2016	350,601	203,941	146,660	41.8
2017	340,501	340,741	240	0.1

The variance in actual expenditures compared to budget in Hydro's overall capital program for 2017 was only 0.1%. It should be noted, however, that TL 267 necessitated moving $38M back from the planned 2018 expenditure, causing an annual overspend for this project alone due to the acceleration of the project from a proposed in-service date of May 2018 to December 2017. The TL 267 project caused some other projects to be carried over to 2018.

The largest contributors of the total annual underspend in 2017 for the other projects were:

- Variance 12 – *Replace Site Facilities – Bay d'Espoir* (-$3.2M)
- Variance 28 – *Terminal Station Refurbishment and Modernization* (-$5.0M)
- Variance 29 – *Upgrade Circuit Breakers* (-$3.3M)
- Variance 38 – *Construction of 230 kV Transmission Line Soldiers Pond to Hardwoods* (-$6.5M)
- Variance 65 – *Penstock 2 Refurbishment – Bay d'Espoir* (-$5.5M)

These 5 projects contributed to $23.5M underspend in 2017, with details regarding each project provided above.

6.0 Carryover Report

Table 18 provides a summary listing of the carryovers from 2010-2017.

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Table 18: 2017 Carryover Report for the Year Ending December 31, 2017 ($000)

Project Name	PUB Approved Budget 2017	Revised Budget 2017	Total Actual Expenditures 2017	Carryover Amount	Original Completion Year
Install Automated Meter Reading - Labrador West	533.4	1,229.6	1,232.8	(3.2)	2017
Refurbish Station Water System - Upper Salmon	197.6	255.9	161.0	94.9	2017
Refurbish Main Generator Breaker - Upper Salmon	271.1	271.1	123.2	147.9	2017
Upgrade Work - Cat Arm	1,353.0	1,670.9	760.6	910.3	2017
Rehabilitate Shoreline Protection - Cat Arm	1,030.7	1,038.2	61.0	977.2	2017
Replace Pump House and Associated Equipment - Bay d'Espoir	-	279.6	26.0	253.6	2017
Replace Spherical By-Pass Valves Units 1 and 2 - Bay d'Espoir	167.9	196.7	51.8	144.9	2017
Purchase Capital Spares - Hydraulic	487.4	687.4	325.2	362.2	2017
Install Wind Monitoring Station North Salmon Dam SD-2 - Bay d'Espoir	165.5	165.5	52.3	113.2	2017
Purchase of 12MW Diesel Generation - Holyrood	-	916.0	497.1	418.9	2017
Refurbish and Replace Critical Systems and Equipment - Holyrood	2,610.0	3,603.3	3,586.6	16.7	2017
Upgrade Underground Plant Drainage System - Holyrood	923.1	1,814.5	1,825.2	(10.7)	2017
Purchase New Meter Calibration Test Console	196.9	212.8	0.1	212.7	2017
Replace Instrument Transformers - Various Sites	471.9	742.9	711.0	31.9	2017
Replace Protective Relays - Various Sites	1,156.4	1,402.0	1,134.5	267.5	2017
Replace Disconnect Switches - Various Sites (2016-2017)	1,320.9	1,836.1	1,064.9	771.2	2017
Upgrade Data Alarm Systems - Stony Brook	234.1	258.8	116.0	142.8	2017
Install Breaker Failure Protection - Various Sites	211.3	404.6	382.4	22.2	2017
Install Fire Protection in 230 kV Stations - Bay d'Espoir	566.0	782.4	100.7	681.7	2017
Upgrade Human Machine Interface - Various Sites	320.0	308.7	235.7	73.0	2017
Refurbish Anchors and Footings TL202 and TL206 - Bay d'Espoir to Sunnyside	901.6	1,920.3	90.5	1,829.8	2017
Upgrade Distribution Systems - Various Sites (2016/2017)	6,350.3	6,274.1	5,363.1	911.0	2017
Replace Programmable Logic Controllers - Various Sites	245.1	462.0	410.5	51.5	2017
Replace Air Conditioning Units 8 and 14 - Hydro Place	229.5	233.1	213.6	19.5	2017
Install Automated Meter Reading - Happy Valley (2017-2018)	78.6	78.6	183.8	(105.2)	2018
Replace Battery Banks and Chargers - Various Sites (2017-2018)	379.3	213.3	217.6	(4.3)	2018
Upgrade Telecontrol Facilities - Mary March Hill and Blue Gras Hill	91.2	91.2	123.3	(32.1)	2018
Replace Tracks for V7601 Groomer - Bay d'Espoir	1.0	1.0	-	1.0	2018
Install Asset Health Monitoring System - Upper Salmon	438.0	438.0	214.9	223.1	2018
Water System Replacements - Bay d'Espoir and Cat Arm	265.5	265.5	176.7	88.8	2018
Replace Site Facilities - Bay d'Espoir	4,736.3	5,394.2	2,231.6	3,162.6	2018
Upgrade Ventilation in Powerhouse 1 and 2 - Bay d'Espoir	134.1	134.1	111.8	22.3	2018
Replace Slip Rings Units 1-6 - Bay d'Espoir	312.6	312.6	102.4	210.2	2018
Refurbish Sump Level System for Powerhouse 2 - Bay d'Espoir	38.7	38.7	10.6	28.1	2018
Control Structure Refurbishments	1,735.3	1,735.3	991.4	743.9	2018
Upgrade Powerhouse Building Envelop - Holyrood	2,969.9	3,453.8	2,378.2	1,075.6	2018
Upgrade Corner Brook Frequency Converter - Corner Brook	194.6	194.6	42.2	152.4	2018
Replace 66 kV Station Service Feed - Holyrood	62.8	62.8	80.7	(17.9)	2018
Replace Substation - Holyrood	439.4	439.4	115.4	324.0	2018
Replace Power Transformers - Oxen Pond	297.5	297.5	109.1	188.4	2018
Gas Turbine Life Extension - Stephenville	847.5	366.3	342.2	24.1	2018
Gas Turbine Life Extension - Hardwoods	675.3	301.9	273.6	28.3	2018
Diesel Plant Engine Auxiliary Upgrades - Various Sites	790.6	790.6	644.7	145.9	2018
Replace Vehicles and Aerial Devices - Various Sites (2017-2018)	2,001.4	2,001.4	1,275.8	725.6	2018
Construct 230kV Transmission Line - Bay D'Espoir to Western Avalon	149,895.7	212,903.7	213,663.7	(760.0)	2018
Construct 230 kV Transmission Line - Soldiers Pond to Hardwoods	17,489.8	11,182.8	11,210.6	(27.8)	2018
Transmission Line Upgrades - TL212 and TL218	1,378.2	1,378.2	287.1	1,091.1	2018
Replace Insulators - TL227	145.6	145.6	16.7	128.9	2018
Distribution Upgrades - Various Sites (2017-2018)	64.2	64.2	78.7	(14.5)	2018
Install Recloser Remote Control - Bottom Waters	47.1	47.1	63.9	(16.8)	2018
Terminal Station Upgrades - Wabush	2,585.2	2,585.2	940.7	1,644.5	2018
Replace Automation Equipment - Mary's Harbour	120.3	120.3	87.4	32.9	2018
Upgrade Microsoft Project - Hydro Place	953.4	980.2	960.1	20.1	2018
Cost Recoveries	(442.2)	(454.5)	(445.5)	(9.0)	2018
Refurbish Powerhouse Station Services - Bay d'Espoir	413.2	413.2	43.0	370.2	2019
Replace Exciter Controls Units 1 to 6 - Bay d'Espoir	119.2	119.2	182.7	(63.5)	2020
Upgrade Circuit Breakers - Various Sites (2016-2020)	10,808.7	12,178.3	8,877.8	3,300.5	2020
Terminal Station Modernization and Upgrade Program	10,831.3	8,508.5	5,852.1	3,138.3	2018
Construct New Facilities	422.0	422.0	237.8	184.2	2018
Diesel Genset Replacements - Charlottetown and Port Hope Simpson	658.8	658.8	213.6	445.2	2018
	231,923.8	**294,830.1**	**270,422.2**	**24,889.8**	

7.0 Safety Hazards

In Board Order No. P.U. 38(2010) of the *2011 Capital Budget Application*, the Board directed Hydro to include an explanation in Hydro's annual report on capital expenditures as to each project that was undertaken for the *Remove Safety Hazards Project*, setting out the safety hazard that was identified, the location, the steps taken to address the issue and the amount of the expenditure. Please see Table 19 for projects undertaken in 2017.

Total Approved Budget: **$198,600**

Total Expenditure: **$185,910**

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Table 19: Safety Hazards

Project Title and Location	Expenditure ($000)	Safety Hazard Identified	Project Scope
Construct Vestibule and Stairwell Approach Walkways *Holyrood Thermal Generating Station*	$119.6	Two hazards were identified at the Holyrood Thermal Generating Station. The first was related to a vacuum effect created by the plant on the laboratory entranceway creating a hazard to personnel either opening or closing the doors. This vacuum effect is also a hazard during emergency evacuation issues when trying to open the doors or a pinch point if a door shut abruptly on a worker. The second hazard is related to the two stairwells that lead to the plant administration level. Access to these areas is not snow cleared or easily identified as there is no defined path to these entrances. The lack of a defined and easily snow cleared walkway could have led to worker injuries due to slips and trips.	To address the hazards, a new vestibule was designed and constructed at the laboratory entrance of the plant to eliminate the vacuum effect on the doors and a new easily identified walkway was installed from the main plant walkway to the south stairwell entrance to reduce plant access hazards. This work scope is complete.
Purchase Hydraulic Pole Key Removal Tool *Bay d'Espoir Hydraulic Generating Station*	$46.0	To remove pole keys from the generators, the powerhouse overhead crane was used along with a clamping device attached to the key. Poles are removed from a unit after a failure and occasionally to allow access to the stator for critical maintenance tasks. During a recent crane inspection after a pole removal had been completed it was discovered that the crane hoist cable had come out of the sheave, resulting in the cable riding on the pin that goes through the sheave and block. It is suspected that this issue occurred during a recent clamping tool failure. Such crane deficiencies must be avoided to ensure it is available for critical lifts and to keep personnel that may be in the area safe during a lift.	To address the hazard, a vendor was engaged to design and supply a hydraulic pole key removal tool which provides a safe means to remove pole keys without the use of the critical powerhouse overhead crane. The new tool will remove the possibility of damage to the crane during pole removal, ensuring it is available when required. More importantly, it will eliminate hazards to personnel that would be working in the area during a pole removal. This work scope is complete.
Install Roadway Guard Rails	$16.7	Existing roadway guard rails were swept away along Bear Brook near the Bay d'Espoir Maintenance Garage during Hurricane	To address the hazard, guard rails were purchased and installed. By reinstating

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Project Title and Location	Expenditure ($000)	Safety Hazard Identified	Project Scope
Bay d'Espoir Hydraulic Generating Station		Matthew in October 2016 creating a potential for vehicles to travel over the embankment into the waterway.	the guard rails, the safety hazard associated with the potential for vehicles to travel over the embankment into the waterway was eliminated. This work scope is complete.

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8.0 Terminal Station In-Service Failures

In the *2017 Capital Budget Application*, Hydro committed to providing a summary of activities completed under the *Terminal Station In-Service Failures Project*. Please see Table 20 for 2017 expenditures undertaken by this project.

Total Approved Budget: **$1,000,000**

Total Expenditure: **$1,440,945**

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Table 20 - Terminal Station In-Service Failures

Project Title and Location	Expenditure ($000)	Failure Identified	Project Scope
Replace Breaker B3L19 Sunnyside Terminal Station	$852.5	Breaker B3L19 (138 kV-SF6) at the Sunnyside Terminal Station failed when it flashed over internally on A and C phases due to lightning on November 21, 2016. An original equipment manufacturer representative (ABB) visited the site to carry out a non-intrusive inspection of the breaker. While the contact resistance on A and C phases and the gas purity on A phase were not ideal, ABB recommended that the breaker could be put back in service, and should be overhauled in the spring/summer of 2017. The overhaul was scheduled and commenced during the week of July 31, 2017. Teardown of the breaker revealed that both A and C phase interrupters suffered significant damage during the November 21, 2016 event and that extensive component replacement would be required in order to put the breaker back in service. Considering the age (27 years) and condition of the breaker, the long lead time for parts to repair the breaker, and the need to restore the breaker for system reliability, it was necessary to immediately replace the breaker.	The failed breaker B3L19 was replaced with an available spare breaker.
Transformer Protective Devices Various Terminal Stations	$232.2	A number of transformer protective devices failed due to moisture ingress into the relays. These devices protect power transformers that are critical to the Island Interconnected System. The protection devices include winding temperature, oil temperature and gas relays. These failures were investigated after an outage on Holyrood T3 when the transformer tripped due to ingress of moisture in the oil temp relay. From a broader review of the others that have been changed out in recent years, it was discovered that recently purchased and installed winding/oil temperature relays were seeing significant moisture build up inside the relay, resulting in the possibility that the relay may cause an inadvertent outage. It was also determined from	Failed transformer protective devices were replaced with a newer, more robust design for the following transformers: • Sunnyside Terminal Station Transformer T4 • Voisey's Bay Nickel Terminal Station Transformer T2 • Western Avalon Terminal Station Transformer T2 • Hardwoods Terminal Station Transformers T2, T4, T5 and GT1 • Holyrood Terminal Station

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Project Title and Location	Expenditure ($000)	Failure Identified	Project Scope
		the review that the manufacturer had made a design change in the later part of 2016 to improve their design in order to minimize moisture ingress and condensation and any relays purchased after that will receive an updated improved design.	Transformers UST-1, UST-3, T1, T2, T3, T5, T7, SST-12 and SST-34 • Bottom Brook Terminal Station Transformers T1 and T3 • Massey Drive Terminal Station Transformer T2 • Stephenville Terminal Station Transformer T3
Mobile Transformer Refurbishment Bishops Falls	$151.0	Upon discovery of a leak from one of the oil pumps in the mobile transformer in October 2017, the pump was dismantled for inspection. The inspection revealed that the pump impellor was damaged from internal impact by an object. This was likely caused by a pump seal and part of the seal being sucked into the pump. This work required removal, processing, and reinstallation of the transformer oil.	The mobile transformer was refurbished. Refurbishment included the replacement of gaskets and seals and the processing of the oil.
Replace Station Service Transformer St. Anthony Airport Terminal Station	$116.8	A station service transformer failure occurred in Sally's Cove. As there was no redundant station feed in Sally's Cove, immediate replacement was required. The station service transformer at St. Anthony Airport Terminal Station was identical to the failed unit at Sally's Cove and St. Anthony Airport Terminal Station has a backup station service supply from the distribution system. To ensure continued reliable service to customers, the station service transformer was removed from St. Anthony and installed in Sally's Cove. As this meant St. Anthony Airport Terminal Station was operating on a backup feed from the diesel generators, St. Anthony was vulnerable without immediate replacement.	A replacement station service transformer was procured and installed at the St. Anthony Airport Terminal Station.
Interrupter Replacement	$45.8	Interrupter B1T1 failed in February, 2017. The interrupter switch isolates equipment in the event of overload conditions and, in	The failed interrupter B1T1 was replaced with an available spare.

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Project Title and Location	Expenditure ($000)	Failure Identified	Project Scope
Western Avalon Terminal Station		case of faults, interrupts the fault current to avoid damage to protected equipment. A failed interrupter leaves protected equipment vulnerable to overload conditions and can result in equipment failure and extended unplanned customer outages. Immediate replacement of Western Avalon B1T1 interrupter was required to maintain system reliability.	
Upgrade Breaker Failure Protection Hardwoods Terminal Station	$24.4	On March 11, 2017, the breaker failure circuit associated with breaker B1L01 at the Hardwoods Terminal Station failed following a trip due to high winds on 230 kV transmission line TL 201 (Western Avalon to Hardwoods). As a result, 230 kV bus B1 locked out, isolating critical equipment from the bus. This failure contributed to a widespread outage later in the day when 230 kV transmission line TL 218 (Holyrood to Oxen Pond) tripped as well due to high winds. Subsequently, Breaker Failure Protection associated with bus B1 at Hardwoods needed to be upgraded in 2017. Upgrading the Breaker Failure Protection associated with bus B1 was executed without delay in 2017, in order to ensure safe, reliable, and secure operation of bus B1 and associated equipment.	An upgrade of the breaker failure protection associated with bus B1 was completed.
Replace Surge Arrestors Holyrood Terminal Station	$15.1	Three 69 kV surge arrestors failed in Holyrood Terminal Station due to a weather event in March 2017. Surge arresters are used on critical terminal station equipment to protect that equipment from overvoltage due to lightning, extreme system operating voltages and switching transients. In these situations, voltage at the equipment can rise to levels which could damage the equipment's insulation. The surge arrestors act to maintain the voltages within acceptable levels. Without surge arrestors, equipment insulation could be damaged and faults could result during overvoltage events. When a surge arrester fails, it is not repairable and must be replaced immediately; otherwise the	Three failed 69 kV surge arrestors were replaced with available spares.

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Project Title and Location	Expenditure ($000)	Failure Identified	Project Scope
		major equipment may be exposed to damaging overvoltage events.	
Replace Surge Arrester Stony Brook Terminal Station	$3.3	The low voltage surge arrester replacement at Stony Brook Terminal Station was based on October 2017 test results (obtained via Stony Brook T2 Doble Preventive Maintenance check). Doble test results indicated that the surge arrester condition was deteriorated and hence at increased risk of failure. Failure of the surge arrester would result in a loss of surge protection of the B phase winding from the 138 kV transmission network and also a forced transformer outage if the failure mode resulted in a fault.	Surge Arrestor was replaced with an available spare.

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9.0 Reliability Improvements – Holyrood Thermal Generating Station

This is a one year supplemental project approved and substantially completed in 2017, with some scope carried over into 2018. In *Section 3.2 Equipment Replacement* of the supplementary application for this project, it was stated that:

> *While Hydro has currently identified equipment for immediate replacement, it is possible that additional components may require replacement during the annual outages. Hydro proposes that any item, material in dollar value, that meets capitalization criteria, that is required to be replaced to mitigate an unplanned outage in the coming winter season, and that can be replaced within this project's contingency, would be replaced and communicated to the Board via the year end Capital Expenditures Variance report.*

Hydro identified and completed five additional capital scope items under these criteria during the discovery and execution phases of the project in 2017, as summarized in Table 21, Items 2 to 6. The actual cost of the original approved scope items in this project is forecast to exceed the budget estimate and this is included in Table 21, Item 1.

Total Approved Budget: **$2,610,000**

Total Expenditure: **$3,586,600**

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Table 21 - Reliability Improvements – Holyrood Thermal Generation Station

Item	Description	Cost ($000)	Scope of Work and Justification
1	Additional cost for original planned project scope items	313.6	During the discovery and execution phases of the original scope of work, additional cost were incurred as a result of the as-found condition being worse than expected for some components, with an over-run of the original scope estimate of $313,600.
2	Replacement of steam piping components	442.5	Steam piping components including large flanges with pipe spools, flange studs and bolts, and auxiliary valves. Replacement was necessary to address identified steam leaks.
3	Replacement of Unit 2 condenser cooling water outlet piping	300.0	Inspection of the Unit 2 condenser cooling water piping during the planned unit outage revealed that it was in similar deteriorated condition as Unit 1 condenser cooling water outlet piping. Replacement of Unit 1 condenser cooling water outlet piping was an approved scope item for this project. Replacement of Unit 2 condenser cooling water outlet piping was completed.
4	Replacement of flow elements	160.0	The original project scope including refurbishment of flow elements. Inspection during planned unit outages revealed that elements were at the end of useful life and required full replacement. The flow elements were replaced.
5	Replacement of safety valves for Unit 2 cold reheat, atomizing steam and low pressure / high pressure headers	146.0	The valves for Unit 2 cold reheat, atomizing steam and low pressure / high pressure headers were opening prematurely when in service. The valve service provider inspected the valves and determined that replacement was required. Safety valves for Unit 2 cold reheat, atomizing steam and low pressure / high pressure headers were replaced.
6	Replacement of Unit 1 and Unit 2 air heater water wash piping	60.0	Extensive corrosion of Unit 1 and Unit 2 air heater water wash piping was identified by boiler service provider during planned unit outages, and replacement was necessary. Unit 1 and Unit 2 air heater water wash piping was replaced.
Total		**1,422.1**	

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newfoundland labrador hydro
a nalcor energy company

Hydro Place. 500 Columbus Drive.
P.O. Box 12400. St. John's. NL
Canada A1B 4K7
t. 709.737.1400 f. 709.737.1800
www.nlh.nl.ca

March 1, 2019

The Board of Commissioners of Public Utilities
Prince Charles Building
120 Torbay Road, P.O. Box 21040
St. John's, NL A1A 5B2

Attention: **Ms. Cheryl Blundon**
Director Corporate Services & Board Secretary

Dear Ms. Blundon:

Re: **2018 Capital Expenditures and Carryover Report**

Enclosed please find one original and eight copies of Newfoundland and Labrador Hydro's ("Hydro") 2018 Capital Expenditures and Carryover Report (the "Report") for the year ending December 31, 2018.

This Report is filed pursuant to Board Order No. P.U. 43(2017) and provides information on Hydro's Capital Expenditures for all projects proposed in the 2018 Capital Budget Application, approved by the Board Order. The Report also provides information on Capital Expenditures related to additional Supplemental Capital Budgets approved by the Board as noted within the Report. As per the Capital Budget Application Guidelines (Policy No. 1900.6 – October 2007), this Report provides details and explanations regarding the variances between budgeted and actual expenditures for any project that has an expenditure within the 2018 calendar year. It also provides a listing of funds carried over to future years, and specific details regarding the execution of the Remove Safety Hazards project and various In-Service Failures projects.

Should you have any questions, please contact the undersigned.

Yours truly,

NEWFOUNDLAND AND LABRADOR HYDRO

Shirley A. Walsh
Senior Legal Counsel – Regulatory
SAW/sk

Encl.

cc: Gerard Hayes, Newfoundland Power

Capital Expenditures and Carryover Report
For the Year Ending December 31, 2018

March 1, 2019

A Report to the Board of Commissioners of Public Utilities

newfoundland labrador hydro
a nalcor energy company

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1.0 Capital Expenditure Overview

During 2018, Newfoundland and Labrador Hydro ("Hydro") invested $157.0 million for the execution of capital projects to contribute to the provision of safe, reliable, and least-cost electricity to customers. The expenditures include new transmission infrastructure, with $10.9 million for the close-out activities for TL 267 between Bay d'Espoir Terminal Station and Western Avalon Terminal Station and $12.0 million to complete TL 266 between Soldiers Pond Terminal Station and Hardwoods Terminal Station. Sustaining capital for Terminal Station infrastructure totalled $33.1 million, including $15.2 million in the Upgrade Circuit Breakers project and $10.5 million in the Terminal Station Refurbishment and Modernization (2017-2018) project. Expenditures to maintain the Hydraulic Generation equipment and infrastructure across the province totaled $23.8 million, including $8.6 million to replace site facilities in Bay d'Espoir and $5.9 million for year one in the Hydraulic Generation Refurbishment and Modernization (2018-2019) project. The Thermal Generation equipment and infrastructure at Holyrood required expenditures totalling $13.0 million, with the most material expenditure of $3.9 million in the Condition Assessment and Miscellaneous Upgrades project. Gas Turbines required $13.7 million in expenditures, the bulk of which ($9.8 million) was for the accelerated Holyrood Gas Turbine Hot Gas Path Level 2 Inspection and Overhaul. This report includes details about the capital expenditures and reportable variances for 2018 and project carryovers to 2019. The variance in actual expenditures compared to budget in Hydro's overall capital program for 2018 was $56.1 million (26.3%). Additional information regarding analysis of the variance is included in Section 5.0.

2.0 Capital Expenditures and Variance Summary

Table 1 provides a summary of Hydro's Capital Expenditures by Year for the period 2013-2018 for all capital projects that were active in 2018, and Table 2 provides a breakdown of the summary by asset type.

Table 1: 2018 Capital Expenditures by Year ($000)

Summary	Capital Budget[1]										Actual Expenditure and Forecast									Variance	
	A					B	C	D (B+C)	E	F (A+C+E)	G					H	I	J	K (G+H+I+J)	K-F	H-D
	2013	2014	2015	2016	2017	Carryover to 2018	Original 2018	Revised 2018	2019 and Beyond	Total	2013	2014	2015	2016	2017	2018	2019 and Beyond	Carryover to 2019	Total	Project Variance	Annual Variance
2018 Projects							90,270.2	90,270.2	58,135.9	148,406.1						71,692.5	53,528.2	22,217.3	147,438.0	(968.1)	(18,577.7)
2017 Projects					30,801.8	10,529.1	45,572.6	56,101.7	3,767.2	80,141.6					19,758.5	31,934.9	3,767.2	6,382.5	61,843.1	(18,298.5)	(24,166.8)
2016 Projects				22,893.1	43,682.6	12,953.9	34,899.2	47,853.1	17,714.1	119,189.0				18,714.6	36,587.8	42,251.1	20,759.1	2,293.4	120,606.0	1,417.0	(5,602.0)
2015 Projects			389.6	868.5	245.1	305.1	0.0	305.1	0.0	1,503.2			534.2	474.1	436.5	580.6	0.0	331.2	2,356.6	853.4	275.5
2014 Projects		211.5	4,431.4	76,322.7	195,454.0	1,069.8	17,418.3	18,488.1	0.0	293,837.9		211.5	2,046.4	59,337.7	213,754.2	10,592.0	0.0	1,716.2	287,658.0	(6,179.9)	(7,896.1)
2013 Projects	593.2	552.8	538.4	1,511.7	471.9	31.9	0.0	31.9	0.0	3,668.0	240.3	699.0	755.5	1,190.3	711.0	(66.0)	0.0	0.0	3,530.1	(137.9)	(97.9)
Grand Total	**593.2**	**764.3**	**5,359.4**	**101,596.0**	**270,655.4**	**24,889.8**	**188,160.3**	**213,050.1**	**79,617.2**	**646,745.8**	**240.3**	**910.5**	**3,336.1**	**79,716.7**	**271,248.0**	**156,985.1**	**78,054.5**	**32,940.6**	**623,431.8**	**(23,314.0)**	**(56,065.0)**

2018 Capital Budget Approved by Board Order No. P.U. 43 (2017) and P.U. 5 (2018)	181,193.7
New Project Approved by Board Order No. 11 (2017)	327.3
New Project Approved by Board Order No. 1 (2018)	748.4
New Project Approved by Board Order No. 1 (2018)	(748.4)
New Project Approved by Board Order No. 6 (2018)	719.4
New Project Approved by Board Order No. 6 (2018)	(50.4)
New Project Approved by Board Order No. 19 (2018)	1,000.0
New Project Approved by Board Order No. 23 (2018)	1,120.6
New Project Approved by Board Order No. 25 (2018)	2,560.5
New Project Approved by Board Order No. 33 (2018)	195.5
New Project Approved by Board Order No. 33 (2018)	(195.5)
New Project Approved by Board Order No. 34 (2018)	195.4
New Project Approved by Board Order No. 38 (2018)	712.3
2018 New Projects under $50,000 Approved by Hydro	381.5
Total Approved Capital Budget Before Carryovers	188,160.3
Carryover Projects 2017 to 2018	24,889.8
Total Approved Capital Budget	**213,050.1**

[1] Annual budgets previous to 2018 pertain to projects that have expenditures in 2018.

Table 2: Total Capital Variance Summary ($000) by Asset Type[1]

Asset Type	Board Approved Budget	Total Project Expenditures and Forecast	Variance
Hydraulic	52,680	49,021	(3,659)
Thermal	18,341	20,699	2,359
Gas Turbines	27,353	25,022	(2,331)
Terminal Stations	126,120	115,248	(10,872)
Transmission	326,860	319,578	(7,282)
Distribution	20,465	18,434	(2,031)
Rural Generation	31,235	30,279	(956)
Properties	4,262	3,464	(798)
Metering	3,408	3,645	237
Rural Systems Tools and Equipment	2,297	2,207	(90)
Information Systems	3,058	2,292	(766)
Telecontrol	6,449	6,126	(323)
Transportation	4,821	5,065	244
Administrative	1,314	1,194	(120)
Allowance for Unforeseen	2,000	4,743	2,743
Supplemental Projects	15,700	16,100	400
Projects Approved for less than $50,000	383	315	(67)
Total Capital Budget	**646,746**	**623,432**	**(23,314)**

[1] The Total Capital includes all projects initiated between 2013 and 2018 that had 2018 expenditures. This includes projects completed in 2018 and those that continue through 2019 and beyond. Please refer to Table 1.

3.0 Capital Expenditures by Category

The following tables provide Hydro's Capital Expenditures by category including:

- Hydraulic Generation;
- Thermal Generation;
- Gas Turbine Generation;
- Terminal Stations;
- Transmission;
- Distribution;
- Rural Generation;
- Properties;
- Metering;
- Tools and Equipment;
- Information Systems;
- Telecontrol projects;
- Transportation;
- Administration;
- Allowance for Unforeseen Items;
- Supplemental Capital projects; and
- Projects less than $50,000.

Table 3: 2018 Capital Expenditures: Hydraulic Generation ($000)

Hydraulic Generation Projects	Capital Budget								Actual Expenditure and Forecast							Variance		
	A			B	C	D (B+C)	E	F (A+C+E)	G			H	I	J	K (G+H+I+J)	K-F	H-D	
	2015	2016	2017	Carryover to 2018	Original 2018	Revised 2018	2019 and Beyond	Total	2015	2016	2017	2018	2019 and Beyond	Carryover to 2019	Total	Project Variance	Annual Variance	Notes
2018 Projects																		
Install Remote Operation of Salmon Spillway - Bay d'Espoir	-	-	-	-	645.9	645.9	1,862.5	2,508.4	-	-	-	885.4	1,862.5	(239.5)	2,508.4	-	239.5	1
Refurbish Backfill on Penstock #1 - Bay d'Espoir	-	-	-	-	1,630.4	1,630.4	-	1,630.4	-	-	-	63.2	-	1,567.2	1,630.4	-	(1,567.2)	2
Hydraulic In-Service Failures	-	-	-	-	1,251.1	1,251.1	-	1,251.1	-	-	-	452.3	-		452.3	(798.8)	(798.8)	3
Energy Efficiency Improvements - Various Sites	-	-	-	-	276.2	276.2	168.9	445.1	-	-	-	209.8	168.9	66.4	445.1	-	(66.4)	
Hydraulic Generation Refurbishment and Modernization - Various Sites	-	-	-	-	10,325.4	10,325.4	4,283.1	14,608.5	-	-	-	5,856.3	4,283.1	2,578.7	12,718.1	(1,890.4)	(4,469.1)	4
Purchase Tools and Equipment Less than $50,000	-	-	-	-	235.2	235.2	-	235.2	-	-	-	255.6	-	-	255.6	20.4	20.4	
2017 Projects																		
Install Asset Health Monitoring System - Upper Salmon	-	-	438.0	223.1	203.4	426.5	-	641.4	-	-	214.9	141.5	-	-	356.4	(285.0)	(285.0)	5
Refurbish Main Generator Breaker - Upper Salmon	-	-	271.1	147.9	-	147.9	-	271.1	-	-	123.2	121.8	-	-	245.0	(26.1)	(26.1)	
Water System Replacements - Bay d'Espoir and Cat Arm	-	-	265.5	88.8	2,288.3	2,377.1	-	2,553.8	-	-	176.7	1,520.7	-	-	1,697.4	(856.4)	(856.4)	6
Refurbish Powerhouse Station Services - Bay d'Espoir	-	-	413.2	370.2	2,473.3	2,843.5	1,460.6	4,347.1	-	-	43.0	1,003.5	1,460.6	1,840.0	4,347.1	-	(1,840.0)	7
Replace Exciter Controls Units 1 to 6 - Bay d'Espoir	-	-	119.2	(63.5)	921.2	857.7	2,306.6	3,347.0	-	-	182.7	628.9	2,306.6	9.3	3,127.5	(219.5)	(228.8)	8
Upgrade Ventilation in Powerhouse 1 and 2 - Bay d'Espoir	-	-	134.1	22.3	863.8	886.1	-	997.9	-	-	111.8	573.8	-	-	685.6	(312.3)	(312.3)	9
Purchase Capital Spares - Hydraulic	-	-	487.4	362.2	-	362.2	-	487.4	-	-	325.2	304.4	-	-	629.6	142.2	(57.8)	10
Replace Slip Rings Units 1-6 - Bay d'Espoir	-	-	312.6	210.2	159.7	369.9	-	472.3	-	-	102.4	17.2	-	352.7	472.3	-	(352.7)	11
Refurbish Sump Level System for Powerhouse 2 - Bay d'Espoir	-	-	38.7	28.1	264.5	292.6	-	303.2	-	-	10.6	220.1	-	-	230.7	(72.5)	(72.5)	
Install Wind Monitoring Station North Salmon Dam SD-2 - Bay d'Espoir	-	-	165.5	113.2	-	113.2	-	165.5	-	-	52.3	114.9	-	-	167.2	1.7	1.7	
Control Structure Refurbishments	-	-	1,735.3	743.9	452.9	1,196.8	-	2,188.2	-	-	991.4	709.3	-	144.1	1,844.8	(343.4)	(487.5)	12
2016 Projects																		
Refurbish Station Water System - Upper Salmon	-	96.6	197.6	94.9	-	94.9	-	294.2	-	38.3	161.0	80.5	-	-	279.8	(14.4)	(14.4)	
Upgrade Work - Cat Arm	-	558.3	1,353.0	910.3	-	910.3	-	1,911.3	-	240.4	760.6	1,376.3	-	30.3	2,407.6	496.3	466.0	13
Rehabilitate Shoreline Protection - Cat Arm	-	112.2	1,030.7	977.2	-	977.2	-	1,142.9	-	104.7	61.0	89.2	-	888.0	1,142.9	-	(888.0)	14
Replace Site Facilities - Bay d'Espoir	-	928.3	4,736.3	3,162.6	6,316.7	9,479.3	-	11,981.3	-	270.4	2,231.6	8,574.9	-	904.4	11,981.3	-	(904.4)	
Replace Spherical By-Pass Valves Units 1 and 2 - Bay d'Espoir	-	183.6	167.9	144.9	-	144.9	-	351.5	-	154.8	51.8	192.0	-	-	398.6	47.1	47.1	
2015 Projects																		
Replace Pump House and Associated Equipment - Bay d'Espoir	22.7	522.5	-	253.6	-	253.6	-	545.2	137.0	128.6	26.0	373.9	-	331.2	996.7	451.5	120.3	15
Total Hydraulic Generation Projects	**22.7**	**2,401.5**	**11,866.1**	**7,789.9**	**28,308.0**	**36,097.9**	**10,081.7**	**52,680.0**	**137.0**	**937.2**	**5,626.2**	**23,765.5**	**10,081.7**	**8,472.8**	**49,020.4**	**(3,659.6)**	**(12,332.4)**	

Table 4: 2018 Capital Expenditures: Thermal Generation ($000)

Thermal Generation Projects	Capital Budget								Actual Expenditure and Forecast							Variance		
	A			B	C	D (B+C)	E	F (A+C+E)	G			H	I	J	K (G+H+I+J)	K-F	H-D	
	2015	2016	2017	Carryover to 2018	Original 2018	Revised 2018	2019 and Beyond	Total	2015	2016	2017	2018	2019 and Beyond	Carryover to 2019	Total	Project Variance	Annual Variance	Notes
2018 Projects																		
Thermal In-Service Failures	-	-	-	-	1,250.0	1,250.0	-	1,250.0	-	-	-	2,699.9	-	-	2,699.9	1,449.9	1,449.9	16
Overhaul Pumps - Holyrood	-	-	-	-	438.3	438.3	-	438.3	-	-	-	302.7	-	-	302.7	(135.6)	(135.6)	17
Condition Assessment and Miscellaneous Upgrades - Holyrood	-	-	-	-	2,749.6	2,749.6	-	2,749.6	-	-	-	3,906.9	-	-	3,906.9	1,157.3	1,157.3	18
Overhaul Unit 1 Generator - Holyrood	-	-	-	-	1,005.0	1,005.0	-	1,005.0	-	-	-	1,060.6	-	-	1,060.6	55.6	55.6	
Overhaul Unit 1 Turbine Valves - Holyrood	-	-	-	-	2,485.7	2,485.7	-	2,485.7	-	-	-	2,247.7	-	-	2,247.7	(238.0)	(238.0)	
Upgrade Cranes and Hoists - Holyrood	-	-	-	-	80.3	80.3	300.3	380.6	-	-	-	38.6	300.3	41.7	380.6	-	(41.7)	
Install Raw Water Line - Holyrood	-	-	-	-	1,252.6	1,252.6	-	1,252.6	-	-	-	1,528.5	-	-	1,528.5	275.9	275.9	19
Install Fire Detection in Outbuildings - Holyrood	-	-	-	-	198.6	198.6	-	198.6	-	-	-	70.4	-	128.2	198.6	-	(128.2)	20
Purchase Tools and Equipment Less than $50,000	-	-	-	-	16.5	16.5	-	16.5	-	-	-	16.5	-	-	16.5	-	-	
2017 Projects																		
Upgrade Holyrood Access Road - Holyrood	-	-	579.3	-	583.4	583.4	-	1,162.7	-	-	825.7	-	-	-	825.7	(337.0)	(583.4)	21
Upgrade Underground Plant Drainage System - Holyrood	-	-	923.1	(10.7)		(10.7)	-	923.1	-	-	1,825.2	65.6	-	-	1,890.8	967.7	76.3	22
2016 Projects																		
Upgrade Powerhouse Building Envelope - Holyrood	-	2,723.8	2,969.9	1,076	784.1	1,859.7	-	6,477.8	-	2,239.9	2,378.2	1,022.7	-	-	5,640.8	(837.0)	(837.0)	23
Total Thermal Generation Projects	**-**	**2,723.8**	**4,472.3**	**1,064.9**	**10,844.1**	**11,909.0**	**300.3**	**18,340.5**	**-**	**2,239.9**	**5,029.1**	**12,960.1**	**300.3**	**169.9**	**20,699.3**	**2,358.8**	**1,051.1**	

Table 5: 2018 Capital Expenditures: Gas Turbine Generation ($000)

Gas Turbine Generation Projects	Capital Budget								Actual Expenditure and Forecast							Variance		
	A			B	C	D (B+C)	E	F (A+C+E)	G			H	I	J	K (G+H+I+J)	K-F	H-D	
	2015	2016	2017	Carryover to 2018	Original 2018	Revised 2018	2019 and Beyond	Total	2015	2016	2017	2018	2019 and Beyond	Carryover to 2019	Total	Project Variance	Annual Variance	Notes
2018 Projects																		
Purchase Capital Spares - Gas Turbines	-	-	-	-	626.9	626.9	-	626.9	-	-	-	534.7	-	-	534.7	(92.2)	(92.2)	
Gas Turbine Equipment Replacement and Refurbishment - Hardwoods and Stephenville	-	-	-	-	997.9	997.9	429.3	1,427.2	-	-	-	371.3	429.3	480.2	1,280.8	(146.4)	(626.6)	24
Increase Fuel and Water Treatment System Capacity - Holyrood Gas Turbine	-	-	-	-	8,829.9	8,829.9	3,012.7	11,842.6	-	-	-	2,583.8	3,012.7	6,093.1	11,689.6	(153.0)	(6,246.1)	25
Turbine Hot Gas Path Level 2 Inspection and Overhaul - Holyrood Gas Turbine	-	-	-	-	6,538.8	6,538.8	4,607.7	11,146.5	-	-	-	9,770.7	-	682.9	10,453.6	(692.9)	3,231.9	26
2017 Projects																		
Gas Turbine Life Extension - Stephenville	-	-	847.5	24.1	505.7	529.8	-	1,353.2	-	-	342.2	251.7	-	-	593.9	(759.3)	(278.1)	27
Gas Turbine Life Extension - Hardwoods	-	-	675.3	28.3	281.4	309.7	-	956.7	-	-	273.6	195.6	-	-	469.2	(487.5)	(114.1)	28
Total Gas Turbine Generation Projects	**-**	**-**	**1,522.8**	**52.4**	**17,780.6**	**17,833.0**	**8,049.7**	**27,353.1**	**-**	**-**	**615.8**	**13,707.8**	**3,442.0**	**7,256.2**	**25,021.8**	**(2,331.3)**	**(4,125.2)**	

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Table 6: 2018 Capital Expenditures: Terminal Stations ($000)

Terminal Stations Projects	Capital Budget										Actual Expenditure and Forecast									Variance		
	A					B	C	D (B+C)	E	F (A+C+E)	G					H	I	J	K (G+H+I+J)	K-F	H-D	
	2013	2014	2015	2016	2017	Carryover to 2018	Original 2018	Revised 2018	2019 and Beyond	Total	2013	2014	2015	2016	2017	2018	2019 and Beyond	Carryover to 2019	Total	Project Variance	Annual Variance	Notes
2018 Projects																						
Terminal Station In-Service Failures	-	-	-	-	-	-	1,000.0	1,000.0	-	1,000.0	-	-	-	-	-	2,268.8	-	-	2,268.8	1,268.8	1,268.8	29
Upgrade Aluminum Support Structures - Holyrood	-	-	-	-	-	-	287.6	287.6	-	287.6	-	-	-	-	-	143.1	-	-	143.1	(144.5)	(144.5)	30
Replace Transformer T1 - Buchans	-	-	-	-	-	-	249.0	249.0	2,086.1	2,335.1	-	-	-	-	-	99.0	2,086.1	150.0	2,335.1	-	(150.0)	31
Install Breaker Bypass Switch - Howley	-	-	-	-	-	-	83.1	83.1	-	83.1	-	-	-	-	-	-	-	-	-	(83.1)	(83.1)	
Implement Terminal Station Flood Mitigation - Springdale	-	-	-	-	-	-	186.2	186.2	787.8	974.0	-	-	-	-	-	135.8	787.8	50.4	974.0	-	(50.4)	
Purchase Mobile DC Power Systems	-	-	-	-	-	-	270.9	270.9	695.6	966.5	-	-	-	-	-	41.9	695.6	229.0	966.5	-	(229.0)	32
Terminal Station Refurbishment and Modernization - Various Sites	-	-	-	-	-		8,170.6	8,170.6	18,625.1	26,795.7	-	-	-	-	-	1,983.8	18,625.1	5,839.7	26,448.6	(347.1)	(6,186.8)	33
2017 Projects																						
Upgrade Corner Brook Frequency Converter - Corner Brook	-	-	-	-	194.6	152.4	2,749.2	2,901.6	-	2,943.8	-	-	-	-	42.2	(42.2)	-	-	0.0	(2,943.8)	(2,943.8)	34
Replace 66 kV Station Service Feed - Holyrood	-	-	-	-	62.8	(17.9)	1,198.6	1,180.7	-	1,261.4	-	-	-	-	80.7	235.0	-	945.7	1,261.4	0.0	(945.7)	35
Replace Substation - Holyrood	-	-	-	-	439.4	324.0	758.6	1,082.6	-	1,198.0	-	-	-	-	115.4	369.7	-	313.1	798.2	(399.8)	(712.9)	36
Replace Power Transformers - Oxen Pond	-	-	-	-	297.5	188.4	850.1	1,038.5	-	1,147.6	-	-	-	-	109.1	539.1	-	-	648.2	(499.4)	(499.4)	37
Terminal Station Refurbishment and Modernization - Various Sites	-	-	-	-	10,831.3	3,138.3	16,550.8	19,689.1		27,382.1	-	-	-	-	5,852.1	10,464.4		2,327.7	18,644.2	(8,737.9)	(9,224.7)	38
2016 Projects																						
Upgrade Circuit Breakers - Various Sites	-	-	-	6,969.1	10,808.7	3,300.5	15,408.6	18,709.1	17,714.1	50,900.5	-	-	-	5,599.5	8,877.8	15,184.2	20,759.1	479.9	50,900.5	(0.0)	(3,524.9)	39
Replace Protective Relays - Various Sites	-	-	-	700.6	1,156.4	267.5	-	267.5	-	1,857.0	-	-	-	1,425.8	1,134.5	754.4	-	-	3,314.7	1,457.7	486.9	40
Replace Disconnect Switches - Various Sites	-	-	-	646.9	1,320.9	771.2	-	771.2	-	1,967.8	-	-	-	131.7	1,064.9	225.0	-	-	1,421.6	(546.2)	(546.2)	41
Upgrade Data Alarm Systems - Various Sites	-	-	-	74.4	234.1	142.8	-	142.8	-	308.5	-	-	-	49.7	116.0	144.6	-	(1.8)	308.5	0.0	1.8	
Install Breaker Failure Protection - Various Sites	-	-	-	65.7	211.3	22.2	-	22.2	-	277.0	-	-	-	81.8	382.4	234.7	-	(7.4)	691.5	414.5	212.5	42
Install Fire Protection in 230 kV Stations - Bay d'Espoir	-	-	-	200.0	566.0	681.7	-	681.7	-	766.0	-	-	-	91.4	100.7	400.8	-	-	592.9	(173.1)	(280.9)	43
2013 Projects																						
Replace Instrument Transformers - Various Sites	593.2	552.8	538.4	1,511.7	471.9	31.9	-	31.9	-	3,668.0	240.3	699.0	755.5	1,190.3	711.0	(66.0)	-	-	3,530.1	(137.9)	(97.9)	
Total Terminal Stations Projects	**593.2**	**552.8**	**538.4**	**10,168.4**	**26,594.9**	**9,003.0**	**47,763.3**	**56,766.3**	**39,908.7**	**126,119.7**	**240.3**	**699.0**	**755.5**	**8,570.2**	**18,586.9**	**33,116.1**	**42,953.7**	**10,326.3**	**115,248.0**	**(10,871.7)**	**(23,650.2)**	

Table 7: 2018 Capital Expenditures: Transmission ($000)

Transmission Projects	Capital Budget									Actual Expenditure and Forecast								Variance		
	A				B	C	D (B+C)	E	F (A+C+E)	G				H	I	J	K(G+H+I+J)	K-F	H-D	
	2014	2015	2016	2017	Carryover to 2018	Original 2018	Revised 2018	2019 and Beyond	Total	2014	2015	2016	2017	2018	2019 and Beyond	Carryover to 2019	Total	Project Variance	Annual Variance	Notes
2018 Projects																				
Wood Pole Line Management Program - Various Sites	-	-	-	-	-	3,532.9	3,532.9	-	3,532.9	-	-	-	-	3,185.6	-	-	3,185.6	(347.3)	(347.3)	44
2017 Projects																				
Transmission Line Upgrades - TL212 and TL218	-	-	-	1,378.2	1,091.1	1,133.3	2,224.4	-	2,511.5	-	-	-	287.1	1,440.6	-	-	1,727.7	(783.8)	(783.8)	45
Replace Insulators - TL227	-	-	-	145.6	128.9	271.3	400.2	-	416.9	-	-	-	16.7	282.7	-	-	299.4	(117.5)	(117.5)	46
2016 Projects																				
Construct 230 kV Transmission Line - Soldiers Pond to Hardwoods	-	-	3,699.0	10,985.4	(27.8)	11,876.5	11,848.7	-	26,560.9	-	-	3,501.6	11,210.6	11,995.0	-	-	26,707.2	146.3	146.3	
2014 Projects																				
Refurbish Anchors and Footings TL202 and TL206 - Bay d'Espoir to Sunnyside	211.5	28.4	1,038.4	901.6	1,829.8	-	1,829.8	-	2,179.9	211.5	28.2	19.9	90.5	(350.1)	-	-	0.0	(2,179.9)	(2,179.9)	47
230 kV Transmission Line - Bay d'Espoir to Western Avalon	-	4,403.0	75,284.3	194,552.4	(760.0)	17,418.3	16,658.3	-	291,658.0	-	2,018.2	59,317.8	213,663.7	10,942.1	-	1,716.2	287,658.0	(4,000.0)	(5,716.2)	48
Total Transmission Projects	**211.5**	**4,431.4**	**80,021.7**	**207,963.2**	**2,262.0**	**34,232.3**	**36,494.3**	**-**	**326,860.1**	**211.5**	**2,046.4**	**62,839.3**	**225,268.6**	**27,495.9**	**-**	**1,716.2**	**319,577.9**	**(7,282.2)**	**(8,998.4)**	

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Table 8: 2018 Capital Expenditures: Distribution ($000)

Distribution Projects	Capital Budget								Actual Expenditure and Forecast							Variance		
	A			B	C	D (B+C)	E	F (A+C+E)	G			H	I	J	K (G+H+I+J)	K-F	H-D	
	2015	2016	2017	Carryover to 2018	Original 2018	Revised 2018	2019 and Beyond	Total	2015	2016	2017	2018	2019 and Beyond	Carryover to 2019	Total	Project Variance	Annual Variance	Notes
2018 Projects																		
Provide Service Extensions - All Service Areas	-	-	-	-	4,642.0	4,642.0	-	4,642.0	-	-	-	3,709.1	-	-	3,709.1	(932.9)	(932.9)	49
Provide Service Extensions - All Service Areas - CIAC	-	-	-	-	(122.0)	(122.0)	-	(122.0)	-	-	-	(88.9)	-	-	(88.9)	33.1	33.1	
Upgrade Distribution Systems - All Service Areas	-	-	-	-	3,711.0	3,711.0	-	3,711.0	-	-	-	3,230.6	-	-	3,230.6	(480.4)	(480.4)	50
Upgrade Distribution Systems - All Service Areas - CIAC	-	-	-	-	(61.0)	(61.0)	-	(61.0)	-	-	-	(25.0)	-	-	(25.0)	36.0	36.0	
Distribution System Upgrades - Various Sites	-	-	-	-	383.8	383.8	2,771.2	3,155.0	-	-	-	193.6	2,771.2	190.2	3,155.0	-	(190.2)	51
Install Recloser Remote Control - English Harbour West and Barachoix	-	-	-	-	63.7	63.7	275.0	338.7	-	-	-	13.8	275.0	49.9	338.7	-	(49.9)	
Additions for Load Growth - Happy Valley	-	-	-	-	505.0	505.0	-	505.0	-	-	-	222.5	-	-	222.5	(282.5)	(282.5)	52
2017 Projects																		
Distribution Upgrades - Various Sites	-	-	64.2	(14.5)	1,130.9	1,116.4	-	1,195.1	-	-	78.7	915.3	-	-	994.0	(201.1)	(201.1)	53
Install Recloser Remote Control - Bottom Waters	-	-	47.1	(16.8)	418.6	401.8	-	465.7	-	-	63.9	425.3	-	-	489.2	23.5	23.5	
2016 Projects																		
Upgrade Distribution Systems - Various Sites	-	285.6	6,350.3	911.0	-	911.0	-	6,635.9	-	361.8	5,363.1	683.2	-	-	6,408.1	(227.8)	(227.8)	54
Total Distribution Projects	**-**	**285.6**	**6,461.6**	**879.7**	**10,672.0**	**11,551.7**	**3,046.2**	**20,465.4**	**-**	**361.8**	**5,505.7**	**9,279.5**	**3,046.2**	**240.1**	**18,433.3**	**(2,032.1)**	**(2,272.2)**	

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Table 9: 2018 Capital Expenditures: Rural Generation ($000)

Rural Generation Projects	A			B	C	D (B+C)	E	F (A+C+E)	Actual Expenditure and Forecast							Variance		
									G			H	I	J	K (G+H+I+J)	K-F	H-D	
	2015	2016	2017	Carryover to 2018	Original 2018	Revised 2018	2019 and Beyond	Total	2015	2016	2017	2018	2019 and Beyond	Carryover to 2019	Total	Project Variance	Annual Variance	Notes
2018 Projects																		
Overhaul Diesel Units - Various Sites	-	-	-	-	2,852.4	2,852.4	-	2,852.4	-	-	-	2,029.0	-	-	2,029.0	(823.4)	(823.4)	55
Diesel Plant Engine Cooling System Upgrades - Various Sites	-	-	-	-	638.4	638.4	671.6	1,310.0	-	-	-	149.3	671.6	489.1	1,310.0	-	(489.1)	56
Additions for Load Growth - Makkovik and Rigolet	-	-	-	-	730.1	730.1	-	730.1	-	-	-	302.0	-	-	302.0	(428.1)	(428.1)	57
Upgrade Ventilation - Cartwright	-	-	-	-	465.7	465.7	-	465.7	-	-	-	46.5	-	419.2	465.7	-	(419.2)	58
Diesel Plant Fire Protection - Postville	-	-	-	-	505.6	505.6	336.4	842.0	-	-	-	37.2	336.4	468.4	842.0	-	(468.4)	59
Inspect Fuel Storage Tanks - Black Tickle	-	-	-	-	818.7	818.7	-	818.7	-	-	-	481.7	-	337.0	818.7	-	(337.0)	60
Install Sub-Surface Drainage System - Paradise River	-	-	-	-	524.9	524.9	-	524.9	-	-	-	721.6	-	-	721.6	196.7	196.7	61
Replace Secondary Containment System Liner - Nain	-	-	-	-	1,639.2	1,639.2	1,450.4	3,089.6	-	-	-	672.5	1,450.4	2,471.7	4,594.6	1,505.0	(966.7)	62
Diesel Genset Replacements - Makkovik	-	-	-	-	604.1	604.1	8,296.1	8,900.2	-	-	-	1,585.1	8,296.1	(981.0)	8,900.2	-	981.0	63
Replace Automation Equipment - St. Anthony	-	-	-	-	307.4	307.4	1,565.9	1,873.3	-	-	-	127.2	1,565.9	180.2	1,873.3	-	(180.2)	64
Replace Human Machine Interface - St. Lewis	-	-	-	-	280.8	280.8	-	280.8	-	-	-	242.5	-	-	242.5	(38.3)	(38.3)	
2017 Projects																		
Diesel Plant Engine Auxiliary Upgrades - Various Sites	-	-	790.6	145.9	416.3	562.2	-	1,206.9	-	-	644.7	481.9	-	-	1,126.6	(80.3)	(80.3)	
Replace Automation Equipment - Mary's Harbour	-	-	120.3	32.9	1,021.7	1,054.6	-	1,142.0	-	-	87.4	960.4	-	-	1,047.8	(94.2)	(94.2)	
Diesel Genset Replacements - Port Hope Simpson and Charlottetown	-	-	658.8	445.2	5,148.0	5,593.2	-	5,806.8	-	-	213.6	3,973.8	-	-	4,187.4	(1,619.4)	(1,619.4)	65
2016 Projects																		
Upgrade Human Machine Interface - Various Sites	-	114.0	320.0	73.0	-	73.0	-	434.0	-	125.3	235.7	96.9	-	-	457.9	23.9	23.9	
2015 Projects																		
Replace Programmable Logic Controllers - Various Sites	366.9	346.0	245.1	51.5	-	51.5	-	958.0	397.2	345.5	410.5	206.7	-	-	1,359.9	401.9	155.2	66
Total Rural Generation Projects	**366.9**	**460.0**	**2,134.8**	**748.5**	**15,953.3**	**16,701.8**	**12,320.4**	**31,235.4**	**397.2**	**470.8**	**1,591.9**	**12,114.3**	**12,320.4**	**3,384.6**	**30,279.2**	**(956.1)**	**(4,587.5)**	

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Table 10: 2018 Capital Expenditures: Properties ($000)

Properties Projects	Capital Budget								Actual Expenditure and Forecast							Variance		
	A			B	C	D (B+C)	E	F (A+C+E)	G			H	I	J	K (G+H+I+J)	K-F	H-D	
	2015	2016	2017	Carryover to 2018	Original 2018	Revised 2018	2019 and Beyond	Total	2015	2016	2017	2018	2019 and Beyond	Carryover to 2019	Total	Project Variance	Annual Variance	Notes
2018 Projects																		
Upgrade Office Facilities and Control Buildings - Various	-	-	-	-	1,180.6	1,180.6	-	1,180.6	-	-	-	955.8	-		955.8	(224.8)	(224.8)	67
Line Depot Condition Assessment and Refurbishment - Various	-	-	-	-	1,233.0	1,233.0	-	1,233.0	-	-	-	1,005.6	-		1,005.6	(227.4)	(227.4)	68
Install Fall Protection Equipment - Various	-	-	-	-	46.7	46.7	-	46.7	-	-	-	40.1	-		40.1	(6.6)	(6.6)	
Install Energy Efficiency Lighting in Diesel Plants - Various	-	-	-	-	104.0	104.0	241.2	345.2	-	-	-	68.0	241.2	36.0	345.2	-	(36.0)	
2017 Projects																		
Construct New Facilities - Various Sites	-	-	422.0	184.2	1,034.1	1,218.3	-	1,456.1	-	-	237.8	429.8	-	449.9	1,117.5	(338.6)	(788.5)	69
Total Properties Projects	**-**	**-**	**422.0**	**184.2**	**3,598.4**	**3,782.6**	**241.2**	**4,261.6**	**-**	**-**	**237.8**	**2,499.3**	**241.2**	**485.9**	**3,464.2**	**(797.4)**	**(1,283.3)**	

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Table 11: 2018 Capital Expenditures: Metering ($000)

Metering Projects	Capital Budget								Actual Expenditure and Forecast							Variance		
	A			B	C	D (B+C)	E	F (A+C+E)	G			H	I	J	K (G+H+I+J)	K-F	H-D	
	2015	2016	2017	Carryover to 2018	Original 2018	Revised 2018	2019 and Beyond	Total	2015	2016	2017	2018	2019 and Beyond	Carryover to 2019	Total	Project Variance	Annual Variance	Notes
2018 Projects																		
Install Automated Meter Reading - Bottom Waters	-	-	-	-	75.2	75.2	-	75.2	-	-	-	-	-	-	-	(75.2)	(75.2)	
Purchase Metering and Metering Equipment - Various Sites	-	-	-	-	198.5	198.5	-	198.5	-	-	-	236.6	-	-	236.6	38.1	38.1	
2017 Projects																		
Install Automated Meter Reading - Happy Valley	-	-	78.6	(105.2)	1,891.6	1,786.4	-	1,970.2	-	-	183.8	1,606.7	-	-	1,790.5	(179.7)	(179.7)	70
Purchase New Meter Calibration Test Console - Hydro Place	-	-	196.9	212.7	-	212.7	-	196.9	-	-	0.1	209.2	-	-	209.3	12.4	(3.5)	
2016 Projects																		
Install Automated Meter Reading - Labrador West	-	433.8	533.4	(3.2)	-	(3.2)	-	967.2	-	130.4	1,232.8	45.1	-	-	1,408.3	441.1	48.3	71
Total Metering Projects	**-**	**433.8**	**808.9**	**104.3**	**2,165.3**	**2,269.6**	**-**	**3,408.0**	**-**	**130.4**	**1,416.8**	**2,097.6**	**-**	**-**	**3,644.8**	**236.8**	**(172.0)**	

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Table 12: 2018 Capital Expenditures: Tools and Equipment ($000)

Tools and Equipment	Capital Budget								Actual Expenditure and Forecast							Variance		
	A			B	C	D (B+C)	E	F (A+C+E)	G			H	I	J	K (G+H+I+J)	K-F	H-D	
	2015	2016	2017	Carryover to 2018	Original 2018	Revised 2018	2019 and Beyond	Total	2015	2016	2017	2018	2019 and Beyond	Carryover to 2019	Total	Project Variance	Annual Variance	Notes
2018 Projects																		
Replace Light Duty Mobile Equipment - Various Sites	-	-	-	-	429.0	429.0	-	429.0	-	-	-	416.6	-		416.6	(12.4)	(12.4)	
Replace Front End Loader Unit No. 9628	-	-	-	-	170.2	170.2	-	170.2	-	-	-	168.7	-		168.7	(1.5)	(1.5)	
Replace Off-Road Track Vehicles - Bishop's Falls and Bay d'Espoir	-	-	-	-	213.7	213.7	986.3	1,200.0	-	-	-	249.5	986.3	(35.8)	1,200.0	-	35.8	
Tools and Equipment Less than $50,000	-	-	-	-	497.7	497.7	-	497.7	-	-	-	422.1	-		422.1	(75.6)	(75.6)	
Total Tools and Equipment Projects	**-**	**-**	**-**	**-**	**1,310.6**	**1,310.6**	**986.3**	**2,296.9**	**-**	**-**	**-**	**1,256.9**	**986.3**	**(35.8)**	**2,207.4**	**(89.5)**	**(53.7)**	

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Table 13: 2018 Capital Expenditures: Information Systems ($000)

Information Systems Projects	Capital Budget								Actual Expenditure and Forecast							Variance		
	A			B	C	D (B+C)	E	F (A+C+E)	G			H	I	J	K (G+H+I+J)	K-F	H-D	
	2015	2016	2017	Carryover to 2018	Original 2018	Revised 2018	2019 and Beyond	Total	2015	2016	2017	2018	2019 and Beyond	Carryover to 2019	Total	Project Variance	Annual Variance	Notes
2018 Projects																		
Upgrade Software Applications - Hydro Place	-	-	-	-	114.7	114.7	-	114.7	-	-	-	68.9	-	-	68.9	(45.8)	(45.8)	
Refresh Security Software - Hydro Place	-	-	-	-	62.2	62.2	-	62.2	-	-	-	63.2	-	-	63.2	1.0	1.0	
Perform Minor Enhancements - Hydro Place	-	-	-	-	49.4	49.4	-	49.4	-	-	-	43.3	-	-	43.3	(6.1)	(6.1)	
Replace Personal Computers - Hydro Place	-	-	-	-	493.0	493.0	-	493.0	-	-	-	94.5	-	-	94.5	(398.5)	(398.5)	72
Upgrade Core IT Infrastructure - Hydro Place	-	-	-	-	352.4	352.4	-	352.4	-	-	-	453.8	-	-	453.8	101.4	101.4	73
Replace Peripheral Infrastructure - Hydro Place	-	-	-	-	258.4	258.4	-	258.4	-	-	-	260.1	-	-	260.1	1.7	1.7	
Upgrade Energy Management System - Hydro Place	-	-	-	-	336.8	336.8	-	336.8	-	-	-	-	-	-	-	(336.8)	(336.8)	74
2016 Projects																		
Upgrade Microsoft Office - Hydro Place	-	683.7	953.4	20.1	957.3	977.4	-	2,594.4	-	656.9	960.0	822.3	-	-	2,439.2	(155.2)	(155.1)	75
Cost Recoveries	-	(317.1)	(442.2)	(9.0)	(444.0)	(453.0)	-	(1,203.3)	-	(304.8)	(445.5)	(380.7)	-	-	(1,131.0)	72.3	72.3	
Total Information Systems Projects	**-**	**366.6**	**511.2**	**11.1**	**2,180.2**	**2,191.3**	**-**	**3,058.0**	**-**	**352.1**	**514.5**	**1,425.4**	**-**	-	**2,292.0**	**(766.0)**	**(765.9)**	

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Table 14: 2018 Capital Expenditures: Telecontrol ($000)

Telecontrol Projects	Capital Budget								Actual Expenditure and Forecast							Variance		
	A			B	C	D (B+C)	E	F (A+C+E)	G			H	I	J	K (G+H+I+J)	K-F	H-D	
	2015	2016	2017	Carryover to 2018	Original 2018	Revised 2018	2019 and Beyond	Total	2015	2016	2017	2018	2019 and Beyond	Carryover to 2019	Total	Project Variance	Annual Variance	Notes
2018 Projects																		
Replace PBX Phone Systems - Various	-	-	-	-	91.7	91.7	1,150.6	1,242.3	-	-	-	134.9	1,150.6	(43.2)	1,242.3	-	43.2	
Replace MDR 6000 Microwave Radio - Various	-	-	-	-	64.0	64.0	1,137.0	1,201.0	-	-	-	81.5	1,137.0	(17.5)	1,201.0	-	17.5	
Replace Teleprotection - TL261	-	-	-	-	57.6	57.6	459.8	517.4	-	-	-	60.1	459.8	(2.5)	517.4	-	2.5	
Replace Network Communications Equipment - Various	-	-	-	-	199.5	199.5	-	199.5	-	-	-	239.1	-	-	239.1	39.6	39.6	
Upgrade Site Facilities - Various	-	-	-	-	49.0	49.0	-	49.0	-	-	-	46.8	-	-	46.8	(2.2)	(2.2)	
Replace Radomes - Various	-	-	-	-	360.3	360.3	-	360.3	-	-	-	331.1	-	-	331.1	(29.2)	(29.2)	
Replace RTUs - Various	-	-	-	-	118.3	118.3	-	118.3	-	-	-	108.5	-	-	108.5	(9.8)	(9.8)	
Replace Air Conditioners - Various	-	-	-	-	74.4	74.4	-	74.4	-	-	-	75.5	-	-	75.5	1.1	1.1	
Replace Battery Banks and Chargers - Various	-	-	-	-	382.1	382.1	555.8	937.9	-	-	-	231.3	555.8	150.8	937.9	-	(150.8)	76
Purchase Tools and Equipment less than $50,000	-	-	-	-	46.0	46.0	-	46.0	-	-	-	30.7	-	-	30.7	(15.3)	(15.3)	
2017 Projects																		
Replace Battery Banks and Chargers - Various Sites (2017-2018)	-	-	379.3	(4.3)	566.2	561.9	-	945.5	-	-	217.6	555.1	-	-	772.7	(172.8)	(6.8)	77
Upgrade Telecontrol Facilities - Mary March Hill and Blue Grass Hill	-	-	91.2	(32.1)	665.9	633.8	-	757.1	-	-	123.3	500.0	-	-	623.3	(133.8)	(133.8)	78
Total Telecontrol Projects	**-**	**-**	**470.5**	**(36.4)**	**2,675.0**	**2,638.6**	**3,303.2**	**6,448.7**	**-**	**-**	**340.9**	**2,394.6**	**3,303.2**	**88**	**6,126.3**	**(322.4)**	**(244.0)**	

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Table 15: 2018 Capital Expenditures: Transportation and Administrative ($000)

Transportation	Capital Budget								Actual Expenditure and Forecast							Variance		
	A			B	C	D (B+C)	E	F (A+C+E)	G			H	I	J	K (G+H+I+J)	K-F	H-D	
	2015	2016	2017	Carryover to 2018	Original 2018	Revised 2018	2019 and Beyond	Total	2015	2016	2017	2018	2019 and Beyond	Carryover to 2019	Total	Project Variance	Annual Variance	Notes
2018 Projects																		
Replace Vehicles and Aerial Devices - Various Sites	-	-	-	-	1,667.2	1,667.2	753.7	2,420.9	-	-	-	1,165.1	753.7	502.1	2,420.9	-	(502.1)	79
2017 Projects																		
Replace Vehicles and Aerial Devices - Various Sites	-	-	2,001.4	725.6	398.8	1,124.4	-	2,400.2	-	-	1,275.8	1,368.1	-	-	2,643.9	243.7	243.7	80
Total Transportation Projects	-	-	2,001.4	725.6	2,066.0	2,791.6	753.7	4,821.1	-	-	1,275.8	2,533.2	753.7	502.1	5,064.8	243.7	(258.4)	

Administrative	Capital Budget								Actual Expenditure and Forecast							Variance		
	A			B	C	D (B+C)	E	F (A+C+E)	G			H	I	J	K (G+H+I+J)	K-F	H-D	
	2015	2016	2017	Carryover to 2018	Original 2018	Revised 2018	2019 and Beyond	Total	2015	2016	2017	2018	2019 and Beyond	Carryover to 2019	Total	Project Variance	Annual Variance	Notes
2018 Projects																		
Remove Safety Hazards - Various	-	-	-	-	199.4	199.4	-	199.4	-	-	-	166.3	-	-	166.3	(33.1)	(33.1)	
Upgrade Exterior of Building - Hydro Place	-	-	-	-	260.2	260.2	405.7	665.9	-	-	-	232.6	405.7	27.6	665.9	-	(27.6)	
Replace Washroom Fixtures - Hydro Place	-	-	-	-	49.5	49.5	-	49.5	-	-	-	50.3	-	-	50.3	0.8	0.8	
Security Improvements - Hydro Place	-	-	-	-	45.5	45.5	-	45.5	-	-	-	8.5	-	-	8.5	(37.0)	(37.0)	
Purchase Office Equipment	-	-	-	-	90.0	90.0	-	90.0	-	-	-	26.3	-	-	26.3	(63.7)	(63.7)	
2016 Projects																		
Replace Air Conditioning Units 8 and 14 - Hydro Place	-	34.6	229.5	19.5	-	19.5	-	264.1	-	31.0	213.6	31.8	-	-	276.4	12.3	12.3	
Total Administrative Projects	**-**	**34.6**	**229.5**	**19.5**	**644.6**	**664.1**	**405.7**	**1,314.4**	**-**	**31.0**	**213.6**	**515.8**	**405.7**	**27.6**	**1,193.7**	**(120.7)**	**(148.3)**	

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Table 16: 2018 Capital Expenditures: Allowance for Unforeseen Items, Supplemental Capital Projects, and Projects less than $50,000 ($000)

Allowance For Unforeseen	Capital Budget								Actual Expenditure and Forecast							Variance		
	A			B	C	D (B+C)	E	F (A+C+E)	G			H	I	J	K (G+H+I+J)	K-F	H-D	
	2015	2016	2017	Carryover to 2018	Original 2018	Revised 2018	2019 and Beyond	Total	2015	2016	2017	2018	2019 and Beyond	Carryover to 2019	Total	Project Variance	Annual Variance	Notes
2018 Projects																		
Allowance for Unforeseen Items	-	-	-	-	1,000.0	1,000.0	-	1,000.0	-	-	-	-	-	-	-	(1,000.0)	(1,000.0)	81
Penstock #3 Refurbishment - Bay d'Espoir	-	-	-	-	-	-	-	-	-	-	-	4,743.2	-	-	4,743.2	4,743.2	4,743.2	81
Allowance for Unforeseen - Top Up P.U. 19 (2018)	-	-	-	-	1,000.0	1,000.0	-	1,000.0	-	-	-	-	-	-	-	(1,000.0)	(1,000.0)	81
Replace Engine #2051 - Rigolet	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total Allowance For Unforeseen	**-**	**-**	**-**	**-**	**2,000.0**	**2,000.0**	**-**	**2,000.0**	**-**	**-**	**-**	**4,743.2**	**-**	**-**	**4,743.2**	**2,743.2**	**2,743.2**	

Supplemental Projects	Capital Budget								Actual Expenditure and Forecast							Variance		
	A			B	C	D (B+C)	E	F (A+C+E)	G			H	I	J	K (G+H+I+J)	K-F	H-D	
	2015	2016	2017	Carryover to 2018	Original 2018	Revised 2018	2019 and Beyond	Total	2015	2016	2017	2018	2019 and Beyond	Carryover to 2019	Total	Project Variance	Annual Variance	Notes
2018 Projects																		
Provide Service to Western Regional Servce Baord's Waste Transfer Site - Hampden	-	-	-	-	748.4	748.4	-	748.4	-	-	-	644.5	-		644.5	(103.9)	(103.9)	82
Provide Service to Western Regional Servce Baord's Waste Transfer Site - Hampden - CIAC	-	-	-	-	(748.4)	(748.4)	-	(748.4)	-	-	-	(644.5)	-		(644.5)	103.9	103.9	82
Perform Voltage Conversion of the Distribution Feeder VA26 - Labrador City	-	-	-	-	719.4	719.4	-	719.4	-	-	-	705.1	-		705.1	(14.3)	(14.3)	
Perform Voltage Conversion of the Distribution Feeder VA26 - Labrador City - CIAC	-	-	-	-	(50.4)	(50.4)	-	(50.4)	-	-	-	-	-		0.0	50.4	50.4	
Penstock Condition Assessments - Bay d'Espoir	-	-	-	-	1,120.6	1,120.6	-	1,120.6	-	-	-	1,682.5	-	223.8	1,906.3	785.7	561.9	83
Improve Boiler Capacity - Holyrood	-	-	-	-	2,560.5	2,560.5	-	2,560.5	-	-	-	1,665.9	-		1,665.9	(894.6)	(894.6)	84
Mary's Harbour Hydro Integration	-	-	-	-	195.5	195.5	-	195.5	-	-	-	49.2	-	146.3	195.5	-	(146.3)	85
Mary's Harbour Hydro Integration - CIAC	-	-	-	-	(195.5)	(195.5)	-	(195.5)	-	-	-	-	-	(195.5)	(195.5)	-	195.5	85
Gang Switch - Happy Valley-Goose Bay	-	-	-	-	195.4	195.4	-	195.4	-	-	-	85.2	-		85.2	(110.2)	(110.2)	86
TL226 and TL239 Reroute	-	-	-	-	712.3	712.3	220.1	932.4	-	-	-	579.8	220.1	132.5	932.4	-	(132.5)	87
2017 Projects																		
Terminal Station Upgrades - Wabush	-	-	2,585.2	1,644.5	327.3	1,971.8	-	2,912.5	-	-	940.7	1,021.4	-		1,962.1	(950.4)	(950.4)	88
Reliability Improvements - Holyrood	-	-	2,610.0	16.7	-	16.7	-	2,610.0	-	-	3,586.6	297.3	-		3,883.9	1,273.9	280.6	89
								-										
2016 Projects																		
Purchase of 12 MW Diesel Generation - Holyrood	-	4,700.0	-	418.9	-	418.9	-	4,700.0	-	3,784.0	497.1	678.2	-		4,959.3	259.3	259.3	90
Total Supplemental Projects Approved by PUB	**-**	**4,700.0**	**5,195.2**	**2,080.1**	**5,585.1**	**7,665.2**	**220.1**	**15,700.4**	**-**	**3,784.0**	**5,024.4**	**6,764.6**	**220.1**	**307.1**	**16,100.2**	**399.8**	**(900.6)**	

Projects Less than $50,000	Capital Budget								Actual Expenditure and Forecast							Variance		
	A			B	C	D (B+C)	E	F (A+C+E)	G			H	I	J	K (G+H+I+J)	K-F	H-D	
	2015	2016	2017	Carryover to 2018	Original 2018	Revised 2018	2019 and Beyond	Total	2015	2016	2017	2018	2019 and Beyond	Carryover to 2019	Total	Project Variance	Annual Variance	Notes
2018 Projects																		
Replace Alternator Bearing - Stephenville Gas Turbine	-	-	-	-	47.9	47.9	-	47.9	-	-	-	48.7	-	-	48.7	0.8	0.8	
Back-up Control Center Cooling Upgrade - Holyrood	-	-	-	-	49.0	49.0	-	49.0	-	-	-	41.5	-	-	41.5	(7.5)	(7.5)	
Stage 2 Emergency Diesel Generator Refurbishment - Holyrood	-	-	-	-	49.5	49.5	-	49.5	-	-	-	9.3	-	-	9.3	(40.2)	(40.2)	
Penstock 3 Laser Scanning - Bay d'Espoir	-	-	-	-	46.3	46.3	-	46.3	-	-	-	31.3	-	-	31.3	(15.0)	(15.0)	
Penstock 3 Press Transducer - Bay d'Espoir	-	-	-	-	29.5	29.5	-	29.5	-	-	-	45.1	-	-	45.1	15.6	15.6	
Parking Lot Access Improvements - Hydro Place	-	-	-	-	47.4	47.4	-	47.4	-	-	-	41.5	-	-	41.5	(5.9)	(5.9)	
Replace Heat Sensors Tanks - Holyrood	-	-	-	-	49.8	49.8	-	49.8	-	-	-	48.1	-	-	48.1	(1.7)	(1.7)	
Main Breaker Replacement-HYP	-	-	-	-	18.4	18.4	-	18.4	-	-	-	17.5	-	-	17.5	(0.9)	(0.9)	
2017 Projects																		
Replace Tracks for V7601 Groomer - Bay d'Espoir	-	-	1.0	1.0	43.7	44.7	-	44.7	-	-	-	32.3	-	-	32.3	(12.4)	(12.4)	
Total Projects Less than $50,000	**-**	**-**	**1.0**	**1.0**	**381.5**	**382.5**	**-**	**382.5**	**-**	**-**	**-**	**315.3**	**-**	**-**	**315.3**	**(67.2)**	**(67.2)**	

4.0 Variance Explanations (Greater than $100,000 and 10% Variance from Budget)

The projects discussed in the following section have 2018 variances (project total or annual as indicated) of more than 10% and $100,000 when comparing the approved budget to the 2018 expenditures, whether it is a single- or multi-year project. The projects are ordered and numbered based upon the order and number they appear in the preceding set of tables.

4.1 Hydraulic Generation Projects (Table 3)

1. <u>Install Remote Operation of Salmon Spillway: Bay d'Espoir</u>

Annual Variance ($000)

Budget: 645.9 Expenditures: 885.4 Variance: 239.5

This is a two-year project (2018–2019) that commenced in 2018. The variance in 2018 expenditures is attributed to the advancement of a portion of the 2019 planned activities into 2018. This project remains on schedule with no change to the overall scope, budget, or completion date.

2. <u>Refurbish Backfill on Penstock #1: Bay d'Espoir</u>

Annual Variance ($000)

Budget: 1,630.4 Expenditures: 63.2 Variance: (1,567.2)

This is a one-year project that commenced in 2018 and has carried over into 2019. An engineering consultant's report concerning Bay d'Espoir Penstock 1 failure recommended suspending this work on the backfill until a long-term solution for the penstock is selected. The long-term solution is not expected to be available until March 2019. This project's justification, budget, and schedule will be re-evaluated at that time.

3. Hydraulic In-Service Failures

Project Variance ($000)

Budget: 1,251.1 Expenditures: 452.3 Variance: (798.8)

This was a one-year project completed in 2018. The budget for the project was based on prediction of the magnitude of in-service failures using historical data and engineering judgement. The 2018 project variance is attributed to the actual number of failures incurred. A detailed list of work executed under this project is found in Section 9.0.

4. Hydraulic Generation Refurbishment and Modernization: Various Sites

Annual Variance ($000)

Budget: 10,325.4 Expenditures: 5,856.3 Variance: (4,469.1)

Project Variance ($000)

Budget: 14,608.5 Expenditures & Forecast: 12,718.1 Variance: (1,890.4)

This is a two-year project (2018–2019) that commenced in 2018. The variance in 2018 expenditures is primarily attributed to a rescheduling of a portion of the planned work to 2019 for the following projects:

- Internal and external refurbishment of Bay d'Espoir Surge Tank 1. It was determined during project planning that the available generation outage duration in 2018 was inadequate to complete the entire scope. The external tank work was completed in 2018 and the internal tank work has been rescheduled to 2019.
- Refurbishment at Hinds Lake Control Structure and Bay d'Espoir Intake 1 Structure. A change in contracting strategy resulted in a portion of the engineering, procurement and construction activity originally planned for 2018 to be rescheduled to 2019.

- Bay d'Espoir Unit 2 Turbine Overhaul. The variance in 2018 expenditures is also attributed to a reduced volume of work than that originally estimated for Bay d'Espoir Unit 2 Turbine Overhaul. Upon disassembly of the Unit 2, it was found that the discharge wear ring could be refurbished in-place, rather than replaced.

5. <u>Install Asset Health Monitoring System: Upper Salmon</u>

Annual Variance ($000)

Budget: 426.5	Expenditures: 141.5	Variance: (285.0)

Project Variance ($000)

Budget: 641.4	Expenditures: 356.4	Variance: (285.0)

This was a two-year project (2017–2018) that was completed in 2018. The construction activities for this project were estimated based on having the construction completed by contractors. Hydro was able to leverage an opportunity to execute the activities using internal operations and maintenance resources, resulting in overall project expenditures less than budget.

6. <u>Water System Replacements: Bay d'Espoir and Cat Arm</u>

Annual Variance ($000)

Budget: 2,377.1	Expenditures: 1,520.7	Variance: (856.4)

Project Variance ($000)

Budget: 2,553.8	Expenditures: 1,697.4	Variance: (856.4)

This was a two-year project (2017–2018) that was completed in 2018. The variance in 2018 and total project expenditures is attributed to the implementation of a more cost-effective construction strategy for this project through the implementation of three-dimensional laser scanning that was not previously considered. Three-dimensional laser

scanning was used as a design tool, allowing piping sections to be prefabricated off-site and reducing the overall installation costs during unit outages.

7. <u>Refurbish Powerhouse Station Services: Bay d'Espoir</u>

Annual Variance ($000)

Budget: 2,843.5 Expenditures: 1,003.5 Variance: (1,840.0)

This is a three-year project (2017–2019) that commenced in 2017. The variance in 2018 expenditures is attributed to a portion of the procurement and construction activity that was originally planned for 2018 now expected in 2019. The engineering for this project was delayed in 2017 and partially recovered in 2018, however the long lead time to procure materials did align with the 2018 planned generation outages. There is no change to the overall project scope, budget, or completion date.

8. <u>Replace Exciter Controls Units 1 to 6: Bay d'Espoir</u>

Annual Variance ($000)

Budget: 857.7 Expenditures: 628.9 Variance: (228.8)

This is a three-year project (2017–2019) that commenced in 2017. The variance in 2018 expenditures is attributed to less than estimated engineering costs. The planned scope of work for 2018 is complete. The project remains on schedule with no change to the overall project scope, budget, or completion date.

9. <u>Upgrade Ventilation in Powerhouse 1 and 2: Bay d'Espoir</u>

Annual Variance ($000)

Budget: 886.1 Expenditures: 573.8 Variance: (312.3)

Project Variance ($000)

Budget: 997.9 Expenditures: 685.6 Variance: (312.3)

This was a two-year project (2017–2018) that was completed in 2018. The variance in 2018 and total project expenditure is attributed to cancellation of a portion of the project scope. During design development, it was determined that the planned generator heat recovery and distribution system for Bay d'Espoir Powerhouse 1, consisting of sheet metal ductwork from the top of each generating unit to the lower levels of the powerhouse, would be prone to damage each time the unit is disassembled, resulting in high repair costs over the life of the asset. Therefore, the heat recovery and distribution system scope was cancelled. The other project scope, to replace roof ventilators and upgrade ventilation louvers in Bay d'Espoir Powerhouses 1 and 2, was completed as planned.

10. <u>Purchase Capital Spares: Hydraulic</u>

Project Variance ($000)

Budget: 487.4 Expenditures: 629.6 Variance: 142.2

This was a planned one-year project that commenced in 2017 and was carried over and completed in 2018. The variance in total project expenditures is attributed to the addition of the procurement of a spare set of generator bearing coolers for the Hinds Lake Unit to the project scope. As stated in the "2017 Capital Expenditures and Carryover Report," Hydro experienced failures of generator bearing coolers in Hinds Lake and determined that spare coolers were required in the event of additional failures in the 2017–2018 winter season.

11. <u>Replace Slip Rings Units 1 to 6: Bay d'Espoir</u>

Annual Variance ($000)

Budget: 369.9 Expenditures: 17.2 Variance: (352.7)

This is a two-year project (2017–2018) that commenced in 2017 and has been carried over into 2019. The rescheduling of the 2018 construction to 2019 resulted in the

variance in 2018 expenditures. The project scope is to replace slip rings on six units at Bay d'Espoir. Two were installed in 2017. Three were not installed in 2018 based on a condition assessment during the unit outages, and were initially considered for cancellation. Upon disassembly of Unit 2 (the fourth installation planned for 2018), it was determined that actual dimensions varied from drawings and the new slip ring could not be installed. It was also identified that there was accelerated brush wear on Unit 2. This new information resulted in a reassessment of the decision to not replace the other three slip rings planned for 2018 and led to reinstatement of the original recommendation to install the new slip rings. Given that the 2018 outages had already been completed, the remaining slip rings will be installed in 2019.

12. <u>Control Structure Refurbishments</u>

Annual Variance ($000)

Budget: 1,196.8 Expenditures: 709.3 Variance: (487.5)

Project Variance ($000)

Budget: 2,188.2 Expenditures & Forecast: 1,844.8 Variance: (343.4)

This is a two-year project (2017–2018) that commenced in 2017 and has carried over into 2019. The project scope includes refurbishment work at four water control structures. The work was completed at three of the locations (North Salmon Spillway Structure, Granite Canal Intake Structure, and Ebbegunbaeg Control Structure); however, the work for Burnt Dam has been rescheduled to 2019 due to a delay in completing the engineering design.

13. Upgrade Work: Cat Arm

Annual Variance ($000)

Budget: 910.3 Expenditures: 1,376.3 Variance: 466.0

Project Variance ($000)

Budget: 1,911.3 Expenditures & Forecast: 2,407.6 Variance: 496.3

This is a two-year project (2016–2017) that commenced in 2016 and has been carried over into 2019. One aspect of the project scope is the purchase and installation of two deflector servomotors. These servomotors have a long lead time and could not be ordered until an existing servomotor of the same design was installed, tested, and proven to meet the performance specifications. The existing servomotor was installed in September 2018 and determined to meet the performance specifications. The new servomotors have been ordered and will be received and installed in 2019.

Another aspect of the project scope was to refurbish the spherical valve control system. A portion of the variance in 2018 and in total project expenditures is associated with this scope. In particular, it is attributed to increased material requirements identified during detailed engineering design. As well, there were cost increases as a result of a change in construction strategy from the original plan of internal labour to use of contractor due to unavailability of internal resources. This scope was completed in 2018.

14. Rehabilitate Shoreline Protection: Cat Arm

Annual Variance ($000)

Budget: 977.2 Expenditures: 89.2 Variance: (888.0)

This is a two-year project (2016–2017) that commenced in 2016 and carried over into 2019. During project planning, it was determined that there is risk of rock fall from the adjacent cliff into the construction zone. The identification of the necessity for risk

mitigation to ensure a safe work site resulted in a pause on the project to estimate the associated cost and, if necessary, re-evaluate the project alternatives. A site survey was completed in September 2018 and a cost estimate for mitigation of the safety hazard was completed in December 2018. These costs will be used in 2019 to update the project estimate and re-evaluate the cost benefit analysis of project alternatives prior to proceeding any further.

15. <u>Replace Pump House and Associated Equipment: Bay d'Espoir</u>

Annual Variance ($000)

Budget: 253.6 Expenditures: 373.9 Variance: 120.3

Project Variance ($000)

Budget: 545.2 Expenditures & Forecast: 996.7 Variance: 451.5

This is a two-year project (2015–2016) that has carried over into 2019. The variance in 2018 and total project expenditures is attributed to higher than expected construction costs. Construction was originally tendered in 2016, but was not awarded since tendered prices were significantly higher than the budget. A reassessment of the design and execution strategy was undertaken, but did not result in any anticipated significant savings. Replacement of the pump house became critical after damage sustained from flooding during Hurricane Matthew in 2016. The work was retendered and construction began in the summer of 2018. Delivery of the prefabricated pump house building was late in 2018 resulting in carry over of the final construction activity to 2019.

4.2 Thermal Generation Projects (Table 4)

16. <u>Thermal In-Service Failures</u>

Project Variance ($000)

Budget: 1,250.0 Expenditures: 2,699.9 Variance: 1,449.9

This was a one-year project completed in 2018. The budget for the project was based on prediction of the magnitude of in-service failures using historical data and engineering judgement. The variance in project expenditures is attributed to the actual number of failures incurred. A detailed list of work executed under this project is found in Section 10.0 of this report.

17. <u>Overhaul Pumps: Holyrood</u>

Project Variance ($000)

Budget: 438.3 Expenditures: 302.7 Variance: (135.6)

This was a one-year project completed in 2018. The variance in project expenditures is attributed to lower than expected materials and contract labour costs.

18. <u>Condition Assessment and Miscellaneous Upgrades: Holyrood</u>

Project Variance ($000)

Budget: 2,749.6 Expenditures: 3,906.9 Variance: 1,157.3

This was a one-year project completed in 2018. The variance in expenditures is attributed to higher than expected contract pricing for work on the boilers, stacks, marine terminal arms, and brush holders. Also, following disassembly of the Unit 3 travelling screen, its condition was determined to be poorer than originally expected. This resulted in additional refurbishment requirements. As well, additional fuel storage tank inspections were required to meet the requirements of the *Storage and Handling of Gasoline and Associated Products Regulations, 2003*.

19. <u>Install Raw Water Line: Holyrood</u>

Project Variance ($000)

Budget: 1,252.6 Expenditures: 1,528.5 Variance: 275.9

This was a one-year project completed in 2018. The variance in expenditures is attributed to additional design requirements determined during detailed project planning and engineering, including: (i) the requirement for a higher grade of piping than originally estimated, (ii) the requirement to bury the piping to a greater depth than originally estimated, (iii) the requirement to install an intake at the Quarry Brook Dam, and (iv) the requirement to incorporate a powerhouse utilidor crossing into the design. The utilidor includes cables, piping, and a walkway that could not be relocated.

20. <u>Install Fire Detection in Outbuildings: Holyrood</u>

Annual Variance ($000)

Budget: 198.6 Expenditures: 70.4 Variance: (128.2)

This is a one-year project that commenced in 2018 and carried over into 2019. The variance in 2018 expenditures is attributed to the rescheduling of a portion of the construction activity to 2019. The rescheduling was the result of difficulties experienced during installation of the overhead cables. The existing aerial enclosure was determined to be unsuitable for the type of cable being installed and requires modifications. Materials have been ordered for the necessary modifications and construction is expected to be completed in the first quarter of 2019.

21. <u>Upgrade Holyrood Access Road: Holyrood</u>

Annual Variance ($000)

Budget: 583.4 Expenditures: 0.0 Variance: (583.4)

Project Variance ($000)

Budget: 1,162.7 Expenditures: 825.7 Variance: (337.0)

This was a two-year project (2017–2018) completed in 2017. Hydro tendered the construction work with optional pricing to complete all of the construction in the first

year. The optional pricing was favorable and Hydro proceeded with completion of the project in 2017. The variance in project expenditures is attributed to lower than estimated contract pricing as well as savings associated with completing the project in a single year.

22. <u>Upgrade Underground Plant Drainage System: Holyrood</u>

Project Variance ($000)

Budget: 923.1 Expenditures: 1,890.8 Variance: 967.7

This was a one-year project that commenced in 2017 and was carried over and completed in 2018. The variance in overall project expenditure is attributed to the requirement to replace more piping than originally estimated (due to further deterioration of the piping from the time of the budget proposal), higher than expected contract tender prices, and the requirement for asbestos removal, which was not included in the original estimate.

23. <u>Upgrade Powerhouse Building Envelope: Holyrood</u>

Annual Variance ($000)

Budget: 1,859.7 Expenditures: 1,022.7 Variance: (837.0)

Project Variance ($000)

Budget: 6,477.8 Expenditures: 5,640.8 Variance: (837.0)

This was a three-year project (2016–2018) that commenced in 2016 and was completed in 2018. The variance in project expenditure is attributed to lower than estimated engineering and construction costs.

4.3 Gas Turbine Generation Projects (Table 5)

24. <u>Gas Turbine Equipment Replacement and Refurbishment: Hardwoods and Stephenville</u>

Annual Variance ($000)

Budget: 997.9 Expenditures: 371.3 Variance: (626.6)

Project Variance ($000)

Budget: 1,427.2 Expenditures & Forecast: 1,280.8 Variance: (146.4)

This is a two-year project (2018–2019) that commenced in 2018. The variance in 2018 expenditures is attributed to the rescheduling of the air intake refurbishment from 2018 to 2019. This work was rescheduled to allow project management and engineering resources to focus on higher priority gas turbine work including the separate project to inspect and overhaul the hot gas path for Holyrood Gas Turbine, which was required to be advanced from 2019 to 2018. The other planned scope for 2018, to refurbish the exhaust stacks, was completed in 2018 as originally planned. The variance in overall project budget is attributed to lower than estimated tendered prices for the exhaust stack work.

25. <u>Increase Fuel and Water Treatment System Capacity: Holyrood Gas Turbine</u>

Annual Variance ($000)

Budget: 8,829.9 Expenditures: 2,583.8 Variance: (6,246.1)

This is a two-year project (2018–2019) that commenced in 2018. The variance in 2018 expenditures is attributed to the rescheduling of the fuel tank construction from 2018 to 2019. The rescheduling is due to longer than estimated time required to complete the detailed engineering. In 2018, the engineering was completed, steel was purchased, new tank dyke was constructed, and road relocation was completed. The tanks will be constructed in 2019 and are expected to be in service prior to the start of the 2019–

2020 winter operating season. The other project scope associated with the water treatment system is proceeding as originally planned, with construction planned for 2019.

26. <u>Turbine Hot Gas Path Level 2 Inspection and Overhaul: Holyrood Gas Turbine</u>

Annual Variance ($000)

Budget: 6,538.8 Expenditures: 9,770.7 Variance: 3,231.9

This is a two-year project (2018–2019) that commenced in 2018 and was substantially completed in 2018. Hydro reported to the Newfoundland and Labrador Board of Commissioners of Public Utilities (the "Board") in a letter dated July 26, 2018, that the overhaul had to be advanced and completed in 2018 due to greater than anticipated use of the Holyrood gas turbine since its last inspection and overhaul. The variance in 2018 expenditures is due to the advancement; however, the variance in overall project budget (less than the reportable criteria but discussed for context) is attributed to a reduction of project scope. Upon disassembly and inspection, it was determined that the interstage seals did not require replacement. The inspection and overhaul was completed and the unit was returned to service in the fourth quarter of 2018. Project close out activities are expected to conclude in the first quarter of 2019.

27. <u>Gas Turbine Life Extension: Stephenville</u>

Annual Variance ($000)

Budget: 529.8 Expenditures: 251.7 Variance: (278.1)

Project Variance ($000)

Budget: 1,353.2 Expenditures: 593.9 Variance: (759.3)

This was a two-year project (2017–2018) that was completed in 2018. The variance in both the 2018 expenditures and total project expenditures are attributed to the removal of a portion of the project scope. Due to the anticipated retirement of the

Hardwoods and Stephenville Gas Turbines, Hydro continues to assess any proposed capital expenditures for these units. After a comprehensive review of the project scope prior to project execution, Hydro removed the installation of closed circuit television cameras from the scope, and planned instrumentation upgrades were revised to include only those requiring immediate replacement, based on function testing and evaluation results. The replacement of lube oil filters was also removed from the scope based on updated condition assessment, expected remaining service life, and the availability of spare filters.

28. <u>Gas Turbine Life Extension: Hardwoods</u>

Annual Variance ($000)

Budget: 309.7	Expenditures: 195.6	Variance: (114.1)

Project Variance ($000)

Budget: 956.7	Expenditures: 469.2	Variance: (487.5)

This was a two-year project (2017–2018) that was completed in 2018. The variance in both the 2018 expenditures and total project expenditures are attributed to the removal of a portion of the project scope. Due to the anticipated retirement of the Hardwoods and Stephenville Gas Turbines, Hydro continues to assess any proposed capital expenditures for these units. After a comprehensive review of the project scope prior to project execution, Hydro removed the installation of closed circuit television cameras from the scope, and planned instrumentation upgrades were revised to include only those requiring immediate replacement, based on function testing and evaluation results. The replacement of lube oil filters was also removed from the scope based on updated condition assessment, expected remaining service life, and the availability of spare filters.

4.4 Terminal Stations Projects (Table 6)

29. Terminal Station In-Service Failures

Project Variance ($000)

Budget: 1,000.0 Expenditures: 2,268.8 Variance: 1,268.8

This was a one-year project completed in 2018. The budget for the project was based on prediction of the magnitude of in-service failures using historical data and engineering judgement. The 2018 variance is attributed to the actual number of failures incurred. A detailed list of work executed under this project is found in Section 8.0 of this report.

30. Upgrade Aluminum Support Structures: Holyrood

Project Variance ($000)

Budget: 287.6 Expenditures: 143.1 Variance: (144.5)

This was a one-year project completed in 2018. The variance in project expenditures is attributed to cost savings measures identified during project planning and engineering. Hydro was able to use existing temporary support structures from a previous project during construction of the permanent support structures, eliminating the need to fabricate additional temporary support structures. The project was executed in parallel with the Terminal Station Refurbishment and Modernization project, allowing Hydro to realize efficiencies for engineering, procurement and construction effort.

31. Replace Transformer T1: Buchans

Annual Variance ($000)

Budget: 249.0 Expenditures: 99.0 Variance: (150.0)

This is a two-year project (2018–2019) that commenced in 2018. The variance in 2018 expenditures is attributed to a portion of the engineering and procurement activity

being rescheduled from late 2018 to early 2019. This delay is not expected to impact the overall project completion date or budget.

32. <u>Purchase Mobile DC Power Systems</u>

Annual Variance ($000)

Budget: 270.9 Expenditures: 41.9 Variance: (229.0)

This is a two-year project (2018–2019) that commenced in 2018. The variance in 2018 expenditures is attributed to the revised time frame for delivery of equipment originally expected in 2018, now expected in 2019. The project scope includes the procurement of three mobile DC power systems, one of which was originally expected to be received in 2018. Hydro now expects to receive all three in 2019.

33. <u>Terminal Station Refurbishment and Modernization: Various Sites</u>

Annual Variance ($000)

Budget: 8,170.6 Expenditures: 1,983.8 Variance: (6,186.8)

This is a two-year project (2018–2019) that commenced in 2018 and includes a number of consolidated program-type terminal station projects across several sites. The variance is primarily attributed to the rescheduling of various project scope items from 2018 to 2019 due to outage duration constraints, resource constraints, delayed material procurement, and longer than anticipated material lead time deliveries. Items delayed from 2018 to 2019 include: (i) the transformer and generator protection upgrade at Upper Salmon, (ii) transformer bushing deliveries, (iii) disconnect deliveries, (iv) the installation of four disconnect switches and one breaker at Wabush, and (v) delayed instrument transformer material costs. The instrument transformers are available in Hydro's inventory and will be attributed to the capital project as drawn from inventory in 2019, whereas the original budget assumed those costs would be in 2018.

34. Upgrade Corner Brook Frequency Converter: Corner Brook

Annual Variance ($000)

Budget: 2,901.6	Expenditures: (42.2)	Variance: (2,943.8)

Project Variance ($000)

Budget: 2,943.8	Expenditures: 0.0	Variance: (2,943.8)

This is a two-year project (2017–2018) that commenced in 2017, was placed on hold to confirm alignment with the customer, and subsequently was cancelled as a result of the sale of the Corner Brook Frequency Convertor to Corner Brook Pulp and Paper Limited. The sale was approved by Board Order P.U. 26(2018) on August 9, 2018. Hydro reversed any costs incurred as a result of the front-end engineering, and design costs associated with the capital project at the time the project was cancelled.

35. Replace 66 kV Station Service Feed: Holyrood

Annual Variance ($000)

Budget: 1,180.7	Expenditures: 235.0	Variance: (945.7)

This is a two-year project (2017–2018) that has carried over into 2019. The variance in 2018 expenditure is attributed to the rescheduling of the construction activity to 2019. The rescheduling is the result of late procurement of the cables and associated components with long delivery times. The materials were not received in time for the planned generation outage in 2018.

36. Replace Substation: Holyrood

Annual Variance ($000)

Budget: 1,082.6 Expenditures: 369.7 Variance: (712.9)

Project Variance ($000)

Budget: 1,198.0 Expenditures & Forecast: 798.2 Variance: (399.8)

This is a two-year project (2017–2018) that has carried over into 2019. The variance in 2018 expenditure is attributed to the rescheduling of the construction activity to 2019, following identification of a lower cost alternative for the project. The variance in total project expenditures and forecast is attributed to the planned implementation of that lower cost alternative. During project engineering, connection of a power supply from Newfoundland Power was identified as a viable alternative and the project was placed on pause. The alternative was estimated and determined to be the least-cost solution compared to the original project scope to construct a new substation. A new project scope and schedule was developed in coordination with Newfoundland Power, which includes construction activity in 2019. Hydro expects he project to be completed in 2019 at the forecasted lower cost.

37. Replace Power Transformers: Oxen Pond

Annual Variance ($000)

Budget: 1,038.5 Expenditures: 539.1 Variance: (499.4)

Project Variance ($000)

Budget: 1,147.6 Expenditures: 648.2 Variance: (499.4)

This is a two-year project (2017–2018) that was completed in 2018. The variance in both 2018 and total project expenditures are attributed to lower than estimated tender pricing for the transformers supply and installation.

38. <u>Terminal Station Refurbishment and Modernization: Various Sites</u>

Annual Variance ($000)

Budget: 19,689.1 Expenditures: 10,464.4 Variance: (9,224.7)

Project Variance ($000)

Budget: 27,382.1 Expenditures & Forecast: 18,644.2 Variance: (8,737.9)

This is a two-year project (2017–2018) that commenced in 2017 and has carried over to 2019. The project includes a number of consolidated program-type terminal station projects across several sites. The variance in total project expenditures is primarily associated with the refurbishment or replacement of power transformers and disconnect switches. In particular, the variance is attributed to a portion of the work being executed for less that the budgeted cost and some scope reduction as new asset condition information became available. Bushing replacements for Holyrood T5 and T7 and Bay d'Espoir T10 and transformer dehydrators for Happy Valley T3 and Oxen Pond T2 were removed from this project and will be executed as part of the 2019 Terminal Station Refurbishment and Modernization project, which has sufficient budget for this work.

The variance in 2018 expenditures is attributed to the scope reductions described above, as well as the carryover of the following project activity to the 2019 Terminal Station Refurbishment and Modernization project, which has sufficient budget for this work:

- Replacement of four disconnect switches at Western Avalon, Sunnyside, and Holyrood, due to system outage limitations;
- Construction activity for the breaker failure protection at Berry Hill and Peter's Barren, due to a review of alternatives for the telecommunications requirements of the project;

- Grounding system upgrades at three terminal stations, due to more complex designs required to address exceptionally high ground potential rise at these locations;
- Final tie-in and commissioning of the protective relay replacements at Bay d'Espoir, due to unavailability of an outage in 2018; and
- Protective relay replacements at Holyrood, due to additional engineering requirements and an unforeseen condition with the transformer T7.

39. <u>Upgrade Circuit Breakers: Various Sites</u>

Annual Variance ($000)

Budget: 18,709.1 Expenditures: 15,184.2 Variance: (3,524.9)

This is a five-year project (2016–2020) that commenced in 2016 and includes breaker replacements and refurbishments at a number of terminal station sites each year. The variance in 2018 expenditures is primarily attributed to rescheduling of various project scope items to other years within the project. This is primarily due to new condition information, changing priorities for system reliability, and balancing of the overall work plan. Four circuit breaker replacements planned for 2018 were rescheduled to 2019, including two at Western Avalon Terminal Station, one at Bay d'Espoir Terminal Station 1, and one at Wabush Terminal Station. The rescheduling of the breakers at Western Avalon and Bay d'Espoir was due to the impacts of other major system upgrade projects on both resources and overall site congestion. The rescheduling of the breaker at Wabush was a result of the technical and economic difficulty associated with finding an additional suitable outage window given the potential reliability impact on Iron Ore Company of Canada.

In Hydro's 2019 Capital Budget Application, 10 circuit breakers were removed from the project scope, as reflected in the presented overall project budget. An updated assessment of these breakers concluded that replacement could be deferred until

2021/2022. Hydro will apply to replace these breakers in a subsequent application to the Board as part of the 2021 Capital Budget Application. The 10 breakers removed from scope were: Happy Valley 13-1, Bay d'Espoir B13T11, Massey Drive B3T3, Stephenville B2L405 and B2T3, Stony Brook B3L130, L05L31 and B3L22, and Buchans L28L32 and B1L28.

40. <u>Replace Protective Replays: Various Sites</u>

Annual Variance ($000)

Budget: 267.5 Expenditures: 754.4 Variance: 486.9

Project Variance ($000)

Budget: 1,857.0 Expenditures: 3,314.7 Variance: 1,457.7

This is a two-year project (2016–2017) that commenced in 2016 and was carried over and completed in 2018. The variance in both 2018 and total project expenditures are attributed to higher than estimated engineering, procurement, and construction costs. During the design phase of the project, revisions to Hydro's design standard for protective relays were required. The changes to the standard were made to address lessons learned from system events. The updated standard significantly impacted the overall design for these protection systems. This increased the engineering design effort on this project and resulted in increased procurement and construction costs due to the requirement for additional components to adhere to the new standard. Also contributing to the variance was additional engineering and contract costs resulting from discrepancies between design drawings and field conditions for the work in Bay d'Espoir. This resulted in a rescheduling of the work from the spring to the fall and a need to mobilize a different contractor for the work.

41. Replace Disconnect Switches: Various Sites

Annual Variance ($000)

Budget: 771.2 Expenditures: 225.0 Variance: (546.2)

Project Variance ($000)

Budget: 1,967.8 Expenditures: 1,421.6 Variance: (546.2)

This is a two-year project (2016–2017) that carried over and was completed in 2018. The variance in both 2018 and total project expenditures are attributed to lower than estimated construction costs. As well, one of the disconnect switches planned for replacement at Bay d'Espoir could not be completed due to unavailability of an outage to complete the work. This scope of work was removed from the project and will be executed in 2019 as part of the Terminal Station Refurbishment and Modernization project, which has sufficient budget for this work.

42. Install Breaker Failure Protection: Various Sites

Annual Variance ($000)

Budget: 22.2 Expenditures: 234.7 Variance: 212.5

Project Variance ($000)

Budget: 277.0 Expenditures & Forecast: 691.5 Variance: 414.5

This is a two-year project (2016–2017) that has carried over to 2019. The variance in both 2018 expenditure and total project expenditures and forecast are attributed to higher than estimated engineering, procurement and construction costs. During the design phase of the project, revisions to Hydro's design standard for breaker failure protection were required. The changes to the standard were made to address lessons learned from system events. The updated standard significantly impacted the overall design for breaker failure protection. This increased the engineering design effort on

this project and resulted in increased procurement and construction costs due to the requirement for additional components to adhere to the new standard. A requirement for additional telecommunications cabling was identified for the work at Howley, Indian River, and Deer Lake and this work has been scheduled for 2019.

43. Install Fire Protection in 230 kV Stations: Bay d'Espoir

Annual Variance ($000)

Budget: 681.7	Expenditures: 400.8	Variance: (280.9)

Project Variance ($000)

Budget: 766.0	Expenditures: 592.9	Variance: (173.1)

This was a two-year project (2016–2017) that carried over and was completed in 2018. The variance in 2018 and total project expenditures are attributed to the utilization of a less complex design for the fire protection system, which resulted in a reduction in contract costs.

4.5 Transmission Projects (Table 7)

44. Wood Pole Line Management Program: Various Sites

Project Variance ($000)

Budget: 3,532.9	Expenditures: 3,185.6	Variance: (347.3)

This was a one-year project completed in 2018. The variance in expenditures was attributed to the unavailability of outages of TL 203. This resulted in the inability to complete pole replacements. The work will be completed under the 2019 Wood Pole Line Management Program.

45. Transmission Line Upgrades: TL 212 and TL 218

Annual Variance ($000)

Budget: 2,224.4	Expenditures: 1,440.6	Variance: (783.8)

Project Variance ($000)

Budget: 2,511.5	Expenditures: 1,727.7	Variance: (783.8)

This is a two-year project (2017–2018) that commenced in 2017 and was completed in 2018. The variance in annual expenditure is attributed to lower than estimated procurement and construction costs.

46. Replace Insulators: TL 227

Annual Variance ($000)

Budget: 400.2	Expenditures: 282.7	Variance: (117.5)

Project Variance ($000)

Budget: 416.9	Expenditures: 299.4	Variance: (117.5)

This is a two-year project (2017–2018) that commenced in 2017 and was completed in 2018. The variance in annual expenditure is attributed to lower than estimated construction costs.

47. Refurbish Anchors and Footings TL 202 and TL 206: Bay d'Espoir to Sunnyside

Annual Variance ($000)

Budget: 1,829.8	Expenditures: (350.1)	Variance: (2,179.9)

Project Variance ($000)

Budget: 2,179.9	Expenditures: 0.00	Variance: (2,179.9)

This is a two-year project (2014–2015) that commenced in 2014 and was carried over into 2018 for execution during the construction of TL 267, taking advantage of the access required for TL 267. In 2018, a detailed reassessment of the approved work scope was completed. The anchors exhibited surface corrosion, but there was no apparent deep pitting or loss of structural integrity. Hydro will continue to monitor the anchors and foundations as part of its maintenance program. Hydro has concluded that the refurbishment work is not required and the project has been cancelled; however, a future capital project may be initiated if justified. Hydro reversed any costs incurred to date associated with the capital project at the time the project was cancelled.

48. <u>230 kV Transmission Line: Bay d'Espoir to Western Avalon</u>

Annual Variance ($000)

Budget: 16,658.3 Expenditures: 10,942.1 Variance: (5,716.2)

This is a five-year project (2014–2018) that commenced in 2014 and carried over into 2019. The variance in funds in 2018 is attributed to a portion of the final line reclamation tasks being deferred to summer of 2019, including the removal of bridges and reclamation along the right of way. The deferral of the tasks is due to high water levels preventing the safe removal of the bridges in 2018. There is no change to the overall project scope or budget.

4.6 Distribution Projects (Table 8)

49. <u>Provide Service Extensions: All Service Areas</u>

Project Variance ($000)

Budget: 4,642.0 Expenditures: 3,709.1 Variance: (932.9)

This is an annual budget that is based on data from past experience to provide service extensions to customers. The variance is due to less than forecasted distribution service extension requests.

50. Upgrade Distribution Systems: All Service Areas

Project Variance ($000)

Budget: 3,711.0 Expenditures: 3,230.6 Variance: (480.4)

This is an annual budget that is based on data from past experience to provide upgrades to the in-service distribution system. The variance is due to less than forecasted upgrade requirements.

51. Distribution System Upgrades: Various Sites

Annual Variance ($000)

Budget: 383.8 Expenditures: 193.6 Variance: (190.2)

This is a two-year project (2018–2019) that commenced in 2018. The variance in 2018 expenditures is attributed to the deferral of material procurement that was not required until 2019. There is no change to the overall project scope or budget.

52. Additions for Load Growth: Happy Valley

Project Variance ($000)

Budget: 505.0 Expenditures: 222.5 Variance: (282.5)

This was a one-year project completed in 2018. The variance in expenditures was attributed to the development of a new distribution standard for 300 A regulators that were utilized in this project. The new standard satisfied project requirements, which enabled the existing regulator structure to be reused, thus resulting in lower procurement and construction costs.

53. Distribution Upgrades: Various Sites

Annual Variance ($000)

Budget: 1,116.4 Expenditures: 915.3 Variance: (201.1)

Project Variance ($000)

Budget: 1,195.1 Expenditures: 994.0 Variance: (201.1)

This is a two-year project (2017–2018) that commenced in 2017 and was completed in 2018. The variance in annual expenditure is attributed to lower than estimated construction and procurement costs.

54. Upgrade Distribution Systems: Various Sites

Annual Variance ($000)

Budget: 911.0 Expenditures: 683.2 Variance: (227.8)

This is a two-year project (2016–2017) that commenced in 2016 and was carried over to and completed in 2018. The carryover was required to complete the replacement of the underground distribution system in Bay d'Espoir, which was delayed in 2017 due to late material delivery. The variance in annual expenditure is attributed to lower than estimated construction and procurement costs. The total project expenditure is within 3% of the overall project budget.

4.7 Rural Generation Projects (Table 9)

55. Overhaul Diesel Units: Various Sites

Project Variance ($000)

Budget: 2,852.4 Expenditures: 2,029.0 Variance: (823.4)

This was a one-year project completed in 2018. The project is part of an ongoing program to overhaul diesel engines to sustain reliability of diesel generating plants.

Project estimates are based on the projected number of engines that will reach the criteria for overhaul, and typical extent of refurbishment. The project variance is attributed to less refurbishment than typically required for some of the engines, which remained unknown until the engines were disassembled.

56. <u>Diesel Plant Engine Cooling System Upgrades: Various Sites</u>

Annual Variance ($000)

Budget: 638.4 Expenditures: 149.3 Variance: (489.1)

This is a two-year project that commenced in 2018. The variance in 2018 expenditures is attributed to a rescheduling of the work to optimize internal labour scheduling and travel requirements. The construction at Port Hope Simpson was advanced and completed in 2018 in conjunction with the Diesel Genset Replacements Project at that location. The construction at Black Tickle was rescheduled to 2019.

57. <u>Additions for Load Growth: Makkovik and Rigolet</u>

Project Variance ($000)

Budget: 730.1 Expenditures: 302.0 Variance: (428.1)

This was a one-year project completed in 2018. The variance in project expenditures is attributed to material and construction costs being less than originally estimated.

58. <u>Upgrade Ventilation: Cartwright</u>

Annual Variance ($000)

Budget: 465.7 Expenditures: 46.5 Variance: (419.2)

This is a one-year project that commenced in 2018 and has been carried over into 2019. The variance in 2018 expenditures is attributed to rescheduling of the construction to 2019. The public tendering process for this project resulted in only one bid and there

was insufficient budget to award. Hydro decided to combine the ventilation upgrades with the Diesel Genset Replacement project planned for Cartwright in 2019, which may result in some cost savings.

59. <u>Diesel Plant Fire Protection: Postville</u>

Annual Variance ($000)

Budget: 505.6 Expenditures: 37.2 Variance: (468.4)

This is a two-year project (2018–2019) that commenced in 2018. The variance in 2018 expenditures is attributed to rescheduling of the engineering to start in the fourth quarter of 2018 and continue into the first quarter of 2019.

60. <u>Inspect Fuel Storage Tanks: Black Tickle</u>

Annual Variance ($000)

Budget: 818.7 Expenditures: 481.7 Variance: (337.0)

This is a one year project that commenced in 2018 and has been carried over into 2019. The internal inspections of two fuel storage tanks were completed in 2018 as planned. The inspection for one of the tanks revealed that minor refurbishment was required and this refurbishment was completed in 2018. The inspection of the second tank revealed that a complete tank bottom replacement was required. Materials were ordered and the tank bottom replacement has been scheduled for 2019. It is estimated that there is sufficient budget remaining in the project to complete the tank bottom replacement.

61. <u>Install Sub-Surface Drainage System: Paradise River</u>

Project Variance ($000)

Budget: 524.9 Expenditures: 721.6 Variance: 196.7

This was a one-year project completed in 2018. The variance in project expenditures is attributed to higher than estimated costs for the site construction work required to adequately address the potential environmental impacts.

62. <u>Replace Secondary Containment System Liner: Nain</u>

Annual Variance ($000)

Budget: 1,639.2 Expenditures: 672.5 Variance: (966.7)

Project Variance ($000)

Budget: 3,089.6 Expenditures & Forecast: 4,594.6 Variance: 1,505.0

This is a two-year project (2018–2019) that commenced in 2018. The planned scope was to relocate all four existing fuel storage tanks to facilitate replacement of the secondary containment system liner. A constructability review of the planned scope was completed early in the project design phase, identifying a risk to cost and schedule. The identified risk in the work required to move the tanks during liner replacement warranted consideration, given that three small tanks are 45 years old and had unknown refurbishment requirements. Instead of removing, refurbishing, and reinstalling the three old tanks, there was an alternative to remove the three tanks and construct a new vertical fuel storage tank. Both alternatives were studied and it was concluded that the estimated cost is not materially different, but the risk to project cost, schedule, and asset integrity was materially higher to move, refurbish, and reinstall the old tanks than the alternative to construct a new tank. A decision was made to proceed with the alternative to replace the tank.

The variance in project expenditures and forecast is due to higher than estimated cost for civil construction. With the completion of the geotechnical study and detailed design, it was determined that significantly more earthworks would be required to replace the dyke liner and provide the required foundation support for the tanks. This

additional work is required regardless of the decision between the replacement or refurbishment of the tanks. Additionally, publically tendered pricing for the construction was higher than estimated.

The variance in 2018 expenditure is due to a change in the execution plan for the work. The original budget assumed site construction work would start in 2018. Due to the length of time required to consider the new alternative and complete the detailed engineering, as well as an unanticipated long delivery time for the steel plate, the execution plan was modified to perform all site construction work in 2019.

63. <u>Diesel Genset Replacements: Makkovik</u>

Annual Variance ($000)

Budget: 604.1 Expenditures: 1,585.1 Variance: 981.0

This is a three-year project (2018–2020) that commenced in 2018. The annual variance is attributed to an advancement of a portion of the 2019 construction work into 2018. Given the short construction season at Makkovik, construction of the foundation and other civil work was advanced to decrease scope congestion in 2019, thus mitigating schedule risk.

64. <u>Replace Automation Equipment: St. Anthony</u>

Annual Variance ($000)

Budget: 307.4 Expenditures: 127.2 Variance: (180.2)

This is a two-year project (2018–2019) that commenced in 2018. The variance in 2018 expenditures is attributed to material delivery originally planned for 2018 that will now be delivered in 2019. This change in material delivery does not impact the overall project schedule.

65. Diesel Genset Replacements: Port Hope Simpson and Charlottetown

Annual Variance ($000)

Budget: 5,593.2 Expenditures: 3,973.8 Variance: (1,619.4)

Project Variance ($000)

Budget: 5,806.8 Expenditures: 4,187.4 Variance: (1,619.4)

This is a two-year project (2017–2018) that was completed in 2018. The variance in total project expenditures is attributed to lower than estimated engineering and construction costs.

66. Replace Programmable Logic Controllers: Various Sites

Annual Variance ($000)

Budget: 51.5 Expenditures: 206.7 Variance: 155.2

Project Variance ($000)

Budget: 958.0 Expenditures: 1,359.9 Variance: 401.9

This is a three-year project (2015–2017) that carried over and was completed in 2018. The variance in project expenditures and 2018 expenditures are attributed to actual engineering and construction effort exceeding the original estimates prepared in 2014.

4.8 Properties Projects (Table 10)

67. Upgrade Office Facilities and Control Buildings: Various Sites

Project Variance ($000)

Budget: 1,180.6 Expenditures: 955.8 Variance: (224.8)

This was a one-year project that was completed in 2018. The variance in project expenditures is attributed to the condition assessment and engineering for future

projects not being required as originally planned due to adjustments to the long term asset plan for office facilities and control buildings. All of the planned construction activity in this project was completed in 2018.

68. <u>Line Depot Condition Assessment and Refurbishment Program: Various Sites</u>

Project Variance ($000)

Budget: 1,233.0 Expenditures: 1,005.6 Variance: (227.4)

This was a one year project that was completed in 2018. The variance in project expenditures is attributed to less engineering effort required than originally estimated.

69. <u>Construct New Facilities: Various Sites</u>

Annual Variance ($000)

Budget: 1,218.3 Expenditures: 429.8 Variance: (788.5)

Project Variance ($000)

Budget: 1,456.1 Expenditures & Forecast: 1,117.5 Variance: (338.6)

This is a two-year project (2017–2018) that commenced in 2017 and has carried over to 2019. The project scope consists of the construction of storage buildings at the Makkovik and Charlottetown Diesel Plants. The Charlottetown storage building was constructed in 2017. The Makkovik storage building construction has been rescheduled from 2018 to 2019, to be completed in conjunction with a diesel plant building and yard extension. The diesel plant building and yard extension is part of the scope of a separate project, approved in Board Order No. P.U. 43(2017), to replace a diesel generator set. Completing these projects together will optimize the use of available space on the property, reduce the risk of design conflicts, and possibly result in cost savings.

4.9 Metering Projects (Table 11)

70. Install Automated Meter Reading: Happy Valley

Annual Variance ($000)

Budget: 1,786.4 Expenditures: 1,606.7 Variance: (179.7)

This was a two-year project (2017–2018) that was completed in 2018. The variance in project expenditures is attributed to cancellation of a portion of the scope. The project scope included the replacement of 519 three-phase meters, of which 319 were cancelled due to a discontinuation of the product by the vendor, which accounts for the bulk of the variance. The cancelled meters will be reviewed for possible inclusion in a future application using different technology. The other project scope items, including terminal station equipment and 4370 single-phase meters, were installed as planned. The total project expenditure is within 9% of the overall project budget.

71. Install Automated Meter Reading: Labrador West

Project Variance ($000)

Budget: 967.2 Expenditures: 1,408.3 Variance: 441.1

This is a two-year project (2016–2017) that was carried over and completed in 2018. The variance in project expenditures is attributed to the requirement for additional terminal station equipment and higher than estimated unit pricing for the new automatic meter reading equipment. An updated project cost estimate and updated assumptions for project benefits were used to re-evaluate the project in 2017. The updated cost-benefit analysis confirmed that the project remained the least-cost alternative versus the status quo.

4.10 Tools and Equipment Projects (Table 12)

There are no reportable variances under Tools and Equipment Projects.

4.11 Information Systems Projects (Table 13)

72. <u>Replace Personal Computers: Hydro Place</u>

Project Variance ($000)

Budget: 493.0 Expenditures: 94.5 Variance: (398.5)

This was a one-year project completed in 2018. The Replace Personal Computers project was based on a replacement cycle of four years for laptops, five years for desktops and workstations, and six years for thin clients. As of 2018, an update to the Personal Computer Replacement Program was made to extend in-service life and Hydro has adopted a five to seven year computer life cycle utilizing extended warranties and run-to-failure modes. The expenditures for 2018 were reduced to reflect the extension to the replacement cycle.

73. <u>Upgrade Core IT Infrastructure: Hydro Place</u>

Project Variance ($000)

Budget: 352.4 Expenditures: 453.8 Variance: 101.4

This was a one-year project completed in 2018. In 2017, the Hydro became aware of a new concern with the security of the Energy Management System ("EMS") and Administrative services sharing common physical equipment. Upon review, it was determined that a logical separation between the EMS and the Administrative Core IT Servers, Storage, and Networks was required. The risk mitigation was to physically separate the two systems. Additional expenditure was necessary to meet this new security requirement.

74. <u>Upgrade Energy Management System: Hydro Place</u>

Project Variance ($000)

Budget: 336.8 Expenditures: 0.00 Variance: (336.8)

This was a one-year project. In consultation with the EMS supplier during review of industry best practices of other utilities, it was identified that a bi-annual EMS upgrade would not increase risk and will reduce costs. Many similar clients already follow this upgrade schedule and had seen no negative consequences. Hydro has adopted this best practice, shifted to a bi-annual upgrade cycle in 2018, and cancelled the 2018 project. The EMS will be upgraded in 2019 and every two years thereafter.

75. Upgrade Microsoft Office: Hydro Place

Annual Variance ($000)

Budget: 977.4 Expenditures: 822.3 Variance: (155.1)

This was a three-year project (2016–2018) that was completed in 2018. The final cost was lower than budgeted due to a reduction in software costs, fewer licenses required than were originally planned, and a reduction in consultant service requirements. The total project expenditure is within 6% of the overall project budget.

4.12 Telecontrol Projects (Table 14)

76. Replace Battery Banks and Chargers: Various

Annual Variance ($000)

Budget: 382.1 Expenditures: 231.3 Variance: (150.8)

This is a two-year project (2018–2019) that commenced in 2018. The variance in 2018 expenditures is attributed to lower than estimated construction and procurement costs. There is no change to the overall project scope or completion date.

77. Replace Battery Banks and Chargers: Various Sites (2017–2018)

Project Variance ($000)

Budget: 945.5 Expenditures: 772.7 Variance: (172.8)

This was a two-year project (2017–2018) that was completed in 2018. The variance in total project expenditures is attributed to lower than estimated construction and procurement costs and a reduction in scope. The replacement of battery chargers at Upper Salmon was removed from this project scope and will be executed as part of the 2018-2019 Replace Battery Banks and Chargers project, which has sufficient budget for this work. This rescheduling was required due to lack of outage availability in 2018 to complete the construction. All other battery banks and chargers in this project were replaced as planned.

78. <u>Upgrade Telecontrol Facilities: Mary March Hill and Blue Grass Hill</u>

Annual Variance ($000)

Budget: 633.8	Expenditures: 500.0	Variance: (133.8)

Project Variance ($000)

Budget: 757.1	Expenditures: 623.3	Variance: (133.8)

This was a two-year project (2017–2018) that was completed in 2018. The variance in 2018 expenditures and total project expenditures is attributed to lower than estimated tendered pricing for the construction and procurement.

4.13 Transportation Projects (Table 15)

79. <u>Replace Vehicles and Aerial Devices: Various Sites</u>

Annual Variance ($000)

Budget: 1,667.2	Expenditures: 1,165.1	Variance: (502.1)

This is a two-year project (2018–2019). Two units, with a value approximately equal to the total variance, were scheduled for delivery in 2018 but were delayed and are expected in 2019.

80. Replace Vehicles and Aerial Devices: Various Sites

Annual Variance ($000)

Budget: 1,124.4	Expenditures: 1,368.1	Variance: 243.7

Project Variance ($000)

Budget: 2,400.2	Expenditures: 2,643.9	Variance: 243.7

This is a two-year project (2017–2018) that was completed in 2018. Expenditures were higher than forecasted due to higher than estimated vehicle prices.

4.14 Administrative Projects (Table 15)

There are no reportable variances under Administrative Projects

4.15 Allowance for Unforeseen Items (Table 16)

81. Allowance for Unforeseen Items

Project Variance ($000)

Budget: 1,000.0	Expenditures: 4,743.2	Variance: 3,743.2

The Allowance for Unforeseen Items is an annual allotment that permits Hydro to act expeditiously to deal with events affecting the electrical system that cannot wait for specific approval of the Board. One project, Penstock #3 Refurbishment - Bay d'Espoir, was executed using this account. The report on this item has been filed with the Board. Hydro received approval to restore the Allowance for Unforeseen Items account value to $1 million, Board Order No. P.U. 19(2018). Although a failed Generator in Rigolet was initiated on December 20, 2018, no costs were attributed to the Allowance for Unforeseen Items funding in 2018, and the expenditures for the Rigolet engine will be captured in the 2019 allowance.

4.16 Supplemental Projects (Table 16)

82. <u>Provide Service to Western Regional Service Board's Waste Transfer Site: Hampden</u>

Project Variance ($000)

Budget: 748.4 Expenditures: 644.5 Variance: (103.9)

This was a one-year Contribution in aid of Construction ("CIAC") project completed in 2018. The variance in annual expenditures, and CIAC recovery, is attributed to lower than estimated procurement and construction costs.

83. <u>Penstock Condition Assessments: Bay d'Espoir</u>

Annual Variance ($000)

Budget: 1,120.6 Expenditures: 1,682.5 Variance: 561.9

Project Variance ($000)

Budget: 1,120.6 Expenditures & Forecast: 1,906.3 Variance: 785.7

This is a one-year supplemental capital project that was approved in 2018 and carried over into 2019. The requirement to complete unforeseen work on Penstock 3 (a separate project under the Allowance for Unforeseen Items) led to a revised generation outage schedule, which resulted in the field work for this project being completed later in the year than originally planned. The field work was completed and Hydro is collecting operational data through the fall and winter of 2018–2019. The engineering reports, which are the final deliverable of this project, will be produced in 2019. The variances in 2018 and total project expenditures are attributed to higher than expected contract tender prices for the field work completed in 2018.

84. <u>Improve Boiler Capacity: Holyrood</u>

Project Variance ($000)

Budget: 2,560.5 Expenditures: 1,665.9 Variance: (894.6)

This was a one-year supplemental project approved and completed in 2018. The variance in project expenditure is attributed to lower than expected construction costs. The estimate was based on a construction schedule utilizing double shifts, which was not required. Additionally, based on engineering recommendations provided by Babcock & Wilcox, the hot end basket liners did not need to be replaced. In Section 2.0 Project Description of the supplementary application for this project, it was stated:

> *Hydro proposes that any additional items, material in dollar value and that meets capitalization criteria, that require replacement and is related to the scope of work, will be replaced within this project's budget. Such additions will be communicated to the Board via the year end Capital Expenditures Variance report.*

There were no additional scope items for this project.

85. <u>Mary's Harbour Hydro Integration</u>

Project Variance ($000)

Budget: 195.5 Expenditures: 49.2 Variance: (146.3)

This is a one-year supplemental capital project approved in 2018 and carried over into 2019. The variance in 2018 expenditures is attributed to a rescheduling of the commissioning activity to 2019 to align with Mary's Harbour Hydro's revised project schedule, which was delayed. The project cost is being fully recovered from Mary's Harbour Hydro.

86. <u>Gang Switch: Happy Valley-Goose Bay</u>

Project Variance ($000)

Budget: 195.4 Expenditures: 85.2 Variance: (110.2)

This was a one-year supplemental project completed in 2018. The variance in annual expenditures is attributed to lower than estimated procurement costs of the switches.

87. TL 226 and TL 239 Reroute

Annual Variance ($000)

Budget: 712.3 Expenditures: 579.8 Variance: (132.5)

This was a two-year (2018–2019) supplemental project commenced in 2018. The variance in expenditures was attributed to delays in the construction of TL 226 due to adverse weather conditions. The work will be completed in 2019 and there is no change to the overall project scope or budget.

88. Terminal Station Upgrades: Wabush

Annual Variance ($000)

Budget: 1,971.8 Expenditures: 1,021.4 Variance: (950.4)

Project Variance ($000)

Budget: 2,912.5 Expenditures: 1,962.1 Variance: (950.4)

This is a two-year supplemental capital project (2017–2018) that was completed in 2018. The variances in 2018 and total project expenditures are attributed to actual construction costs being less than estimated. The original estimate was based on using contractor forces but the work was able to be completed using internal resources, eliminating contract management costs and reducing travel cost.

89. Reliability Improvements: Holyrood

Annual Variance ($000)

Budget: 16.7 Expenditures: 297.3 Variance: 280.6

Project Variance ($000)

Budget: 2610.0 Expenditures: 3,883.9 Variance: 1,273.9

This was a one-year supplemental project approved in 2017 and carried over and completed in 2018. This project was substantially completed in 2017 with the exception of the condenser cooling water piping for Unit 1 which was rescheduled to 2018 due to a change in the generation outage schedule. The variance in project expenditure is attributed to new capital scope items identified during discovery and execution phases of the project in 2017. These items were reported in the Capital Expenditures and Carryover Report for the Year Ending December 31, 2017. No additional scope items were added in 2018.

90. <u>Purchase of 12 MW Diesel Generation: Holyrood</u>

Annual Variance ($000)

Budget: 418.9 Expenditures: 678.2 Variance: 259.3

This was a two-year supplemental project approved in 2016 and carried over and completed in 2018. The variance in 2018 expenditure is attributed to higher than expected construction cost. The total project expenditure is within 6% of the overall project budget.

5.0 Capital Budget versus Actual Expenditures 2009 – 2018

Table 17 provides a summary of Hydro's Capital Budget Variances for the years 2009-2018.

Table 17: Capital Budgets/Expenditures 2009-2018

Year	Budget ($000)	Actual Expenditures ($000)	Variance ($000)	Variance (%)
2009	61,544	54,152	7,392	12.0
2010	63,297	55,553	7,744	12.2
2011	67,454	63,116	4,338	6.4
2012	93,840	77,252	16,588	17.7
2013	116,373	84,755	31,618	27.2
2014	280,601	204,728	75,873	27.0
2015	311,177	125,119	186,058	59.8
2016	350,601	203,941	146,660	41.8
2017	340,501	340,741	240	0.1
2018	213,050	156,985	56,065	26.3

In 2018, actual expenditures were below budget in Hydro's overall capital program by $56.1 million (26.3%), as shown in Table 17. The following six capital projects were the primary contributors to the variance. Had these projects been on budget, the overall actual expenditures would have been within 10% of budget.

- Variance 38: Terminal Station Refurbishment and Modernization - Various Sites (2017–2018) (-$9.2 million)
- Variance 25: Increase Fuel and Water Treatment System Capacity - Holyrood Gas Turbine (-$6.2 million)
- Variance 33: Terminal Station Refurbishment and Modernization - Various Sites (2018–2019) (-$6.2 million)
- Variance 48: 230 kV Transmission Line: Bay d'Espoir to Western Avalon (-$5.7 million)
- Variance 4: Hydraulic Generation Refurbishment and Modernization (2017–2018) (-$4.5 million)
- Variance 39: Upgrade Circuit Breakers: Various Sites (-$3.5 million)

Hydro completed an analysis for all 2018 projects that had an annual underspend, assessing the drivers. From this analysis, Hydro determined that:

- Approximately 53% of the variance is attributed to work carrying over to future years;
- Approximately 27% of the variance is attributed to work being completed for less than estimated; and
- Approximately 18% of the variance is attributed to scope changes, including cancelled projects, reduced scope, and less in-service failures than budgeted.

Five main drivers were identified for the under-expenditure:

- Estimates were higher than actuals for completed work. This accounted for approximately $15 million (27%) of the overall under-expenditure. Several projects were over-estimated and, for many projects, contingency was estimated at 20% but was not utilized.
- Work could not be completed due to outages not being available or changed. This accounted for approximately $8 million (15%) of the overall under-expenditure. Much of the capital program is dependent on equipment outages and those outages were not always possible in the durations required due to system constraints or competing outages. This mostly occurred for terminal station work, but a significant portion of scope for the refurbishment of a surge tank in Bay d'Espoir was also deferred due to outage duration.
- Resources constraints resulted in rescheduling work. This accounted for approximately $8 million (13%) of the overall under-expenditure. The project with the largest carry over amount due to resource allocations was the Upgrade Circuit Breakers project. A number of circuit breaker replacements were rescheduled to future years due to the unavailability of resources.
- Schedule at the budget phase was underestimated. This accounted for approximately $6 million (11%) and was associated with a single project: Increase Fuel and Water

Treatment System Capacity - Holyrood Gas Turbine. The design, supply and installation of the new fuel storage tanks were budgeted to be completed in one year, but the work requires two years.

- Several projects were not required and were cancelled. This accounted for approximately $5 million (9%), with two projects accounting for the majority of the $5 million. The Upgrade Corner Brook Frequency Convertor project (with $2.9 million budgeted for 2018) was cancelled due to the sale of the asset. The Refurbish Anchors and Footings TL 202 and TL 206 Project (with $1.8 million budgeted for 2018) was cancelled as a condition assessment determined that the work was not required.

Hydro is implementing a number of improvements that are expected to close the gap between budget and actual expenditures in future years.

- Improve estimates of project contingency. The analysis of the last two years has shown that contingency has been high for many projects. For projects that closed in 2018, the overall contingency was estimated at 17.5% and only 9% was required. As a result of this analysis, Hydro will apply additional analysis and rigour to the amount of contingency estimated for projects, starting with the 2020 budget cycle.
- A more rigorous process for Project Managers, Lead Estimators, Discipline Managers, and Long-Term Asset Planners for budget review prior to finalizing project proposals. The process includes a review and sign-off of scope, schedule, estimates, and contingency amount. This process was trialed for the 2019 budget cycle, enhanced, and rolled out for full implementation for the 2020 budget cycle.
- Hydro has been taking steps for earlier, improved planning of the overall Integrated Annual Work Plan, with an aim to complete Integrated Annual Work Plans ahead of each annual Capital Budget Application. This will decrease the amount of carryover by ensuring that projects proposed are achievable from resource and outage availability perspectives. Advancement of the Integrated Annual Work Plan ahead of the Capital Budget Application is expected to be realized for the 2021 execution year, with some

benefits expected in 2019 and 2020. In 2019, a greater emphasis is being placed on outage planning, with a planner to be focused on overall planning of key generation outages. This enhanced resourcing will allow Hydro to identify and manage conflicts related to overlapping work permit requirements, limited accommodations, use of powerhouse cranes, and availability of construction power. The focus will also allow Hydro to more quickly understand and manage impacts when outage schedules change.

6.0 Carryover Report

Table 18 provides a summary listing of the carryovers for projects initiated between 2014 and 2018.

Table 18: 2018 Carryover Report for the Year Ending December 31, 2018 ($000)

Project Name	Board Approved Budget 2018	Revised Budget 2018	Total Actual Expenditures 2018	Carryover Amount	Original Completion Year
Upgrade Work - Cat Arm	0.0	1,406.5	1,376.2	30.3	2018
Rehabilitate Shoreline Protection - Cat Arm	0.0	977.2	89.2	888.0	2018
Replace Pump House and Associated Equipment - Bay d'Espoir	0.0	705.1	373.9	331.2	2018
Replace Site Facilities - Bay d'Espoir	6,316.7	9,479.2	8,574.8	904.4	2018
Replace Slip Rings Units 1-6 - Bay d'Espoir	159.7	369.9	17.2	352.7	2018
Control Structure Refurbishments	452.9	853.4	709.3	144.1	2018
Refurbish Backfill Penstock 1 - Bay d'Espoir	1,630.4	1,630.4	63.2	1,567.2	2018
Hydraulic Generation Refurbishment and Modernization - Various Sites (2018/19)	5,234.1	4,798.6	2,219.9	2,578.7	2019
Install Fire Detection in Outbuildings - Holyrood	198.6	198.6	70.4	128.2	2018
Upgrade Data Alarm Systems - Various Sites	0.0	142.7	144.5	(1.8)	2018
Install Breaker Failure Protection - Various Sites	0.0	227.3	234.7	(7.4)	2018
Terminal Station Refurbishment and Modernization Program - Various Sites (2017/18)	6,269.5	5,589.8	3,262.1	2,327.7	2018
Replace 66 kV Station Service Feed - Holyrood	1,198.6	1,180.7	235.0	945.7	2018
Replace Substation - Holyrood	758.6	682.8	369.7	313.1	2018
Construct New Facilities Various Sites	333.7	463.8	13.9	449.9	2018
230kV Transmission Line - Bay D'Espoir to Western Avalon	17,418.3	12,658.3	10,942.1	1,716.2	2018
Upgrade Ventilation - Cartwright	465.7	465.7	46.5	419.2	2018
Inspect Fuel Storage Tanks - Black Tickle	818.7	818.7	481.7	337.0	2018
Penstock Condition Assessments - Bay d'Espoir	0.0	1,906.3	1,682.5	223.8	2018
Mary's Harbour Hydro Intergration	0.0	195.5	49.2	146.3	2018
Mary's Harbour Hydro Intergration	0.0	(195.5)	0.0	(195.5)	2018
Replace PBX Phone Systems - Various	91.7	91.7	134.9	(43.2)	2019
Replace MDR 6000 Microwave Radio - Various	64.0	64.0	81.5	(17.5)	2019
Replace Teleprotection - TL261	57.6	57.6	60.1	(2.5)	2019
Replace Battery Banks and Chargers - Various	382.1	382.1	231.3	150.8	2019
Refurbish Powerhouse Station Services - Bay d'Espoir	2,473.3	2,843.5	1,003.5	1,840.0	2019
Replace Exciter Controls Units 1 to 6 - Bay d'Espoir	921.2	638.3	629.0	9.3	2020
Install Remote Operation of Salmon Spillway - Bay d'Espoir	645.9	645.9	885.4	(239.5)	2019
Energy Efficiency Improvements - Various	276.2	276.2	209.8	66.4	2019
Upgrade Cranes and Hoists - Holyrood	80.3	80.3	38.6	41.7	2019
Upgrade Circuit Breakers - Various Sites (2016-2020)	15,408.6	15,664.0	15,184.1	479.9	2020
Terminal Station Refurbishment and Modernization Program - Various Sites (2018/19)	7,441.8	7,441.8	1,602.1	5,839.7	2019
Replace Transformer T1 - Buchans	249.0	249.0	99.0	150.0	2019
Implement Terminal Station Flood Mitigation - Springdale	186.2	186.2	135.8	50.4	2019
Purchase Mobile DC Power Systems	270.9	270.9	41.9	229.0	2019
Gas Turbine Equipment Replacement and Refurbishment - Hardwoods and Stephenville	997.9	851.5	371.3	480.2	2019
Diesel Plant Engine Cooling System Upgrades - Various Sites	638.4	638.4	149.3	489.1	2019
Increase Fuel and Water Treatment System Capacity - Holyrood Gas Turbine	8,829.9	8,676.9	2,583.8	6,093.1	2019
Turbine Hot Gas Path Level 2 Inspection and Overhaul - Holyrood Gas Turbine	6,538.8	10,453.6	9,770.7	682.9	2019
Replace Vehicles and Aerial Devices - Various Sites	1,667.2	1,667.2	1,165.1	502.1	2019
Replace Off-Road Track Vehicles - Bishop Falls and Bay d'Espoir	213.7	213.7	249.5	(35.8)	2019
Distribution System Upgrades - Various Sites	383.8	383.8	193.6	190.2	2019
Install Recloser Remote Control - English Harbour West and Barachoix	63.7	63.7	13.8	49.9	2019
Diesel Plant Fire Protection - Postville	505.6	505.6	37.2	468.4	2019
Install Energy Efficiency Lighting in Diesel Plants - Various	104.0	104.0	68.0	36.0	2020
Replace Secondary Containment System Liner - Nain	1,639.2	3,144.2	672.5	2,471.7	2019
Diesel Genset Replacements - Makkovik	604.1	604.1	1,585.1	(981.0)	2020
Replace Automation Equipment - St. Anthony	307.4	307.4	127.2	180.2	2019
Upgrade Exterior of Building - Hydro Place	260.2	260.2	232.6	27.6	2019
TL226 and TL239 Reroute	0.0	712.3	579.8	132.5	2019
Total 2018 Carryover Projects	**92,558.2**	**102,033.1**	**69,092.5**	**32,940.6**	

7.0 Safety Hazards

In Board Order No. P.U. 38(2010) of the 2011 Capital Budget Application, the Board directed Hydro to include in Hydro's annual report on capital expenditures an explanation as to each project that was undertaken for the Remove Safety Hazards project, setting out the safety hazard that was identified, the location, the steps taken to address the issue and the amount of the expenditure. Table 19 outlines the projects undertaken in 2018.

Total Approved Budget: **$199,400**

Total Expenditure: **$166,300**

Table 19: Safety Hazards

Project Title and Location	Expenditure ($000)	Safety Hazard Identified	Project Scope
Install H_2S Monitoring System, Holyrood Thermal Generating Station	$128.6	In July 2017, Holyrood experienced a release of Immediately Dangerous to Life or Health ("IDLH") levels of hydrogen sulfide (H_2S) gas from the Stage 2 Pumphouse, prompting emergency response and evacuation of the Holyrood site. The source of the H_2S release was determined to be a combination of stagnant water due to a Unit 3 outage, biological sea material and consecutive days of warm temperatures. The pump houses did not have a monitoring system in place at the time of the incident; the release was detected as a result of a strong odor throughout site. Since H_2S is a highly toxic gas, it is imperative to detect its presence immediately in order to evacuate personnel from the impacted area.	To address the hazard, an H_2S Monitoring System was installed in Stage 1 and 2 pump houses, including H_2S sensors and controllers to ensure appropriate detection of H_2S gas. To enhance notification when the presence of H_2S is detected, strobes and horns were installed inside and outside the pump houses.
Replace Shipping and Receiving Concrete Pad, Hydro Place	$27.6	The concrete approach pad outside the shipping and receiving area of Hydro Place sunk below the surrounding asphalt, resulting in an unsafe condition for fork-lift operation.	To address the hazard, the concrete approach pad in front of the shipping and receiving area of Hydro Place was replaced.
Installation of Exciter Module Access Stairs, Hardwoods Gas Turbine	$10.1	The exciter module at Hardwoods Gas Turbine was not easily accessible from both sides of the unit (Ends A and B) due to the main lube oil piping installed between the auxiliary module and the unit. To access the exciter module from End B, employees would have to walk around the auxiliary module. However, they frequently climbed over the main lube oil piping resulting in the potential for slips, trips and falls.	To address the hazard, a new staircase was installed on the End B side of the auxiliary module platform providing quick and safe access for personnel.

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8.0 Terminal Station In-Service Failures

Hydro has committed to providing a summary of activities completed under the Terminal Station In-Service Failures project. Table 20 outlines 2018 expenditures undertaken by this project.

Total Approved Budget: **$1,000,000**

Total Expenditure: **$2,268,800**

Table 20: Terminal Station In-Service Failures

Project Title and Location	Expenditure ($000)	Failure Identified	Project Scope
Replace Five 230 kV Instrument Transformers, Churchill Falls Terminal Station	$895.3	Inspection of five instrument transformers in 2017 revealed that the transformers were leaking oil and required replacement: • 230-21 A-Phase CT/PT • 230-21 B-Phase CT • 230-21 C-Phase CT • 230-22 A-Phase CT/PT • 230-23 A-Phase CT/PT	Five new instrument transformers were ordered in 2017. They were received and installed in 2018, replacing the five leaking instrument transformers.
Purchase Spare Circuit Breakers for Standby Equipment Pool	$489.2	Hydro reviewed standby equipment pool requirements for circuit breakers in its 195 terminal stations. With expected delivery periods for replacement circuit breakers ranging from 4-6 months, and to reduce downtime related to a circuit breaker failure, it was determined that one breaker for each of the following voltage ratings should be added to the standby equipment pool: 72.5 kV, 145 kV and 245 kV.	Three spare circuit breakers were purchased for the standby equipment pool: • 72.5 kV circuit breaker • 145 kV circuit breaker • 245 kV circuit breaker
Purchase Spare Disconnect Switches for Standby Equipment Pool	$185.7	Hydro reviewed standby equipment pool requirements for disconnect switches in its 195 terminal stations. With expected delivery periods for replacement disconnect switches of approximately 48 weeks, and to reduce downtime related to disconnect switch failure, it was determined that one disconnect switch for each of the following voltage ratings should be added to the standby equipment pool: 72.5 kV, 145 kV and 245 kV, for both horizontal and vertical configurations.	Six spare disconnect switches were purchased for the standby equipment pool: • 72.5 kV Vertical Mount • 72.5 kV Horizontal Mount • 145 kV Vertical Mount • 145 kV Horizontal Mount • 245 kV Vertical Mount • 245 kV Horizontal Mount
Replace Breaker B7L38, Holyrood Terminal Station	$141.5	On December 16, 2017, severe weather on the Avalon Peninsula resulted in the tripping of TL 242 (Soldiers Pond to Hardwoods), TL 265 (Holyrood to Soldiers Pond), Holyrood L2 (Station service feed to station service transformer SST-12 for the Holyrood Plant) and Holyrood bus B6 and B7 due to a bus lockout. Investigation on December 16, 2017 identified that breaker B7L38 had its line side bushings burned on all three phases as a result of Newfoundland	The breaker B7L38 was replaced with an available spare breaker.

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Project Title and Location	Expenditure ($000)	Failure Identified	Project Scope
		Power's breaker at Seal Cove not clearing the fault due to fuses blown in the trip circuit for the breaker. The damage was severe to Breaker B7L38's three line side bushings and the insulators and associated current transformers. Refurbishment of the breaker was ruled out due to the 16-18 week expected delivery time for parts from the original equipment manufacturer. A spare breaker was available in Hydro's inventory.	
Breaker B2L21 Overhaul, Peter's Barren Terminal Station	$79.4	During inspections, Breaker B2L21 was identified as leaking sulfur hexafluoride (SF6) gas to the atmosphere. Overhaul of the breaker was required to prevent a flashover in the breaker and to minimize any loss of SF6 gas.	The breaker B2L21 was overhauled.
Replace X1 Bushing on Transformer T8, Wabush Terminal Station	$75.8	Transformer T8 X1 bushing failed on August 16, 2018 resulting in a forced outage to transformer T8. The bushing failed due to a failed top terminal seal caused by corrosion of the bushing at a sealed joint. The failed bushing was unsuitable for repair due to the corrosion, and transformer T8 cannot operate without an X1 bushing, therefore the restoration of transformer T8 required the replacement of the X1 bushing.	The X1 Bushing on Transformer T8 was replaced.
Transformer T4 Tap Changer Overhaul, Hardwoods Terminal Station	$64.9	Testing of the transformer T4 tap changer conducted in December 2017 revealed that there was a high risk of failure and an immediate overhaul of the tap changer diverter switch was required.	The transformer T4 tap changer was overhauled.
Replace Current Transformer on B9B10-1, Bay d'Espoir Terminal Station 2	$45.0	An infrared scan revealed that the 230 kV Current Transformer on disconnect switch B9B10-1 B-Phase was excessively hot (100°C) at the primary connection terminals. This was determined to be due to galvanic corrosion on the copper-aluminum connection. Upon disassembly, the spacer dowels were found to be melted and a significant oil leak had developed. This condition required 230 kV breaker B9B10 to be taken out of service resulting in the primary ring bus open until the current transformer was replaced. Immediate replacement of the current transformer was required to restore	Bay d'Espoir Terminal Station 2 - The 230 kV Current Transformer on B9B10-1 B-Phase was replaced.

Project Title and Location	Expenditure ($000)	Failure Identified	Project Scope
		system reliability.	
Replace B-Phase Current Transformer on Breaker 46-38, Wabush Terminal Station	$39.7	During inspection, the current transformer on breaker 46-38 B-Phase was found to have an oil leak on the top head unit and it required immediate replacement.	The 46-38 B-Phase Current Transformer was replaced.
Replace Disconnect Switch B3T2-1, Stony Brook Terminal Station	$36.7	Inspection revealed that Disconnect Switch B3T2-1 (138 kV) had damaged hinge side parts that rendered it inoperable on 2 phases. Replacement parts were not available for this breaker, which was 49 years old, and it required replacement.	A new disconnect switch was procured and installed to replace the failed disconnect switch B3T2-1.
Replace A-Phase Current Transformer on B1L32, Stony Brook Terminal Station	$34.4	Inspection revealed that the A-Phase Current Transformer on B1L32 developed an oil leak internal to its junction box around the gland plate, which began leaking out through the box. The current transformer was de-energized to avoid any further oil loss and possible catastrophic failure. The leaking current transformer location had added safety concerns to personnel as it is located directly in front of the Control Building's main door and parking area. Immediate replacement was required to restore B1L32 and the ring bus to service.	The A-Phase Current Transformer on B1L32 was replaced.
Purchase Spare Station Service Voltage Transformer, Oxen Pond Terminal Station	$29.1	It was determined that a spare station service voltage transformer was required after three new Station Service Voltage Transformers were installed in the Oxen Pond Terminal Station for a second station service supply.	A spare station service voltage transformer was purchased for the standby equipment pool.
Purchase Spare Motor Operator for Circuit Switcher for Western Avalon B1T1, B1T2 and Stephenville B1L09	$28.6	In June 2018, circuit switcher B1T1 at Western Avalon was identified as non-operational. Further inspection found that a coupling from the motor going to the linkage that operates the opening and closing of the circuit switcher was broken. The original equipment manufacturer was able to repair the existing equipment; however, replacement parts are not available if future repairs are required. This identified the need to have a spare available in the standby equipment pool.	A spare motor operator was procured for the standby equipment pool.

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Project Title and Location	Expenditure ($000)	Failure Identified	Project Scope
Replace 125 VDC Battery Bank, Bear Cove Terminal Station	$25.7	Discharge testing of the 125 Vdc battery bank revealed that multiple cells within the bank had dropped below the acceptable level of 1.75 volts per cell, and the battery bank required replacement.	A replacement 125 Vdc battery bank was procured and installed.
Replace Current/Voltage Transformer on TL205 B-Phase, Buchans Terminal Station	$23.3	Hydro's Energy Control Center operators observed high and low voltage fluctuations in the secondary voltages followed by a protection failure alarm of the 230 kV B-Phase Current/Voltage Transformer on transmission line TL 205. TL 205 was removed from service and crews were dispatched to site. Upon arrival the work crew found oil leaking from the base of the unit. Immediate replacement with an available spare from inventory was required to put TL 205 back in service.	The failed current/voltage transformer was replaced with an available spare.
Replace Bus 2 C-Phase Current/Voltage Transformer, Sunnyside Terminal Station	$20.2	During scheduled six-year maintenance on bus 2 Current/Voltage Transformers in the Sunnyside Terminal Station, the C-Phase Current/Voltage Transformer was found to have a severely corroded terminal block and accessories in its junction box. Upon removal of the terminal block for replacement, the secondary protective spark gap was found to be badly burnt and shorted out. The planned Doble Testing showed a 400-500% increase of its capacitor power factor. Doble Engineering was consulted and they recommended to not re-energize the Current/Voltage Transformer. As a result, immediate replacement was required to restore Bus 2 to service.	Bus 2 C-Phase Current/Voltage Transformer was replaced.
Replace Bus B1 Potential Transformer, Cow Head Terminal Station	$17.9	An inspection in October 2017 identified deterioration of the bus B1 potential transformer due to corrosion, placing it at a high risk of failure, requiring immediate replacement. The potential transformer was manufactured in 2006 and was of a carbon steel design, whereas Hydro's current standard is for stainless steel or aluminum design.	The bus B1 Potential Transformer was replaced with a unit that meets Hydro's current standard (stainless steel/aluminum).
Replace Capacitor Bank 2 Overvoltage Relay, St. Anthony Airport Terminal Station	$13.3	While performing scheduled preventive maintenance on March 28, 2018, capacitor bank overvoltage relay 59N was found to be inoperative and requiring replacement. This resulted in Capacitor Bank 2 being out of service until the relay could be replaced.	An overvoltage relay was procured and installed to replace the failed Capacitor Bank 2 overvoltage relay.

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Project Title and Location	Expenditure ($000)	Failure Identified	Project Scope
Replace 6.9 kV Fuse Holder and Fuses, Bottom Brook Terminal Station	$13.2	During the activity to isolate equipment for work protection in June 2018, the 6.9 kV fuse for station service on transformer T3 failed and required replacement. No replacement fuses were available for this vintage, which resulted in the requirement to replace the entire fuse/fuse holder assembly.	The 6.9kV fuse and fuse holder was replaced.
Replace Neutral Overcurrent Relay on Transformer T1, Plum Point Terminal Station	$5.8	On April 9, 2018, protective relaying locked out transformer T1 in response to a fault on Line 1 during blizzard conditions, which lead to a loss of electrical supply to approximately 4,867 customers fed via the Plum Point, Bear Cove, Roddickton, Main Brook, and St. Anthony Terminal Stations. Analysis of the event determined that the neutral overcurrent relay on transformer T1 had tripped for a feeder fault due to the failure of the induction disc to reset. Immediate replacement was required to prevent reoccurrence.	The neutral overcurrent relay on transformer T1 was replaced.
Replace Surge Arrestor H1 on Transformer T12, Bay d'Espoir Terminal Station 2	$4.1	Doble Testing on the surge arresters for Transformer T12, revealed that the H1 surge arrester failed testing. A replacement arrester was required to ensure continued protection for transformer T12.	The surge arrestor H1 on transformer T12 was replaced.

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9.0 Hydraulic Generation In-Service Failures

Hydro has committed to providing a summary of activities completed under the Hydraulic Generation In-Service Failures project. Table 21 outlines 2018 expenditures undertaken by this project.

Total Approved Budget: **$1,251,100**

Total Expenditure: **$452,300**

Table 21: Hydraulic Generation In-Service Failures

Project Title and Location	Expenditure ($,000)	Failure Identified	Project Scope
Replace Guide Bearing Assembly, Bay d'Espoir Unit 2	$138.4	The existing generator guide bearing assembly was installed in 2015. It was designed and fabricated by the original equipment manufacturer in order to reduce the misting issues experienced through the top oil pot housing covers and was of a modified design as compared to the original. During the overhaul and refurbishment of Unit 2, inspection damage was found on the journal, bearing, and other rotating components likely caused by the new bearing design. To eliminate the possibility of further damage to the journal, bearing, and other rotating components such as the thrust bearing, rotating ring, and spring beds, it was determined that the generator bearing should be converted back to original design. The original design is time proven and has operated successfully for decades. The misting issue that the new bearing design was installed to address will not affect unit performance since a capital program to add new seals to reduce misting is included within Hydro's five-year capital plan.	The guide bearing was returned to original design using available spare parts.
Circuit Breaker Capital Spare, Hinds Lake	$110.4	The planned scope for this project included the procurement of a spare circuit breaker for Hinds Lake to allow responsive action to failures.	The spare circuit breaker was procured.

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Project Title and Location	Expenditure ($,000)	Failure Identified	Project Scope
Replace Thrust Bearing Assembly, Bay d'Espoir Unit 2	$99.8	Upon inspection of the generator main bracket stationary parts, it was observed that the thrust bearing had undergone severe damage to the babbitt on two thrust pads as well as signs of damage on all other pads including perpendicular cracks and heat damage to the babbitt. The bearing was deemed unusable and required immediate replacement. As well, the damage to the thrust bearing scarred the rotating ring bearing surface, a surface that is required to be machine finished to ensure a low coefficient of friction while the unit is rotating. The spring beds were in use for over 20 years, were found to be heavily contaminated with babbitt, and have exhibited changes in length from the original equipment manufacturers (OEM's) drawings. These springs required replacement with the thrust pads and rotating ring to ensure this bearing surface is free from any contaminants and operating as intended as per OEM design.	The thrust bearing assembly, including pads, spring beds and the rotating ring, were replaced.
Replace Sump Pump 1, Bay d'Espoir Powerhouse 1	$42.8	The sump pump was observed to not be operating as intended with the level in the sump not decreasing when it was in operation. There was risk of powerhouse flooding, with the pump unable to move water at a rate equal to the potential inflow of water into the sump.	The sump pump was replaced.
Refurbish Culverts, Bear Brook, Bay d'Espoir	$24.8	The road at the Bear Brook crossing, on the access road to the Bay d'Espoir Generating Station, deteriorated and was in an unacceptable condition for vehicular traffic. Material between the 1200 mm culverts had eroded away and no longer adequately supported the surface of the road.	The material around the culverts, including the bedding material, was replaced. Blast rock was installed to reduce erosion and berms were constructed to redirect water flows.
Procure a Replacement HVAC unit for the Control Room, Cat Arm	$14.2	The control room air conditioning unit failed due to the loss of refrigerant. Copper tubing and fittings were corroded, which increased the possibility of accidental release when completing maintenance.	A replacement HVAC unit was procured. Installation will occur in 2019 when road conditions allow for a contractor to access site to install. Installation costs will be reported under the 2019 Hydraulic In-Service Failures project.

Project Title and Location	Expenditure ($,000)	Failure Identified	Project Scope
Purchase Station Service Transformer Capital Spare, Hinds Lake	$12.9	The planned scope for this project included the procurement of a spare station service transformer for Hinds Lake to allow responsive action to failures.	A spare station service transformer was ordered and will be received in 2019. Material costs will be reported under the 2019 Hydraulic In-Service Failures project.
Replace High Pressure Pump, Hinds Lake	$5.5	During start-up of the generating unit at Hinds Lake, it was discovered that the high pressure pump was unable to meet required pressure and thus the unit controls would not allow the unit to start.	An available spare pump was installed and a new spare was procured.
Purchase Excitation Transformer Capital Spare, Cat Arm	$3.5	The planned scope for this project included the procurement of a spare excitation transformer for Cat Arm to allow responsive action to failures.	A spare excitation transformer was ordered and will be received in 2019. Material costs will be reported under the 2019 Hydraulic In-Service Failures project.

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10.0 Thermal Generation In-Service Failures

Hydro has committed to providing a summary of activities completed under the Thermal Generation In-Service Failures project. Table 21 outlines 2018 expenditures undertaken by this project.

Total Approved Budget: **$1,250,000**

Total Expenditure: **$2,699,900**

Table 22: Thermal Generation In-Service Failures

Project Title and Location	Expenditure ($,000)	Failure Identified	Project Scope
Hydraulic System, Holyrood Unit 1	$597.7	Unit 1 tripped off line on November 3, 2018 as a result of turbine steam control valves closing without receiving the command from the control system to do so. An investigation concluded that hydraulic system contamination was the cause of the unit trip. Hydro proceeded to refurbish the hydraulic system on Unit 1.	The hydraulic system for the Unit 1 control valves was refurbished. This included replacement of servo valves, cleaning or replacement of hydraulic actuators, replacement of actuator seals, replacement of filters, cleaning of hydraulic fluid coolers, flushing of the entire system, and replacement of the hydraulic fluid.
Hydraulic System, Holyrood Unit 2	$218.9	The Unit 2 hydraulic system is identical to that for Unit 1 and, while no failures had occurred, Hydro determined it was reasonable to expect that the system for Unit 2 was in the same contaminated condition as for Unit 1. The following issues supported the conclusion that the system was contaminated: (i) the control valve actuator was showing signs of seal deterioration, with smearing deposits noted on the shaft; and (ii) the right hand intercept valve did not fully stroke during on-line testing. Refurbishment was required to prevent a failure, which was likely to occur prior to or during the next winter operating season.	The hydraulic system for the Unit 2 control valves was refurbished. This included replacement of servo valves, cleaning or replacement of hydraulic actuators, replacement of actuator seals, replacement of filters, cleaning of hydraulic fluid coolers, flushing of the entire system, and replacement of the hydraulic fluid. It is noted that the Unit 2 refurbishment is lower cost than the Unit 1 refurbishment because it was completed in a planned rather than emergency manner.

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Project Title and Location	Expenditure ($,000)	Failure Identified	Project Scope
Boiler Stop Valve and Hydraulic Ram, Holyrood Unit 1	$703.0	Unit 1 turbine control valves began operating erratically on January 3, 2018. On January 5 to 6, 2018, an outage was taken to replace the servo and clean the hydraulic fluid and filters. This did not solve the problem and on January 20, 2018 erratic operation of the control valves became severe to the point where the unit was taken offline on a forced outage to address the issue. Further investigation revealed that the hydraulic ram for one of the control valves was deteriorated and required refurbishment. For the boiler stop valve, a technical representative for the original equipment manufacturer ("OEM") identified that the internal seating surface was damaged, with excessive clearance between the body and the pressure seal ring. Upon review, and with consideration for the remaining life of Holyrood boilers, it was determined that the boiler stop valve could be eliminated from the system and replaced with a welded pipe spool.	The hydraulic ram for the turbine control valve was refurbished using parts from an available spare ram, and the spare ram was reconditioned and returned to inventory. The boiler stop valve was replaced with a welded pipe spool.
Boiler Observation Ports, Vestibule Refractory and Steam Coil Air Heaters, Holyrood	$341.2	Units 1 and 2 observation ports in the boiler casing, consisting of special glass, metal frames, and refractory seals, were inspected and found to have refractory damage and therefore at an elevated risk of sudden failure. There are two ports for each unit. Unit 2 header vestibule refractory seals around the boiler tube penetrations were inspected and one of the five seals was found to have refractory damage. When this refractory fails, hot gas will enter the vestibules and can cause boiler gas leaks from the vestibule to the powerhouse, which is at a lower pressure. This could lead to health and safety concerns and could lead to a forced outage for repair. Two of the eight steam coil air heaters on Unit 3, which preheat the combustion air prior to the air entering the main air heaters, were found to be leaking steam and had to be isolated in the fall of 2017. All of the coils were inspected in 2018 and found to be in poor condition with damaged and fouled fins, affecting fan performance by increasing the pressure drop across them. Failures of additional loops were reasonably expected.	The observation ports on Units 1 and 2 were replaced. The header vestibule refractory seals were replaced on Unit 2. The eight steam coil air heaters were replaced.

Project Title and Location	Expenditure ($,000)	Failure Identified	Project Scope
Fuel Oil Return Line, Holyrood Marine Terminal	$296.9	The Holyrood Marine Terminal has an 18 inch fuel oil line used to off-load tankers and a separate four inch line to empty fuel oil from the 18 inch line following a tanker off-loading. There are approximately 157 barrels of fuel oil that would be released into the environment if a failure was to occur on the 18 inch line due to arctic sea ice in Holyrood Bay or tanker impact during fuel delivery at this location following a fuel delivery. A visual inspection of the Marine Terminal revealed that the 4 inch return line had lifted vertically off its pipe supports and moved axially towards the ocean by approximately 12 inches. A subsequent assessment of the line indicated that it had significant corrosion underneath the pipe insulation and measured wall thicknesses below the pipe original minimum wall thickness. In addition, the line was no longer resting on its supports and permanent damage was expected from excessive movement. Due to the urgent requirement to mitigate the risk of failure, Hydro decided to replace the line.	The four inch fuel oil return line was replaced, including the piping, supports, heat tracing and insulation.
Variable Frequency Drive Fan Motor and Boiler Feed Pump Motor, Holyrood	$84.2	The Unit 1 West variable frequency drive fan motor exhibited high winding temperatures resulting in an alarm. Load on the unit was reduced to control the motor temperature, but the temperature continued to increase over time, indicating an imminent failure. The unit was removed from service for immediate replacement of the motor using an available spare motor. The Unit 2 West boiler feed pump motor had to be removed from service when the motor bearing failed. As a result, Unit 2 was de-rated to approximately 70 MW until the motor was replaced with the available spare motor.	The Unit 1 West variable frequency drive motor and the Unit 2 West boiler feed pump motor were replaced with available spares. The motors removed from service were refurbished and added to inventory as critical spares.
East Cooling Water Pump Motor, Holyrood Unit 3	$73.3	The drive-end bearing on the Unit 3 East Cooling Water Pump (“CWP”) Motor was found to be exhibiting high vibration during the 2017/2018 winter operating season and was running hotter than normal. These observed conditions indicated that failure was imminent and that intervention was required before returning the unit to service for the winter season.	The Unit 3 East Cooling Water Pump Motor was removed, refurbished and returned to service.

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Project Title and Location	Expenditure ($,000)	Failure Identified	Project Scope
West Cooling Water Pump Motor, Holyrood Unit 2	$56.7	The Unit 2 West CWP Motor was tested on May 30, 2018 for winding resistance as part of routine maintenance. The test results indicated that the winding insulation had deteriorated to the point where on-line failure could be expected during the next operating season. To restore the motor from this incipient failure condition and ensure reliable operation going forward, it was necessary to have the windings restored.	The motor was replaced with an available spare motor. The motor removed from service was refurbished and added to inventory as a critical spare.
West Forced Draft Fan Motor, Holyrood Unit 2	$53.2	The Unit 2 West Forced Draft (FD) Fan Motor was tested on May 29, 2018 for winding resistance as part of routine maintenance. The test results indicated that the winding insulation has deteriorated to the point where on-line failure could be expected during the next operating season. To restore the motor from this incipient failure condition and ensure reliable operation going forward, it is necessary to have the windings restored.	The motor was replaced with an available spare motor. The motor removed from service was refurbished and added to inventory as a critical spare.
Variable Frequency Drives, Holyrood Units 1 and 2	$104.7	On March 5, 2018, a Unit 2 west Variable Frequency Drive ("VFD") power cell failed and was replaced. The drive bypassed the failed cell and the unit did not trip in this instance. On March 19, 2018, the west VFD tripped on Unit 1. Another power cell had failed and was replaced with an available spare, and two cell control fuses had blown and were replaced with available spares. The fault log was downloaded from the VFD and sent it to the OEM for review and technical assistance. The OEM confirmed that the actions taken by the plant were appropriate. On March 26, 2018, the east VFD tripped on Unit 1, with a failure similar to that which occurred on March 19, 2018. Power cells and fuses were replaced with available spares.	Failed VFD power cells and fuses were replaced with available spares.
Forced Draft Fan Bearing, Holyrood Unit 1	$49.8	On June 17, 2018 the Unit 1 East FD fan inboard bearing liner failed, which led to a forced outage on Unit 1.	The inboard bearing liner was replaced with an available spare and the journal (the bearing surface section of the fan shaft) was refurbished.

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Project Title and Location	Expenditure ($,000)	Failure Identified	Project Scope
Turbine Control System (Mark V), Holyrood Unit 1	$75.0	Online testing of the reheat valves for Units 1 and 2 revealed that components in the turbine control system has failed and required replacement. Upon completion of the replacement of the failed components, the reheat valves on both units tested successfully.	Failed components of the turbine control system were replaced, including two solenoids, fuses, circuit boards and ribbon cables on Unit 1 and the servomotors on both of the reheat valves on Unit 2.
Distributed Control System ("DCS"), Holyrood	$32.7	Hydro received a Schneider Electric Customer Advisory detailing a manufacturing defect with the Schneider Electric FCP270 Control Processors ("FCP"). As outlined in the advisory, there was an incipient failure that needed to be corrected before entering into the 2018/2019 winter season to maintain reliability of this critical system. There were three options presented in Schneider Electric's advisory. The option to receive pre-programmed, upgraded FCPs, was the most cost effective and least impactful to Holyrood's operation.	All Schneider Electric FCP270 Control Processors ("FCP") were replaced with factory-updated FCPs. This includes eight FCPs installed in Holyrood's distributed control system and one in inventory.
Distributed Control System ("DCS") Operator Station, Holyrood Unit 3	$12.6	One of the Unit 3 DCS Operator Stations failed on May 4, 2018. The Basic Input/Output System ("BIOS") of the machine was not identifying any hard drive and, therefore, the operating system was not booting. This may have been caused by a critical failure of the hard drive itself, the motherboard's connection to it, or the power supply connection to the hard drive. The computer that failed is one of the oldest operator stations with obsolete hardware, and a motherboard problem would require full replacement of the operator station. For safe and reliable operation through the 2018/2019 winter operating season, all stations are required to be in service. Therefore, the replacement of the failed operator station was required. This operator station will be required post steam.	The Unit 3 DCS Operator Station was replaced.

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newfoundland labrador hydro
a nalcor energy company

Hydro Place. 500 Columbus Drive.
P.O. Box 12400. St. John's. NL
Canada A1B 4K7
t. 709.737.1400 f. 709.737.1800
www.nlh.nl.ca

March 2, 2020

Board of Commissioners of Public Utilities
Prince Charles Building
120 Torbay Road, P.O. Box 21040
St. John's, NL A1A 5B2

Attention: Ms. Cheryl Blundon
Director of Corporate Services & Board Secretary

Dear Ms. Blundon:

Re: Capital Expenditures and Carryover Report for the Year Ending December 31, 2019

Enclosed please find one original and eight copies of Newfoundland and Labrador Hydro's ("Hydro") Capital Expenditures and Carryover Report for the Year Ending December 31, 2019 ("Report").

This Report is filed pursuant to Board Order No. P.U. 46(2018) and provides information on Hydro's capital expenditures for all projects proposed and approved as part of the 2019 Capital Budget Application. The Report also provides information on capital expenditures related to additional Supplemental Capital Budgets approved by the Board as noted within the Report. As per the Capital Budget Application Guidelines (Policy No. 1900.6–October 2007), the Report provides details and explanations regarding the reportable variances between budgeted and actual expenditures for projects with expenditures in the 2019 calendar year. It also provides a listing of funds carried over to future years and specific details regarding the execution of the Remove Safety Hazards project and various In-Service Failures projects.

Should you have any questions, please contact the undersigned.

Yours truly,

NEWFOUNDLAND AND LABRADOR HYDRO

Shirley A. Walsh
Senior Legal Counsel, Regulatory
SAW/sk

Encl.

cc: **Newfoundland Power**
Mr. Gerard M. Hayes

Consumer Advocate
Mr. Dennis M. Browne, Q.C, Browne Fitzgerald Morgan & Avis

Industrial Customer Group
Mr. Paul L. Coxworthy, Stewart McKelvey
Mr. Denis J. Fleming, Cox & Palmer
Mr. Dean A. Porter, Poole Althouse

ecc: **Board of Commissioners of Public Utilities**
Ms. Jacqui Glynn
PUB Official Email

Newfoundland Power
Ms. Kelly C. Hopkins
Regulatory Email

Consumer Advocate
Mr. Stephen F. Fitzgerald, Browne Fitzgerald Morgan & Avis
Ms. Sarah G. Fitzgerald, Browne Fitzgerald Morgan & Avis
Ms. Bernice Bailey, Browne Fitzgerald Morgan & Avis

Iron Ore Company of Canada
Mr. Gregory A.C. Moores, Stewart McKelvey

Labrador Interconnected Group
Mr. Senwung Luk, Olthuis Kleer Townshend LLP
Ms. Julia Brown, Olthuis Kleer Townshend LLP

Capital Expenditures and Carryover Report for the Year Ending December 31, 2019

March 2, 2020

A report to the Board of Commissioners of Public Utilities

newfoundland labrador hydro
a nalcor energy company

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1.0 Capital Expenditure Overview

During 2019, Newfoundland and Labrador Hydro ("Hydro") invested $126.6 million for the execution of capital projects to contribute to the provision of safe, reliable, least-cost electricity to customers. Expenditures to maintain the hydraulic generation equipment and infrastructure across the province totaled $21.2 million, including $2.6 million to refurbish powerhouse station services in Bay d'Espoir and $8.9 million for year one in the Hydraulic Generation Refurbishment and Modernization (2019–2020) project. The thermal generation equipment and infrastructure at the Holyrood Thermal Generating Station ("Holyrood TGS") required expenditures totalling $8.7 million, with the most material expenditure of $2.9 million in the Condition Assessment and Miscellaneous Upgrades project. Gas turbines required $6.4 million in expenditures, over half of which ($3.6 million) was for the Increase Fuel and Water Treatment System Capacity project for the Holyrood Gas Turbine. Sustaining capital for terminal station infrastructure totalled $31.1 million, including $7.9 million in the Upgrade Circuit Breakers project and $9.6 million in the Terminal Station Refurbishment and Modernization (2018–2019) project. In transmission, the Wood Pole Line Management Program continued in 2019, with $2.9 million invested.

This report includes details on the capital expenditures and reportable variances for 2019 and project carryovers to 2020. Actual expenditures in Hydro's overall capital program for 2019 were below budget by $37.6 million (22.9%). Additional information regarding analysis of the variance is included in Section 5.0.

2.0 Capital Expenditures and Variance Summary

Table 1 provides a summary of Hydro's capital expenditures by year for the period 2014–2019 for all capital projects that were active in 2019, and Table 2 provides a breakdown of the summary by asset type.

Table 1: 2019 Capital Expenditures by Year ($000)

	Capital Budget[1]									Actual Expenditure and Forecast									Variance	
	A				B	C	D (B+C)	E	F (A+C+E)	G				H	I	I	J	K (G+H+I+J)	K-F	H-D
Summary	2015	2016	2017	2018	Carryover to 2019	Original 2019	Revised 2019	2020 and Beyond	Total	2015	2016	2017	2018	2019	2020 and Beyond	Carryover to 2020	Total	Project Variance	Annual Variance
2019 Projects	-	-	-	-	-	72,505.3	72,505.3	45,264.2	**117,769.5**	-	-	-	-	65,036.8	43,724.0	3,479.2	**112,240.0**	(5,529.5)	(7,468.5)
2018 Projects	-	-	-	53,107.8	22,217.3	49,813.2	72,030.5	3,715.0	**106,636.0**	-	-	-	29,951.3	43,096.4	3,715.0	13,020.8	**89,783.5**	(16,852.5)	(28,934.1)
2017 Projects	-	-	14,335.8	23,549.2	6,382.5	2,337.6	8,720.1	1,429.6	**41,652.2**	-	-	7,605.7	13,857.8	7,149.4	1,429.6	189.5	**30,232.0**	(11,420.2)	(1,570.7)
2016 Projects	-	8,708.0	18,374.1	21,725.3	2,293.4	6,597.3	8,890.7	11,116.8	**66,521.5**	-	6,346.5	12,429.4	25,603.9	10,030.9	11,116.8	2,220.5	**67,748.0**	1,226.5	1,140.2
2015 Projects	22.7	522.5	-	-	331.2	-	331.2	-	**545.2**	137.0	128.6	26.0	373.9	385.5	-	-	**1,051.0**	505.8	54.3
2014 Projects	4,403.0	75,284.3	194,552.4	17,418.3	1,716.2	-	1,716.2	-	**291,658.0**	2,018.2	59,317.8	213,663.7	10,942.1	875.9	-	-	**286,817.7**	(4,840.3)	(840.3)
Grand Total	**4,425.7**	**84,514.8**	**227,262.3**	**115,800.6**	**32,940.6**	**131,253.4**	**164,194.0**	**61,525.6**	**624,782.4**	**2,155.2**	**65,792.9**	**233,724.8**	**80,729.0**	**126,574.9**	**59,985.4**	**18,910.0**	**587,872.2**	**(36,910.2)**	**(37,619.1)**

[1] Annual budgets previous to 2019 pertain to projects that have expenditures in 2018.

2019 Capital Budget Approved by Board Order No. P.U. 46(2018)	116,140.7
New Project Approved by Board Order No. P.U. 38(2018)	220.1
New Project Approved by Board Order No. P.U. 7(2019)	600.0
New Project Approved by Board Order No. P.U. 9(2019)	12,586.4
New Project Approved by Board Order No. P.U. 22(2019)	673.8
New Project Approved by Board Order No. P.U. 28(2019)	225.5
New Project Approved by Board Order No. P.U. 33(2019)	393.5
2019 New Projects under $50,000 Approved by Hydro	413.4
Total Approved Capital Budget Before Carryovers	**131,253.4**
Carryover Projects 2018 to 2019	32,940.6
Total Approved Capital Budget	**164,194.0**

Table 2: Total Capital Variance Summary by Asset Type ($000)[1]

Asset Type	Board Approved Budget	Total Project Expenditures and Forecast	Variance
Hydraulic	62,311	58,368	(3,943)
Thermal	7,434	8,825	1,391
Gas Turbines	27,611	20,409	(7,202)
Terminal Stations	143,844	122,771	(21,073)
Transmission	294,125	289,691	(4,434)
Distribution	18,417	16,759	(1,658)
Rural Generation	28,721	29,033	312
Properties	2,448	1,854	(594)
Metering	196	178	(18)
Rural Systems Tools and Equipment	2,043	2,026	(17)
Information Systems	1,597	1,444	(153)
Telecontrol	5,485	5,599	114
Transportation	4,264	4,264	-
Administrative	949	839	(110)
Allowance for Unforeseen	1,600	1,276	(324)
Supplemental Projects	23,324	24,159	835
Projects Approved for less than $50,000	413	377	(36)
Total Capital Budget	**624,782**	**587,872**	**(36,910)**

3.0 Capital Expenditures by Category

Table 1 through Table 16 provide Hydro's Capital Expenditures by category including:

- Hydraulic Generation;
- Thermal Generation;
- Gas Turbine Generation;
- Terminal Stations;
- Transmission;
- Distribution;
- Rural Generation;
- Properties;

[1] The Total Capital includes all projects initiated between 2014 and 2019 that had 2019 expenditures. This includes projects completed in 2019 and those that continue through 2020 and beyond. Please refer to Table 1.

- Metering;
- Tools and Equipment;
- Information Systems;
- Telecontrol projects;
- Transportation;
- Administration;
- Allowance for Unforeseen Items;
- Supplemental Capital projects; and
- Projects less than $50,000.

Table 3: 2019 Capital Expenditures: Hydraulic Generation ($000)

	Capital Budget								Actual Expenditure and Forecast								Variance		
	A				B	C	D (B+C)	E	F (A+C+E)	G				H	I	J	K (G+H+I)	K-F	H-D	
	2015	2016	2017	2018	Carryover to 2019	Original 2019	Revised 2019	2020 and Beyond	Total	2015	2016	2017	2018	2019	2020 and Beyond	Carryover to 2019	Total	Project Variance	Annual Variance	Notes
2019 Projects																				
Hydraulic In-Service Failures	-	-	-	-	-	1,250.0	1,250.0	-	**1,250.0**	-	-	-	-	1,374.4	-	-	**1,374.4**	124.4	124.4	1
Hydraulic Generation Refurbishment and Modernization - Various Sites	-	-	-	-	-	10,313.6	10,313.6	5,486.5	**15,800.1**	-	-	-	-	8,893.9	5,486.5	1,876.0	**16,256.4**	456.3	(1,419.7)	2
Purchase Tools and Equipment less than $50,000	-	-	-	-	-	133.50	133.5	-	**133.5**	-	-	-	-	124.4	-	-	**124.4**	(9.1)	(9.1)	
2018 Projects																				
Install Remote Operation of Salmon Spillway - Bay d'Espoir	-	-	-	645.9	(239.5)	1,862.5	1,623.0	-	**2,508.4**	-	-	-	885.4	933.0	-	-	**1,818.4**	(690.0)	(690.0)	3
Refurbish Backfill on Penstock #1 - Bay d'Espoir	-	-	-	1,630.4	1,567.2	-	1,567.2	-	**1,630.4**	-	-	-	63.2	11.5	-	-	**74.7**	(1,555.7)	(1,555.7)	4
Energy Efficiency Improvements - Various Sites	-	-	-	276.2	66.4	168.9	235.3	-	**445.1**	-	-	-	209.8	178.0	-	-	**387.8**	(57.3)	(57.3)	
Hydraulic Generation Refurbishment and Modernization - Various Sites	-	-	-	10,325.4	2,578.7	4,283.1	6,861.8	-	**14,608.5**	-	-	-	5,856.3	3,367.7	-	3,160.5	**12,384.4**	(2,224.1)	(3,494.1)	5
2017 Projects																				
Refurbish Powerhouse Station Services - Bay d'Espoir	-	-	413.2	2,473.3	1,840.0	1,460.6	3,300.6	-	**4,347.1**	-	-	43.0	1,003.5	2,643.4	-	157.2	**3,847.1**	(500.0)	(657.2)	6
Replace Exciter Controls Units 1 to 6 - Bay d'Espoir	-	-	119.2	921.2	9.3	877.0	886.3	1,429.6	**3,347.0**	-	-	182.7	628.9	853.9	1,429.6	32.4	**3,127.5**	(219.5)	(32.4)	
Replace Slip Rings Units 1 to 6 - Bay d'Espoir	-	-	312.6	159.7	352.7	-	352.7	-	**472.3**	-	-	102.4	17.2	181.6	-	-	**301.2**	(171.1)	(171.1)	7
Control Structure Refurbishments	-	-	1,735.3	452.9	144.1	-	144.1	-	**2,188.2**	-	-	991.4	709.3	226.9	-	-	**1,927.6**	(260.6)	82.8	8
2016 Projects																				
Upgrade Work - Cat Arm	-	558.3	1,353.0	-	30.3	-	30.3	-	**1,911.3**	-	240.4	760.6	1,376.3	193.7	-	-	**2,571.0**	659.7	163.4	9
Rehabilitate Shoreline Protection - Cat Arm	-	112.2	1,030.7	-	888.0	-	888.0	-	**1,142.9**	-	104.7	61.0	89.2	(254.9)	-	-	**0.0**	(1,142.9)	(1,142.9)	10
Replace Site Facilities - Bay d'Espoir	-	928.3	4,736.3	6,316.7	904.4	-	904.4	-	**11,981.3**	-	270.4	2,231.6	8,574.9	2,045.0	-	-	**13,121.9**	1,140.6	1,140.6	11
2015 Projects																				
Replace Pump House and Associated Equipment - Bay d'Espoir	22.7	522.5	-	-	331.2	-	331.2	-	**545.2**	137.0	128.6	26.0	373.9	385.5	-	-	**1,051.0**	505.8	54.3	12
Total Hydraulic Generation Projects	**22.7**	**2,121.3**	**9,700.3**	**23,201.7**	**8,472.8**	**20,349.2**	**28,822.0**	**6,916.1**	**62,311.3**	**137.0**	**744.1**	**4,398.8**	**19,787.9**	**21,158.1**	**6,916.1**	**5,226.1**	**58,368.0**	**(3,943.3)**	**(7,663.9)**	

Table 4: 2019 Capital Expenditures: Thermal Generation ($000)

	A				B	C	D (B+C)	E	F (A+C+E)	G				H	I	J	K (G+H+I+J)	K-F	H-D	Notes
	Capital Budget									Actual Expenditure and Forecast								Variance		
	2015	2016	2017	2018	Carryover to 2019	Original 2019	Revised 2019	2020 and Beyond	Total	2015	2016	2017	2018	2019	2020 and Beyond	Carryover to 2020	Total	Project Variance	Annual Variance	
2019 Projects																				
Overhaul Unit 3 Turbine Valve - Holyrood	-	-	-	-	-	3,290.5	3,290.5	-	**3,290.5**	-	-	-	-	2,683.0	-	-	**2,683.0**	(607.5)	(607.5)	13
Condition Assessment and Miscellaneous Upgrades - Holyrood	-	-	-	-	-	1,968.8	1,968.8	-	**1,968.8**	-	-	-	-	2,941.7	-	-	**2,941.7**	972.9	972.9	14
Thermal In-Service Failures	-	-	-	-	-	1,250.0	1,250.0	-	**1,250.0**	-	-	-	-	2,327.4	-	-	**2,327.4**	1,077.4	1,077.4	15
Replace 258 Vdc Battery Banks - Holyrood	-	-	-	-	-	330.0	330.0	-	**330.0**	-	-	-	-	350.7	-	-	**350.7**	20.7	20.7	
Purchase Tools and Equipment less than $50,000	-	-	-	-	-	15.4	15.4	-	**15.4**	-	-	-	-	18.1	-	-	**18.1**	2.7	2.7	
2018 Projects																				
Upgrade Cranes and Hoists - Holyrood	-	-	-	80.3	41.7	300.3	342.0	-	**380.6**	-	-	-	38.6	306.6	-	-	**345.2**	(35.4)	(35.4)	
Install Fire Detection in Outbuildings - Holyrood	-	-	-	198.6	128.2	-	128.2	-	**198.6**	-	-	-	70.4	88.2	-	-	**158.6**	(40.0)	(40.0)	
Total Thermal Generation Projects	**-**	**-**	**-**	**278.9**	**169.9**	**7,155.0**	**7,324.9**	**-**	**7,433.9**	**-**	**-**	**-**	**109.0**	**8,715.6**	**-**	**-**	**8,824.6**	**1,390.7**	**1,390.7**	

Table 5: 2019 Capital Expenditures: Gas Turbine Generation ($000)

	A				Capital Budget				Actual Expenditures and Forecast								Variance		
					B	C	D (B+C)	E	F (A+C+E)	G				H	I	J	K (G+H+I+J)	K-F	H-D	
	2015	2016	2017	2018	Carryover to 2019	Original 2019	Revised 2019	2020 and Beyond	Total	2015	2016	2017	2018	2019	2020 and Beyond	Carryover to 2020	Total	Project Variance	Annual Variance	Notes
2019 Projects																				
Overhaul Olympus Gas Generator - Stephenville	-	-	-	-	-	1,666.8	1,666.8	-	**1,666.8**	-	-	-	-	1,245.1	-	316.9	**1,562.0**	(104.8)	(421.7)	16
Construct Heated Storage for Spare Parts and Lube Oil - Hardwoods and Happy Valley	-	-	-	-	-	49.8	49.8	-	**49.8**	-	-	-	-	62.0	-	-	**62.0**	12.2	12.2	
Upgrade Compressed Air System - Holyrood Gas Turbine	-	-	-	-	-	70.7	70.7	317.7	**388.4**	-	-	-	-	17.7	317.7	53.0	**388.4**	-	(53.0)	
Upgrade HMI and AVR - Hardwoods	-	-	-	-	-	685.9	685.9	-	**685.9**	-	-	-	-	493.8	-	-	**493.8**	(192.1)	(192.1)	17
Replace Main Fuel Valves - Hardwoods	-	-	-	-	-	404.2	404.2	-	**404.2**	-	-	-	-	168.0	-	72.8	**240.8**	(163.4)	(236.2)	18
2018 Projects																				
Gas Turbine Equipment Replacement and Refurbishment - Hardwoods and Stephenville	-	-	-	997.9	480.2	429.3	909.5	-	**1,427.2**	-	-	-	371.3	826.0	-	-	**1,197.3**	(229.9)	(83.5)	19
Increase Fuel and Water Treatment System Capacity - Holyrood Gas Turbine	-	-	-	8,829.9	6,093.1	3,012.7	9,105.8	-	**11,842.6**	-	-	-	2,583.8	3,563.9	-	488.0	**6,635.7**	(5,206.9)	(5,541.9)	20
Turbine Hot Gas Path Level 2 Inspection and Overhaul - Holyrood Gas Turbine	-	-	-	11,146.5	682.9	-	682.9	-	**11,146.5**	-	-	-	9,770.7	58.8	-	-	**9,829.5**	(1,317.0)	(624.1)	21
Total Gas Turbine Generation Projects	**-**	**-**	**-**	**20,974.3**	**7,256.2**	**6,319.4**	**13,575.6**	**317.7**	**27,611.4**	**-**	**-**	**-**	**12,725.8**	**6,435.3**	**317.7**	**930.7**	**20,409.5**	**(7,201.9)**	**(7,140.3)**	

Table 6: 2019 Capital Expenditures: Terminal Stations ($000)

	Capital Budget								Actual Expenditures and Forecast								Variance		
	A				B	C	D (B+C)	E	F (A+C+E)	G				H	I	J	K (G+H+I+J)	K-F	H-D	
	2015	2016	2017	2018	Carryover to 2019	Original 2019	Revised 2019	2020 and Beyond	Total	2015	2016	2017	2018	2019	2020 and Beyond	Carryover to 2020	Total	Project Variance	Annual Variance	Notes
2019 Projects																				
Terminal Station In-Service Failures	-	-	-	-	-	1,000.0	1,000.0	-	**1,000.0**	-	-	-	-	1,744.6	-	-	**1,744.6**	744.6	744.6	22
Upgrade Terminal Station for Mobile Substation - St. Anthony	-	-	-	-	-	89.3	89.3	402.7	**492.0**	-	-	-	-	41.8	402.7	47.5	**492.0**	-	(47.5)	
Terminal Station Refurbishment and Modernization - Various Sites	-	-	-	-	-	10,891.1	10,891.1	19,061.8	**29,952.9**	-	-	-	-	5,891.3	19,061.8	1,199.1	**26,152.1**	(3,800.8)	(4,999.8)	23
																	-			
2018 Projects																	-			
Replace Transformer T1 - Buchans	-	-	-	249.0	150.0	2,086.1	2,236.1	-	**2,335.1**	-	-	-	99.0	2,158.5	-	-	**2,257.5**	(77.6)	(77.6)	
Implement Terminal Station Flood Mitigation - Springdale	-	-	-	186.2	50.4	787.8	838.2	-	**974.0**	-	-	-	135.8	87.0	-	1,047.6	**1,270.4**	296.4	(751.2)	24
Purchase Mobile dc Power Systems	-	-	-	270.9	229.0	695.6	924.6	-	**966.5**	-	-	-	41.9	616.3	-	-	**658.2**	(308.3)	(308.3)	25
Terminal Station Refurbishment and Modernization - Various Sites	-	-	-	8,170.6	5,839.7	18,625.1	24,464.8	-	**26,795.7**	-	-	-	1,983.8	9,616.1	-	6,522.4	**18,122.3**	(8,673.4)	(14,848.7)	26
																	-			
2017 Projects																	-			
Replace 66 kV Station Service Feed - Holyrood	-	-	62.8	1,198.6	945.7	-	945.7	-	**1,261.4**	-	-	80.7	235.0	290.6	-	-	**606.4**	(655.0)	(655.1)	27
Replace Substation - Holyrood	-	-	439.4	758.6	313.1	-	313.1	-	**1,198.0**	-	-	115.4	369.7	306.1	-	-	**791.1**	(406.9)	(7.0)	28
Terminal Station Refurbishment and Modernization - Various Sites	-	-	10,831.3	16,550.8	2,327.7	-	2,327.7	-	**27,382.1**	-	-	5,852.1	10,464.4	2,304.6	-	-	**18,621.1**	(8,761.0)	(23.1)	29
																	-			
2016 Projects																	-			
Upgrade Circuit Breakers - Various Sites	-	6,969.1	10,808.7	15,408.6	479.9	6,597.3	7,077.20	11,116.8	**50,900.5**	-	5,599.5	8,877.8	15,184.2	7,901.7	11,116.8	2,220.5	**50,900.5**	-	824.5	30
Upgrade Data Alarm Systems - Various Sites	-	74.4	234.1	-	(1.8)	-	(1.8)	-	**308.5**	-	49.7	116.0	144.6	51.1	-	-	**361.4**	52.9	52.9	
Install Breaker Failure Protection - Various Sites	-	65.7	211.3	-	(7.4)	-	(7.4)	-	**277.0**	-	81.8	382.4	234.7	94.3	-	-	**793.2**	516.2	101.7	31
Total Terminal Stations Projects	-	**7,109.2**	**22,587.6**	**42,793.3**	**10,326.3**	**40,772.3**	**51,098.6**	**30,581.3**	**143,843.7**	-	**5,731.0**	**15,424.5**	**28,893.1**	**31,103.8**	**30,581.3**	**11,037.2**	**122,770.8**	**(21,072.9)**	**(19,994.8)**	

Table 7: Capital Expenditures: Transmission ($000)

	Capital Budget								Actual Expenditures and Forecast								Variance		
	A				B	C	D	E	F (A+C+E)	G				H	I	J	K(G+H+I+J)	K-F	H-D	
	2015	2016	2017	2018	Carryover to 2019	Original 2019	Revised 2019	2020 and Beyond	Total	2015	2016	2017	2018	2019	2020 and Beyond	Carryover to 2020	Total	Project Variance	Annual Variance	Notes
2019 Projects																				
Wood Pole Line Management Program - Various Sites	-	-	-	-	-	2,467.0	2,467.0	-	**2,467.0**	-	-	-	-	2,873.4	-	-	**2,873.4**	406.4	406.4	32
2014 Projects																				
230 kV Transmission Line - Bay d'Espoir to Western Avalon	4,403.0	75,284.3	194,552.4	17,418.3	1,716.2	-	1,716.2	-	**291,658.0**	2,018.2	59,317.8	213,663.7	10,942.1	875.9	-	-	**286,817.7**	(4,840.3)	(840.3)	33
Total Transmission Projects	**4,403.0**	**75,284.3**	**194,552.4**	**17,418.3**	**1,716.2**	**2,467.0**	**4,183.2**	**-**	**294,125.0**	**2,018.2**	**59,317.8**	**213,663.7**	**10,942.1**	**3,749.3**	**-**	**-**	**289,691.1**	**(4,433.9)**	**(433.9)**	

Table 8: 2019 Capital Expenditures: Distribution ($000)

	A				B	C	D (B+C)	E	F (A+C+E)	G				H	I	J	K (G+H+I+J)	Variance		Notes
	2015	2016	2017	2018	Carryover to 2019	Original 2019	Revised 2019	2020 and Beyond	Total	2015	2016	2017	2018	2019	2020 and Beyond	Carryover to 2020	Total	K-F Project Variance	H-D Annual Variance	
2019 Projects																				
Provide Service Extensions - All Service Areas	-	-	-	-	-	4,900.0	4,900.0	-	**4,900.0**	-	-	-	-	3,550.5	-	-	**3,550.5**	(1,349.5)	(1,349.5)	34
Provide Service Extensions - All Service Areas - CIAC	-	-	-	-	-	(200.0)	(200.0)	-	**(200.0)**	-	-	-	-	(173.3)	-	-	**(173.3)**	26.7	26.7	
Upgrade Distribution Systems - All Service Areas	-	-	-	-	-	3,565.0	3,565.0	-	**3,565.0**	-	-	-	-	3,631.7	-	-	**3,631.7**	66.7	66.7	
Upgrade Distribution Systems - All Service Areas - CIAC	-	-	-	-	-	(95.0)	(95.0)	-	**(95.0)**	-	-	-	-	(251.5)	-	-	**(251.5)**	(156.5)	(156.5)	35
Distribution System Upgrades - Various Sites	-	-	-	-	-	390.8	390.8	5,490.1	**5,880.9**	-	-	-	-	422.2	5,490.1	(31.4)	**5,880.9**	-	31.4	
Condition Assessment for Submarine Cable - Farewell Head to Change Islands	-	-	-	-	-	300.1	300.1	-	**300.1**	-	-	-	-	166.3	-	-	**166.3**	(133.8)	(133.8)	36
Additions for Load - Distribution System	-	-	-	-	-	186.7	186.7	-	**186.7**	-	-	-	-	80.9	-	-	**80.9**	(105.8)	(105.8)	37
Install Recloser Remote Control (2019–2020) - Rocky Harbour	-	-	-	-	-	66.1	66.1	319.9	**386.0**	-	-	-	-	22.0	319.9	44.1	**386.0**	-	(44.1)	
2018 Projects																				
Distribution System Upgrades - Various Sites	-	-	-	383.8	190.2	2,771.2	2,961.4	-	**3,155.0**	-	-	-	193.6	3,026.0	-	-	**3,219.6**	64.6	64.6	
Install Recloser Remote Control - English Harbour West and Baradoix	-	-	-	63.7	49.9	275.0	324.9	-	**338.7**	-	-	-	13.8	254.0	-	-	**267.8**	(70.9)	(70.9)	
Total Distribution Projects	**-**	**-**	**-**	**447.5**	**240.1**	**12,159.9**	**12,400.0**	**5,810.0**	**18,417.4**	**-**	**-**	**-**	**207.4**	**10,728.8**	**5,810.0**	**12.7**	**16,758.9**	**(1,658.5)**	**(1,671.2)**	

Table 9: 2019 Capital Expenditures: Rural Generation ($000)

	Capital Budget									Actual Expenditures and Forecast								Variance		
	A				B	C	D	E	F (A+C+E)	E				H	I	J	K (G+H+I+J)	K-F	H-D	
	2015	2016	2017	2018	Carryover to 2019	Original 2019	Revised 2019	2020 and Beyond	Total	2015	2016	2017	2018	2019	2020 and Beyond	Carryover to 2020	Total	Project Variance	Annual Variance	Notes
2019 Projects																				
Overhaul Diesel Units - Various	-	-	-	-	-	2,511.3	2,511.3	-	**2,511.3**	-	-	-	-	2,154.4	-	-	**2,154.4**	(356.9)	(356.9)	38
Additions for Load - Isolated Generation Systems	-	-	-	-	-	1,523.6	1,523.6	658.9	**2,182.5**	-	-	-	-	2,423.6	658.9	(682.0)	**2,400.5**	218.0	900.0	39
Diesel Plant Fire Protection (2019–2020)	-	-	-	-	-	377.2	377.2	1,540.2	**1,917.4**	-	-	-	-	-	-	-	**-**	(1,917.4)	(377.2)	40
Upgrade Diesel Plant Building - Ramea	-	-	-	-	-	352.5	352.5	-	**352.5**	-	-	-	-	272.0	-	-	**272.0**	(80.5)	(80.5)	
Replace Human Machine Interface - Cartwright	-	-	-	-	-	306.9	306.9	-	**306.9**	-	-	-	-	152.9	-	154.0	**306.9**	-	(154.0)	41
Inspect Fuel Storage Tanks - Gray River	-	-	-	-	-	203.1	203.1	-	**203.1**	-	-	-	-	317.0	-	-	**317.0**	113.9	113.9	42
Diesel Genset Replacements (2019–2020)	-	-	-	-	-	525.6	525.6	3,421.8	**3,947.4**	-	-	-	-	140.2	3,421.8	385.4	**3,947.4**	-	(385.4)	43
2018 Projects																				
Diesel Plant Engine Cooling System Upgrades - Various Sites	-	-	-	638.4	489.1	671.6	1,160.7	-	**1,310.0**	-	-	-	149.3	1,013.7	-	147.0	**1,310.0**	-	(147.0)	44
Upgrade Ventilation - Cartwright	-	-	-	465.7	419.2	-	419.2	-	**465.7**	-	-	-	46.5	437.7	-	-	**484.2**	18.5	18.5	
Diesel Plant Fire Protection - Postville	-	-	-	505.6	468.4	336.4	804.8	-	**842.0**	-	-	-	37.2	508.0	-	296.8	**842.0**	-	(296.8)	45
Inspect Fuel Storage Tanks - Black Tickle	-	-	-	818.7	337.0	-	337.0	-	**818.7**	-	-	-	481.7	562.8	-	-	**1,044.5**	225.8	225.8	46
Replace Secondary Containment System Liner - Nain	-	-	-	1,639.2	2,471.7	1,450.4	3,922.1	-	**3,089.6**	-	-	-	672.5	4,508.2	-	-	**5,180.7**	2,091.1	586.1	47
Diesel Genset Replacements - Makkovik	-	-	-	604.1	(981.0)	4,703.3	3,722.3	3,592.8	**8,900.2**	-	-	-	1,585.1	4,174.3	3,592.8	(452.0)	**8,900.2**	-	452.0	48
Replace Automation Equipment - St. Anthony	-	-	-	307.4	180.2	1,565.9	1,746.1	-	**1,873.3**	-	-	-	127.2	1,790.8	-	(44.7)	**1,873.3**	-	44.7	
Total Rural Generation Projects	**-**	**-**	**-**	**4,979.1**	**3,384.6**	**14,527.8**	**17,912.4**	**9,213.7**	**28,720.6**	**-**	**-**	**-**	**3,099.5**	**18,455.5**	**7,673.5**	**(195.4)**	**29,033.1**	**312.5**	**543.1**	

Table 10: 2019 Capital Expenditures: Properties ($000)

	Actual Expenditure and Forecast															Variance		
	A				B	C	D	E	F (A+C+E)	G				H	I	J	K (G+H+I+J)	K-F	H-D	
	2015	2016	2017	2018	Carryover to 2019	Original 2019	Revised 2019	2020 and Beyond	Total	2015	2016	2017	2018	2019	2020 and Beyond	Carryover to 2020	Total	Project Variance	Annual Variance	Notes
2019 Projects																				
Install Pole Storage Ramps - Wabush	-	-	-	-	-	301.7	301.7	-	**301.7**	-	-	-	-	185.3	-	-	**185.3**	(116.4)	(116.4)	49
Upgrade Line Depots - Roddickton	-	-	-	-	-	344.7	344.7	-	**344.7**	-	-	-	-	313.5	-	-	**313.5**	(31.2)	(31.2)	
2018 Projects																				
Install Energy Efficiency Lighting in Diesel Plants - Various	-	-	-	104.0	36.0	119.0	155.0	122.2	**345.2**	-	-	-	68.0	97.3	122.2	57.7	**345.2**	-	(57.7)	
2017 Projects																				
Construct New Facilities - Various Sites	-	-	422.0	1,034.1	449.9	-	449.9	-	**1,456.1**	-	-	237.8	429.8	342.3	-	-	**1,009.9**	(446.2)	(107.6)	50
Total Properties Projects	**-**	**-**	**422.0**	**1,138.1**	**485.9**	**765.4**	**1,251.3**	**122.2**	**2,447.7**	**-**	**-**	**237.8**	**497.8**	**938.4**	**122.2**	**57.7**	**1,853.9**	**(593.8)**	**(312.9)**	

Table 11: 2019 Capital Expenditures: Metering ($000)

	Capital Budget							Actual Expenditure and Forecast								Variance		
	A				B	C	D	E	F (A+C+E)	G				H	I	J	K (G+H+I+J)	K-F	H-D	
	2015	2016	2017	2018	Carryover to 2019	Original 2019	Revised 2019	2020 and Beyond	Total	2015	2016	2017	2018	2019	2020 and Beyond	Carryover to 2020	Total	Project Variance	Annual Variance	Notes
2019 Projects																				
Purchase Meters and Metering Equipment - Various	-	-	-	-	-	196.4	196.4	-	196.4	-	-	-	-	178.7	-	-	**178.7**	(17.7)	(17.7)	
Purchase Meters and Metering Equipment - Various - CIAC	-	-	-	-	-	-	-	-	-	-	-	-	-	(0.6)	-	-	**(0.6)**	(0.6)	(0.6)	
Total Metering Projects	**-**	**-**	**-**	**-**	**-**	**196.4**	**196.4**	**-**	**196.4**	**-**	**-**	**-**	**-**	**178.2**	**-**	**-**	**178.2**	**(18.2)**	**(18.2)**	

Table 12: Capital Expenditures: Tools and Equipment ($000)

	A				Capital Budget				Actual Expenditure and Forecast								Variance		
					B	C	D	E	F (A+C+E)	G				H	I	J	K (G+H+I+J)	K-F	H-D	
	2015	2016	2017	2018	Carryover to 2019	Original 2019	Revised 2019	2020 and Beyond	Total	2015	2016	2017	2018	2019	2020 and Beyond	Carryover to 2020	Total	Project Variance	Annual Variance	Notes
2019 Projects																				
Replace Light Duty Mobile Equipment - Various Sites	-	-	-	-	-	469.6	469.6	-	**469.6**	-	-	-	-	410.1	-	-	**410.1**	(59.5)	(59.5)	
Tools and Equipment less than $50,000	-	-	-	-	-	373.2	373.2	-	**373.2**	-	-	-	-	322.9	-	-	**322.9**	(50.3)	(50.3)	
2018 Projects																				
Replace Off-Road Track Vehicles - Bishop's Falls and Bay d'Espoir	-	-	-	213.7	(35.8)	986.3	950.5	-	**1,200.0**	-	-	-	249.5	12.0	-	1,031.72	**1,293.2**	93.2	(938.5)	51
Total Tools and Equipment	**-**	**-**	**-**	**213.7**	**(35.8)**	**1,829.1**	**1,793.3**	**-**	**2,042.8**	**-**	**-**	**-**	**249.5**	**745.0**	**-**	**1,031.7**	**2,026.2**	**(16.6)**	**(1,048.3)**	

Table 13: 2019 Capital Expenditures: Information Systems

	A				Capital Budget				Actual Expenditure and Forecast							Variance		Notes
	2015	2016	2017	2018	B Carryover to 2019	C Original 2019	D Revised 2019	E 2020 and Beyond	F (A+C+E) Total	G 2015	2016	2017	2018	H 2019	I 2020 and Beyond	J Carryover to 2020	K (G+H+I+J) Total	K-F Projet Variance	H-D Annual Variance	
2019 Projects																				
Replace Personal Computers - Hydro Place	-	-	-	-	-	496.0	496.0	-	**496.0**	-	-	-	-	455.1	-	-	**455.1**	(40.9)	(40.9)	
Replace Peripheral Infrastructure - Hydro Place	-	-	-	-	-	221.8	221.8	-	**221.8**	-	-	-	-	139.3	-	-	**139.3**	(82.5)	(82.5)	
Upgrade Core IT Infrastructure - Hydro Place	-	-	-	-	-	359.4	359.4	-	**359.4**	-	-	-	-	404.6	-	-	**404.6**	45.2	45.2	
Upgrade Software Applications - Hydro Place	-	-	-	-	-	110.4	110.4	-	**110.4**	-	-	-	-	44.8	-	-	**44.8**	(65.6)	(65.6)	
Refresh Security Software - Hydro Place	-	-	-	-	-	90.7	90.7	-	**90.7**	-	-	-	-	96.0	-	-	**96.0**	5.3	5.3	
Perform Minor Enhancements - Hydro Place	-	-	-	-	-	47.1	47.1	-	**47.1**	-	-	-	-	32.5	-	-	**32.5**	(14.6)	(14.6)	
Upgrade Energy Management System - Hydro Place	-	-	-	-	-	271.7	271.7	-	**271.7**	-	-	-	-	108.9	-	162.8	271.7	-	(162.8)	52
Total Information Systems Projects	**-**	**-**	**-**	**-**	**-**	**1,597.1**	**1,597.1**	**-**	**1,597.1**	**-**	**-**	**-**	**-**	**1,281.3**	**-**	**162.8**	**1,444.0**	**(153.1)**	**(315.8)**	

Table 14: 2019 Capital Expenditures: Telecontrol ($000)

	Actual Expenditure and Forecast															Capital Budget					Variance		
	A							G				H	I	J	K (G+H+I+J)	B	C	D	E	F (A+C+E)	K-F	H-D	Notes
	2015	2016	2017	2018	2015	2016	2017	2018	2019	2020 and Beyond	Carryover to 2020	Total	Carryover to 2019	Original 2019	Revised 2019	2020 and Beyond	Total	Project Variance	Annual Variance	
2019 Projects																							
Upgrade Telecontrol Facilities - Gull Pond Hill and Bay d'Espoir Hill	-	-	-	-	-	-	-	-	97.8	577.6	(1.5)	**673.9**		96.3	96.3	577.6	**673.9**	-	1.5		
Replace Teleprotection - TL 202 and TL 206	-	-	-	-	-	-	-	-	225.8	-	-	**225.8**	-	196.8	196.8	-	**196.8**	29.0	29.0		
Replace Network Communications Equipment - Various	-	-	-	-	-	-	-	-	180.4	-	-	**180.4**	-	189.5	189.5	-	**189.5**	(9.1)	(9.1)		
Upgrade Site Facilities - Various	-	-	-	-	-	-	-	-	50.3	-	-	**50.3**	-	49.4	49.4	-	**49.4**	0.9	0.9		
Replace Radomes - Various	-	-	-	-	-	-	-	-	253.1	-	-	**253.1**	-	263.5	263.5	-	**263.5**	(10.4)	(10.4)		
Upgrade Remote Terminal Units - Various	-	-	-	-	-	-	-	-	165.0	-	-	**165.0**	-	167.7	167.7	-	**167.7**	(2.7)	(2.7)		
Purchase Tools and Equipment less than $50,000	-	-	-	-	-	-	-	-	42.1	-	-	**42.1**	-	45.6	45.6	-	**45.6**	(3.5)	(3.5)		
2018 Projects																							
Replace PBX Phone Systems - Various	-	-	-	91.7	-	-	-	134.9	1,244.7	-	-	**1,379.6**	(43.2)	1,150.6	1,107.4	-	**1,242.3**	137.3	137.3	53			
Replace MDR 6000 Microwave Radio - Various	-	-	-	64.0	-	-	-	81.5	1,151.6	-	-	**1,233.1**	(17.5)	1,137.0	1,119.5	-	**1,201.0**	32.1	32.1				
Replace Teleprotection - TL 261	-	-	-	57.6	-	-	-	60.1	432.8	-	-	**492.9**	(2.5)	459.8	457.3	-	**517.4**	(24.5)	(24.5)				
Replace Battery Banks and Chargers - Various	-	-	-	382.1	-	-	-	231.3	671.9	-	-	**903.2**	150.8	555.8	706.6	-	**937.9**	(34.7)	(34.7)				
Total Telecontrol Projects	**-**	**-**	**-**	**595.4**	**-**	**-**	**-**	**507.8**	**4,515.5**	**577.6**	**(1.5)**	**5,599.4**	**87.6**	**4,312.0**	**4,399.6**	**577.6**	**5,485.0**	**114.4**	**115.9**				

Table 15: 2019 Capital Expenditures: Transportation and Administrative ($000)

	Capital Budget									Actual Expenditure and Forecast								Variance		
	A				B	C	D	E	F (A+C+E)	G				H	I	J	K (G+H+I+J)	K-F	H-D	
	2015	2016	2017	2018	Carryover to 2019	Original 2019	Revised 2019	2020 and Beyond	Total	2015	2016	2017	2018	2019	2020 and Beyond	Carryover to 2020	Total	Project Variance	Annual Variance	Notes
2019 Transportation Projects																				
Replace Vehicles and Aerial Devices - Various Sites	-	-	-	-	-	1,248.1	1,248.1	594.9	**1,843.0**	-	-	-	-	1,385.0	594.9	(136.9)	**1,843.0**	-	136.9	54
2018 Transportation Projects																				
Replace Vehicles and Aerial Devices - Various Sites	-	-	-	1,667.2	502.1	753.7	1,255.8	-	**2,420.9**	-	-	-	1,165.1	490.1	-	765.7	**2,420.9**	-	(765.7)	55
Total Transportation Projects	**-**	**-**	**-**	**1,667.2**	**502.1**	**2,001.8**	**2,503.9**	**594.9**	**4,263.9**	**-**	**-**	**-**	**1,165.1**	**1,875.1**	**594.9**	**628.8**	**4,263.9**	**-**	**(628.8)**	

	Capital Budget									Actual Expenditure and Forecast								Variance		
	A				B	C	D	E	F (A+C+E)	G				H	I	J	K (G+H+I+J)	K-F	H-D	
	2015	2016	2017	2018	Carryover to 2019	Original 2019	Revised 2019	2020 and Beyond	Total	2015	2016	2017	2018	2019	2020 and Beyond	Carryover to 2020	Total	Project Variance	Annual Variance	Notes
2019 Administrative Projects																				
Remove Safety Hazards - Various	-	-	-	-	-	197.5	197.5	-	**197.5**	-	-	-	-	210.8	-	-	**210.8**	13.3	13.3	
Security Improvements - Hydro Place	-	-	-	-	-	47.1	47.1	-	**47.1**	-	-	-	-	28.3	-	-	**28.3**	(18.8)	(18.8)	
Purchase Office Equipment	-	-	-	-	-	38.0	38.0	-	**38.0**	-	-	-	-	20.4	-	-	**20.4**	(17.6)	(17.6)	
2018 Administrative Projects																				
Upgrade Exterior of Building - Hydro Place	-	-	-	260.2	27.6	405.7	433.3	-	**665.9**	-	-	-	232.6	346.7	-	-	**579.3**	(86.6)	(86.6)	
Total Administrative Projects	**-**	**-**	**-**	**260.2**	**27.6**	**688.3**	**715.9**	**-**	**948.5**	**-**	**-**	**-**	**232.6**	**606.2**	**-**	**-**	**838.8**	**(109.7)**	**(109.7)**	

Table 16: 2019 Capital Expenditures: Allowance for Unforeseen Items, Supplemental Capital Projects, and Projects less than $50,000 ($000)

	Capital Budget									Actual Expenditure and Forecast								Variance		
	A				B	C	D	E	F (A+C+E)	G				H	I	J	K (G+H+I+J)	K-F	H-D	
	2015	2016	2017	2018	Carryover to 2019	Original 2019	Revised 2019	2020 and Beyond	Total	2015	2016	2017	2018	2019	2020 and Beyond	Carryover to 2020	Total	Project Variance	Annual Variance	Notes
2019 Allowance for Unforeseen Projects																				
Contingency Fund	-	-	-	-	-	1,000.0	1,000.0	-	**1,000.0**	-	-	-	-	-	-	-	-	(1,000.0)	(1,000.0)	56
Replace Engine #2051 - Rigolet	-	-	-	-	-	-	-	-	**-**	-	-	-	-	537.6	-	-	**537.6**	537.6	537.6	56
Charlottetown Diesel Plant Restore Service Following Fire	-	-	-	-	-	-	-	-	**-**					738.4		-	**738.4**	738.4	738.4	56
Allowance for Unforeseen - Top Up Board Order No. P.U. 7(2019)	-	-	-	-	-	600.0	600.0	-	**600.0**	-	-	-	-	-	-	-	-	(600.0)	(600.0)	56
Total Allowance For Unforeseen	**-**	**-**	**-**	**-**	**-**	**1,600.0**	**1,600.0**	**-**	**1,600.0**	**-**	**-**	**-**	**-**	**1,276.0**	**-**	**-**	**1,276.0**	**(324.0)**	**(324.0)**	

	Capital Budget									Actual Expenditure and Forecast								Variance		
	A				B	C	D	E	F (A+C+E)	G				H	I	J	K (G+H+I+J)	K-F	H-D	
	2015	2016	2017	2018	Carryover to 2019	Original 2019	Revised 2019	2020 and Beyond	Total	2015	2016	2017	2018	2019	2020 and Beyond	Carryover to 2020	Total	Project Variance	Annual Variance	Notes
2019 Supplemental Capital Projects																				
Muskrat Falls to Happy Valley Interconnection	-	-	-	-	-	12,586.4	12,586.4	7,392.1	**19,978.5**	-	-	-	-	12,528.5	7,392.1	57.9	**19,978.5**	-	(57.9)	
Hinds Lake Unit Major Overhaul	-	-	-	-	-	259.5	259.5	-	**259.5**	-	-	-	-	422.9	-	-	**422.9**	163.4	163.4	57
Level II Cond. Assess. for BDE Penstock 4 and Granite Canal and Hinds Lake Penstocks	-	-	-	-	-	414.3	414.3	-	**414.3**	-	-	-	-	294.4	-	-	**294.4**	(119.9)	(119.9)	58
Refurbishment and Upgrade of Olympus C Gas Generator – Serial Number 202204	-	-	-	-	-	393.5	393.5	-	**393.5**					432.0		(38.5)	**393.5**	-	38.5	
Refurb. Hardwoods GT Alternator Exciter End Bearing & Purchase of Exciter Bearing Liner & Thrust Pads	-	-	-	-	-	225.5	225.5	-	**225.5**					195.6		-	**195.6**	(29.9)	(29.9)	
2018 Supplemental Capital Projects																				
Penstock Condition Assessments - Bay d'Espoir	-	-	-	1,120.6	223.8	-	223.8	-	**1,120.6**	-	-	-	1,682.5	150.1	-	-	**1,832.6**	712.0	(73.7)	59
Mary's Harbour Hydro Integration	-	-	-	195.5	146.3	-	146.3	-	**195.5**	-	-	-	49.2	193.5	-	-	**242.7**	47.2	47.2	
Mary's Harbour Hydro Integration - CIAC	-	-	-	(195.5)	(195.5)	-	(195.5)	-	**(195.5)**	-	-	-	-	(195.5)	-	-	**(195.5)**	-	-	
TL 226 and TL 239 Reroute	-	-	-	712.3	132.5	220.1	352.6	-	**932.4**	-	-	-	579.8	414.3	-	-	**994.1**	61.7	61.7	
Total Supplemental Projects Approved by PUB	**-**	**-**	**-**	**1,832.9**	**307.1**	**14,099.3**	**14,406.4**	**7,392.1**	**23,324.3**	**-**	**-**	**-**	**2,311.5**	**14,435.8**	**7,392.1**	**19.4**	**24,158.8**	**834.5**	**29.4**	

	Capital Budget									Actual Expenditure and Forecast								Variance		
	A				B	C	D	E	F (A+C+E)	G				H	I	J	K (G+H+I+J)	K-F	H-D	
	2015	2016	2017	2018	Carryover to 2019	Original 2019	Revised 2019	2020 and Beyond	Total	2015	2016	2017	2018	2019	2020 and Beyond	Carryover to 2020	Total	Project Variance	Annual Variance	Notes
2019 Projects less than $50,000																				
Building Vestibule Powerhouse - Holyrood	-	-	-	-	-	49.3	49.3	-	**49.3**	-	-	-	-	37.3	-	-	**37.3**	(12.0)	(12.0)	
Procure Spare Fuel Shut-Off Valve - Happy Valley Gas Turbine	-	-	-	-	-	31.2	31.2	-	**31.2**	-	-	-	-	28.6	-	-	**28.6**	(2.6)	(2.6)	
Unit 3 Electrical Testing - Holyrood	-	-	-	-	-	39.1	39.1	-	**39.1**	-	-	-	-	33.4	-	-	**33.4**	(5.7)	(5.7)	
Tanks 3 and 4 Life Expectancy Study - Holyrood	-	-	-	-	-	48.3	48.3	-	**48.3**	-	-	-	-	34.2	-	-	**34.2**	(14.1)	(14.1)	
Replace Silencer and Electrical Cables - Rigolet	-	-	-	-	-	47.3	47.3	-	**47.3**	-	-	-	-	47.3	-	-	**47.3**	-	-	
Supply and Install Replacement Waterline - St. Anthony	-	-	-	-	-	47.4	47.4	-	**47.4**	-	-	-	-	46.6	-	-	**46.6**	(0.8)	(0.8)	
Replace Exciter Bearing - Hardwoods	-	-	-	-	-	48.0	48.0	-	**48.0**	-	-	-	-	44.4	-	-	**44.4**	(3.6)	(3.6)	
Replace Inverter - Hardwoods Gas Turbine	-	-	-	-	-	41.9	41.9	-	**41.9**	-	-	-	-	44.4	-	-	**44.4**	2.5	2.5	
Tools and Equipment - Holyrood	-	-	-	-	-	46.1	46.1	-	**46.1**	-	-	-	-	46.1	-	-	**46.1**	-	(0.0)	
Tools and Equipment - Holyrood	-	-	-	-	-	14.8	14.8	-	**14.8**	-	-	-	-	14.8	-	-	**14.8**	-	(0.0)	
																	-			
Total Projects Less than $50,000	**-**	**-**	**-**	**-**	**-**	**413.4**	**413.4**	**-**	**413.4**	**-**	**-**	**-**	**-**	**377.0**	**-**	**-**	**377.0**	**(36.4)**	**(36.4)**	

4.0 Variance Explanations (Greater than $100,000 and 10% Variance from Budget)

This section provides variance explanations of a project's actual and forecast expenditures when compared to the approved project budgets. A variance explanation is provided for each project in which the total project actual and forecast expenditures exceeded the approved total project budget by more than 10% and $100,000. Variance explanations are also provided if the 2019 project expenditures exceeded the approved 2019 budget by more than 10% and $100,000. The projects are ordered and numbered based upon the order and number they appear in the preceding set of tables.

4.1 Hydraulic Generation Projects (Table 3)

1) Hydraulic In-Service Failures

While a variance explanation is not required for this project, Hydro committed to providing the Board with details for each of the In-Service Failures projects. A detailed list of work executed under the Hydraulic In-Service Failures project is located in Section 9.0.

2) Hydraulic Generation Refurbishment and Modernization (2019–2020) - Various Sites

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	10,313.6	8,893.9	(1,419.7)

This is a two-year project initially planned for 2019–2020 that commenced in 2019 and will carry over into 2021. The variance in 2019 expenditures is primarily attributed to the engineering and a portion of the construction for the refurbishment of Bay d'Espoir Intake 2 being rescheduled from 2019 to 2020. During the development of the 2019 generation outage schedule, it was determined that all required generation outages for Hydro's overall work plan could not be granted. This was primarily a result of the need to advance the Hinds Lake generator refurbishment into 2019. It was determined that the Bay d'Espoir intake gate work was the lowest priority among all significant generation outage requirements for 2019, resulting in a rescheduling of the Intake 1 refurbishment to 2020 (as part of the 2018–2019 Hydraulic Generation Refurbishment and Modernization project). This, in turn, led to the rescheduling of the refurbishment of Intake 2 to 2020–2021 (as part of this 2019–2020 Hydraulic Generation Refurbishment and Modernization Project). The project plan for Intake 2 includes refurbishing the original gate to be removed from Intake 1 and installing it in Intake 2. Since the gate from Intake 1 did

not get removed in 2019, its refurbishment could not be completed in 2019. The 2019 under-expenditure was also attributed to the work to replace control cables and condition monitoring equipment at Bay d'Espoir Generating Station. A portion of this work has been carried over to 2020. The control cables and condition monitoring equipment that were replaced in 2019 were completed for less than the original estimates.

3) Install Remote Operation of Salmon Spillway – Bay d'Espoir

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	1,623.0	933.0	(690.0)
Project	2,508.4	1,818.4	(690.0)

This was a two-year project (2018–2019) that commenced in 2018 and was completed in 2019. The variances in 2019 and overall project expenditures are attributed to the actual expenditure for engineering and materials being less than originally estimated.

4) Refurbish Backfill on Penstock #1 – Bay d'Espoir

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	1,567.2	11.5	(1,555.7)
Project	1,630.4	74.7	(1,555.7)

This was a one-year project that commenced in 2018, carried over into 2019, and was subsequently cancelled. An engineering consultant's report in 2018 concerning a failure of Bay d'Espoir Penstock 1 recommended suspending work on refurbishment of the backfill until completion of a condition assessment of Penstocks 1, 2 and 3. The condition assessment report, finalized in 2019 and filed with the Board on March 29, 2019, included a recommendation that refurbishment of the penstocks be completed within the next three to five years. Completing the backfill refurbishment at the same time as the future penstock refurbishment is the most cost efficient approach to execute the work. The engineering consultant confirmed that deferring the backfill work for three to five years does not introduce any material risk to the asset. Backfill refurbishment for Penstock 1 will be included in the scope of a future penstock refurbishment project.

The project's capital spend to date is being assessed to determine if it will add value to future planned refurbishment of the penstock. In the event the expenditures add value, then the balance will be

transferred to Front End Engineering and Design ("FEED") for inclusion in future work and excluded from the rate base until completion of the job. If it is determined that the expenditures do not add value then the balance will be written off to net income.

5) Hydraulic Generation Refurbishment and Modernization (2018–2019) - Various Sites

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	6,861.8	3,367.7	(3,494.1)

Variance	Budget ($000)	Forecast and Expenditures ($000)	Variance ($000)
Project	14,608.5	12,384.4	(2,224.1)

This is a two-year project (2018–2019) that commenced in 2018 and has carried over into 2020. The variance in 2019 expenditures is primarily attributed to rescheduling of the refurbishment of Bay d'Espoir Intake 1 and Bay d'Espoir Surge Tank 1 to 2020.

During the development of the 2019 generation outage schedule, it was determined that all required generation outages for Hydro's overall work plan could not be granted. This was primarily a result of the need to advance the Hinds Lake generator refurbishment into 2019. It was determined that the Bay d'Espoir intake gate work was the lowest priority among all significant generation outage requirements for 2019, resulting in a rescheduling of the Intake 1 refurbishment to 2020. During project planning it was determined that gate replacement was required in the place of gate refurbishment due to schedule constraints and risk control. This alternative was determined to be within the project estimate.

Internal and external refurbishment of Bay d'Espoir Surge Tank 1 was originally planned for 2018, but the available generation outage duration in 2018 was too short to complete the entire scope. The external tank work was completed in 2018 and the internal tank work was rescheduled to 2019. In 2019, the internal tank work, consisting of tank bowl refurbishment and internal coating application, could not be completed within the available generation outage schedule. It was decided in advance of the outage to proceed with the tank bowl refurbishment in 2019 and carry over the coating application to 2020. In the third quarter of 2019, there was a change to the master outage schedule to accommodate a required outage extension for Bay d'Espoir Unit 7. This resulted in a shortened outage

for Bay d'Espoir Units 1 and 2, which is required for the surge tank work, and resulted in the tank bowl refurbishment also being carried over to 2020.

The forecasted variance in overall project expenditures is reduced due to a reduced volume of work compared to the original estimate for the Bay d'Espoir Unit 2 turbine overhaul completed in 2018. Upon disassembly of the turbine, it was found that the discharge wear ring was able to be refurbished in-place, rather than be replaced as originally planned.

6) Refurbish Powerhouse Station Services – Bay d'Espoir

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	3,300.6	2,643.4	(657.2)

Variance	Budget ($000)	Forecast and Expenditures ($000)	Variance ($000)
Project	4,347.1	3,847.1	(500.0)

This is a three-year project (2017–2019) that commenced in 2017 and has carried over into 2020. The variances in 2019 and overall project expenditures are attributed to the actual costs for engineering and materials being less than originally estimated, as well as the carryover of a portion of the construction into 2020. Most of the upgrades to the station services in Bay d'Espoir Powerhouses 1 and 2 were completed in 2019. Due to resource and outage window constraints, panel board replacement in both powerhouses has carried over into 2020.

7) Replace Slip Rings Units 1-6 – Bay d'Espoir

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	352.7	181.6	(171.1)
Project	472.3	301.2	(171.1)

This was a two-year project (2017–2018) that commenced in 2017 and was carried over and completed in 2019. The variances in 2019 and overall project expenditures are attributed to the actual costs for engineering, materials, and labour being less than originally estimated.

8) Control Structure Refurbishments

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Project	2,188.2	1,927.6	(260.6)

This was a two-year project (2017–2018) that commenced in 2017 and was carried over and completed in 2019. The variance in overall project expenditures is attributed to the actual contract costs being less than originally estimated.

9) Upgrade Work – Cat Arm

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	30.3	193.7	163.4
Project	1,911.3	2,571.0	659.7

This was a two-year project (2016–2017) that commenced in 2016, and was carried over and completed in 2019. The variance in total project expenditures is attributed to actual expenditures being higher than originally estimated for the upgrade of the spherical valve control systems and the installation of deflector servomotors.

For the refurbishment of the spherical valve control system, increased material requirements were identified during the engineering phase. In addition, there were cost increases as a result of a change in construction strategy from the original plan of using internal labor to the use of a contractor due to unavailability of internal resources. This scope was completed in 2018.

The two deflector servomotors purchased and installed as part of this project had a long lead time and could not be ordered until an existing servomotor of the same design was installed, tested, and proven to meet the performance specifications. The existing servomotor was installed in September 2018 and determined to meet the performance specifications. The new servomotors were then ordered in 2018 and received and installed in 2019. The actual engineering and construction costs for this work were higher than originally estimated, resulting in the variance in 2019 expenditures and contributing to the variance in overall project expenditures.

10) Rehabilitate Shoreline Protection – Cat Arm

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	888.0	(254.9)	(1,142.9)
Project	1,142.9	0.0	(1,142.9)

This was a two-year project (2016–2017) that commenced in 2016, carried over into 2019 and was subsequently cancelled. During project planning, it was determined that there is risk of rock fall from the adjacent cliff into the construction zone. The identification of the necessity for risk mitigation to ensure a safe work site resulted in a pause on the project to estimate the associated cost and, if necessary, re-evaluate the project alternatives. A site survey was completed in September 2018 and a cost estimate for mitigation of the safety hazard was completed in December 2018. These costs were used in 2019 to update the project estimate and re-evaluate the cost benefit analysis of project alternatives. The updated analysis showed that the planned shoreline rehabilitation is no longer the least-cost alternative. As a result, the capital project was cancelled in the second quarter of 2019. The shoreline erosion will continue to be monitored and any required remedial work will be undertaken as an operating expense.

Upon the cancellation of the job, Hydro wrote off the balance of the project to net income.

11) Replace Site Facilities – Bay d'Espoir

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	904.4	2,045.0	1,140.6

This was a three-year project (2016–2018) that commenced in 2016 and was carried over and completed in 2019. The overall project expenditures were within 10% of the original budget. The variance in the 2019 expenditures is attributed to additional engineering and construction labour costs associated with managing and completing project deficiencies that carried in 2019.

12) Replace Pumphouse and Associated Equipment – Bay d'Espoir

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Project	545.2	1,051.0	505.8

This was a two-year project (2015–2016) that was carried over and completed in 2019. The variance in overall project expenditures is attributed to higher than expected construction costs. Construction was originally tendered in 2016, but was not awarded since tendered prices were significantly higher than the budget. A reassessment of the design and execution strategy was undertaken, but did not result in any material savings. Replacement of the pump house became critical after damage sustained from flooding during Hurricane Matthew in 2016. The work was re-tendered and construction began in 2018 and was completed in 2019.

4.2 Thermal Generation Projects (Table 4)

13) Overhaul Unit 3 Turbine Valve - Holyrood

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	3,290.5	2,683.0	(607.5)
Project	3,290.5	2,683.0	(607.5)

This was a one-year project that commenced and was completed in 2019. The original project budget was based on historical valve overhaul costs. The extent of work required for a valve overhaul can only be determined after the valve is removed from service and disassembled for inspection, during the project execution. In this case, the extent of required refurbishment following valve disassembly was less than originally estimated.

14) Condition Assessment and Miscellaneous Upgrades - Holyrood

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	1,968.8	2,941.7	972.9
Project	1,968.8	2,941.7	972.9

This was a one-year project that commenced and was completed in 2019. The original project scope of work, determined at the time of budget preparation, was based on best available asset condition information. Additional information was determined through inspections completed during generation unit outages in 2018 and 2019. These inspections revealed that additional scope of work was required for the continued safe and reliable operation of the plant. The additional scope was primarily related to the boiler air heaters, stack breeching, forced draft fans, economizer, and water wall tubing. A detailed

list of the additional work executed under this project is included in Section 11.0 of this report. The variance in total project expenditure is attributed to this additional scope.

15) Thermal In-Service Failures

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	1,250.0	2,327.4	1,077.4
Project	1,250.0	2,327.4	1,077.4

This was a one-year project that commenced and was completed in 2019. The budget for the project was based on prediction of the magnitude of in-service failures using historical data and engineering judgement. The variance in project expenditures is attributed to the actual number of failures incurred. A detailed list of work executed under this project is found in Section 10.0 of this report.

4.3 Gas Turbine Generation Projects (Table 5)

16) Overhaul Olympus Gas Generator - Stephenville

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	1,666.8	1,245.1	(421.7)

This is a one-year project which commenced in 2019 and has carried over into 2020. The variance in 2019 expenditures is attributed to carrying over the final acceptance activities associated with the overhauled gas generator. The gas generator was removed from the generating unit at Stephenville in June 2019 and overhauled at an off-site facility. The overhaul was completed on schedule and the engine passed its performance test at the overhaul facility. In November 2019, the engine was returned to Stephenville, installed and ran for approximately two hours. During this run-up, the engine tripped due to high vibration. Internal and external inspections revealed damage to the on-engine fuel pump gearbox and potential internal damage to the high pressure turbine casing. It was determined that the engine needed to be removed from its berth and returned to the overhaul facility . The engine was shipped back to the overhaul facility on November 28, 2019 and returned to Hydro on February 19, 2020. The engine is in storage in Stephenville for use as a spare for the Stephenville or Hardwoods Gas Turbine.

17) Upgrade HMI and AVR - Hardwoods

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	685.9	493.8	(192.1)
Project	685.9	493.8	(192.1)

This was a one-year project which was completed in 2019. The variance in project expenditures was attributed to actual construction and commissioning costs being less than the original estimates.

18) Replace Main Fuel Valves - Hardwoods

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	404.2	168.0	(236.2)

Variance	Budget ($000)	Forecast and Expenditures ($000)	Variance ($000)
Project	404.2	240.8	(163.4)

This was a one-year project which commenced in 2019 and has carried over into 2020. The new fuel valves were purchased and preparatory construction work was completed in 2019; however, the gas turbine generation outage necessary to complete the construction and commissioning was not available in 2019. The remaining work has been rescheduled to 2020. The forecasted variance in overall project expenditures is attributed to the actual purchase cost of the new valves being less than originally estimated. The variance in 2019 expenditures is due to the lower purchase cost of the valves and the carryover of the remaining construction and commissioning to 2020.

19) Gas Turbine Equipment Replacement and Refurbishment: Hardwoods and Stephenville

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Project	1,427.2	1,197.3	(229.9)

This was a two-year project (2018–2019) which was completed in 2019. The variance in overall project expenditures is due to the cancellation of a portion of the project scope. An updated engineering assessment of the existing demisters at Hardwoods and Stephenville Gas Turbines concluded that they

did not require replacement; instead, a piping modification was made to improve their performance. One demister was purchased and will be kept as a spare.

20) Increase Fuel and Water Treatment System Capacity - Holyrood Gas Turbine

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	9,105.8	3,563.9	(5,541.9)

Variance	Budget ($000)	Forecast and Expenditures ($000)	Variance ($000)
Project	11,842.6	6,635.7	(5,206.9)

This is a two-year project (2018–2019) which commenced in 2018 and has been carried over into 2020. The overall scope of work for this project is to expand the water treatment plant and install two new fuel tanks at the Holyrood Gas Turbine. In 2019, the water treatment plant expansion was completed and put into service. Also in 2019, construction was completed for the two new fuel storage tanks and they were placed in service with manual operation capability. The project has carried over into 2020 to complete the automation of the fuel transfer system and complete secondary containment liner work that was hampered by inclement weather in 2019.

The forecasted variance in overall project expenditures and the variance in 2019 expenditures are attributed to lower than estimated contract prices for the fuel tank construction. At the time of budget preparation, Hydro requested contractor budget pricing; however, the estimates were not received in time for inclusion into the project estimate prior to submission of the 2018 Capital Budget Application. In lieu of current contract estimates, Hydro used historical cost data from the original plant construction.

21) Turbine Hot Gas Path Level 2 Inspection and Overhaul – Holyrood Gas Turbine

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	682.9	58.8	(624.1)
Project	11,146.5	9,829.5	(1,317.0)

This was a two-year project (2018–2019) which was substantially completed in 2018 and closed in 2019. In a letter dated July 26, 2018, Hydro reported to the Board of Commissioners of Public Utilities ("Board"), that the overhaul had to be advanced and completed in 2018 due to greater than anticipated use of the Holyrood Gas Turbine since its last inspection and overhaul. The variance in 2019 expenditures is attributed to the actual expenditures for project close-out activities being less than the remaining project budget. The variance in overall project expenditures is attributed to a reduction of project scope. Upon disassembly and inspection, it was determined that the interstage seals did not require replacement. The inspection and overhaul was completed and the unit was returned to service in the fourth quarter of 2018.

4.4 Terminal Stations Projects (Table 6)

22) Terminal Station In-Service Failures

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	1,000.0	1,744.6	744.6
Project	1,000.0	1,744.6	744.6

This was a one-year project completed in 2019. The budget for the project was based on prediction of the magnitude of in-service failures using historical data and engineering judgement. The 2019 variance is attributed to the actual number of failures incurred. A detailed list of work executed under this project is found in Section 8.0 of this report.

23) Terminal Station Refurbishment and Modernization – Various Sites

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	10,891.1	5,891.3	(4,999.8)

Variance	Budget ($000)	Forecast and Expenditures ($000)	Variance ($000)
Project	29,952.9	26,152.1	(3,800.8)

This is a two-year project (2019-2020) that commenced in 2019 and includes a number of consolidated program-type projects across several sites and a focused refurbishment at Wabush Terminal Station.

The variance in 2019 expenditure is primarily associated with the capital programs for power transformers, protective relays, digital fault recorders and disconnect switches, and the refurbishment of Wabush Terminal Station. The 2019 variance is primarily attributed to rescheduled work due to engineering and construction resource constraints, the cancellation or re-scheduling of various project scope items, and work being completed for less than the original material and labour estimates.

Activities deferred into 2020 due to engineering or construction resource constraints include:

- Various protection and control engineering and material procurement scopes of work;
- The digital fault recorder installation at Berry Hill;
- Disconnect switch procurement for several sites; and
- Wabush breakers and disconnects engineering and procurement.

Items removed from the project scope due to newly acquired condition assessment information indicating that the work was not immediately required include:

- Bay d'Espoir Transformer T1 moisture reduction; and
- Granite Canal Transformer T1 bushing replacement.

Items rescheduled to 2020 due to reassessment of priorities include several transformer refurbishment activities at Bottom Brook Terminal Station, Holyrood Terminal Station, and Sunnyside Terminal Station.

Work scopes that are forecasted to be completed for less than the original estimates include:

- Power transformer upgrades at various sites;
- The digital fault recorder upgrade at Berry Hill; and
- Wabush Terminal Station 230 kV refurbishment.

The forecasted variance in total project expenditure is primarily attributed to an updated forecast for the work to refurbish Wabush Terminal Station. For that work, the actual and forecasted costs for the procurement of replacement circuit breakers is less than originally estimated.

24) Implement Terminal Station Flood Mitigation - Springdale

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	838.2	87.0	(751.2)

Variance	Budget ($000)	Forecast and Expenditures ($000)	Variance ($000)
Project	974.0	1,270.4	296.4

This is a two-year project (2018–2019) that commenced in 2018 and has carried over into 2020. During engineering design, it was determined that the original project alternative to construct a retention berm outside of Hydro's property would cost significantly more than originally estimated. Further evaluation of project alternatives in 2019 demonstrated that the construction of a retention berm along the perimeter of the terminal station could also effectively achieve the desired level of flood mitigation and is the least cost alternative. The change in project alternative resulted in a revised project estimate and carry over of the project construction into 2020, to allow for design and environmental assessment in 2019. The forecasted variance in overall project expenditures and the variance in 2019 expenditures are attributed to this revised estimate and schedule.

25) Purchase Mobile dc Power Systems

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	924.6	616.3	(308.3)
Project	966.5	658.2	(308.3)

This is a two-year project (2018–2019) that was completed in 2019. The variances in overall project and 2019 expenditures are attributed to the actual contract cost for the mobile dc power systems being less than the original estimate.

26) Terminal Station Refurbishment and Modernization – Various Sites

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	24,464.8	9,616.1	(14,848.7)

Variance	Budget ($000)	Forecast and Expenditures ($000)	Variance ($000)
Project	26,795.7	18,122.3	(8,673.4)

This is a two-year project (2018–2019) that commenced in 2018 and has carried over into 2020. The project includes a number of consolidated program-type projects across several sites and a focused refurbishment at Wabush Terminal Station.

The variance in 2019 expenditure is primarily associated with the capital programs for protective relays, insulators, disconnect switches, power transformers, and the refurbishment of Wabush Terminal Station. The 2019 variance is primarily attributed to the rescheduling of work due to system outage constraints; the cancellation or re-scheduling of various project scope items due to new asset condition information, changing priorities for system reliability, or balancing of the overall work plan; and work being completed for less than the original material and labour estimates. Work rescheduled from 2019 to 2020 due to system outage constraints includes:

- Various protection and control system upgrades; and
- The replacement of a circuit breaker and its associated protection and communication systems at Wabush Terminal Station.

The following scope items have been transferred into the 2019-2020 Terminal Station Refurbishment and Modernization project, which has sufficient budget for this work:

- Transformer bushing replacements for Bay d'Espoir T10, Parson's Pond T1, South Brook T1, Hardwoods GT1 and Wabush T6;
- Installation of transformer moisture reduction systems for Oxen Pond T2 and Happy Valley T3;
- Replacement of a disconnect switch at Rattle Brook; and
- Procurement and installation of insulators at Happy Valley and St. Anthony Airport.

Grounding upgrades were partially completed at Hopedale, but a complete upgrade requires additional engineering design due to the rocky conditions found at site. Any additional grounding system upgrades at this location will be proposed as part of a future capital project. Work scopes that are forecasted to be completed for less than the original estimates include:

- Insulators and disconnect switch replacements at various sites;
- Power transformer upgrades at various sites; and
- Refurbishment work at the Wabush Terminal Station.

The forecasted variance in total project expenditure is primarily attributed to the capital programs for insulators, disconnect switches, power transformers, and the Wabush Terminal Station refurbishment particularly:

- The actual and forecasted costs for materials and labour being less than originally estimated, including insulators and disconnect switch replacements at various sites; power transformer upgrades at various sites; and the Wabush Terminal Station refurbishment; and
- Cancelled project scope. The replacement bushings for Bay d'Espoir Transformer T3 and Holyrood T7 were cancelled due to a changed long-term asset plan for these transformers.

27) Replace 66kV Station Service Feed - Holyrood

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	945.7	290.6	(655.1)
Project	1,261.4	606.4	(655.0)

This is a two-year project (2017–2018) that carried over and was completed in 2019. The variances in overall project and 2019 expenditures are attributed to the actual contract cost for the replacement of the station service feed cables being less than the original estimate.

28) Replace Substation - Holyrood

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Project	1,198.0	791.1	(406.9)

This is a two-year project (2017–2018) that carried over and was completed in 2019. During project engineering, connection of a power supply from Newfoundland Power was identified as a viable alternative. This new alternative was estimated and determined to be the least-cost solution compared to the original project scope to construct a new substation. A new project scope and schedule was developed in coordination with Newfoundland Power, and construction was completed in 2019. The variance in overall project expenditures is attributed to the change to the lower cost project alternative.

29) Terminal Station Refurbishment and Modernization – Various Sites

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Project	27,382.1	18,621.1	(8,761.0)

This is a two-year project (2017–2018) that commenced in 2017 and was carried over and closed in 2019. The project included a number of consolidated program-type terminal station projects across several sites. The variance in total project expenditures was primarily associated with the refurbishment or replacement of power transformers and disconnect switches, for which a portion of the work was executed for less that originally estimated. In addition, there was some scope reduction as new asset condition information became available, including the cancellation of the planned replacement of seven disconnect switches at Massey Drive.

The following scope was deferred and completed in 2019 as part of the 2018–2019 Terminal Station Refurbishment and Modernization project, which had sufficient budget for this work:

- Bushing replacements for Holyrood Transformers T5;
- Replacement of four disconnect switches at Western Avalon, Sunnyside, and Holyrood, due to system outage limitations; and
- Installation of breaker failure protection at Berry Hill and Peter's Barren.

The following scope was deferred and is scheduled to be completed in 2020 as part of the 2019-2020 Terminal Station Refurbishment and Modernization project, which has sufficient budget for this work:

- Bushing replacements for Bay d'Espoir Transformer T10;
- Transformer dehydrators for Happy Valley Transformer T3 and Oxen Pond Transformer T2; and

- Grounding system upgrades at Indian River, Coney Arm, and Deer Lake due to more complex designs required to address exceptionally high ground potential rise at these locations.

30) Upgrade Circuit Breakers – Various Sites

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	7,077.2	7,901.7	824.5

This is a five-year project (2016–2020) that commenced in 2016 and includes breaker replacements and refurbishments at a number of terminal station sites each year; it is expected to be completed in 2020. In 2019, three 145 kV circuit breakers and seven 245 kV circuit breakers were replaced and one 245 kV circuit breaker was refurbished. The variance in 2019 expenditures is primarily attributed to changes in timing of various project scope items, with no change in the forecasted total project expenditures.

31) Install Breaker Failure Protection – Various Sites

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	(7.4)	94.3	101.7
Project	277.0	793.2	516.2

This is a two-year project (2016–2017) that carried over and was completed in 2019. The variances in overall and 2019 project expenditures are attributed to higher than estimated engineering, procurement, and construction costs. During the design phase of the project, revisions to Hydro's design standard for breaker failure protection were required. The changes to the standard were made to address lessons learned from system events. The updated standard significantly impacted the overall design for breaker failure protection. This increased the engineering design effort on this project and resulted in increased procurement and construction costs due to the requirement for additional components to adhere to the new standard. In addition, a requirement for additional telecommunications cabling was identified for the work at Howley Terminal Station, Indian River Terminal Station, and Deer Lake Terminal Station.

4.5 Transmission Projects (Table 7)

32) Wood Pole Line Management Program - Various Sites

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	2,467.0	2,873.4	406.4
Project	2,467.0	2,873.4	406.4

This was a one-year project completed in 2019. The variance in expenditures was attributed to the completion of refurbishment work on TL 203 in 2019 that could not be completed as planned in 2018 due to the unavailability of outages of TL 203.

33) 230 kV Transmission Line – Bay d'Espoir to Western Avalon

Variance	Budget	Expenditures	Variance
Annual	1,716.2	875.9	(840.3)

This is a five-year project (2014–2018) that commenced in 2014 and carried over into 2019. The variance in 2019 expenditure is attributed to a portion of the contingency not being required at the end of the project. There is no change to the overall project scope or budget and all work was completed in 2019 and the project is now closed.

4.6 Distribution Projects (Table 8)

34) Provide Service Extensions - All Service Areas

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	4,900.0	3,550.5	(1,349.5)
Project	4,900.0	3,550.5	(1,349.5)

This is an annual budget that is based on data from past experience to provide service extensions to customers. The variance is due to less than forecasted distribution service extension requests.

35) Upgrade Distribution Systems – All Service Areas - CIAC

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	(95.0)	(251.5)	(156.5)
Project	(95.0)	(251.5)	(156.5)

This is an annual budget that is based on past Contributions in Aid of Construction ("CIAC") to provide service extensions to customers. The variance is primarily due to the BlockLab line extension in Wabush, as approved in Board Order P.U.39 (2019). BlockLab contributed $192,550 to this line extension project.

36) Condition Assessment for Submarine Cable – Farewell Head to Change Islands

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	300.1	166.3	(133.8)
Project	300.1	166.3	(133.8)

This was a one-year project completed in 2019. The variance in expenditure is attributed to lower than estimated construction and procurement costs.

37) Additions for Load – Distribution System

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	186.7	80.9	(105.8)
Project	186.7	80.9	(105.8)

This was a one-year project completed in 2019. The variance in overall project and 2019 expenditures is attributed to the actual engineering and construction costs being less than the original estimate.

4.7 Rural Generation Projects (Table 9)

38) Overhaul Diesel Units: Various Sites

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	2,511.3	2,154.4	(356.9)
Project	2,511.3	2,154.4	(356.9)

This was a one-year project completed in 2019. The project is part of an ongoing program to overhaul diesel engines and alternators to sustain reliability of the diesel generating plants. Project estimates are based on the projected number of engines and alternators that will reach the criteria for overhaul and typical extent of refurbishment. Three of the engines and one of the alternators planned for overhaul in 2019 did not proceed. The engine overhaul for Unit 2058 in Little Bay Islands was cancelled in anticipation of the eventual decommissioning of that diesel plant. The engine overhaul for Unit 2089 in Charlottetown (a mobile unit presently servicing the community following the Charlottetown diesel plant fire) was deferred to 2020 as the unit did not reach the expected number of operating hours in 2019. The engine and alternator overhauls for Unit 2063 in McCallum were deferred to 2020 as the unit did not reach the expected number of operating hours in 2019. The project variance is attributed to these cancelled and deferred overhauls.

39) Additions for Load Growth – Isolated Generation Systems

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	1,523.6	2,423.6	900.0

This is a two-year project (2019–2020) that commenced and was substantially completed in 2019, with final close-out activities scheduled for 2020. This project scope includes the construction of a new vertical fuel storage tank and associated earth dyke upgrades in Makkovik. The variance in 2019 expenditures is attributed to an increase in quantity of earthwork required to complete upgrades to the existing dyke, identified during engineering design. The contract costs for mobilization and the tank construction were higher than originally estimated. Prior to contract award, an updated net present value of project alternatives was completed and it was confirmed that the original alternative remains least cost.

40) Diesel Plant Fire Protection (2019–2020)

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	377.2	0.0	(377.2)
Project	1,917.4	0.0	(1,917.4)

This was a two-year project (2019–2020) for Black Tickle that was cancelled. An updated risk ranking for diesel fire protection, to reflect changing demographics in the community of Black Tickle, determined that the project is no longer justified.

41) Replace Human Machine Interface - Cartwright

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	306.9	152.9	(154.0)

This is a one-year project that commenced in 2019 and has carried over into 2020. The variance in 2019 expenditures is a result of the carryover of construction and commissioning activity into 2020. The scope of this project is to replace the existing human machine interface at the Cartwright Diesel Plant. The work was rescheduled from 2019 to 2020 to align with the replacement of a diesel engine as part of another capital project. By completing these two project scopes together, Hydro will avoid potential rework related to programming of the programmable logic controller and supervisory control and data acquisition system.

42) Inspect Fuel Storage Tanks – Grey River

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	203.1	317.0	113.9
Project	203.1	317.0	113.9

This was a one-year project completed in 2019. The internal inspections of two fuel storage tanks in Grey River were completed in 2019 as planned, in accordance with the provincial *Storage and Handling of Gasoline and Associated Products Regulations, 2003* under the *Environmental Protection Act* (O.C.2003-225). One tank did not pass inspection and could not be returned to service and the second tank was recommended for replacement within one year. The project scope was revised to include the replacement of both tanks in 2019 and the tanks were replaced. The variance is attributed to this new scope.

43) Diesel Genset Replacements (2019–2020)

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	525.6	140.2	(385.4)

This is a two-year (2019–2020) project that commenced in 2019. The variance in 2019 expenditures is attributed to a rescheduling of engineering design and procurement activities from 2019 into 2020 due to engineering resources having to shift focus in late 2019 to emergency restoration work at Charlottetown following the diesel plant fire. The overall project schedule is expected to recover with completion in 2020.

44) Diesel Plant Engine Cooling System Upgrades – Various Sites

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	1,160.7	1,013.7	(147.0)

This is a two-year project that commenced in 2018 and has carried into 2020. The variance in 2019 expenditures is attributed to the rescheduling of a portion of the construction activity to 2020. The project scope includes the replacement of cooling equipment at various diesel plants. All of the planned work for 2019 was completed except for the installation of radiators at the Rigolet and St. Anthony Diesel Plants. The construction resources for this work were reassigned to restore generation in Charlottetown following the diesel plant fire in late 2019. The work at Rigolet and St. Anthony has been rescheduled to 2020.

45) Diesel Plant Fire Protection – Postville

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	804.8	508.0	(296.8)

This is a two-year project (2018–2019) that commenced in 2018 and has carried over into 2020. The variance in 2019 expenditures is attributed to the carryover of final construction and commissioning activity into 2020 as a result of several delays in shipping materials from Goose Bay to Postville via the provincial seasonal ferry service. The work has been rescheduled for early 2020.

46) Inspect Fuel Storage Tanks – Black Tickle

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	337.0	562.8	225.8
Project	818.7	1,044.5	225.8

This was a one-year project that commenced in 2018 and was carried over and completed in 2019. The internal inspections of two fuel storage tanks in Black Tickle were completed in 2018 as planned, in accordance with the provincial *Storage and Handling of Gasoline and Associated Products Regulations, 2003* under the *Environmental Protection Act* (O.C.2003-225). The inspection for one of the tanks revealed that minor refurbishment was required and the refurbishment was completed in 2018. The inspection of the second tank revealed that a complete tank bottom replacement was required. Materials were ordered and the tank bottom replacement was completed in 2019. The variances in the overall project and 2019 expenditures are attributed to the additional scope to replace the bottom of one of the tanks.

47) Replace Secondary Containment System Liner – Nain

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	3,922.1	4,508.2	586.1
Project	3,089.6	5,180.7	2,091.1

This was a two-year project (2018–2019) that was completed in 2019. The planned scope included relocation of the four existing fuel tanks to facilitate replacement of the secondary containment system liner. A constructability review was completed early in the project design phase, identifying a risk to cost and schedule. The risk associated with the work required to move the tanks during the liner replacement warranted consideration, given that the three small tanks were 45 years old and had unknown refurbishment requirements. Instead of removing, refurbishing, and reinstalling the three old tanks, an identified alternative was to remove the three tanks and construct a new vertical fuel storage tank. Both alternatives were studied and it was concluded that the estimated cost was not materially different, but the risks to project cost, schedule and asset integrity were materially higher for moving, refurbishing, and reinstalling the old tanks compared to the alternative to construct a new tank. The decision was made to construct a new tank.

The variances in overall project and 2019 expenditures are attributed to higher than estimated cost for civil construction. With the completion of the geotechnical study and detailed design in 2018, it was determined that significantly more earth works were required to replace the dyke liner and provide the required foundation support for the tanks. This work was required regardless of which of the previously noted alternatives was chosen. Additionally, publicly tendered pricing for the construction was higher

than estimated and the quantity of contaminated soil requiring remediation exceeded the original estimate.

48) Diesel Genset Replacements – Makkovik

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	3,722.3	4,174.3	452.0

This is a three-year project (2018–2020) that commenced in 2018. The variance in 2019 expenditures was attributed to the advancement of some of the procurements activities prior to the end of the 2019 shipping season to ensure construction could continue on site in early 2020. In addition, the quantity of contaminated soil requiring remediation exceeded the original estimate.

4.8 Properties Projects (Table 10)

49) Install Pole Storage Ramps – Wabush

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	301.7	185.3	(116.4)
Project	301.7	185.3	(116.4)

This was a one-year project which was completed in 2019. The variance in project expenditures is attributed to the actual construction contract cost being less than the original estimate.

50) Construct New Facilities – Various Sites

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	449.9	342.3	(107.6)
Project	1,456.1	1,009.9	(446.2)

This was a two-year project (2017–2018) that carried over and was completed in 2019. The project scope consisted of the construction of storage buildings at the Makkovik and Charlottetown Diesel Plants and installation of pole storage ramps at various locations. The Charlottetown storage building was constructed in 2017. The pole storage ramps were constructed in 2017–2018. The Makkovik storage building construction, originally planned for 2018, was rescheduled and completed in 2019 in conjunction with a diesel plant building and yard extension. The diesel plant building and yard

extension is part of the scope of a separate project, approved by Board Order No. P.U. 43(2017), to replace a diesel generator set. The variance in 2019 expenditures was attributed to the efficiencies of completing these projects together. The overall project variance was primarily attributed to the actual engineering and construction contract costs being less than originally estimated for the pole storage ramps.

4.9 Metering Projects (Table 11)

There are no reportable variances under Metering Projects.

4.10 Tools and Equipment Projects (Table 12)

51) Replace Off-Road Track Vehicles – Bishop's Falls and Bay d'Espoir

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	950.5	12.0	(938.5)

This is a 2018 project that has carried over into 2020. The specification for the vehicles was changed to a unit that could also support work on new assets (i.e., TL 267) and be used for live line work. Time was required to develop the specification and complete field trials at the manufacturer's facility, resulting in a 2020 delivery schedule for the equipment.

4.11 Information Systems Projects (Table 13)

52) Upgrade Energy Management System – Hydro Place

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	271.7	108.9	(162.8)

This is a one-year project that was planned for completion in 2019. The schedule for final implementation has been moved to 2020. There are no changes to scope or budget.

4.12 Telecontrol Projects (Table 14)

53) Replace PBX Phone Systems – Various

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	1,107.4	1,244.7	137.3
Project	1,242.3	1,379.6	137.3

This was a two-year project (2018–2019) that was completed in 2019. The variances in overall project and 2019 expenditures were attributed to actual labour costs being higher than the original estimate.

4.13 Transportation Projects (Table 15)

54) Replace Vehicles and Aerial Devices – Various Sites

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	1,248.1	1,385.0	136.9

This is a two-year project (2019–2020) that commenced in 2019. The variance in annual expenditures is attributed to material handler units that were more costly than budgeted due to the US exchange rate, tariffs and modifications required to meet towing regulations. There is no anticipated change to the overall project budget.

55) Replace Vehicles and Aerial Devices – Various Sites

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	1,255.8	490.1	(765.7)

This is a two-year project (2018–2019) that has carried over into 2020. The variance in annual expenditures is attributed to a delay in shipping from the manufacturer. The three units that were scheduled for delivery in 2019 are now expected to arrive in 2020.

4.14 Administrative Projects (Table 15)

There are no reportable variances under Administrative Projects.

4.15 Allowance for Unforeseen Items (Table 16)

56) Allowance for Unforeseen Items

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	1,600.0	1,276.0	(324.0)
Project	1,600.0	1,276.0	(324.0)

The Allowance for Unforeseen Items is an annual allotment that permits Hydro to act expeditiously to deal with events affecting the electrical system that cannot wait for specific approval of the Board. Replacement of the Rigolet engine that failed in December 2018 was executed under this project. The report on this item has been filed with the Board. Hydro received approval to replenish the Allowance for Unforeseen Items Account in Board Order No. P.U. 7(2019), increasing the total 2019 allowance to $1.6 million. An additional project was initiated under this account following a fire at the Charlottetown Diesel Plant which occurred on October 7, 2019. Following the fire and loss of the facility, Hydro took steps to provide alternate power and prepare equipment for the winter season. Some costs associated with Hydro's response to the Charlottetown fire will be captured in the 2020 allowance.

4.16 Supplemental Projects (Table 16)

57) Hinds Lake Unit Major Overhaul

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	259.5	422.9	163.4
Project	259.5	422.9	163.4

This is a one-year supplemental capital project that was approved and completed in 2019. The variance in total project and 2019 expenditures is attributed to an increased scope of work associated with the major overhaul of the Hinds Lake generating unit. Following removal of the generator rotor, inspection of the stator indicated that additional electrical testing and subsequent refurbishment was required. The extra work on the stator was necessary to ensure unit reliability for the 2019–2020 winter operating season.

58) Level II Condition Assessments for Bay d'Espoir Penstock 4, Granite Canal Penstock, and Hinds Lake Penstock

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	414.3	294.4	(119.9)
Project	414.3	294.4	(119.9)

This is a one-year supplemental capital project that was approved and completed in 2019. The variance in total project expenditures is attributed to the actual contract costs for the field work being less than the original budget estimate.

59) Penstock Condition Assessments – Bay d'Espoir

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Project	1,120.6	1,832.6	712.0

This is a one-year supplemental capital project that was approved in 2018 and was carried over and completed in 2019. The requirement to complete unforeseen work on Penstock 3 (a separate project under the Allowance for Unforeseen Items) led to a revised generation outage schedule, which resulted in the field work for this project being completed later in 2018 than originally planned. The field work was completed and Hydro collected operational data through the fall and winter of 2018–2019. The engineering reports, which were the final deliverables of this project, were produced in 2019. The variance in total project expenditure is attributed to the actual contract costs for the field work completed in 2018 being higher than the original budget estimate.

5.0 Capital Budget versus Actual Expenditures 2010–2019

Table 17 provides a summary of Hydro's capital budget variances for the years 2010–2019.

Table 17: Capital Budgets/Expenditures 2010–2019

Year	Budget ($000)	Actual Expenditures ($000)	Variance ($000)	Variance (%)
2010	63,297	55,553	(7,744)	(12.2)
2011	67,454	63,116	(4,338)	(6.4)
2012	93,840	77,252	(16,588)	(17.7)
2013	116,373	84,755	(31,618)	(27.2)
2014	280,601	204,728	(75,873)	(27.0)
2015	311,177	125,119	(186,058)	(59.8)
2016	350,601	203,941	(146,660)	(41.8)
2017	340,501	340,741	240	0.1
2018	213,050	156,985	(56,065)	(26.3)
2019	164,194	126,575	(37,619)	(22.9)

In 2019, actual expenditures were below budget in Hydro's overall capital program by $37.6 million (22.9%), as shown in Table 17. The following three capital projects were the primary contributors to the variance. Had these projects been on budget, the overall actual expenditures would have been within 10% of the budget.

1) Variance 26: Terminal Station Refurbishment and Modernization 2018–2019 (-$14.8 million). Approximately half of the 2019 under-expenditure for this project is attributed to work being completed for less than the budget estimate and the other half is attributed to work being carried over to future years.

2) Variance 20: Increase Fuel and Water System Treatment Facility – Holyrood Gas Turbine (2018–2019) (-$5.2 million). This 2019 under-expenditure is attributed to work being completed for less than the budget estimate.

3) Variance 23: Terminal Station Refurbishment and Modernization 2019–2020 (-$5.0 million). Approximately half of the 2019 under-expenditure for this project is attributed to work being completed for less than the budget estimate and the other half is attributed to work being carried over to future years.

Hydro completed an analysis of all projects that had an annual under-expenditure of greater than $100,000 in 2019 to determine the primary drivers. Three main causes were identified, accounting for approximately 83% of the overall under-expenditure:

1) Work was completed for less than the budget estimates. This accounted for approximately 46% of the overall under-expenditure for the projects analyzed. Several projects were overestimated and, for many projects, contingency was estimated at 20% but was not required.

2) Work could not be completed due to the planned outages being unavailable or changed. This accounted for approximately 23% of the overall under-expenditure for the projects analyzed. Much of the capital program is dependent on equipment outages and those outages were not always possible in the durations required to complete the project work, due to system constraints or competing outage requirements. This occurred mainly for planned protection system upgrades in Bay d'Espoir, Holyrood, and Wabush Terminal Stations, as well as planned refurbishments of a surge tank and intake gates at Bay d'Espoir Hydroelectric Generating Facility.

3) Cancelled scope attributed to approximately 14% of the overall under-expenditure for the projects analyzed. Three projects totaling $3.1 million in budgeted 2019 expenditures were cancelled: (1) Refurbish Backfill on Penstock #1 - Bay d'Espoir (Variance 4); (2) Rehabilitate Shoreline Protection – Cat Arm (Variance 10); and (3) Diesel Plant Fire Protection - Black Tickle (Variance 40). Additionally, for the Provide Service Extensions - All Service Areas project (Variance 34) there were less customer requests for service extensions in 2019 than expected, resulting in an under-expenditure of $1.3 million.

Hydro continues to implement a number of improvements that are expected to close the gap between budget and actual expenditures for future years.

- Estimates of project contingency are being improved. Analysis completed in 2019 has shown that contingency has been high for many projects. For projects that closed in 2018, the overall contingency was estimated at 18% and only 9% was required. As a result of this analysis, Hydro has been applying additional analysis and rigour to the amount of contingency estimated for projects, starting with the 2020 budget cycle. Approximately 10% contingency was included in the estimates for new projects approved in the 2020 Capital Budget Application. Hydro will

continue to monitor the level of contingency required on projects and will adjust contingency estimates for future projects as appropriate.

- A more rigorous process has been established for project managers, lead estimators, discipline managers, and long-term asset planners for budget review prior to finalizing project proposals. The process includes a review and sign off of scope, schedule, estimates and contingency amount. This process was trialled for the 2019 budget cycle, enhanced, and rolled out for full implementation for the 2020 budget cycle. Hydro intends to continue to review its estimating practices to find areas of improvement other than contingency.

- Hydro continues to take steps for earlier, improved planning of the overall Integrated Annual Work Plan, with an aim to complete Integrated Annual Work Plans ahead of each annual Capital Budget Application and potentially decrease the amount of carryover by verifying that proposed projects are achievable from resource and outage availability perspectives. In 2020, Hydro intends to expand on its underspend analysis by completing a more detailed root cause analysis of the projects that carried over from 2018 and 2019 to identify trends and potential areas for improvement.

As outlined in Hydro's Efficiency and Effectiveness Plan framework,[2] Hydro has identified capital planning as an area of focus to pursue efficiencies and cost savings. As part of this initiative, Hydro will be reviewing its capital budget planning and execution methodologies.

6.0 Carryover Report

Table 18 provides a summary listing of the carryovers for projects initiated between 2016 and 2019.

[2] "Reference to the Board on Rate Mitigation Options and Impacts – Evidence of Nalcor Energy & Newfoundland and Labrador Hydro," September 20, 2019, app. 3.

Table 18: 2019 Carryover Report for the Year Ending December 31, 2019 ($000)

Project Name	PUB Approved Budget 2019	Revised Budget 2019[3]	Total Actual Expenditures 2019	Carryover Amount	Original Completion Year
Additions for Load - Isolated Generation Systems	1,523.6	1,741.6	2,423.6	(682.0)	2020
Diesel Genset Replacements - Makkovik	4,703.3	3,722.3	4,174.3	(452.0)	2020
Diesel Genset Replacements (2019–2020)	525.6	525.6	140.2	385.4	2020
Diesel Plant Engine Cooling System Upgrades - Various Sites	671.6	1,160.7	1,013.7	147.0	2019
Diesel Plant Fire Protection - Postville	336.4	804.8	508.0	296.8	2019
Distribution System Upgrades - Various Sites	390.8	390.8	422.2	(31.4)	2020
Hydraulic Generation Refurbishment and Modernization - Various Sites (2018—2019)	3,890.1	6,198.1	3,037.6	3,160.5	2019
Hydraulic Generation Refurbishment and Modernization - Various Sites (2019–2020)	3,422.0	3,712.8	1,836.8	1,876.0	2020
Implement Terminal Station Flood Mitigation - Springdale	787.8	1,134.6	87.0	1,047.6	2019
Increase Fuel and Water Treatment System Capacity - Holyrood Gas Turbine	3,012.7	4,051.9	3,563.9	488.0	2019
Install Energy Efficiency Lighting in Diesel Plants - Various	119.0	155.0	97.3	57.7	2020
Install Recloser Remote Control (2019–2020) - Rocky Harbour	66.1	66.1	22.0	44.1	2020
Muskrat Falls to Happy Valley Interconnection	-	12,586.4	12,528.5	57.9	2020
Overhaul Olympus Gas Generator - Stephenville	1,666.8	1,562.0	1,245.1	316.9	2019
Refurbish Powerhouse Station Services - Bay d'Espoir	1,460.6	2,800.6	2,643.4	157.2	2019
Refurbishment and Upgrade of Olympus C Gas Generator – Serial Number 202204	-	393.5	432.0	(38.5) [4]	2019
Replace Automation Equipment - St. Anthony	1,565.9	1,746.1	1,790.8	(44.7) [4]	2019
Replace Exciter Controls Units 1 to 6 - Bay d'Espoir	877.0	886.3	853.9	32.4	2020
Replace Human Machine Interface - Cartwright	306.9	306.9	152.9	154.0	2019
Replace Main Fuel Valves - Hardwoods	404.2	240.8	168.0	72.8	2019
Replace Off-Road Track Vehicles - Bishop Falls and Bay d'Espoir	986.3	1,043.7	12.0	1,031.7	2019
Replace Vehicles and Aerial Devices - Various Sites (2018–2019)	753.7	1,255.8	490.1	765.7	2019
Replace Vehicles and Aerial Devices - Various Sites (2019–2020)	1,248.1	1,248.1	1,385.0	(136.9)	2020
Terminal Station Refurbishment and Modernization Program - Various Sites (2018–2019)	10,661.1	11,319.5	4,797.1	6,522.4	2019
Terminal Station Refurbishment and Modernization Program - Various Sites (2019–2020)	9,271.0	5,814.9	4,615.8	1,199.1	2020
Upgrade Circuit Breakers - Various Sites (2016–2020)	6,597.3	10,122.2	7,901.7	2,220.5	2020
Upgrade Compressed Air System - Holyrood Gas Turbine	70.7	70.7	17.7	53.0	2020
Upgrade Energy Management System - Hydro Place	271.7	271.7	108.9	162.8	2019
Upgrade Telecontrol Facilities - Gull Pond Hill and Bay d'Espoir Hill	96.3	96.3	97.8	(1.5)	2020
Upgrade Terminal Station for Mobile Substation - St. Anthony	89.3	89.3	41.8	47.5	2020
Total 2019 Carryover Projects	**55,775.9**	**75,519.1**	**56,609.1**	**18,910.3**	

[3] Revised Budget = Board Approved Budget + Carryovers + Change Management.
[4] Project costs effective December 31, 2019. At that time Hydro had not yet completed Change Management documentation.

7.0 Safety Hazards

In Board Order No. P.U. 38(2010) related to Hydro's 2011 Capital Budget Application, the Board directed Hydro to include in its annual report on capital expenditures an explanation on each project that was undertaken for the Remove Safety Hazards project, setting out the safety hazard that was identified, the location, the steps taken to address the issue, and the amount of the expenditure. Table 19 outlines the projects undertaken in 2019.

Total Approved Budget: **$197,500**

Total Expenditure: **$210,900**

Table 19: Safety Hazards

Project Title and Location	Expenditure ($000)	Safety Hazard Identified	Project Scope
Replace Deteriorated Main Entrance Walkway Holyrood TGS	79.5	The interlocking paver stone walkway for the main building entrance had deteriorated due to age and as a result of a buried process pipe leak in 2019. Uneven surfaces and heaved paver stones posed slip and trip issues while rainwater ponded in places nearly 100 millimetres deep with very slow drainage that resulted in severe ice problems in winter.	Removed existing walkway including sub-surface materials and replaced with steel-reinforced concrete with brushed finish to maximize traction.
Replace Pedestrian Guard Rails in the vicinity of the Pump House Intake Holyrood TGS	65.3	Original construction steel-pipe handrails approximately 50 years old exhibited severe corrosion and could not be relied upon to perform as intended. In addition, their design was non-compliant with current dimensional standards. This put workers at risk of falling into deep fast-moving water.	Purchased and installed approximately 100 metres of new handrail system along the water's edge.
Replace 600 Volt Quick-Connect Receptacles Bay d'Espoir Hydroelectric Generating Facility	39.8	600 Volt receptacles contain a safety interlock switch that de-energizes the contacts until the cord-end plug is fully inserted. However, most site receptacles are from original construction (approximately 50 years old) and the interlock mechanism had failed, exposing workers to arc-flash hazards. Seven receptacles were locked out forcing workers to run longer extension cords introducing additional hazards.	Purchased and installed seven new 600 Volt interlocking receptacles as direct replacement for failed units.
Install Anti-Slip Mats in the Waste Water Basin Building Holyrood TGS	15.3	The building houses large open pools of warm process water. Constant high humidity causes the bare concrete walkways between and around the pools to accumulate puddles and become slick. Workers were subjected to high risk slip hazards near the open pools of water.	Purchased and installed 60 metres of 0.9 metre width open-weave matting designed for wet environments to improve boot-traction.

Project Title and Location	Expenditure ($000)	Safety Hazard Identified	Project Scope
Add Fencing at Quarry Brook Dam and Add Signage at Cooling Water Discharge into Conception Bay Holyrood TGS	11.0	Construction of a second cooling water supply line from Quarry Brook in 2018 created a ten metre gap between the tree line and existing fencing that posed a public safety hazard in non-compliance with corporate Public Safety Around Dams guidelines. The plant cooling water discharge pipes are located alongside a publically accessible trailway and beach area with only large stones separating the discharge area. Sudden operation at 50,000 gallons per minute is possible posing serious risk to anyone that may venture past the stones.	Extended fencing by ten metres to meet the tree line at Quarry Brook Dam. Erected a warning sign advising the public of the water discharge hazard.

8.0 Terminal Station In-Service Failures

Hydro has committed to providing a summary of activities completed under the Terminal Station In-Service Failures project. Table 20 outlines 2019 expenditures under this project.

Total Approved Budget: **$1,000,000**

Total Expenditure: **$1,744,600**

Table 20: Terminal Station In-Service Failures

Project Title and Location	Expenditure ($000)	Failure Identified	Project Scope
Circuit Breaker B3T5 Replacement Bay d'Espoir Terminal Station 1	466.2	Unit 5 at Bay d'Espoir was being prepared for synchronization with both sides of circuit breaker B3T5 being energized. Before automatic synchronization was initiated, the system experienced a B Phase voltage dip of approximately 20 to 30 kV and Transformer T5 tripped an overcurrent relay. The overcurrent relay then commanded breaker B3T5 to open, but it was already in the open position. As a result, breaker failure protection operated and cleared Bus 3 (1.3 seconds later) which included both Unit 5 and Unit 6. Upon further review of the fault records it was determined the breaker had passed current on phase B indicating an internal flash over. Further Doble testing, SF_6 gas quality testing and follow up with the original equipment manufacturer's engineering team	Breaker B3T5 was replaced. The original equipment manufacturer refurbished the failed circuit breaker at a cost to Hydro of only the transportation to and from the factory. The refurbished breaker will serve as a spare.

Project Title and Location	Expenditure ($000)	Failure Identified	Project Scope
		confirmed there was an internal flashover of phase B and the breaker required replacement.	
Circuit Breaker B3T6 Replacement Bay d'Espoir Terminal Station	386.0	While taking Bay d'Espoir Unit 6 off line during a controlled shutdown, breaker failure protection for breaker B3T6 operated causing Bus 3 to clear (0.2 seconds later) and Unit 5 to come offline. When breaker B3T6 was opened, the system experienced a C-Phase fault on the breaker. Upon further review of the fault records, it was determined that breaker B3T6 had passed current on phase C indicating a possible internal flashover. Further doble testing, SF_6 gas quality testing and follow up with the original equipment manufacturer's engineering confirmed there was an internal flashover of phase C and immediate replacement was required.	Breaker B3T6 was replaced. The original equipment manufacturer refurbished the failed circuit breaker at no cost to Hydro. The refurbished breaker will serve as a spare.
Circuit Breaker B2T4 Replacement Bay d'Espoir Terminal Station	354.2	Bay d'Espoir Unit 4 was being prepared for synchronizing with both sides of B2T4 being energized. During synchronization the system experienced a voltage dip on A-Phase and tripped transformer T4 overcurrent relay. The overcurrent relay then commanded breaker B2T4 to open but it was already in the open position. As a result, breaker failure protection operated and cleared Bus 2 which included both Unit 4 and Unit 3. Upon further review of the fault records it was determined breaker B2T4 had passed current on phase A in the open position indicating a possible internal flashover. Further SF_6 gas quality testing of A-Phase showed SO_2 in the gas which also indicates that the breaker had an internal fault. An original equipment manufacturer technician was onsite and breaker B2T4 was opened for inspection; it was confirmed that A-Phase had experienced an internal fault.	Breaker B2T4 was replaced. The original equipment manufacturer will refurbish the failed circuit breaker at no cost to Hydro. The refurbished breaker will be used at an alternate location under the Breaker Replacement Program.

Project Title and Location	Expenditure ($000)	Failure Identified	Project Scope
Station Service Transformer SS2 Replacement Wabush Terminal Station	192.9	Station Service Transformer SS2 failed due to an internal fault. The fault resulted in damage that open-circuited phases of the winding. This station service transformer required replacement in order to restore station service transformer redundancy and also provide a grounding source for Bus 15 and Bus 16. In the Wabush Terminal Station, with one station service transformer out of service and the grounding source removed from Bus 15 and Bus 16, the tie breaker must be closed resulting in only one Synchronous Condenser being operational. This in turn causes a reduction in the load that can be supplied to Labrador West and possible load restrictions to Iron Ore Company of Canada.	Wabush Terminal Station Service Transformer SS2 was replaced.
Purchase Spare Current Transformers ("CT") for Churchill Falls	92.6	One spare 230 kV CT and one spare 230 kV current transformer/power transformer ("CT/PT") combination unit is required for the standby equipment pool due to the long lead time to acquire these units from the manufacturer. Acquisition of a replacement unit could take up to 18 months. This delay could result in long-term outage to customers and reduced system reliability.	One spare 230 kV CT and one spare 230 kV CT/PT combination unit were purchased for the standby equipment pool.
Disconnect Switch L12-1/L12-G1 Replacement Bay L'Argent Terminal Station	86.4	138 kV L12-1/L12-G1 disconnect switch had a damaged ground switch which was unrepairable. The disconnect switch was 50 years old and replacement parts were not readily available. Replacement of this disconnect switch with a spare disconnect from the standby equipment pool was required.	138 kV L12-1/L12-G1 disconnect switch was replaced.
69 kV Breaker Refurbishment Hawke's Bay Terminal Station	56.6	B1L21 is a 69 kV circuit breaker that was identified as leaking SF_6 gas to atmosphere. This is an environmental concern as SF_6 is a potent greenhouse gas. As well, leaking gas could result in a flashover of the breaker or a catastrophic failure resulting in loss of service to customers and compromising the integrity of the electrical system in the area.	69 kV breaker B1L21 was refurbished.

Project Title and Location	Expenditure ($000)	Failure Identified	Project Scope
X1 Surge Arrestor Replacement Bottom Brook Terminal Station	28.4	Surge arrester X1 on Bottom Brook transformer T1 failed on June 19, 2019 causing loss of power to the terminal station leaving customers in Burgeo, Doyles, and Stephenville area without power for approximately 4 hours. Transformer T3 was brought online to restore power to the affected customers. Immediate replacement of the arrester was required to get T1 back into service. There was no obvious reason for this failure. Engineering review identified that an appropriate overvoltage rating for the surge arrestors in this installation is 115 kV, whereas existing arresters are rated for 98 kV. It was therefore recommended that all three surge arrestors be replaced (X1, X2, and X3) to avoid a repeat event on the other phases.	X1, X2 and X3 surge arresters on Transformer T1 were replaced.
TL207 A-Phase Capacitive Voltage Transformer Replacement Sunnyside Terminal Station	19.0	During a scheduled TL 207 Outage, Doble Testing was performed on all three Capacitive Voltage Transformers. Test results were good. On re-energization of TL 207, the A-Phase Capacitive Voltage Transformer failed across its surge suppression device, burning open and melting/heating adjacent wiring and sealing gland plate. Immediate replacement was required to restore TL 207.	TL207 A-Phase Capacitive Voltage transformer was replaced.
Transformer T5 B-Phase Potential Transformer Replacement Holyrood Terminal Station	16.1	During scheduled 6 year maintenance, Doble Testing revealed elevated Power Factor values that were two to three times expected values on Transformer T5 B-Phase potential Transformer. Thorough cleaning and multiple tests were run to confirm results. A comparison was completed of four similar units on Hydro's system (same type, same vintage), that further showed this unit to be failing. Immediate replacement was required to restore 69 kV Bus 7 and Transformer T5 to full function.	Transformer T5 B-Phase Potential Transformer was replaced.

Project Title and Location	Expenditure ($000)	Failure Identified	Project Scope
Compressor Replacement Grand Falls Converter Station	14.5	Grand Falls Converter Station Compressor A failed and was damaged on January 10, 2019. An assessment concluded that it was not repairable and must be replaced.	A direct replacement compressor was purchased and installed.
L34T1 A-Phase Current Transformer Replacement Upper Salmon Terminal Station	14.0	During an outage to Upper Salmon L34T1, an oil leak was identified under L34T1 A-Phase CT. Immediate replacement was required to prevent equipment failure, customer outage and/or collateral damage to other equipment.	L34T1 A-Phase CT was replaced.
B1L39 A-Phase Current Transformer Replacement Deer Lake Terminal Station	12.1	B1L39, a 138 kV current transformer at Deer Lake Terminal Station installed in 1977, was identified as leaking oil. Immediate replacement was required to prevent equipment failure and possible outage and/or collateral damages to other equipment.	B1L39 A-Phase CT was replaced.
Transformer T2 Surge Arrester Replacement St. Anthony Diesel Plant	5.6	The H2 Surge Arrester on transformer T2 at the St. Anthony Diesel Plant failed on September 30, 2019 causing loss of the availability of power from the diesel generating units. Immediate replacement was required to return transformer T2 to service and allow Hydro to utilize diesel generation to complete a major outage planned for Oct 2, 2019.	H2 Surge Arrester on Transformer T2 was replaced.

9.0 Hydraulic Generation In-Service Failures

Hydro has committed to providing a summary of activities completed under the Hydraulic Generation In-Service Failures project. Table 21 outlines 2019 expenditures under this project.

Total Approved Budget: **$1,250,000**

Total Expenditure: **$1,374,400**

Table 21: Hydraulic In-Service Failures

Project Title and Location	Expenditure ($000)	Failure Identified	Project Scope
Coffer Dam 8 (CD-8) Riprap Refurbishment Cat Arm	701.4	On July 30, 2019, an annual inspection was completed on the Cat Arm Dams. Approximately 27% riprap loss was noted during the inspection on CD-8. Riprap is the erosion protection layer on the embankment dams and loss of riprap leaves the dam internal components susceptible to further damage, especially by ice. Continued loss of riprap would lead to the requirement for more extensive rehabilitation and possibly a dam breach.	Riprap was replaced on CD-8. Material was processed from nearby quarry, transported via barge to CD-8, and placed using heavy equipment.
Capital Spares Hinds Lake and Cat Arm	313.3	The following equipment was determined to be required for the standby pool, to allow fast responsive action to future failures of long lead equipment: 1. Hinds Lake Service Station Transformer ($114.3); 2. Hinds Lake Bearing Oil Cooler/Turbine Cooler/Generator Air Cooler ($84.4); 3. Hinds Lake Circuit Breaker ($32.8); and 4. Cat Arm Excitation Transformer ($81.7) to enable responsive action to failures.	The spare equipment was procured for the standby pool.
Crane Bus Bar Replacement Paradise River	71.3	The powerhouse crane conductor bars warped out of shape and no longer provide a safe electric power distribution pathway for the entire overhead crane.	A direct replacement of the bus bar system was procured and installed.
Partial Discharge Analyzer Replacement Bay d'Espoir	66.6	The current Partial Discharge Analyzer has been in service for approximately 25 years and was identified to be faulty with a broken communication port. This Partial Discharge Analyzer was obsolete and discontinued by the manufacturer.	A new Partial Discharge Analyzer was procured and installed.

Project Title and Location	Expenditure ($000)	Failure Identified	Project Scope
Maintenance Air Compressor Replacement Bay d'Espoir Powerhouse 1	46.4	The air compressor used for maintenance and as emergency back-up was seized and became non-operational.	A replacement air compressor was procured.
Control Room Air Conditioning Unit Cat Arm	40.4	The control room air conditioning unit failed due to corroded copper tubing and fittings.	A replacement air conditioning unit was procured in 2018 and installed in 2019.
Generator Guide and Thrust Bearing Replacement Bay d'Espoir Unit 3	39.8	Unit 3 experienced abnormal vibration levels during operation and intervention was required for reliable generation. Offline disassembly and inspection revealed that the thrust and guide bearing assemblies had extensive wear and required replacement.	The existing generator thrust and guide bearing assemblies were replaced.
Fire Alarm System Replacement West Salmon Dam	31.2	The existing fire alarm system had been in operation since 2002. Replacement parts were no longer available and the system was indicating sensor faults due to failure of alarm system components.	Replacement fire alarm panels and field devices were procured and installed.
Fire Pump Replacement Hinds Lake	25.0	Fire Pump No. 2 was in service since 1980. The internal components of the pump as well as the casing had deteriorated to the point where the pump was no longer available for continued operation, thus requiring immediate replacement.	A new fire pump to replace the Fire Pump No. 2 was procured in 2019 and will be installed under the 2020 Hydraulic In-Service Failures project.
Oil Skimmer Replacement Bay d'Espoir Powerhouse 2	15.3	The oil skimmer consists of a mop, motor, housing, and switch. The mop was severely worn causing entanglement issues and required replacement. Replacement components for the oil skimmer are no longer available.	A replacement oil skimmer was procured and installed.
Waste Oil Storage Tank Replacement Cat Arm	13.4	The 960 Liter double-walled waste oil tank experienced a loss of vacuum in the interstitial space, indicating an internal leak, which could not be repaired.	A new waste oil tank was procured and installed.

Project Title and Location	Expenditure ($000)	Failure Identified	Project Scope
Fire Alarm System Replacement Granite Canal	10.3	The existing fire alarm system has been in operation since 2002. Replacement parts were no longer available and the system was indicating sensor faults due to failing alarm system components.	Procurement of replacement alarm panels and field devices was completed in 2019 and installation will occur in 2020, under the 2020 Hydraulic In-Service Failures project, when road conditions allow access to site.

10.0 Thermal Generation In-Service Failures

Hydro has committed to providing a summary of activities completed under the Thermal Generation In-Service Failures project. Table 22 outlines 2019 expenditures under this project.

Total Approved Budget: **$1,250,000**

Total Expenditure: **$2,327,400**

Table 22: Thermal Generation In-Service Failures

Project Title and Location	Expenditure ($000)	Failure Identified	Project Scope
Capital Spares Procurement Holyrood TGS	265.5	The planned scope for the In Service Failures project for 2018 included the procurement of the following spare components: 1. Unit 3 Excitation Transformer 2. Auxiliary Board Transformer 3. dc Lube Oil Pump Motor	The spare components were ordered in 2018 and received in 2019.
Dump Valves Overhaul Holyrood TGS Units 1 and 2	204.4	In 2018, Hydro refurbished the hydraulic system for Unit 1 and Unit 2 control valves as an in-service failure. The refurbishment of the hydraulic systems consumed all of the capital spares in the standby pool. A review of the component failure rate resulted in an update to the standby spare strategy to increase the required number of available spares. In addition, the dump valves, air dryers, and external filters required replacement but were not able to be completed in 2018.	In 2019, the dump valves were refurbished, air dryers were replaced, and external filter units were replaced on Units 1 and 2. Hydraulic servo valves for the Stage 1 turbine hydraulic system were ordered and received in 2019 to serve as spares.

Project Title and Location	Expenditure ($000)	Failure Identified	Project Scope
Control Valve Refurbishment Holyrood TGS Unit 2	200.6	On April 12, 2019 while reducing load on Unit 2, the unit experienced a load rejection of 50 MW, causing multiple unstable boiler conditions including a low drum level, causing the unit to trip. During the unit stabilization following the trip, it was observed that the Main Turbine Control Valves were open 39%; these valves should close automatically following a trip. The hydraulic system was tested and verified to be in proper operation. An attempt was then made to stroke the Main Turbine Control Valves to the open/closed positions, and the valves could not be closed more than 39%, indicating that there was a physical obstruction of the Main Turbine Control Valves or the Hydraulic Cylinder.	The main turbine control valve camshafts were refurbished and the camshaft bearings and hydraulic ram were replaced in 2019.
Capstan Access Platform Replacement Holyrood Marine Terminal	181.5	Inspection revealed that the four capstan extension platforms on the Marine Terminal had deteriorated due to corrosion and required replacement.	The four capstan access extension platforms were replaced in 2019.
Circulating Water ("CW") Elbows Replacement Holyrood TGS Units 2 and 3	174.9	The CW elbows for Units 2 and 3 were found to be extensively corroded and leaking. Previous welding repairs on these elbows were found to have limited success.	New elbows were procured, fabricated, and installed on Units 2 and 3 CW systems.
Fuel Oil Return Line Replacement Holyrood Marine Terminal	169.1	The Marine Terminal 4 inch return line was replaced in 2018 as an in-service failure. There was insufficient time in 2018 to replace the associated heat tracing and insulation.	Installation of heat tracing and insulation on the fuel oil return line was completed in 2019.
Forced Draft ("FD") Fan Bearing Liner Replacement, Holyrood TGS Unit 1	119.3	On June 17, 2018 the Unit 1 East FD fan inboard bearing liner failed, which led to a forced outage on Unit 1. In 2018, the inboard bearing liner was replaced with an available spare and the journal (the bearing surface section of the fan shaft) was refurbished.	A new liner was ordered in 2018 and received in 2019, to replace the liner drawn from inventory.

Project Title and Location	Expenditure ($000)	Failure Identified	Project Scope
Variable Frequency Drive ("VFD") Spare Cells Holyrood TGS	101.6	Six VFD cells failed in service, with no impact on unit production. The VFD system is able to handle one cell failure per phase without affecting production. However, if two cell failures occur on the same phase, a voltage imbalance will negatively impact the torque and speed of the FD Fan motor, thus reducing the amount of combustion air to the boiler and potentially tripping the generating unit.	The six failed cells were replaced using available spares. Three of the failed cells were refurbished and added to inventory as spares. The other three failed cells could not be refurbished; three new cells were purchased to replenish the available spares.
Synchro drive Replacement Holyrood TGS Unit 3	84.2	During the fall of 2018, Holyrood operations were not able to restart the Unit 3 synchronous condenser following a scheduled shutdown. Troubleshooting determined that the Mark VI controller had failed. This controller was obsolete.	The Mark VI controller was replaced with a Mark VIII controller.
Jetty Timbers Replacement Holyrood Marine Terminal	78.2	In 2013, deteriorated timbers on the Jetty Fender No. 2 were replaced with temporary lumber held together by threaded rods due to a lack of spare timbers available and long lead times related to the procurement of new timbers. These temporary timbers were discovered to be deteriorated and required replacement.	The deteriorated timbers on Fender No. 2 were replaced. In addition, spare timbers were purchased and added to the capital spare inventory.
Distributor Control System ("DCS") Computer Stations Replacement Holyrood TGS	75.5	Seven out of eighteen DCS computer stations in the Holyrood Control Room were determined to be obsolete. Three (3) obsolete stations failed between 2018 and 2019 and parts are no longer available.	The seven obsolete DCS computer stations were replaced.
East Fuel Oil Pump Replacement Holyrood TGS Unit 1	70.6	In February 2019, it was identified that Unit 1 was unable to achieve full load due to the East Heavy Fuel Oil Pump failing to meet performance requirements.	Unit 1 East heavy fuel oil pump was replaced.
High Pressure Feed Water Valves Replacement Holyrood TGS Unit 2	67.9	During Unit 2 operation, leaking gate, check, and safety valves were discovered on the Unit 2 High Pressure Feed Water line.	Leaking valves and connected piping for the high pressure feed water were replaced.
East Fuel Oil Pump Replacement Holyrood TGS Unit 2	67.2	The Unit 2 East fuel oil pump was unable to maintain system operating pressure due to extensive damage on internal components (screw impellers and casing) caused by the abrasive properties of No. 6 heavy fuel oil.	The Unit 2 East fuel oil pump was replaced.

Project Title and Location	Expenditure ($000)	Failure Identified	Project Scope
Fuel Oil Pumps Replacement Holyrood TGS Unit 3	56.6	The East and West fuel oil pumps servicing Unit 3 failed and required replacement. Pipe strain was discovered on the suction and discharge flanges on both pumps during the annual 2019 maintenance outage, which contributed to the pump failures.	The East and West fuel oil pumps for Unit 3 were replaced with new pumps and the connecting piping was modified to remove pipe strain on the pumps.
Fuel Oil Mass Flow Meter Replacement Holyrood TGS Unit 1	54.3	Online testing revealed that the mass flow meter and transmitter on Unit 1 was reporting incorrect fuel flows.	The Unit 1 fuel oil mass flow meter and transmitter were replaced with an available spare. A new flowmeter and transmitter was purchased to replace those drawn from the capital spare pool.
Turbine Generator Cooler Control Valve Replacement Holyrood TGS Unit 1	49.2	A high temperature alarm was received on the Unit 1 Turbine Generator Cooling System. Upon investigation, it was determined that the alarm was being caused by binding of the control valve.	The Turbine Generator cooler control valve and actuator were replaced.
East Boiler Feed water Pump (“BFP”) Recirculating Valve Overhaul Holyrood TGS Unit 2	39.1	During operation, it was identified that the East BFP recirculating valve was stuck in a partially open position. Further investigation identified damage to the valve’s stem, seat, and plug and these components required replacement.	An overhaul was completed on the Unit 2 East BFP recirculating valve to replace the damaged internal components.
VFD Blower Reinforcement Kit Procurement Holyrood TGS	38.7	The FD fans have experienced several blower failures since the VFDs were installed. Further investigation into the cause of the blower failures determined that the bearings of the cooling fan motors had been failing due to vibration. The original equipment manufacturer recommended a blower reinforcement kit to address the bearing issues.	Six blower reinforcement kits were purchased and installed.

Project Title and Location	Expenditure ($000)	Failure Identified	Project Scope
Boom Deployment Moorings Replacement Holyrood Marine Terminal	35.9	Two of the three boom deployment moorings on the Marine Terminal failed during a tanker delivery. Upon inspection of the anchors, chains, and buoys, it was determined that the boom deployment moorings all required replacement due to severe corrosion of the chains and deterioration of the concrete anchor structures.	All boom deployment moorings were replaced.
Fire Water Pumps Refurbishment Holyrood TGS	35.3	The electric fire pump was taken out of service to repair a packing leak and damage was discovered to the shaft, bearings, and seals. The jockey pump was also inspected and found to have major cavitation damage on the internal components.	The electric driven fire pump was refurbished to replace the damaged internal components. The jockey pump was replaced with an available spare pump.
Relay Room Condenser Replacement Holyrood TGS	31.9	The tubes of the relay room condenser of one of the Stage 1 air conditioning units were leaking and had to be bypassed. With the condenser bypassed, the air conditioning unit is not adequately cooling the Stage 1 Relay Room.	The relay room condenser was replaced.
Fire Water Piping Isolation Valves Replacement Holyrood TGS Fire System	30.9	It was determined that one of the isolation valves of the fire system was passing fluid and required replacement.	The isolation valve and required piping were replaced.
Vacuum Pump Motors Refurbishment Holyrood TGS Unit 2	27.7	Testing was completed on the motor windings of the Unit 2 north and south vacuum pumps on July 26, 2019. Testing indicated that the windings were shorted to ground. Further assessment indicated a winding short-circuit on the North vacuum pump motor and severe deterioration of the end bell of the South vacuum pump motor.	The north and south vacuum pump motors were refurbished.
Fire Water Distribution Equipment Replacement Holyrood TGS Station	19.6	A leak was discovered in a hydrant takeoff pipe due to crack in the pipe. A hydrant isolation valve was also cracked and leaking.	The failed valve, piping and hydrant were replaced.

Project Title and Location	Expenditure ($000)	Failure Identified	Project Scope
Potential Transformers Capital Spares Procurement Holyrood TGS	19.3	On December 9, 2018, two of the six potential transformers on the generator for Unit 1 failed and were replaced with available spares. Following this event, a review of the failure rate resulted in an update to the standby spare strategy to increase the number of available spares from two to six.	Six spare potential transformers and associated fuses were ordered and received in 2019.
Capstan Gear Box Refurbishment Holyrood Marine Terminal	15.2	One of six Capstan gearboxes seized and failed to operate in 2019. Assessment of the failed gearbox determined that all bearings and seals required replacement.	The failed gearbox was replaced with an available spare. The failed gearbox was overhauled, tested and added to inventory as a spare.
Battery Cell Capital Spare and Charger Procurement Holyrood TGS	13.2	A review of the reliability of the existing battery bank system concluded that a four-cell spare is required to mitigate the risk of failure. On each battery bank, the batteries are connected in series such that the failure of one battery could result in the entire bank going out of service. To return a bank to operation, the failed battery can be bypassed temporarily. However, the bank would have to be removed from service again to replace the failed battery. By installing an on-site charger and spare four-cell battery, the failed battery could be replaced immediately, thus maintaining the reliability level of the three generating units.	A spare four-cell battery and charger were purchased and installed as a hot standby critical spare.

11.0 Condition Assessment and Miscellaneous Upgrades – Holyrood TGS

Hydro has committed to providing a summary of activities completed under the Condition Assessment and Miscellaneous Upgrades - Holyrood project that were not originally contemplated in the project description. Table 23 outlines the additional expenditures under this project, totalling $973,100.

Total Approved Budget: **$1,968,800**

Total Expenditure: **$2,941,700**

Table 23: Condition Assessment and Miscellaneous Upgrades – Holyrood TGS

Item	Description	Cost ($000)	Scope of Work and Justification
1	Refurbished east and west air heater guide bearing assembly, Holyrood TGS Units 1, 2, and 3	397.6	In 2018, there was a failure of an air heater guide bearing trunnion shaft and a separate failure of a guide bearing pot. Following these failures, it was determined that all air heater trunnion shafts, seals, and pots should be replaced and rotors balanced, for the air heaters on Units 1, 2 and 3. Failure of an air heater bearing could lead to a forced unit outage. Refurbishment of the air heater guide bearing assemblies was completed on Units 1, 2, and 3 in 2019.
2	Replaced vertical stack breeching expansion joint and flanges Holyrood TGS Unit 2	153.1	In 2019, Unit 2 stack breeching was inspected and the expansion joint and flanges were determined to be deteriorated. Stack breeching conveys flue gas from the boiler to the stack and a leak in the expansion joint would introduce flue gas into the powerhouse, which is a safety risk. Replacement was completed in 2019.
3	Replaced east & west forced draft fan inlet screens and dampers Holyrood TGS Units 1 and 2	122.5	In 2018, fan inlet screens and dampers were inspected and determined to be corroded and impeding movement of the inlet dampers. This resulted in air flow reduction, which could have led to a forced unit outage. As well, corroded pieces could fall down into the air duct causing damage or disruption to the operation of the fan rotor or variable inlet vanes. Replacement of the screens and dampers was completed in 2019.
4	Replaced air heater gas inlet fabric expansion joints Holyrood TGS Unit 3	84.6	In early 2019, the Unit 3 air heater gas inlet fabric expansion joint was inspected and determined to be deteriorated. A leak in the expansion joint would introduce flue gas into the powerhouse, which is a safety risk. Replacement was completed in 2019.
5	Water Wall Tube Inspection Holyrood TGS Units 1, 2, and 3	82.8	Abnormal chemistry test results for the boiler feedwater led to the need to inspect the water wall tubes. A sample of water wall tubes was inspected on all three units in 2019.

Item	Description	Cost ($000)	Scope of Work and Justification
6	Replaced economizer skin casing and refractory Holyrood TGS Unit 1	48.5	In 2018, gas leaks were identified on the Unit 1 economizer, introducing flue gas into the powerhouse, which is a safety risk. A temporary repair was completed in 2018 and replacement of the deteriorated components was completed in 2019.
7	Replace fuel oil anti-freeze pot piping Holyrood TGS Units 1 and 2	40.1	In 2018, fuel oil anti-freeze pot piping was inspected and found to be partially plugged with debris. This piping is connected to instrumentation used for fuel oil pressure control. Failure could result in fuel oil being emitted from stacks. Replacement of plugged sections of piping was completed in 2019.
8	Inspection and condition assessment of forced draft fans Holyrood TGS Unit 1	30.5	In 2018, Hydro's insurance provider conducted a site review and recommended inspection of the Unit 1 forced draft fans by the original equipment manufacturer in 2019. Hydro accepted this recommendation and a condition assessment was completed in 2019.
9	Replaced air heater water wash header and nozzles Holyrood TGS Unit 2	13.4	In 2018, it was discovered that the air heater water wash header and nozzles were not functioning properly. A header with a different type of nozzle was installed in 2019 to correct the problem.

newfoundland labrador hydro
a nalcor energy company

Hydro Place. 500 Columbus Drive.
P.O. Box 12400. St. John's. NL
Canada A1B 4K7
t. 709.737.1400 f. 709.737.1800
www.nlh.nl.ca

April 21, 2021

Board of Commissioners of Public Utilities
Prince Charles Building
120 Torbay Road, P.O. Box 21040
St. John's, NL A1A 5B2

Attention: Ms. Cheryl Blundon
Director of Corporate Services & Board Secretary

Dear Ms. Blundon:

Re: Capital Expenditures and Carryover Report for the Year Ending December 31, 2020 – Revision 1

Enclosed please find a revision to Newfoundland and Labrador Hydro's Capital Expenditures and Carryover Report for the Year Ending December 31, 2020, originally filed with the Board of Commissioners of Public Utilities on March 1, 2021. Further information regarding the changes is provided in the Revision History sheet. For ease of reference, changes have been shaded grey.

Should you have any questions, please contact the undersigned.

Yours truly,

NEWFOUNDLAND AND LABRADOR HYDRO

Shirley A. Walsh
Senior Legal Counsel, Regulatory
SAW/sk.kd

Encl.

ecc: **Board of Commissioners of Public Utilities**
Jacqui Glynn
PUB Official Email

Newfoundland Power
Kelly C. Hopkins
Regulatory Email

Consumer Advocate
Dennis M. Browne, Q.C., Browne Fitzgerald Morgan & Avis
Stephen F. Fitzgerald, Browne Fitzgerald Morgan & Avis
Sarah G. Fitzgerald, Browne Fitzgerald Morgan & Avis
Bernice Bailey, Browne Fitzgerald Morgan & Avis

Industrial Customer Group
Paul L. Coxworthy, Stewart McKelvey
Denis J. Fleming, Cox & Palmer
Dean A. Porter, Poole Althouse

Labrador Interconnected Group
Senwung Luk, Olthuis Kleer Townshend LLP
Julia Brown, Olthuis Kleer Townshend LLP

Revision History

Revision	Date	Location	Reason
1	21-Apr-2021	Page 16, lines 17–23	To reflect the transfer of the replacement of one 46 kV circuit breaker and line protection upgrade at Wabush Terminal Station to the 2020–2021 Terminal Station Refurbishment and Modernization project.
1	21-Apr-2021	Page 26, line 15; Page 27, lines 1, 2, 16, and 17; and Page 28, line 4	To correct numerical sequencing of sections and variance analysis.
1	21-Apr-2021	Page 29, line 24	To correct percentage noted.
1	21-Apr-2021	Page 30, line 9	To correct the variance reference.
1	21-Apr-2021	Page 32, Table 3	To update column headers to clearly indicate that the amounts relate to projects which have been carried over from their original planned execution dates and to correct error in totals.

Capital Expenditures and Carryover Report for the Year Ended December 31, 2020

Original Submission: March 1, 2021
Revision 1: April 21, 2021

A report to the Board of Commissioners of Public Utilities

newfoundland labrador hydro
a nalcor energy company

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Appendix A: Financial Schedules

1.0 Capital Expenditure Overview

This report outlines Newfoundland and Labrador Hydro's ("Hydro") capital expenditures and reportable variances for 2020 and project carryovers to 2021 and beyond. During 2020, Hydro invested $87.6 million for the execution of capital projects to contribute to the provision of safe, reliable, least-cost electricity to customers.

The 2020 capital program was established prior to the emergence of the COVID-19 pandemic. In response to the pandemic, Hydro implemented business continuity plans and protocols for work execution to maintain its ability to complete essential work to ensure service reliability throughout the remainder of the year. Late in the first quarter of 2020, Hydro reviewed and prioritized all planned capital projects to support completion of all essential work in light of the pandemic. As the pandemic continued to evolve through the year, the review and prioritization process continued. In some cases, Hydro rescheduled work to ensure effective execution at a later time in 2020 than originally planned or carried work over into future years. Despite the challenges, Hydro successfully completed the essential capital work identified for completion in 2020.

Expenditures to maintain the hydraulic generation equipment and infrastructure across the province total $10.6 million, including $7.4 million for year one in the Hydraulic Generation Refurbishment and Modernization (2020–2021) project. The thermal generation equipment and infrastructure at the Holyrood Thermal Generating Station ("Holyrood TGS") required expenditures totalling $12.6 million including $8.2 million incurred in four supplemental capital projects that were required following Hydro's extension of the Holyrood TGS's operations to March 31, 2022.[1] Gas turbines required $1.9 million in expenditures, of which $1.2 million was invested in the Holyrood Gas Turbine. Sustaining capital for terminal station infrastructure totalled $23.1 million including $11.0 million in the Terminal Station Refurbishment and Modernization (2019–2020) project and $4.3 million in the Upgrade Circuit Breakers project. In transmission, the Wood Pole Line Management Program continued in 2020, with $2.9 million invested.

Actual expenditures in Hydro's overall capital program for 2020 were below budget by $47.2 million. Additional information regarding analysis of the variance is included in Section 5.0.

[1] Holyrood TGS operations have since been extended to March 31, 2023.

2.0 Capital Expenditures and Variance Summary

Appendix A, Table A-1 provides a summary of capital expenditures related to projects that were active in 2020, with associated expenditures broken out annually for the periods 2016–2020 (actuals) and 2021 and beyond (forecast). A breakdown of the variance summary by asset type is presented in Table 1.

Table 1: Total Capital Variance Summary by Asset Type ($000)

Asset Type	Board Approved Budget	Total Project Expenditures and Forecast	Variance
Hydraulic	56,204	44,621	(11,582)
Thermal	9,336	9,179	(157)
Gas Turbines	24,101	19,481	(4,620)
Terminal Stations	122,897	94,286	(28,611)
Transmission	22,771	22,861	90
Distribution	18,106	17,769	(337)
Rural Generation	28,707	28,414	(293)
Properties	1,378	1,444	67
Metering	244	181	(64)
Rural Systems Tools and Equipment	2,139	2,122	(17)
Information Systems	1,585	1,462	(124)
Telecontrol	1,737	1,670	(67)
Transportation	7,473	7,699	226
Administrative	996	962	(34)
Allowance for Unforeseen	1,216	218	(998)
Supplemental Projects	8,343	8,839	496
Projects Aproved for less than $50,000	100	87	(14)
Total Capital Budget	**307,334**	**261,296**	**(46,038)**

3.0 Capital Expenditures by Category

Appendix A, Tables A-2 to A-15 present Hydro's Capital Expenditures by category including:

- Hydraulic Generation;
- Thermal Generation;
- Gas Turbine Generation;
- Terminal Stations;

- Transmission;
- Distribution;
- Rural Generation;
- Properties;
- Metering;
- Tools and Equipment;
- Information Systems;
- Telecontrol projects;
- Transportation;
- Administration;
- Allowance for Unforeseen Items;
- Supplemental Capital projects; and
- Projects less than $50,000.

4.0 Variance Explanations (Greater than $100,000 and 10% Variance from Budget)

As per the Capital Budget Guidelines set forth by the Board of Commissioners of Public Utilities ("Board"), Hydro is required to report on actual capital expenditure variances which exceed the approved total project budget by more than 10% and $100,000.[2] Hydro has also included variance explanations if the 2020 project expenditures exceeded the approved 2020 budget by more than 10% and $100,000. The projects are ordered and numbered based upon the order and number they appear in the tables found in Appendix A.

[2] "Capital Budget Application Guidelines," The Board of Commissioners of Public Utilities, October 2007, at p. 11.

4.1 Hydraulic Generation Projects (Appendix A, Table A-2)

1. Hydraulic In-Service Failures

While a variance explanation is not required for this project, Hydro committed to providing the Board with details for each of the In-Service Failures projects. A detailed list of work executed under the Hydraulic In-Service Failures project is located in Section 9.0.

2. Hydraulic Generation Refurbishment and Modernization (2020–2021) - Various Sites

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	6,580.2	7,363.1	782.9

This is a two-year project (2020–2021) that commenced in 2020. The variance in 2020 expenditures is primarily attributed to the additional project cost that was necessary for the upgrade of Bear Brook Crossing on the access road to Bay d'Espoir Generating Station. This work to replace the existing culvert with a bridge was publically tendered and completed in 2020. The tendered pricing for the work was higher than the original estimate.

3. Hydraulic Generation Refurbishment and Modernization (2019–2020) - Various Sites

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	7,362.3	1,939.9	(5,422.4)
Project	15,800.1	10,833.8	(4,966.3)

This is a two-year project (2019–2020) that commenced in 2019 and was closed in 2020. The variances in 2020 and total project expenditures are primarily attributed to the postponement of work related to Ebbegunbaeg Control Structure and Bay d'Espoir Intake Gate 2.

Following a careful review of the budget application and evolving scope, Hydro cancelled the Ebbegunbaeg Control Structure scope of work as communicated to the Board in its correspondence of April 17, 2020.[3]

[3] "Cancellation of Capital Project – Ebbegunbaeg Control Structure Refurbishment," Newfoundland and Labrador Hydro, April 17, 2020.

Hydro submitted a new four-year project in the 2021 Capital Budget Application that encompasses the entire structure refurbishment scope.

The project scope of work related to Bay d'Espoir Intake 2 was also cancelled in 2020, as communicated in correspondence to the Board filed on February 26, 2021.[4] Due to the impacts of COVID-19 and challenges in securing the required outages due to the prioritization of critical capital work, Hydro did not complete this scope in 2020 (Refer to Variance 4.) As outlined in its correspondence of February 26, 2021, Hydro is evaluating its five-year capital plan and is reviewing the overall sequencing of capital project work as it relates to scheduling generation outages to determine when this work can best be rescheduled. This scope of work was removed from this project and is planned to be included in a future application to the Board.

4. Hydraulic Generation Refurbishment and Modernization (2018–2019) - Various Sites

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	3,160.6	(740.9)	(3,901.5)
Project	14,608.5	8,483.0	(6,125.5)

This is a two-year project (2018–2019) that commenced in 2018 and was carried over and closed in 2020. The variance in 2020 expenditures is attributed to the cancellation of work related to Bay d'Espoir Intake Gate 1 and Surge Tank 1, as outlined in correspondence to the Board filed on February 26, 2021. The cancelled scopes of work were removed from this project and are planned to be included in a future application to the Board.

The variance in overall project expenditures is primarily attributed to the cancelled intake gate and surge tank scopes of work. In addition, there was a reduced volume of work compared to the original estimate for the Bay d'Espoir Unit 2 turbine overhaul completed in 2018. Upon disassembly of the turbine, it was found that the discharge wear ring was able to be refurbished in-place, rather than be replaced as originally planned.

[4] "Cancellation of Previously Approved Capital Projects at Bay d'Espoir," Newfoundland and Labrador Hydro, February 26, 2021.

5. Refurbish Powerhouse Station Services – Bay d'Espoir

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	157.2	261.5	104.3

This is a three-year project (2017–2019) that commenced in 2017 and was carried over and completed in 2020. Most of the upgrades to the station services in Bay d'Espoir Powerhouses 1 and 2 were completed in 2019 and a portion of the budget was carried over into 2020 to complete the remaining work, consisting of panel board replacements in both powerhouses. The variance in 2020 expenditures is attributed to additional time required to complete the panel board replacements while adhering to the COVID-19 protocols. The overall project was completed for less than the approved budget.

6. Replace Exciter Controls Units 1 to 6 - Bay d'Espoir

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	1,462.0	449.5	(1,012.5)

Variance	Budget ($000)	Forecast and Expenditures ($000)	Variance ($000)
Project	3,347.0	2,344.7	(1,002.3)

This is a four-year project (2017–2020) that commenced in 2017 and has carried over into 2021. The variance in annual expenditures is attributed to being unable to complete the exciter controls replacement on Unit 6 as planned in 2020. The exciter controls replacement for four of the Bay d'Espoir generating units was completed in previous years of the project and the replacement for Unit 3 was completed in 2020 as planned. The work for Unit 6, however, could not be completed during the scheduled 2020 unit outage due to impacts associated with the early stages of the COVID-19 pandemic. At that time, there was uncertainty around the ability to complete work during the pandemic. Several safety considerations contributed to the decision to postpone the work, including challenges maintaining a safe working environment within the plant and concerns regarding mobilizing out of province resources into the Bay d'Espoir communities and the Bay d'Espoir Hydroelectric Generating Facility. At that time, guidance on COVID-19 controls was evolving and a COVID-19 control plan had not yet been established. Several logistical challenges and risks to cost and schedule were identified

including closure of all local accommodations and reduced productivity due to new COVID-19 controls. The work for Unit 6 has been rescheduled to 2021.

The forecasted variance in overall project expenditures is attributed to the actual and forecast costs for the construction contract and engineering being less than originally estimated.

4.2 Thermal Generation Projects (Appendix A, Table A-3)

7. Rewind Unit 3 Stator - Holyrood

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	1,281.4	2,231.4	950.0

This is a two-year project (2020-2021) which commenced in 2020. The contract to design, manufacture, and install the Unit 3 generator stator windings was awarded in 2020. The variance in 2020 expenditures is attributed to the design and manufacturing of the new windings being ahead of schedule in 2020 when comparing to the original project schedule. Progress payments to the supplier originally expected in the first quarter of 2021 were made in the fourth quarter of 2020.

8. Thermal In-Service Failures

While a variance explanation is not required for this project, Hydro committed to providing the Board with details for each of the In-Service Failures projects. A detailed list of work executed under the Thermal In-Service Failures project is located in Section 10.0.

4.3 Gas Turbine Generation Projects (Appendix A, Table A-4)

9. Perform Combustor Inspection – Holyrood Gas Turbine

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	546.1	35.0	(511.1)

This is a two-year project (2020–2021) that commenced in 2020 and is carrying over to 2022. The variance in 2020 annual expenditures is the result of a change in the required timing of the project. The combustor inspection frequency is based on the number of gas turbine equivalent starts, with the next inspection due at 1,120 lifetime equivalent starts. At the time of the budget proposal, it was projected that this number of equivalent starts would be accumulated in 2021. An updated projection has

concluded that the equivalent starts threshold will not be reached until 2022. The project schedule has therefore been extended to 2022. Hydro will continue to update the projected equivalent start projections to determine if further change to the project schedule is warranted.

10. Install Partial Discharge Monitoring – Holyrood Gas Turbine

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	37.8	165.4	127.6

This is a two-year project (2020–2021) that commenced in 2020. The variance in 2020 annual expenditures is attributed to advancement of procurement costs compared to the estimate. The new partial discharge monitoring equipment was ordered in 2020 and is expected to be received in 2021. The terms of payment required a milestone payment in 2020 that was not anticipated at the time of the budget estimate.

11. Replace Fire Suppression System - Happy Valley Gas Turbine

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	264.6	158.9	(105.7)

This is a two-year project (2020–2021) that commenced in 2020. The variance in 2020 annual expenditures is attributed to the engineering phase of the project. The engineering work to prepare the technical specifications for the fire suppression system was completed in 2020 for less than the budgeted amount.

12. Generator Assessment – Happy Valley Gas Turbine

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	1,097.6	76.0	(1,021.6)

This is a one-year project (2020) that commenced in 2020 and has carried over to 2021. The variance in 2020 expenditures is attributed to the generator assessment being rescheduled to 2021. The work is to be completed by the vendor holding the original equipment manufacturer intellectual property for the gas turbine. That vendor was unable to provide an on-time proposal and quotation for the work, partially due to COVID-19 and a decision by Brush to furlough its employees in the United Kingdom.

Brush also advised that the material and tooling delivery time from third-party vendors increased to 15 weeks. These delays would have pushed the field activity into the fall of 2020. Completing the work in the fall introduces significant system risk, in that there would be inadequate time to address any unforeseen issues identified during the inspection prior to the winter, when the gas turbine is required for system reliability. On-site vendor expertise is required for the work, and those resources will come from the United States of America and the United Kingdom. Such travel was complicated in 2020 by international travel restrictions related to COVID-19. Reviewing the project and system risks, Hydro concluded that the work should be rescheduled to 2021 and be executed as early as possible in the year, when system conditions allow for scheduling of the required outage.

13. Upgrade Compressed Air System - Holyrood Gas Turbine

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	370.8	185.6	(185.2)
Project	388.4	203.2	(185.2)

This was a two-year project (2019–2020) that was completed in 2020. The variances in 2020 and overall project expenditures are attributed to the construction being completed for less than originally estimated. The project was estimated with the assumption that contractors would be performing the work. Local internal resources were available resulting in less mobilization, travel, and contract management costs.

14. Replace Main Fuel Valves – Hardwoods

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Project	404.2	293.1	(111.1)

This was a one-year project (2019) that commenced in 2019 and was carried over and completed in 2020. The variance in project expenditures is attributed to the actual purchase cost of the new valves being less than originally estimated.

15. Increase Fuel and Water Treatment System Capacity - Holyrood Gas Turbine

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	488.0	832.8	344.8

Variance	Budget ($000)	Forecast and Expenditures ($000)	Variance ($000)
Project	11,842.6	7,705.3	(4,137.3)

This is a two-year project (2018–2019) that commenced in 2018 and has carried over into 2021. The scope of work for this project is to expand the water treatment plant and install two new fuel tanks at the Holyrood Gas Turbine. In 2019, the water treatment plant expansion was completed and put into service. Also in 2019, construction was completed for the two new fuel storage tanks and they were placed in service with manual operation capability. The project carried over into 2020 to complete the automation of the fuel transfer system and complete secondary containment liner work that was hampered by inclement weather in 2019. The automation of the fuel transfer system work was completed in 2020. The secondary containment liner work was completed in 2020 as well but does not yet meet final acceptance criteria as the leakage rate measured in the dyke permeability test was higher than acceptable. The project has been carried over into 2021 for further investigation of the liner and resolution of the issue.

The variance in 2020 expenditures is attributed to additional costs associated with the dyke liner. Additional effort was required to investigate the cause of the higher than acceptable dyke permeability and to develop and implement risk mitigation including the installation of monitoring wells outside of the dyke to detect any release of fuel.

The forecasted variance in overall project expenditures is attributed to lower than estimated contract prices for the fuel tank construction. At the time of budget preparation, Hydro requested contractor budget pricing; however, the estimates were not received in time for inclusion into the project estimate prior to submission of the 2018 Capital Budget Application. In lieu of current contract estimates, Hydro used historical cost data from the original plant construction.

4.4 Terminal Stations Projects (Appendix A, Table A-5)

16. Terminal Station In-Service Failures

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	1,500.0	1,081.0	(419.0)
Project	1,500.0	1,081.0	(419.0)

This was a one-year project (2020) completed in 2020. The budget for the project was based on prediction of the magnitude of in-service failures using historical data and engineering judgement. The variance in 2020 project expenditures is attributed to the actual number of failures incurred. A detailed list of work executed under this project is found in Section 8.0.

17. Replace Transformer T7 – Holyrood Terminal Station

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	2,678.1	660.6	(2,017.5)

This is a one-year project (2020) that commenced in 2020 and has carried over into 2021. The variance in 2020 expenditures is attributed to a rescheduling of the replacement of the transformer at Holyrood to 2021. As a result of Hydro's decision to maintain Transmission Line L1301 as a backup for the Muskrat Falls to Happy Valley Interconnection for the winter of 2020–2021,[5] Churchill Falls Transformer T31 was not available in 2020 to replace Holyrood T7 as originally planned by Hydro and approved by the Board. Hydro has performed an analysis of the resulting risk and it has confirmed that there will be low risk to customers as a result of the deferral. Hydro has advised Newfoundland Power Inc. of this decision. Removal of the old Holyrood T7 and its foundation, and installation of a new concrete pad and oil containment system, was completed in 2020.

[5] "Newfoundland and Labrador Hydro – Labrador East Reliability Plan Update," Newfoundland and Labrador Hydro, March 17, 2020, at p. 3.

18. Terminal Station Refurbishment and Modernization – Various Sites

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	3,712.0	1,703.4	(2,008.6)

This is a two-year project (2020–2021) that commenced in 2020 and includes a number of consolidated program-type projects across several sites and a focused refurbishment at Wabush Terminal Station.

The variance in 2020 expenditures is primarily associated with the capital programs for power transformers, protection control and monitoring systems, and the refurbishment of Wabush Terminal Station. The 2020 variance is primarily attributed to delayed engineering and procurement activities due to resource constraints and a focus in 2020 on completing other critical construction activity during the COVID-19 pandemic. Additionally, a portion of the planned work was completed in 2020 for less than the original material and labour estimates.

The following scope items have carried over to 2021 within this project:

- Engineering and material procurement associated with some of the power transformer and protection control and monitoring systems scopes of work at various sites;
- Engineering and material procurement associated with a circuit breaker and disconnect switches for Wabush Terminal Station; and
- Wabush Transformer T3 protection upgrade, to align with an associated breaker replacement that is scheduled for 2021.

19. Upgrade Terminal Station for Mobile Substation – St. Anthony

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	450.2	551.9	101.7
Project	492.0	593.7	101.7

This was a two-year project (2019–2020) that was completed in 2020. The variances in 2020 and overall project expenditures were primarily attributed to higher than originally estimated construction labour and contract costs and a greater quantity of station fencing requiring upgrades than originally estimated.

20. Terminal Station Refurbishment and Modernization – Various Sites

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	20,261.0	10,987.3	(9,273.7)

Variance	Budget ($000)	Forecast and Expenditures ($000)	Variance ($000)
Project	29,952.9	20,843.2	(9,109.7)

This is a two-year project (2019–2020) that commenced in 2019 and has carried over to 2022 for a portion of the scope. It includes a number of consolidated program-type projects across several sites and a focused refurbishment at Wabush Terminal Station.

The variances in 2020 and overall project expenditures plus forecast are primarily associated with the capital programs for power transformers, protective relays, and the refurbishment of Wabush Terminal Station. The costs for materials and labour were less than originally estimated for several scope items within these programs, and some scopes of work were cancelled or rescheduled to future years.

The following scope items have carried over to future years within this project:

- Protective relay replacements for: TL 206 line protection at Bay d'Espoir and Sunnyside; TL 247 line protection at Deer Lake and Cat Arm; Bus 1 protection at Cat Arm; and Transformers T1, T2 and T4 protection at Western Avalon. This rescheduling was undertaken in early 2020 to implement a more levelled, multi-year plan for protection upgrades.
- For the Wabush Terminal Station refurbishment, a portion of the project scope was delayed and carried over to 2021 as a result of focusing on higher priority work during the COVID-19 pandemic. The scope carried over includes 46 kV circuit breaker B3T1 (46-1) and transformer T1 protection upgrades, 46 kV circuit breaker B3T2 (46-2) and transformer T2 protection upgrades, disconnect switch B4L32-1 (32B15) replacement and the synchronous condenser SC1 major inspection.

The following scope items have been rescheduled to 2021 and have been transferred to the 2020–2021 Terminal Station Refurbishment and Modernization project, which has sufficient budget for this work:

- Transformer upgrades at various sites, including several tap changer upgrades requiring support from out-of-province contractors which could not be secured during the COVID-19 pandemic in 2020;
- Hardwoods Bus B7 and several Churchill Falls instrument transformer replacements due to late equipment deliveries and outage unavailability in 2020;
- Bay d'Espoir Transformer T6 radiator replacement due to outage unavailability in 2020;
- Insulator replacements at Happy Valley, due to last minute cancellation of the crane contractor who had double-booked;
- Insulator replacements at Churchill Falls due to outage unavailability; and
- Disconnect switch replacements at Sunnyside, due to outage availability and updated condition assessment.

The following scope of work was cancelled following review of updated condition or system assessment information indicating that the work was not immediately required:

- Transformer bushing replacements at Churchill Falls, Stephenville, Hawke's Bay, Granite Canal and Hardwoods Terminal Stations;
- Holyrood Bus B6, Hardwoods Transformer T3, and L'Anse Au Loup instrument transformers replacements;
- Installation of a moisture reduction system for Bay d'Espoir Transformer T1; and
- Insulator replacements at Churchill Falls.

21. Implement Terminal Station Flood Mitigation - Springdale

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	1,047.6	450.3	(597.3)
Project	974.0	673.1	(300.9)

This was a two-year project (2018–2019) that was carried over and completed in 2020. The variances in 2020 and overall project expenditures are attributed to a change in the project scope to a lower cost alternative. During engineering design it was determined that the original project alternative to construct a retention berm outside of Hydro's property would cost significantly more than originally estimated. Further evaluation of project alternatives in 2019 demonstrated that the construction of a retention berm along the perimeter of the terminal station could also effectively achieve the desired level of flood mitigation and is the least cost alternative. The change in project alternative resulted in a carryover of the project construction into 2020 to allow for design and environmental assessment in 2019. The design, environmental assessment, and construction were successfully completed. The costs associated with the environmental assessment were less than anticipated and the tendered price for the construction contract was less than estimated.

22. Terminal Station Refurbishment and Modernization – Various Sites

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	6,522.6	3,202.4	(3,320.2)
Project	26,795.7	14,802.3	(11,993.4)

This was a two-year project (2018–2019) that was carried over and closed in 2020. The project included a number of consolidated program-type projects across several sites and a focused refurbishment at Wabush Terminal Station.

The variance in 2020 expenditures is primarily attributed to protective relays replacements being completed for less than the original materials and labour estimates. This project scope included the replacement of 20 protective relays, of which 19 were completed. The work for Holyrood Bus B12 was rescheduled to 2021 to accommodate more critical work in 2020 at the Holyrood Terminal Station. Proceeding with the Bus B12 protective relay work would have introduced risks associated with physical congestion and the complexity of overlapping designs. The scope of work for Holyrood Bus B12

was transferred to the 2019–2020 Terminal Station Refurbishment and Modernization project, for completion in 2021.

The variance in total project expenditures is primarily attributed to the capital programs for protective relay replacements, disconnect switch replacements, power transformer upgrades, and Wabush Terminal Station refurbishment. The costs for materials and labour were less than originally estimated for several scope items within these programs and some scopes of work were cancelled or rescheduled to future years.

The following scope items were rescheduled and transferred into the 2019–2020 Terminal Station Refurbishment and Modernization project which has sufficient budget for this work. The rescheduling was due to: newly acquired condition or system assessment information indicating that the work was not immediately required; system outage constraints; or balancing of the overall work plan. Items rescheduled include:

- Replacement of transformer bushings for Bay d'Espoir T10, Parson's Pond T1, South Brook T1, Hardwoods GT1 and Wabush T6;
- Installation of transformer moisture reduction systems for Oxen Pond T2 and Happy Valley T3;
- Replacement of a disconnect switch at Rattle Brook Terminal Station;
- Replacement of insulators at Happy Valley and St. Anthony Airport Terminal Stations; and
- Replacement of protective relays for Bus B12 at Holyrood Terminal Station.
- []

The following scope items were rescheduled and transferred into the 2020–2021 Terminal Station Refurbishment and Modernization project which has sufficient budget for this work:

- Replacement of one 46 kV circuit breaker and line protection upgrade at Wabush Terminal Station.

The planned replacement of bushings for Bay d'Espoir Transformer T3 and Holyrood Transformer T7 were cancelled due to a revised long-term asset plan for these transformers.

23. Upgrade Circuit Breakers – Various Sites

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	13,337.3	4,299.6	(9,037.7)

Variance	Budget ($000)	Forecast and Expenditures ($000)	Variance ($000)
Project	50,900.5	44,561.7	(6,338.8)

This is a five-year project (2016–2020) that commenced in 2016 and has been carried over into 2021. The project scope includes several breaker replacements and refurbishments at a number of terminal stations each year. The variance in 2020 expenditures is primarily attributed to work being completed for less than the budget estimates and the release of the project contingency allowance which is not expected to be required. The variance is also attributed to the carryover of three breaker replacements into 2021 and the cancellation of one breaker replacement. Disruption of the annual work plan in the early stages of the COVID-19 pandemic led to a shortened construction season. Remaining work was prioritized and the master outage schedule was revised. Of the nine breakers originally planned to be replaced in 2020, five were completed. Three breaker replacements were re-scheduled to 2021 as they no longer fit into the revised master outage schedule. One breaker replacement was cancelled as it is no longer required due to a planned reconfiguration of the Stephenville Terminal Station.

The forecasted variance in total project expenditure is primarily attributed to work being completed for less than the budget estimates and the elimination of five breakers from the project scope: one at Western Avalon Terminal Station in 2018, one at Bay d'Espoir Terminal Station 2 in 2018; one at Bay d'Espoir Terminal Station 2 in 2019 which was instead refurbished in 2020, one at Hardwoods Terminal Station in 2019 which was instead refurbished in 2020; and one at Stephenville Terminal Station in 2020, due to the planned reconfiguration of the station.

4.5 Transmission Projects (Appendix A, Table A-6)

24. Muskrat Falls to Happy Valley Interconnection

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	7,450.0	4,659.8	(2,790.2)

This is a two year project (2019–2020) that commenced in 2019 and has carried over into 2021. The focus of the 2019 work was to complete the 138kV Muskrat Falls Terminal Station 2 construction, complete construction of the new six kilometre segment of 138 kV wood pole transmission line, and complete the line protection upgrades required in the Happy Valley Terminal Station. This work has been completed.

The focus of the 2020 work was to complete the expansion and upgrades to the Happy Valley Terminal Station and complete the final interconnection. The variance in 2020 expenditures is primarily attributed to a recommendation that transmission line L1301 and terminal station Muskrat Falls Terminal Station 3 remain available for service until reliable power supply from Muskrat Falls is established.[6] The planned relocation of Muskrat Falls Terminal Station 3 transformer T1 to Happy Valley Terminal Station to serve as new transformer T5 and the final interconnection work has been postponed until reliable supply from Muskrat Falls is established.

In addition, a portion of the project scope was moved to 2021 due to disruptions caused by the COVID-19 pandemic. There were schedule disruptions from COVID-19 associated with detailed planning to manage the COVID-19 safety risks. Consequently, the project scope was reviewed in 2020 to determine what work could effectively be completed in 2020 and what work would be deferred to 2021.

Work completed in Happy Valley Terminal Station in 2020 included distribution line relocations, site development, foundation construction, transformer containment system installation, site drainage, cable trench, conduit, grounding, installation of site perimeter fencing, and procurement of all equipment and materials.

[6] "Newfoundland and Labrador Hydro – Labrador East Reliability Plan Update," Newfoundland and Labrador Hydro, March 17, 2020, at p. 3.

Work that has been deferred until 2021 includes replacement of reclosers with breakers, erection of structural steel, bus upgrades, installation of high voltage equipment, installation of protection and control panels, and installation of Transformer T5.

4.6 Distribution Projects (Appendix A, Table A-7)

25. Additions for Load - Distribution System - Makkovik and Hopedale

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	846.1	135.0	(711.1)

This is a one-year project (2020) that has been carried over into 2021. The variance in 2020 expenditures is attributed to procurement and construction activities being deferred to 2021 due to access restrictions to both of these Labrador communities as a result of COVID-19. Hydro engaged community stakeholders and it was agreed that the work should be deferred to 2021 to mitigate the COVID-19 risk. Engineering has been completed with the remaining procurement and construction activities rescheduled to 2021.

26. Install Recloser Remote Control (2019-2020) - Rocky Harbour

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	364.0	109.4	(254.6)
Project	386.0	131.4	(254.6)

This was a two-year project (2019–2020) that was completed in 2020. The variances in 2020 and overall project expenditures are attributed to a narrowing of the project scope. The original project scope included the installation of remote terminal units and civil upgrades as part of the implementation of remote control of the recloser at Rocky Harbour. It was later determined that remote control could be provided without the installation of new remote terminal units and without any civil upgrades.

4.7 Rural Generation Projects (Appendix A, Table A-8)

27. Overhaul Diesel Units: Various

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	2,310.9	1,923.2	(387.7)
Project	2,310.9	1,923.2	(387.7)

This was a one-year project (2020) that was completed in 2020. The variance in project expenditures is primarily attributed to the cancellation of the planned overhaul of Unit 574 in the Nain Diesel Plant. That unit experienced a persistent overheating problem and Hydro decided it is not feasible to continue operating this unit, as an engine overhaul is not possible due to engine obsolescence and the unavailability of replacement components. The planned overhaul was therefore cancelled and Hydro included a project in the 2021 Capital Budget Application to replace the unit.[7]

The planned overhauls of Unit 591 in Nain and Unit 2096 in Postville were also not completed in 2020. A review of updated forecasts of the number of operating hours on these units and their recent operating experience indicated that these overhauls were not required in 2020. The planned overhaul of Unit 2058 in Little Bay Islands was not completed in 2020, since that plant was decommissioned.

28. Replace Automation Equipment – Rigolet

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	363.8	58.0	(305.8)

This is a one-year project (2020) that commenced in 2020 and has carried over to 2021. The variance in 2020 expenditures is the result of carrying over most of the scope of work to 2021. Travel restrictions to Labrador during the early stages of the COVID-19 pandemic preventing the required on-site technical review from occurring when originally planned, leading to a delay in the design, procurement and construction of the automation equipment.

[7] In Board Order No. P.U. 2(2021), the Board requested additional information regarding replacement of Unit 574 before approval of the project. Hydro filed "2021 Capital Budget Application – Replace Hydro Personal Computers (2021) and Diesel Genset Replacement (2021–2022) Projects – Additional Information" on February 25, 2021.

29. Upgrade Fuel Storage Tanks - Charlottetown

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	467.2	310.7	(156.5)
Project	467.2	310.7	(156.5)

This was a one-year project (2020) completed in 2020. The planned configuration of the fuel storage tank farm at Charlottetown was revisited in early 2020, taking into consideration updated fuel storage requirements and existing tank condition assessments. An optimized tank farm configuration resulted in a lower overall project cost and least-cost alternative. The original project budget included the cost associated with the cleaning, demolition, and disposal of an existing vertical fuel storage tank to make room for new tanks, but the new configuration did not require that footprint. The cleaning, demolition, and disposal of that tank; therefore, could not be capitalized and was expensed as an operating cost.

30. Diesel Genset Replacements – Mary's Harbour

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	3,900.7	2,799.0	(1,101.7)

Variance	Budget ($000)	Forecast and Expenditures ($000)	Variance ($000)
Project	3,900.7	3,148.8	(751.9)

This is a one-year project (2020) that commenced in 2020 and has carried over to 2021. The project scope is to replace two diesel genset units and associated exhaust stacks, radiators, aftercoolers, switchgear, ventilation, protection, and controls necessary to facilitate the proper function of the new units at Mary's Harbour Diesel Plant. This work was substantially completed in 2020 and the new gensets are in service. A portion of the work to update the automatic control system has carried over to 2021.

The variance in overall project expenditures plus forecast is primarily attributed to the electrical, protection, and controls scope of work being completed for less than the original budget estimates. Fewer construction resources were required to complete the work than originally estimated. Also, the project was estimated with the assumption that contractors would be performing a portion of the

work. Internal resources were available, resulting in less mobilization, travel, and contract management costs.

The variance in 2020 project expenditures is attributed to the electrical, protection, and controls scope of work being completed for less than the original budget estimates and the carryover of the remaining automation work to 2021.

31. Additions for Load – Isolated Generation Systems

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	(23.1)	154.6	177.7
Project	2,182.5	2,578.2	395.7

This was a two-year project (2019–2020) that was completed in 2020. This project scope included the construction of a new vertical fuel storage tank and associated earth dyke upgrades in Makkovik. The variances in 2020 and overall project expenditures are attributed to an increase in quantity of earthwork that was required to complete upgrades to the existing dyke, identified during engineering design. Additionally, the contract costs for mobilization and the tank construction were higher than originally estimated. Prior to contract award, an updated net present value of project alternatives was completed and it was confirmed that the original alternative remained least cost.

32. Diesel Genset Replacements (2019-2020)

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	3,807.2	972.6	(2,834.6)

This is a two-year project (2019–2020) that commenced in 2019 and has carried over to 2021. The variance in 2020 expenditures is attributed to a rescheduling of the installation of a new diesel genset in Cartwright Diesel Plant to 2021. The rescheduling allowed engineering and construction resources to focus on higher priority work during the COVID-19 pandemic in 2020, specifically the diesel genset replacements at Makkovik and Mary's Harbour. At Cartwright, an overhaul of an existing diesel genset was completed in 2020 to bolster plant reliability through the winter of 2020–2021.

33. Diesel Plant Engine Cooling System Upgrades – Various Sites

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	147.0	274.5	127.5

This was a two-year project (2018–2019) that commenced in 2018 and was carried over and completed in 2020. The project scope included the replacement of cooling equipment at various diesel plants. All of the planned work for 2019 was completed except for the installation of radiators at the Rigolet and St. Anthony Diesel Plants. The construction resources for this work were reassigned to restore generation in Charlottetown following the diesel plant fire in late 2019. The work at Rigolet and St. Anthony was then rescheduled to 2020 and was completed. The variance in 2020 expenditures is attributed to a greater level of effort than originally anticipated for the radiator replacement at St. Anthony, where the removal of the existing radiator and piping proved to be challenging. The overall project was completed within 10% of approved budget.

34. Replace Automation Equipment – St. Anthony

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	(44.7)	160.2	204.9

Variance	Budget ($000)	Forecast and Expenditures ($000)	Variance ($000)
Project	1,873.3	2,248.2	374.9

This is a two-year project (2018–2019) that commenced in 2018 and has carried over into 2021. The engineering, procurement, and construction were substantially completed in 2019, and the automation programming and commissioning carried over. Some of the automation work was completed in early 2020. COVID-19 restrictions during the early stages of the pandemic resulted in the technical resources demobilizing from site. Those technical resources were then dedicated to higher priority work for the remainder of the year. The remainder of the automation work has been rescheduled to 2021.

The variances in 2020 expenditures and overall project expenditures plus forecast are attributed to the construction effort being more than the original project estimate. Some of the protection and control equipment required upgrades that were not anticipated at the time of the budget estimate. Additional

labour costs and mobilization and demobilization costs were incurred due to the failure of the existing switchgear for one of the gensets and the requirement to divert resources to support work in Charlottetown following the diesel plant fire in late 2019.

4.8 Properties Projects (Appendix A, Table A-9)

There are no reportable variances under Properties Projects.

4.9 Metering Projects (Appendix A, Table A-10)

There are no reportable variances under Metering Projects.

4.10 Tools and Equipment Projects (Appendix A, Table A-11)

35. Replace Light Duty Mobile Equipment – Various Sites

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	499.6	68.0	(431.6)

This is a one-year project that commenced in 2020 and has carried over to 2021. Procurement of the light-duty mobile equipment was initiated in 2020 but most equipment will not be delivered until 2021 due to COVID-19 delivery delays experienced by the suppliers.

36. Tools and Equipment Less than $50,000

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	439.4	265.7	(173.7)
Project	439.4	265.7	(173.7)

This is a one-year project that commenced and closed in 2020. The annual and project variances are related to some tools that could not be procured in 2020 due to long delivery times from suppliers.

37. Replace Off-Road Track Vehicles – Bishop's Falls and Bay d'Espoir

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Project	1,200.0	1,334.5	134.5

This is a 2018 project that carried over and was completed in 2020. This project included the procurement of a track unit with aerial device and a backyard aerial device unit. The backyard unit cost was higher than the original estimate due in part to US steel tariffs and changes in the value of the Canadian Dollar. The actual cost of the track unit was above the budget estimate due to higher commissioning costs due to pandemic quarantine requirements.

4.11 Information Systems Projects (Appendix A, Table A-12)

There are no reportable variances under Information Systems Projects.

4.12 Telecontrol Projects (Appendix A, Table A-13)

38. Replace Radomes – Various

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	384.5	215.1	(169.4)
Project	384.5	215.1	(169.4)

This was a one-year project (2020) that was completed in 2020. The project is part of an ongoing program to replace radomes[8] that are near end of life. The variance in project expenditures is attributed to the 2020 work being completed for less than originally estimated. The budget estimate was based upon previous cost experience for radome replacements. In 2020, the supply and installation of radomes was publically tendered for a three-year period (2020–2022), where the award of scope for each calendar year is subject to approval of the associated annual project by the Board. The multi-year contract allowed Hydro to leverage volume pricing and achieve savings.

[8] Radomes are the protective covers that enclose the delicate components of the microwave antennas in Hydro's microwave radio system.

4.13 Transportation Projects (Appendix A, Table A-14)

39. Replace Light and Heavy Duty Vehicles (2020-2021) - Various

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	1,625.5	3.9	(1,621.6)

This is a two-year project (2020–2021) that commenced in 2020. The original project schedule included procurement of a portion of the light-duty mobile equipment in 2020; however, most equipment will not be delivered until 2021 due to COVID-19 delivery delays experienced by the suppliers.

40. Replace Vehicles and Aerial Devices – Various Sites

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	458.0	632.7	174.7

This is a two-year project (2019–2020) that has carried over into 2021. The variance in annual expenditures is attributed to higher than anticipated unit costs, due in part to US steel tariffs and changes in the value of the Canadian Dollar. One material handling device remains to be received in 2021.

41. Replace Vehicles and Aerial Devices – Various Sites

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	765.7	991.9	226.2
Project	2,420.9	2,647.1	226.2

This is a two-year project (2018–2019) that commenced in 2018, carried over and was completed in 2020. The variance in annual and project expenditure is attributed to higher than anticipated unit costs, due in part to US steel tariffs and changes in the value of the Canadian Dollar.

4.14 Administrative Projects (Appendix A, Table A-14)

There are no reportable variances under Administrative Projects.

4.15 Allowance for Unforeseen Items (Appendix A, Table A-15)

42. Allowance for Unforeseen Items

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	1,216.4	218.4	(998.0)
Project	1,216.4	218.4	(998.0)

The Allowance for Unforeseen Items is an annual allotment that permits Hydro to act expeditiously to deal with events affecting the electrical system that cannot wait for specific approval of the Board. Some costs were incurred in 2020 in relation to the work required to restore service to Charlottetown and Pinsent's Arm following a catastrophic fire that occurred at the Charlottetown Diesel Generating Station in 2019. Replacement of a failed generator in Charlottetown was also executed under the 2020 project. Hydro initiated an additional project in 2020 to replace a failed engine at the Port Hope Simpson Diesel Generating Station; however, due to the lead time associated with procurement and shipping of the replacement engine, costs will not be incurred in 2020 as reflected in the above variance. Hydro received approval to replenish the Allowance for Unforeseen Items Account in Board Order No. P.U. 32(2020), increasing the total 2020 allowance to $1.2 million.

Hydro completed installation of the replacement engine for the Port Hope Simpson Generating Station in February 2021 and will file a report on this project with the Board as per Capital Budget Application Guidelines requirements.

4.16 Supplemental Projects (Appendix A, Table A-15)

43. Construction and Installation of an Electric Vehicle Fast Track Network

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
Annual	2,059.4	1,623.5	(435.9)
CIAC[9] (annual)	(1,800.0)	(1,364.1)	435.9

This is a one-year project (2020) that has been carried over into 2021. The variance in 2020 expenditures is attributed to a portion of the construction carrying over into 2021. The carryover was caused by COVID-19 delays in equipment manufacturing and labour required to secure necessary

[9] Contribution in aid of Construction ("CIAC").

easement to begin work. All civil work was completed in 2020 and equipment placement, commissioning, and site clean-up will be completed in 2021. Receipt of the remaining Contribution In Aid of Construction ("CIAC") funds will also be received in 2021.

44. Integrate Renewable PH2 - Mary's Harbour - CIAC

Variance	Budget ($000)	Expenditures ($000)	Variance ($000)
CIAC (annual)	(332.9)	(498.0)	(165.1)

This is a two-year project that commenced in 2020. While there is no reportable variance related to execution of the project, all CIAC funding was received in 2020.

5.0 Capital Budget Versus Actual Expenditures 2011–2020

Table 2 provides a summary of Hydro's capital budget variances for the years 2011–2020.

Table 2: Capital Budgets/Expenditures 2011–2020

Year	Budget ($000)	Actual Expenditures ($000)	Variance ($000)	Variance (%)
2011	67,454	63,116	(4,338)	(6.4)
2012	93,840	77,252	(16,588)	(17.7)
2013	116,373	84,755	(31,618)	(27.2)
2014	280,601	204,728	(75,873)	(27.0)
2015	311,177	125,119	(186,058)	(59.8)
2016	350,601	203,941	(146,660)	(41.8)
2017	340,501	340,741	240	0.1
2018	213,050	156,985	(56,065)	(26.3)
2019	164,194	126,575	(37,619)	(22.9)
2020	134,752	87,555	(47,197)	(35.0)

In 2020, actual expenditures were below budget in Hydro's overall capital program by $47.2 million (35.0%), as shown in Table 2. The six capital projects outlined in the following were the main contributors to the variance. Excluding the contribution of these projects, the overall actual expenditures would have been within 10% of the budget.

1) Variance 20: Terminal Station Refurbishment and Modernization – Various Sites 2019–2020 (-$9.3 million). The variance in 2020 expenditures is primarily associated with the capital

programs for power transformers, protective relays, and the refurbishment of Wabush Terminal Station. The costs for materials and labour were less than originally estimated for several scope items within these programs, and some scopes of work were cancelled or rescheduled to future years.

2) Variance 23: Upgrade Circuit Breakers, Various Sites (-$9.0 million). The variance in 2020 expenditures is primarily attributed to work being completed for less than the budget estimates and the release of the project contingency allowance which is not expected to be required. The variance is also attributed to the carryover of three circuit breaker replacements into 2021, and the cancellation of one breaker replacement.

3) Variance 3: Hydraulic Generation Refurbishment and Modernization 2019–2020 (-$5.4 million). The variance in 2020 expenditures is primarily attributed to the postponement of work related to Ebbegunbaeg Control Structure and Bay d'Espoir Intake Gate 2.

4) Variance 4: Hydraulic Generation Refurbishment and Modernization 2018–2019 (-$3.9 million). The variance in 2020 expenditures is primarily attributed to the postponement of work related to Bay d'Espoir Intake Gate 1 and Surge Tank 1.

5) Variance 22: Terminal Station Refurbishment and Modernization – Various Sites 2018–2019 (-$3.3 million). The variance in 2020 expenditures is primarily attributed to protective relay replacements being completed for less than the original materials and labour estimates.

6) Variance 32: Diesel Genset Replacements 2019-2020 (-$2.8 million). The variance in 2020 expenditures is attributed to a rescheduling of the installation of a new diesel genset in Cartwright Diesel Plant to 2021.

Hydro completed an analysis of all projects that had an annual under-expenditure of greater than $100,000 in 2020 to determine the primary drivers. Three main causes were identified, accounting for approximately 82% of the overall under-expenditure for the projects analyzed:

1) Scopes of work delayed due to the COVID-19 pandemic accounted for approximately 36% of the overall under-expenditure for the projects analyzed. Factors leading to delays included: challenges in securing and mobilizing out-of-province contractors; specific restrictions for travel to Labrador; restrictions for access to Hydro facilities; closure of accommodations in some communities; and delays at manufacturing facilities. The most material scopes of work delayed due to the COVID-19 pandemic were:

- Variance 32: diesel generator replacement at Cartwright;
- Variance 23: three circuit breaker replacements;
- Variance 20: a portion of the planned upgrades at Wabush Terminal Station;
- Variances 35 and 39: procurement of light and heavy duty vehicles;
- Variance 4: refurbishment of Bay d'Espoir Intake 1 and Surge Tank 1;
- Variance 24: a portion of the planned upgrades at Happy Valley Terminal Station;
- Variance 12: generator assessment for the Happy Valley Gas Turbine;
- Variance 25: distribution upgrades in Makkovik and Hopedale; and
- Variance 43: installation of an electric vehicle fast track network.

2) Work completed for less than the budget estimates accounted for approximately 33% of the overall under-expenditure for the projects analyzed. Most of the project scopes that were completed for less than budget were in projects which commenced in 2019 or earlier; contingency for those projects was typically estimated at 20% and was not required in many cases. Contingency was reduced to approximately 10% in the estimates for projects that started in 2020. The most material scopes of work completed for less than budget were:

- Variance 23: replacement and refurbishment of circuit breakers in various Terminal Stations;
- Variances 20 and 22: protective relay replacements, transformer refurbishments, insulator replacements, and disconnect switch replacements in various Terminal Stations;
- Variance 6: exciter controls replacements at Bay d'Espoir Generating Station; and
- Variance 30: the electrical, protection and control scope of work associated with the replacement of a diesel generator at Mary's Harbour Diesel Plant.

3) Cancelled scope accounted for approximately 13% of the overall under-expenditure for the projects analyzed. The most material scopes of work cancelled were:

- Variance 3: refurbishment of Ebbegunbaeg Control Structure;
- Variances 3 and 4: refurbishment of Bay d'Espoir Intake Structures and Surge Tank 1;

- Variance 20: various transformer refurbishments; and
- Variance 23: a circuit breaker replacement at Stephenville Terminal Station.

Hydro anticipates that COVID-19 will continue to impact capital project execution in 2021, particularly given the recent developments in the province related to the COVID-19 pandemic. Hydro intends to approach the planning for 2021 capital project execution in a similar manner to its approach in 2020. Capital work will be included in the integrated annual work plan and each scope of work will be assigned a risk and criticality ranking. Hydro will use this ranking, as required, to adjust the Annual Work Plan activities to ensure work critical to the safe and reliable operation of the system can proceed.

As outlined in Hydro's Efficiency and Effectiveness Plan update to the Board,[10] Hydro has identified capital planning as an area of focus to pursue efficiencies and cost savings. Hydro intends to review its capital budget planning and execution methodologies and use its underspend analysis to identify trends and potential areas for improvement to reduce capital expenditure variances in future years.

6.0 Carryover Report

Table 3 provides a summary listing of the carryovers for projects initiated between 2016 and 2020.

[10] "Efficiency and Effectiveness Plan – Fall 2020 Update," Newfoundland and Labrador Hydro, November 12, 2020.

Table 3: 2020 Carryover Report for the Year Ending December 31, 2020 ($000)

	Project Name	PUB Approved Budget [] Carried Over Projects	Revised Budget[11] [] Carried Over Projects	Total Actual Expenditures [] Carried Over Projects	Carryover Amount	Original Completion Year
13972003	Additions for Load - Distribution System - Makkovik and Hopedale	846.1	846.1	135.0	711.1	2020
13502091	Construction and Installation of an Electric Vehcile Fast Track Network	2,059.4	2,059.4	1,623.5	435.9	2020
13502091	Construction and Installation of an Electric Vehcile Fast Track Network - CIAC	(1,800.0)	(1,800.0)	(1,364.1)	(435.9)	2020
14011808	Diesel Genset Replacements - Makkovik	3,592.8	3,140.8	3,366.0	(225.2)	2020
14112008	Diesel Genset Replacements - Mary's Harbour	3,900.7	3,148.8	2,799.0	349.8	2020
14011908	Diesel Genset Replacements (2019-2020)	3,421.8	3,807.2	972.6	2,834.6	2020
14012001	Diesel Plant Ventilation Upgrade - Nain	162.7	162.7	96.1	66.6	2021
13502003	Distribution System Upgrades (2020-2021) - Various	102.7	102.7	121.0	(18.3)	2021
21842002	Generator Assessment - Happy Valley Gas Turbine	1,097.6	1,097.6	76.0	1,021.6	2020
	Hydraulic Generation Refurbishment and Modernization - Various Sites 2020	3,400.2	4,076.4	4,004.3	72.1	2020
13401801	Increase Fuel and Water Treatment System Capacity - Holyrood Gas Turbine	-	1,557.6	832.8	724.8	2019
13402002	Install Partial Discharge Monitoring - Holyrood Gas Turbine	37.8	19.8	165.4	(145.6)	2021
13502017	Install Recloser Remote Control (2020-2021) - Hampden and Upper Salmon	71.3	71.3	33.7	37.6	2021
14112092	Integrate Renewable PH2 - Mary's Harbour	332.9	332.9	256.9	76.0	2021
14112092	Integrate Renewable PH2 - Mary's Harbour - CIAC	(332.9)	(332.9)	(498.0)	165.1	2021
13851901	Muskrat Falls to Happy Valley Interconnection	7,392.1	7,450.0	4,659.8	2,790.2	2020
13402001	Perform Combustor Inspection - Holyrood Gas Turbine	546.1	573.5	35.0	538.5	2022
20682005	Perform Minor Enhancements - Hydro Place	49.0	49.0	22.8	26.2	2020
14012002	Replace Automation Equipment - Rigolet	363.8	363.8	58.0	305.8	2020
14101802	Replace Automation Equipment - St. Anthony	-	330.2	160.2	170.0	2019
20082002	Replace Elevator Motors and Control Equipment - Hydro Place	89.1	89.1	64.2	24.9	2021
12931702	Replace Exciter Controls Units 1 to 6 - Bay d'Espoir	1,429.6	679.1	449.5	229.6	2020
21842001	Replace Fire Supression System - Happy Valley Gas Turbine	264.6	130.1	158.9	(28.8)	2021
14011904	Replace Human Machine Interface - Cartwright	-	154.0	97.3	56.7	2019
13462001	Replace Light and Heavy Duty Vehicles (2020-2021) - Various	1,625.5	1,625.6	4.0	1,621.6	2021
13462002	Replace Light Duty Mobile Equipment - Various Sites	499.6	521.7	68.0	453.7	2020
14362001	Replace Powerhouse Roofing System - L'Anse Au Loup and St. Anthony	125.3	125.4	121.5	3.9	2021
13252010	Replace Transformer T7 - Holyrood Terminal Station	2,678.1	2,678.1	660.6	2,017.5	2020
13461901	Replace Vehicles and Aerial Devices - Various Sites	594.9	458.0	632.7	(174.7)	2020
12962001	Rewind Unit 3 Stator - Holyrood	1,281.4	1,281.4	2,231.4	(950.0)	2021
	Terminal Station Refurbishment and Modernization - Various Sites 2019	8,132.1	5,869.1	1,904.5	3,964.6	2020
	Terminal Station Refurbishment and Modernization - Various Sites 2020	2,299.0	2,369.6	860.1	1,509.5	2021
13251601	Upgrade Circuit Breakers - Various Sites	11,116.8	6,998.5	4,299.6	2,698.9	2020
13462003	Upgrade Fire Suppression System - Bishop's Falls	91.6	91.6	98.2	(6.6)	2021
12962002	Upgrade Uninterruptible Power Supply 3 & 4 - Holyrood	348.7	348.7	283.2	65.5	2020
13882093	Wabush L34 and L35 Protective Relays	43.7	43.7	24.7	19.0	2021
13882093	Wabush L34 and L35 Protective Relays - CIAC	(43.7)	(43.7)	(24.7)	(19.0)	2021
		55,820.4	**50,476.9**	**29,489.7**	**20,987.2**	

[11] Revised Budget = Board Approved Budget + Carryovers + Change Management.

7.0 Safety Hazards

In Board Order No. P.U. 38(2010) related to Hydro's 2011 Capital Budget Application, the Board directed Hydro to include in its annual report on capital expenditures an explanation on each project that was undertaken for the Remove Safety Hazards project, setting out the safety hazard that was identified, the location, the steps taken to address the issue, and the amount of the expenditure. Table 4 outlines the projects undertaken in 2020.

Total Approved Budget: **$198,600**

Total Expenditure: **$218,400**

Table 4: Safety Hazards

Project Title and Location	Expenditure ($000)	Safety Hazard Identified	Project Scope
Replace Emergency Eyewash and Shower Stations Holyrood TGS	145.7	Existing eyewash and shower stations, connected to domestic water piping, were identified during periodic testing to frequently lack sufficient pressure to consistently and adequately perform. In addition, locations of some existing units are no longer suitable due to plant layout changes.	Purchased and installed standalone eyewash/shower units with self-contained water supply in locations to best suit current operations and hazards.
Replace Main Gate Holyrood TGS	31.2	The main entrance gate, comprised of two (2) three metre sliding panels, failed due to age and weather damage. The single security guard at the gate must make routine rounds of the site, leaving the gate unattended for periods of time. Leaving the failed gate in the open position posed a risk of intrusion by unauthorized persons or large animals, resulting in public safety risk and hazards to employees.	Replaced main gate with a new six metre single panel complete with mechanism and control.
Drop Stop Installation on Overhead Monorail Cranes Upper Salmon Powerhouse, West Salmon Spillway, Cat Arm Powerhouse, Hinds Lake Spillway	22.7	Existing crane trolleys do not include drop stop brackets that prevent the trolley and suspended load from falling to the floor in the event a wheel failure.	Drop stop brackets were designed, fabricated and installed on each crane trolley unit.

Project Title and Location	Expenditure ($000)	Safety Hazard Identified	Project Scope
Journey Management Application for Working Alone Various Locations, Network Services	18.8	Workers are commonly required to work or travel alone, often in remote locations. Hydro has established methods to monitor and ensure wellbeing of these workers, but call-in to supervisors or a third-party service has gaps and shortcomings in practice. An available general-purpose cellular phone application was successfully trialled and a need was identified to customize the application to fully resolve communication and content gaps.	The existing cellular phone application was customized with the addition of a safety checklist and upload of site specific information and travel routes.

8.0 Terminal Station In-Service Failures

Hydro has committed to providing a summary of activities completed under the Terminal Station In-Service Failures project. Table 5 outlines 2020 expenditures under this project.

Total Approved Budget: **$1,500,000**

Total Expenditure: **$1,081,000**

Table 5: Terminal Station In-Service Failures

Project Title and Location	Expenditure ($000)	Failure Identified	Project Scope
Breaker Refurbishment Doyles and St. Anthony Terminal Stations	297.7	B1L15 at Doyles Terminal Station and B1C3 at St. Anthony Terminal Station are 69 kV circuit breakers that had been identified as leaking sulfur hexafluoride (SF6) gas to atmosphere. The leaking of SF6 to atmosphere is an environmental concern with the gas being known as the most harmful greenhouse gas. Leaking gas could result in a flashover of the breaker or a catastrophic failure resulting in loss of service to customers and compromising the integrity of the electrical system in the area.	The 69 kV breakers B1L15 at Doyles Terminal Station and B1C3 at St. Anthony Terminal Station were refurbished. At Doyles, the terminal station configuration was such that the breaker was unable to be isolated from the electrical system to facilitate the breaker refurbishment. To avoid an extended customer outage, a bypass disconnect switch was installed at Doyles. This bypass arrangement will provide benefits for future maintenance as well.

Project Title and Location	Expenditure ($000)	Failure Identified	Project Scope
Transformer T1 On-Load Tap Changer Overhaul St. Anthony Diesel Plant	222.6	A test of the St. Anthony Diesel Plant Terminal Station T1 tap changer identified an abnormal dissipation of energy, indicating fault or wear activity to the extent that there was risk of imminent failure.	Transformer T1 On-Load Tap Changer was overhauled.
Replacement of Four (4) Relay Test Sets	214.1	Four (4) relay test sets located at Bishop's Falls (2005 vintage), Whitbourne (2005 vintage), Stephenville (2005 vintage), and St. Anthony (2007 vintage) failed and required replacement. These sets are used by Protection and Control Technologists to complete preventative maintenance, troubleshooting and projects. Specifically, the relay test sets are used to check the condition of protective relays and current transformer secondary circuits as well as to complete commissioning of new equipment.	Four (4) replacement relay test sets were purchased.
Replacement of Power Transformer Protective Devices Various Locations	152.4	Inspections of twenty-three (23) power transformer protective devices revealed that the devices had failed or were at risk of imminent failure, due to moisture ingress resulting in electrical contact corrosion.	Twenty-three (23) power transformer protective devices were replaced.
Breaker B2T4 Rebuild Bay d'Espoir Terminal Station 1	65.5	In 2019, 230 kV Breaker B2T4 failed and was replaced under the 2019 In Service Failures project. The failed breaker was sent to a factory for rebuild to serve as an onsite spare.	The failed 230 kV Breaker B2T4 was rebuilt by the original equipment manufacturer ("OEM") and returned to Bay d'Espoir in 2020 as an onsite spare. The OEM covered the factory rebuild cost and Hydro covered the shipping costs to and from the factory.

Project Title and Location	Expenditure ($000)	Failure Identified	Project Scope
Purchase Spare Disconnect Switch	40.7	In 2019, a 145 kV disconnect was used from the stand-by equipment pool to replace a failed disconnect switch at Bay L'Argent Terminal Station. In order to maintain adequate spare availability, a replacement 145 kV disconnect was required.	One spare 145 kV disconnect switch was purchased for the stand by equipment pool.
Synchronous Condenser 2 (SC2) Human Machine Interface (HMI) Upgrade Wabush Terminal Station	23.2	The existing HMI for SC2 was no longer functional and vendor support for the associated software was discontinued. The HMI is required to provide oversight of operating parameters and access to logged historical operating data for the synchronous condenser. Failure to have access to this data will result in the unavailability of key information for operations oversight, failure/event analysis and management purposes.	The existing HMI for SC2 was upgraded with new software.
Purchase Spare Synchronous Condenser Breaker Wabush Terminal Station	22.1	Synchronous Condenser Breakers 4-1, 12 1A, 12-1B, 4-2, 12-2A, and 12-2B are approximately 50 years old and there have been several issues found with these breakers on recent unit inspections that required emergency repair, which extended the length of the equipment outages. Due to the age and recent maintenance issues of these breakers, it was determined a spare was required in the event of failure.	A spare synchronous condenser breaker was purchased.
Surge Arrester Replacement Holyrood and Massey Drive Terminal Stations	16.3	Surge arresters H1, H2 and H3 on Station Service Transformer SST1-2 at Holyrood Terminal Station and H1 and X1 on Transformer T3 at Massey Drive Terminal Station failed Doble testing during planned preventive maintenance checks, resulting in the requirement for immediate replacement.	Surge arresters H1, H2 and H3 on SST1-2 at Holyrood Terminal Station and H1 and X1 on T3 at Massey Drive Terminal Station were replaced.
Disconnect Switch L2L38 Replacement Holyrood Terminal Station	15.0	On August 31, 2020, an attempt was made to close disconnect switch L2L38. The disconnect switch was inoperable and required immediate replacement.	Disconnect Switch L2L38 was replaced with an available spare.

Project Title and Location	Expenditure ($000)	Failure Identified	Project Scope
Replace Bus 13 Differential Protection Relays Bay d'Espoir Terminal Station 2	11.4	Three (3) Bus 13 differential protection relays malfunctioned on three (3) separate occasions in 2020. The relays were electro-mechanical overcurrent type and were obsolete. Immediate replacement was required to ensure protection systems were operating correctly.	Three (3) Bus 13 differential protection relays were replaced.

9.0 Hydraulic In-Service Failures

Hydro has committed to providing a summary of activities completed under the Hydraulic Generation In-Service Failures project. Table 6 outlines 2020 expenditures under this project.

Total Approved Budget: **$1,250,000**

Total Expenditure: **$1,287,200**

Table 6: Hydraulic In-Service Failures

Project Title and Location	Expenditure ($000)	Failure Identified	Project Scope
Units 1–6 Spare Generator Thrust and Guide Bearing Assembly Procurement Bay d'Espoir	276.2	Presently there is one spare thrust and guide bearing assembly for Units 1–6, and it has been determined that a second spare assembly is required for risk mitigation. Over the period of 2017–2019 there were bearing failures of the Unit 2 thrust bearing and the Unit 3 thrust and guide bearings, which were discovered during maintenance activities. There is a high probability that similar failures could occur on the other units. If a failed bearing is not too severely damaged, it can be refurbished and maintained as a spare. Refurbishment of a bearing can take 18–22 weeks depending on fabricator availability. If a failed bearing is severely damaged, a new bearing would need to be procured to replenish the spare, and fabrication of a new bearing would take 20–25 weeks depending on fabricator availability.	One set of spare thrust and guide bearings that will fit Bay d'Espoir Units 1–6 was procured and delivered to site.

Project Title and Location	Expenditure ($000)	Failure Identified	Project Scope
Capital Spares Procurement Granite Canal and Upper Salmon	234.8	An excitation transformer for the unit at Granite Canal and a transformer for the Upper Salmon Intake Structure were determined to be required for the standby pool, to allow fast responsive action to future failures of long lead time equipment.	An excitation transformer for Granite Canal was ordered and received in 2020. An intake transformer for Upper Salmon was ordered in 2020 and is expected to be received in the first quarter of 2021. For the Upper Salmon transformer, the planned concrete pad and oil containment system was constructed in 2020.
Dam Stabilization Roddickton	220.7	The Roddickton mini hydro plant includes a 75m-long rock and gravel filled timber crib dam complete with a low flow drain and a 800 mm diameter penstock. The timber crib structure deteriorated to a point where the internal timbers rotted and stability was marginal, particularly during ice loading. Short term solutions were implemented to manage the reservoir inflows. However, these solutions were no longer successful and more recent events and inspections revealed additional rotting and movement of the structure, increasing the probability of dam failure.	Roddickton dam was stabilized in 2020 by placement of armour stone downstream of the dam. To facilitate the work, road refurbishment and the construction of access ramps were required.
Unit 3 Generator Thrust and Guide Bearing Assembly Refurbishment Bay d'Espoir	115.5	Unit 3 experienced abnormal vibration. Inspection revealed that the thrust and guide bearing assembly was worn past the point of operation and could no longer be placed into reliable service.	The failed bearing assembly was removed from service and replaced with the available spare bearing assembly. The failed bearing assembly was rebabbitted and refurbished to serve as a spare.

Project Title and Location	Expenditure ($000)	Failure Identified	Project Scope
Unit 7 Turbine Guide Bearing Refurbishment Bay d'Espoir	77.7	The Unit 7 turbine guide bearing failed in service as a result of a bonding failure between the between the bearing casing and the babbit material. This resulted in a loss of clearance in the bearing.	The failed Unit 7 turbine guide bearing was replaced with the available spare. The failed bearing assembly was rebabbitted and refurbished to serve as a spare.
Units 1, 4, 5 and 6 Generator Bearing Cooler Refurbishment Bay d'Espoir	68.1	A unit generator bearing oil cooler set is comprised of 3 stainless steel coil-type coolers that are submersed in a bath of oil. Cold penstock water flows through the coil and enables heat transfer from the oil to the water, thereby reducing the oil temperature and ensuring the unit does not run at high temperatures and cause equipment damage. Temperature increases in 2020 were noticed to be higher than the historic norm and trending toward the temperature alarm points. An inspection revealed that the generator bearing cooler sets for Units 1, 4, 5 and 6 were fouled by varnish on the external surface of the coils and had organic buildup on the inside surface. This impacted the bearing cooler heat transfer and cooling capacity which required immediate corrective action to avoid a potential generation disruption.	Generator bearing oil coolers were replaced in Units 1, 4, 5, and 6. Existing coolers were then cleaned and refurbished and placed in inventory as spares.

Project Title and Location	Expenditure ($000)	Failure Identified	Project Scope
Unit Breaker Replacement Paradise River	55.2	The unit breaker failed to close resulting in a forced outage on November 18, 2019 rendering the hydro generating plant unavailable for approximately one week. The investigation revealed that the charging motor had failed and a mechanical shaft was bent. The charging motor was replaced; however the bent mechanical shaft could not be fixed and the breaker was placed back into service with the bent shaft. Further inspection during a unit outage revealed that the open and close gear mechanism showed signs of deterioration, with noticeable wear on the gear teeth. Pieces of metal from the gear teeth were discovered in the interior breaker housing; these were removed, but further wear could cause a short circuit, if the metal pieces contaminate the electrical parts of the breaker. The breaker required replacement.	A new unit breaker was procured and installed.
Units 1 to 7 Generator Bearing Oil Replacement Bay d'Espoir	53.3	BDE Units 1 to 7 generator bearing assemblies are submersed in an oil bath during operation. Oil temperatures were noticed to be trending upward toward the temperature alarm points. When operating at higher temperatures, the oil will break down and trigger a rapid buildup of varnish and other forms of fouling that will lead to equipment deterioration and inoperability. The existing oil has a maximum operating temperature of 74°C and is no longer recommended for use in these units. The operating temperatures of the oil were recorded to be approaching the recommended maximum operating temperature.	The generator bearing oil for BDE Units 1 to 7 was replaced with an oil recommended by the original equipment manufacturer .
Fire Pump Replacement Hinds Lake	41.4	The internal components and casing of Fire Pump No. 2 deteriorated to the point where the pump was no longer viable for continued operation. The pump had been in service since 1980.	A replacement fire pump was procured under the 2019 Hydraulic In-Service Failures project. Installation was completed in 2020.

Project Title and Location	Expenditure ($000)	Failure Identified	Project Scope
Fire Panel Replacement Granite Canal	40.2	The existing fire alarm system for the powerhouse has been in operation since 2002. Replacement parts are no longer available and the system has been indicating sensor faults due to failing alarm system components. The panels and field devices require replacement.	Procurement of replacement fire alarm panels and field devices was completed under the 2019 Hydraulic In-Service Failures project. Installation was completed in 2020.
Shaft Seal Replacement Granite Canal	37.9	The unit turbine shaft carbon seal leakage rate was at a point where all three head cover drainage pumps could not stop the water from entering the turbine pit. The unit tripped offline on March 24, 2020 and March 25, 2020 due to the water levels in the turbine pit. Investigation determined that the shaft carbon seal was exhibiting signs of damage, with scoring observed on the sealing faces.	The turbine shaft carbon seal and related components were replaced.
Oil Skimmer Replacement Upper Salmon	30.8	The mop-type sump oil skimmer, which floats on top of the water to collect oil, was past its useful life and causing issues due to entanglement with equipment and piping located in the sump. Replacement parts were no longer available. The oil skimmer is essential to ensure the recovery of any oil lost within the powerhouse and prevent any discharge into the environment.	The existing oil skimmer was replaced with a belt-type oil skimmer.
Powerhouse 1 Overhead Crane Refurbishment Bay d'Espoir	28.4	While using the powerhouse 30 ton overhead crane, the hoist operated in the opposite direction and travelled up instead of down. This caused the wire rope to fail which damaged the sheaves located on the crane. The upper limit switch lever was also bent beyond repair and replacement was required.	Replacement sheaves, wire rope, and a limit switch were installed and a load test was conducted to re-certify the overhead crane.
Sump Oil In Water Detection System Replacement Granite Canal	7.0	The sump oil in water detection system is used to monitor the sump contents and send an alarm if oil is detected, so that the oil can be removed and not released to the environment. The existing sensor failed and a direct replacement is no longer available.	A replacement oil-in-water detection system was procured and will be installed under the 2021 Hydraulic In-Service Failure project.

10.0 Thermal In-Service Failures

Hydro has committed to providing a summary of activities completed under the Thermal Generation In-Service Failures project. Table 7 outlines 2020 expenditures under this project.

Total Approved Budget: **$2,000,000**

Total Expenditure: **$1,836,700**

Table 7: Thermal Generation In-Service Failures

Project Title and Location	Expenditure ($000)	Failure Identified	Project Scope
Waste Water Treatment Building Roof Replacement Holyrood TGS	275.7	The Waste Water Treatment Plant ("WWTP") was installed in 1992 and there have been no major upgrades to the roof since its original installation. The WWTP processes effluent from the periodic basin which originates from air heater washes, boiler washes, batch reactor waste and landfill leachate. In 2020, a large leak was identified in the roof of the WWTP. Upon investigating the leak, it was discovered that the roof failed and required a full replacement, to prevent damage to the equipment housed in the building.	The WWTP roof replacement commenced in 2020. All materials were received and a contractor from Nova Scotia mobilized to execute the work. Due to changing COVID-19 protocols and poor weather conditions, the work was paused at 5% completion and will resume in 2021 when weather conditions are favourable. A contingency plan was implemented to temporarily protect equipment inside the building during the 2020-2021 operating season.

Project Title and Location	Expenditure ($000)	Failure Identified	Project Scope
Cooling Water Outfall Pipe Replacement Holyrood Unit 3	244.3	In 2020, sink holes were discovered in the vicinity of the Unit 3 circulating water discharge line from the seal pit to the outfall into Holyrood Bay. This indicated a leak in the cooling water discharge line, which was subsequently confirmed with a dye test. A consultant was engaged and an inspection of the pipeline was completed during the Unit 3 annual outage in 2020. It was confirmed that a section of the discharge pipe, below where the sink hole appeared, is in poor condition and must be replaced. The consultant recommended installing a new pipe section inside the existing 84 inch pipeline.	Materials and equipment have been procured and a contract is in place to execute cooling water outfall pipe replacement. The work requires a total plant outage to obtain the necessary isolations to perform the work safely and is planned to be completed during the 2021 total plant outage.
West Boiler Feed Pump Replacement Holyrood Unit 1	162.9	In 2020, the Unit 1 west boiler feed pump seized during operation; the shaft was prevented from spinning and the rotor locked. This caused an induced current in the motor resulting in significant overheating and damage to the rotor's squirrel cage bars.	The West boiler feed pump volute and motor for Unit 1 were replaced with available spare components.
Variable Frequency Drive Cell Spares Replacement Holyrood Thermal Generating Station	112.3	Nineteen Boiler Forced Draft Fan Variable Frequency Drive cells failed in service in 2020. These failures did not affect production as there is redundancy built into the system to account for failures.	The failed variable frequency drive cells were replaced using available spares. The failed cells were refurbished and returned to inventory as spares.

Project Title and Location	Expenditure ($000)	Failure Identified	Project Scope
Feed Water Valves Overhaul Holyrood Unit 3	107.1	Boiler Feed Pumps (BFPs) provide high pressure feed water to the boiler during operation by taking feed water from the deaerator storage tank and pumping it through the high pressure feed water heaters, economizer, and into the boiler steam drum. The feed water is then converted into superheated steam in the boiler which then flows to the steam turbine. Feed water systems are controlled with valves to regulate flow to the boiler, based on operating loads and the amount of water needed to feed the boiler for steam production. During unit operation, the feed water control valves were observed to be passing fluid while in the closed position. During the Unit 3 annual outage, the valves were disassembled and it was determined that wear on main internal sealing components was causing both valves to pass fluid.	The Unit 3 feed water control valves were overhauled.
East Fuel Oil Pump Replacement, Holyrood Unit 1 and West Fuel Oil Pump Replacement, Holyrood Unit 2	104.3	The Unit 1 East and Unit 2 West fuel oil pumps were found to be worn by abrasives inherent in Bunker C heavy fuel and no longer able to meet operating requirements.	The Unit 1 East and Unit 2 West fuel oil pumps were replaced during the annual unit outages.
Stack Winch System Replacement Holyrood Thermal Generating Station	94.6	Each of the three boiler exhaust stacks has a mid-way platform which contains an environmental monitoring station, providing continuous emissions monitoring (CEM) of carbon monoxide, carbon dioxide, nitrous oxide, sulfur dioxide and oxygen. As required by federal regulations and the plant's certificate to operate, a third party completes a yearly test on the CEM equipment to ensure it is measuring accurately. Tools and equipment used to service and test the CEMs are brought to the mid-way platform using the stack winch system.	Stack Winch System Replacement, Holyrood Thermal Generating Station

Project Title and Location	Expenditure ($000)	Failure Identified	Project Scope
Extraction Pumps Expansion Joints Replacement Holyrood Unit 3	91.5	After steam passes through the low pressure stage of the turbine, it forms condensate and collects in the condenser. The Unit 3 extraction pumps draw liquid condensate from the condenser and pump it through low pressure heat exchangers before recycling it back to the boiler for steam production. Both pumps are required to be in-service to achieve full loading of Unit 3. The expansion joints are installed between the condenser outlet piping and the pump's suction inlet to accommodate vertical and horizontal movement caused by heating and cooling cycles. The expansion joints had deteriorated over time causing them to crack and leak, which caused air to be drawn into the line through the cracks. This caused increased backpressure in the condenser which affected the unit's ability to reach full load.	The Unit 3 extraction pumps expansion joints were replaced.
East and West Cooling Water Pump Motor Refurbishment, Holyrood Unit 1 and East Cooling Water Pump Motor Refurbishment, Holyrood Unit 3	88.5	During the annual inspections on the Unit 1 East and West Cooling Water Pump motors and the Unit 3 East Cooling Water Pump motor, the megger test readings were low, indicating that the winding insulation had deteriorated to the point where there was high risk of a short circuit between the windings or the windings and the ground. An overhaul of each motor was required to restore the insulation integrity.	The cooling water pump motors were refurbished, including: removal of contamination by a special cleaning process; heat drying and special painting of the stator and rotor electrical windings; re-testing of the windings and resistance temperature detectors; and replacement of the motor roller bearings.
Fire Hydrants and Valves Replacement Holyrood Thermal Generating Station	83.8	In 2020, two fire hydrants failed and required replacement. In addition, the valves in the fire water distribution lines, which are used to isolate the Bunker C fuel tank farm and the light oil tanks, failed and required replacement.	The failed fire hydrants and isolation valves were replaced.

Project Title and Location	Expenditure ($000)	Failure Identified	Project Scope
Low Load Control Valve Replacement Holyrood Unit 2	75.9	The Boiler Feed Pumps (BFPs) provide high pressure feed water to the boiler during operation. The low load control valve on the Unit 2 BFP system was found to be leaking during start-up in 2020, which contributed to the unit's failed start-up attempt. Disassembly and inspection identified deterioration of the valve's major internal components (plug and seat ring). The damaged components could not be repaired.	The Unit 2 low load control valve damaged components were replaced with available spares during the annual Unit 2 outage.
Compressor 1 and 2 Oil and Cooler Replacement, Holyrood Thermal Generating Station	48.5	Operational data for Compressors 1 and 2 showed an upward trend in oil temperatures. This prompted an inspection which revealed that the compressor oil coolers were fouled and approaching failure.	The compressor oil and cooler were replaced for Compressor 1. The compressor oil, cooler and shaft seals were replaced for Compressor 2.
Boardwalk Refurbishment Holyrood Marine Terminal	42.6	In 2020, heavy rainfall caused washouts along the embankment upon which the marine terminal boardwalk is constructed. The washouts caused large rocks, trees and ground to slide into several structural supports of the wooden boardwalk which led to collapse in some areas.	The marine terminal boardwalk structural supports were refurbished and the embankment was shored up.
Jetty Capstan Gear Box Refurbishment Holyrood Marine Terminal	34.2	The Holyrood Thermal Generating Station receives approximately 10–12 shipments of Bunker C fuel oil via tanker ships annually. The tanker ships dock at the fuel offloading facility and are secured into position via six capstans during the fuel offloading process. The six capstans are equipped with electrically driven gearboxes to secure the mooring lines for the tanker ship. All six capstans are required to be in operation in order to safely dock the ships.	Jetty Capstan Gear Box Refurbishment, Holyrood Marine Terminal

Project Title and Location	Expenditure ($000)	Failure Identified	Project Scope
Spare Fire Water Pump Procurement, Holyrood Thermal Generating Station	29.5	In 2019, the electric fire pump was taken out of service to repair a packing leak and damage was discovered to the shaft, bearings, and seals. The jockey pump was also inspected and found to have major cavitation damage on the internal components.	The electric driven fire pump was refurbished in 2019 to replace the damaged internal components. The jockey pump was replaced in 2019 with an available spare pump.
Air Heater Header Pressure Control Valve Overhaul, Holyrood Unit 1	26.5	The Unit 1 Air Heater Header Pressure Control Valve failed during operation and an assessment during the annual outage determined that the valve internal components required replacement and the valve actuator required an overhaul and calibration.	The Unit 1 Air Heater Header Pressure Control Valve and its actuator were overhauled during the unit outage and calibrated during unit start-up.
Fuel Oil Suction Strainers Replacement Holyrood Units 1 and 2	26.0	The fuel oil suction strainers are on the inlet supply to the fuel oil heating and pumping sets which are fed from the main fuel oil tanks. They are the last filter to capture foreign components before they enter the fuel oil pumps, fuel oil heaters, piping and boiler burner system (burner tips). The strainers are duplex basket type which means there are two parallel basket housing compartments. At any given time, only one strainer is in service and the other strainer is isolated to allow basket removal and cleaning while online. The Units 1 and 2 fuel oil suction strainers are 1969 vintage equipment and the internal sealing components of the strainers were worn over time, making it difficult to obtain a seal between the left and right sides of the strainer housings.	The Unit 1 and 2 fuel oil strainers were replaced during the Unit 1 and 2 annual outages.

Project Title and Location	Expenditure ($000)	Failure Identified	Project Scope
Spare West Boiler Feed Water Pump Motor Procurement Holyrood Unit 2	24.3	The West boiler feed water pump motor failed in 2019.	The failed feed water pump motor for Unit 2 was replaced with an available spare in 2019. A new motor was ordered and received in 2020 to replace the spare.
Spare Hydraulic Servo Valves Procurement Holyrood Units 1 and 2	22.9	Unit 1 tripped off line in 2018 as a result of turbine steam control valves closing without receiving the command from the control system. An investigation concluded that hydraulic system contamination was the cause of the unit trip. Hydro proceeded to refurbish the hydraulic system on Unit 1. The Unit 2 hydraulic system is identical to that for Unit 1 and, while no failures had occurred, Hydro determined it was reasonable to expect that the system for Unit 2 was in the same contaminated condition as for Unit 1. The refurbishment of Unit 1 hydraulic system consumed all of the spares in the standby pool. A review of the component failure rate resulted in an update to the standby spare strategy to increase the required number of available spares.	In 2018 and 2019, the hydraulic systems for the Unit 1 and Unit 2 control valves were refurbished. Spare hydraulic servo valves for the Unit 1 and Unit 2 turbine hydraulic system were ordered in 2019 and received in 2020.
Air Heater Condensate Control Valves Replacement Holyrood Unit 3	20.9	During the 2019/2020 operating season, plant operations were unable to control the condensate tank level within the required set points for Unit 3. Investigation confirmed that the main control valve and bypass valves had failed and were passing condensate.	The failed air heater condensate control valves for Unit 3 were replaced.

Project Title and Location	Expenditure ($000)	Failure Identified	Project Scope
Air Heater Condensate Check Valve Replacement Holyrood Unit 1	20.8	Steam Coil Air Heaters (SCAHs) are used to add heat to incoming boiler combustion air at lower loads to ensure exhaust gas temperatures stay elevated. The condensate check valve on the Unit 1 air heater system failed during the 2019–2020 operating season due to water hammer. The bolted head bonnet on the check valve failed and was leaking condensate which posed a safety risk. The extent of the damage was beyond repair.	The Unit 1 air heater condensate check valve was replaced during the annual outage.
South Vacuum Pump Inlet Valve Replacement Holyrood Unit 3	19.4	During the 2019–2020 operating season, the inlet valve on the Unit 3 South Vacuum Pump began experiencing operational issues. The motorized butterfly valve is operated remotely from the control room. When the pump is started or stopped from the control room, the valve is supposed to automatically open or close, but the valve consistently jammed when tested. Repairs could not be completed because the valve is obsolete and replacement parts are no longer available.	The inlet valve for the Unit 3 South Vacuum Pump was replaced.
Low Pressure Drain Pump Seal Replacement Holyrood Unit 1	16.9	The Unit 1 low pressure drain pump tripped off during operation and subsequent investigation determined that the mechanical seal had failed.	The mechanical seal for the Unit 1 low pressure drain pump and associated cooling water piping were replaced.
Sootblower Carriage Assembly Replacement Holyrood Unit 3	14.6	A Unit 3 boiler sootblower failed to operate when a sootblowing cycle was initiated at the control room. During the Unit 3 annual outage, the issue was investigated and a failed carriage assembly was discovered. The carriage assembly required replacement due to damage to the internal gears.	The failed sootblower carriage assembly for Unit 3 was replaced.
Diesel Generator 3 Protection Relay Replacement, Holyrood Thermal Generating Station	13.0	In 2020, Diesel Generator 3 failed to synchronize to the electrical system. It was determined that the main multifunction protection relay could not load the protection program and needed to be replaced to restore normal operation.	The failed protection relay for Diesel Generator 3 was replaced.

Project Title and Location	Expenditure ($000)	Failure Identified	Project Scope
Spare Forced Draft Fan Bearing Liner Procurement Holyrood TGS	11.8	The forced draft fan bearing liner failed in 2019.	The failed forced draft fan bearing liner was replaced with an available spare in 2019. A new bearing liner was ordered and received in 2020 to replace the spare.
West Boiler Feed Water Pump Safety Valves Replacement Holyrood Unit 3	11.0	The Boiler Feed Pumps (BFPs) provide high pressure feed water to the boiler during operation. There are safety relief valves on the BFP suction and discharge lines which are designed to relieve excess pressure to protect the pump and associated piping from dangerous overpressure conditions. The suction line safety relief valves on the BFPs failed in-service and were relieving pressure from the line while in operation under normal operating conditions. The valves were damaged beyond repair.	The failed Unit 3 West boiler feed water pump safety valves were replaced.
West Boiler Drum Water Level Gauge Electronic Verification Unit Replacement Holyrood Unit 2	6.6	During the 2020 outage, it was determined that Unit 2 Boiler Drum West side electronic verification unit for the water level gauge system had a failure in one of its power supplies. Replacement parts for the verification unit are no longer available and a complete replacement unit was required.	The electronic verification unit of the Unit 2 West side boiler drum water level gauge system was replaced and a spare unit was purchased.
Condenser Partition Valve Actuator Replacement Holyrood Unit 1	6.3	The condenser partition valve failed to operate when attempting to perform a backwash on Unit 1 toward the end of the 2019/2020 operating season. During the annual unit outage, it was determined that the condenser partition valve was in adequate condition but the valve's motorized actuator had failed, preventing it from opening/closing. The actuator was found to be damage beyond repair.	The condenser partition valve actuator for Unit 1 was replaced.

11.0 Boiler Condition Assessment and Miscellaneous Upgrades – Holyrood Thermal Generating Station

In the 2020 supplemental capital budget application for the Holyrood Boiler Condition Assessment and Miscellaneous Upgrades project, Hydro listed all known equipment requiring immediate replacement [12] and indicated that it was possible that additional components may be identified as requiring immediate replacement during the 2020 condition assessment. For those additional components that were material in dollar value and met capitalization criteria, Hydro proposed to communicate these items to the Board in this 2020 Capital Expenditures and Carryover Report. Level 2 condition assessments were completed on Units 1, 2, and 3 and no additional items were identified as requiring immediate refurbishment or replacement.

All work identified in the application was completed during the 2020 annual unit outages with the exception of the following items that were impacted by the COVID-19 pandemic and the ability to schedule the required out-of-province contractor employees:

- Units 1 and 2: Internal borescope inspection of the economizer inlet header including measurement of ligament cracks to track growth. The boiler service provider confirmed that deferring this work to 2021 is low risk to unit operation. A visual inspection and UT survey was also completed and no issues were identified;
- Units 1, 2 and 3: Detailed condition assessment of the air heater including OEM technical assistance, inspection, and service guidance. The boiler service provider confirmed that the equipment is fit for service with the condition assessment by the OEM deferred to 2021. A visual inspection was performed and minor repairs were completed; and
- Units 2 and 3: Condition assessment of forced draft fans. A visual inspection was performed and minor repairs were completed. The boiler service provider confirmed that the equipment is fit for service with the condition assessment by the OEM deferred to 2021.

The approved budget for this supplemental project was $3,056,700. Actual expenditures totalled $3,221,200. Monthly status updates were filed with the Board during execution of this project.

[12] "Application for Approval of Capital Projects Necessary for the Continued Operation of the Holyrood Thermal Generating Station," Newfoundland and Labrador Hydro, April 7, 2020, Schedule 1, Appendix A, Appendix A-1.

Appendix A

Financial Schedules

Table A-1: 2020 Capital Expenditures By Year ($000)

Summary	A				B	C	D (B+C)	E	F (A+C+E)	Actual Expenditure and Forecast								K-F	H-D
	2016	2017	2018	2019	Carryover to 2020	Original 2020	Revised 2020	2021 and Beyond	Total	2016	2017	G 2018	2019	H 2020	I 2021 and Beyond	J Carryover to 2021 and Beyond	K (G+H+I+J) Total	Project Variance	Annual Variance
2020 Projects	-	-	-	-	-	55,856.5	55,856.5	37,202.1	93,058.6	-	-	-	12,528.5	49,552.5	37,202.1	10,707.9	109,991.0	16,932.4	(6,304.0)
2019 Projects	-	-	-	40,844.7	3,479.2	43,724.0	47,203.2	-	84,568.7	-	-	-	21,442.3	22,884.7	-	6,681.2	51,008.2	(33,560.5)	(24,318.5)
2018 Projects	-	-	31,552.5	35,844.9	13,021.0	3,715.0	16,736.0	-	71,112.4	-	-	13,941.1	24,720.8	10,107.6	-	669.6	49,439.0	(21,673.4)	(6,628.4)
2017 Projects	-	532.4	3,394.5	2,337.6	189.6	1,429.6	1,619.2	-	7,694.1	-	225.8	1,632.4	3,497.4	711.0	-	229.6	6,296.1	(1,398.0)	(908.2)
2016 Projects	6,969.1	10,808.7	15,408.6	6,597.3	2,220.5	11,116.8	13,337.3	-	50,900.5	5,599.5	8,877.8	15,184.2	7,901.7	4,299.6	-	2,698.9	44,561.7	(6,338.8)	(9,037.7)
Grand Total	6,969.1	11,341.1	50,355.6	85,624.5	18,910.3	115,841.9	134,752.2	37,202.1	307,334.3	5,599.5	9,103.6	30,757.7	70,090.6	87,555.4	37,202.1	20,987.2	261,296.0	(46,038.3)	(47,196.8)

2020 Capital Budget Approved by Board Order No. P.U. 6 (2020)	107,576.1
New Project Approved by Board Order No. 39 (2019)	244.0
New Project Approved by Board Order No. 39 (2019)	(192.6)
New Project Approved by Board Order No.7 (2020)	2,059.4
New Project Approved by Board Order No.7 (2020)	(1,800.0)
New Project Approved by Board Order No.14 (2020)	7,638.2
New Project Approved by Board Order No.25(2020)	332.9
New Project Approved by Board Order No.25(2020)	(332.9)
New Project Approved by Board Order No.26(2020)	43.7
New Project Approved by Board Order No.26(2020)	(43.7)
New Project Approved by Board Order No.32(2020)	216.4
2020 New Projects under $50,000 Approved by Hydro	100.4
Total Approved Capital Budget Before Carryovers	115,841.9
Carryover Projects 2019 to 2020	18,910.3
TOTAL APPROVED CAPITAL BUDGET	134,752.2

Table A-2: 2020 Capital Expenditures: Hydraulic Generation ($000)

Hydraulic Generation Projects	Capital Budget									Actual Expenditure and Forecast								K-F	H-D	
	A				B	C	D (B+C)	E	F (A+C+E)	G				H	I	J	K (G+H+I+J)			
	2016	2017	2018	2019	Carryover to 2020	Original 2020	Revised 2020	2021 and Beyond	Total	2016	2017	2018	2019	2020	2021 and Beyond	Carryover to 2021 and Beyond	Total	Project Variance	Annual Variance	Notes
2020 Projects																				
Hydraulic In-Service Failures	-	-	-	-	-	1,250.0	1,250.0	-	1,250.0	-	-	-	-	1,287.2		-	1,287.2	37.2	37.2	1
Hydraulic Generation Refurbishment and Modernization - Various Sites	-	-	-	-	-	6,580.2	6,580.2	10,249.8	16,830.0	-	-	-	-	7,363.1	10,249.8	72.1	17,685.0	855.0	782.9	2
Purchase Tools and Equipment Less than $ 50,000	-	-	-	-	-	21.0	21.0	-	21.0	-	-	-	-	36.1	-	-	36.1	15.1	15.1	
2019 Projects																				
Hydraulic Generation Refurbishment and Modernization - Various Sites	-	-	-	10,313.6	1,875.8	5,486.5	7,362.3	-	15,800.1	-	-	-	8,893.9	1,939.9	-		10,833.8	(4,966.3)	(5,422.4)	3
2018 Projects																				
Hydraulic Generation Refurbishment and Modernization - Various Sites	-	-	10,325.4	4,283.1	3,160.6	-	3,160.6	-	14,608.5	-	-	5,856.3	3,367.7	(740.9)	-	-	8,483.0	(6,125.5)	(3,901.5)	4
2017 Projects																				
Refurbish Powerhouse Station Services - Bay d'Espoir	-	413.2	2,473.3	1,460.6	157.2	-	157.2	-	4,347.1	-	43.0	1,003.5	2,643.4	261.5	-	-	3,951.5	(395.6)	104.3	5
Replace Exciter Controls Units 1 to 6 - Bay d'Espoir	-	119.2	921.2	877.0	32.4	1,429.6	1,462.0	-	3,347.0	-	182.7	628.9	853.9	449.5	-	229.6	2,344.7	(1,002.3)	(1,012.5)	6
Total Hydraulic Generation Projects	-	532.4	13,719.9	16,934.3	5,226.0	14,767.3	19,993.3	10,249.8	56,203.7	-	225.8	7,488.7	15,758.9	10,596.4	10,249.8	301.7	44,621.3	(11,582.4)	(9,396.9)	

Table A-3: 2020 Capital Expenditures: Thermal Generation
($000)

Thermal Generation Projects	Capital Budget								Actual Expenditure and Forecast								K-F	H-D	
	A				B	C	D (B+C)	E	F (A+C+E)	G			H	I	J	K (G+H+I+J)			
2020 Projects	2016	2017	2018	2019	Carryover to 2020	Original 2020	Revised 2020	2021 and Beyond	Total	2016	2017	2018	2019	2020	2021 and Beyond	Carryover to 2021 and Beyond	Total	Project Variance	Annual Variance	Notes
Rewind Unit 3 Stator - Holyrood	-	-	-	-	-	1,281.4	1,281.4	5,664.2	6,945.6	-	-	-	-	2,231.4	5,664.2	(950.0)	6,945.6	-	950.0	7
Upgrade Uninterruptible Power Supply 3 & 4 - Holyrood	-	-	-	-	-	348.7	348.7	-	348.7	-	-	-	-	283.2	-	65.5	348.7	-	(65.5)	
Thermal In-Service Failures	-	-	-	-	-	2,000.0	2,000.0	-	2,000.0	-	-	-	-	1,836.7	-	-	1,836.7	(163.3)	(163.3)	8
Purchase Tools and Equipment Less than $ 50,000	-	-	-	-	-	41.7	41.7	-	41.7	-	-	-	-	48.0	-	-	48.0	6.3	6.3	
Total Thermal Generation Projects	-	-	-	-	-	3,671.8	3,671.8	5,664.2	9,336.0	-	-	-	-	4,399.3	5,664.2	(884.5)	9,179.0	(157.0)	727.5	

Table A-4: 2020 Capital Expenditures: Gas Turbine Generation ($000)

Gas Turbine Generation Projects	Capital Budget										Actual Expenditure and Forecast									K-F	H-D	
	A				B	C	D (B+C)	E	F (A+C+E)		G				H	I	J	K (G+H+I+J)				
	2016	2017	2018	2019	Carryover to 2020	Original 2020	Revised 2020	2021 and Beyond	Total		2016	2017	2018	2019	2020	2021 and Beyond	Carryover to 2021 and Beyond	Total		Project Variance	Annual Variance	Notes
2020 Projects																						
Perform Combustor Inspection - Holyrood Gas Turbine	-	-	-	-	-	546.1	546.1	4,900.0	5,446.1		-	-	-	-	35.0	4,900.0	-	5,473.5		27.4	(511.1)	9
Install Fuel Discharge Atomizing - Holyrood Gas Turbine	-	-	-	-	-	37.8	37.8	575.0	612.8		-	-	-	-	165.4	575.0	(146.6)	594.8		(18.0)	137.6	10
Replace Fire Suppression System - Happy Valley Gas Turbine	-	-	-	-	-	264.6	264.6	2,377.9	2,642.5		-	-	-	-	158.9	2,377.9	(28.3)	2,508.0		(134.5)	(105.7)	11
Generator Assessment - Happy Valley Gas Turbine	-	-	-	-	-	1,097.6	1,097.6	-	1,097.6		-	-	-	-	76.0	-	1,021.6	1,097.6		-	(1,021.6)	12
2019 Projects																						
Overhaul Olympus Gas Generator - Stephenville	-	-	-	1,666.8	316.9	-	316.9	-	1,666.8		-	-	-	1,245.1	360.2	-	-	1,605.3		(61.5)	43.3	
Upgrade Compressed Air System - Holyrood Gas Turbine	-	-	-	70.7	53.1	317.7	370.8	-	388.4		-	-	-	17.7	185.6	-	-	203.2		(185.2)	(185.2)	13
Replace Main Fuel Valves - Hardwoods	-	-	-	404.2	72.8	-	72.8	-	404.2		-	-	-	168.0	125.1	-	-	293.1		(111.1)	52.3	14
2018 Projects																						
Increase Fuel and Water Treatment System Capacity - Holyrood Gas Turbine	-	-	8,829.9	3,012.7	488.0	-	488.0	-	11,842.6		-	-	2,583.8	3,563.9	832.8	-	724.8	7,705.3		(4,137.3)	344.8	15
Total Gas Turbine Generation Projects	-	-	8,829.9	5,154.4	930.8	2,263.8	3,194.6	7,852.9	24,101.0		-	-	2,583.8	4,994.7	1,939.0	7,852.9	2,110.5	19,480.8		(4,620.2)	(1,255.6)	

Table A-5: 2020 Capital Expenditures: Terminal Stations
($000)

Terminal Stations Projects	Capital Budget								Actual Expenditure and Forecast								K-F	H-D	
	A				B	C	D (B+C)	E	F (A+C+E)	G				H	I	J	K (G+H+I+J)			
	2016	2017	2018	2019	Carryover to 2020	Original 2020	Revised 2020	2021 and Beyond	Total	2016	2017	2018	2019	2020	2021 and Beyond	Carryover to 2021 and Beyond	Total	Project Variance	Annual Variance	Notes
2020 Projects																				
Terminal Station In-Service Failures	-	-	-	-	-	1,500.0	1,500.0	-	1,500.0	-	-	-	-	1,081.0	-	-	1,081.0	(419.0)	(419.0)	16
Replace Transformer T7 - Holyrood Terminal Station	-	-	-	-	-	2,678.1	2,678.1	-	2,678.1	-	-	-	-	660.6	-	2,017.5	2,678.1	-	(2,017.5)	17
Purchase SF6 Multi Analyzer - Various	-	-	-	-	-	207.1	207.1	-	207.1	-	-	-	-	155.7	-	-	155.7	(51.4)	(51.4)	
Terminal Station Refurbishment and Modernization - Various Sites	-	-	-	-	-	3,712.0	3,712.0	5,684.9	9,396.9	-	-	-	-	1,703.4	5,684.9	1,509.5	8,897.8	(499.1)	(2,008.6)	18
2019 Projects																				
Upgrade Terminal Station for Mobile Substation - St. Anthony	-	-	-	89.3	47.5	402.7	450.2	-	492.0	-	-	-	41.8	551.9	-	-	593.7	101.7	101.7	19
Terminal Station Refurbishment and Modernization - Various Sites	-	-	-	10,891.1	1,199.2	19,061.8	20,261.0	-	29,952.9	-	-	-	5,891.3	10,987.3	-	3,964.6	20,843.2	(9,109.7)	(9,273.7)	20
									-								-			
2018 Projects																				
Implement Terminal Station Flood Mitigation - Springdale	-	-	186.2	787.8	1,047.6	-	1,047.6	-	974.0	-	-	135.8	87.0	450.3	-	-	673.1	(300.9)	(507.3)	21
Terminal Station Refurbishment and Modernization - Various Sites	-	-	8,170.6	18,625.1	6,522.6	-	6,522.6	-	26,795.7	-	-	1,983.8	9,616.1	3,202.4	-	-	14,802.3	(11,993.4)	(3,320.2)	22
									-								-			
2016 Projects																				
Upgrade Circuit Breakers - Various Sites	6,969.1	10,808.7	15,408.6	6,597.3	2,220.5	11,116.8	13,337.3	-	50,900.5	5,599.5	8,877.8	15,184.2	7,901.7	4,299.6	-	2,698.9	44,561.7	(6,338.8)	(9,037.7)	23
Total Terminal Stations Projects	6,969.1	10,808.7	23,765.4	36,990.6	11,037.4	38,678.5	49,715.9	5,684.9	122,897.2	5,599.5	8,877.8	17,303.8	23,537.8	23,092.2	5,684.9	10,190.5	94,286.4	(28,610.8)	(26,623.7)	

Table A-6: 2020 Capital Expenditures: Transmission ($000)

Transmission Projects	A				B	C	D (B+C)	E	F (A+C+E)	Actual Expenditure and Forecast									K-F	H-D	
	2016	2017	2018	2019	Carryover to 2020	Original 2020	Revised 2020	2021 and Beyond	Total	2016	G 2017	2018	2019	H 2020	I 2021 and Beyond	J Carryover to 2021 and Beyond	K(G+H+I+J) Total	Project Variance	Annual Variance	Notes
2020 Projects																					
Wood Pole Line Management Program - Various Sites	-	-	-	-	-	2,792.7	2,792.7	-	2,792.7	-	-	-	-	2,882.6	-	-	2,882.6	89.9	89.9	
2019 Projects																					
Muskrat Falls to Happy Valley Interconnection	-	-	-	12,586.4	57.9	7,392.1	7,450.0	-	19,978.5	-	-	-	12,528.5	4,659.8	-	2,790.2	19,978.5	-	(2,790.2)	24
Total Transmission Projects	-	-	-	12,586.4	57.9	10,184.8	10,242.7	-	22,771.2	-	-	-	12,528.5	7,542.4	-	2,790.2	22,861.1	89.9	(2,700.3)	

Table A-7: 2020 Capital Expenditures: Distribution
($000)

Distribution Projects	A				B	C	D (B+C)	E	F (A+C+E)	Actual Expenditure and Forecast										K-F	H-D	
	2016	2017	2018	2019	Carryover to 2020	Original 2020	Revised 2020	2021 and Beyond	Total	G 2016	G 2017	G 2018	G 2019	H 2020	I 2021 and Beyond	J Carryover to 2021 and Beyond	K (G+H+I+J) Total	Project Variance	Annual Variance	Notes
2020 Projects																				
Provide Service Extensions - All Areas	-	-	-	-	-	4,312.5	4,312.5	-	4,312.5	-	-	-	-	4,012.0	-		4,012.0	(300.5)	(300.5)	
Provide Service Extensions - All Areas - CIAC	-	-	-	-	-	(196.5)	(196.5)	-	(196.5)	-	-	-	-	(269.0)	-		(269.0)	(72.5)	(72.5)	
Upgrade Distribution Systems - All Areas	-	-	-	-	-	3,456.5	3,456.5	-	3,456.5	-	-	-	-	3,297.0	-		3,297.0	(159.5)	(159.5)	
Upgrade Distribution Systems - All Areas - CIAC	-	-	-	-	-	(93.5)	(93.5)	-	(93.5)	-	-	-	-	(8.4)	-		(8.4)	85.1	85.1	
Distribution System Upgrades (2020-2021) - Various	-	-	-	-	-	102.7	102.7	3,155.1	3,257.8	-	-	-	-	121.0	3,155.1	(18.3)	3,257.8	-	18.3	
Install Recloser Remote Control (2020-2021) - Hampden and Upper Salmon	-	-	-	-	-	71.3	71.3	185.3	256.6	-	-	-	-	33.7	185.3	37.6	256.6	-	(37.6)	
Additions for Load - Distribution System - Makkovik and Hopedale	-	-	-	-	-	846.1	846.1	-	846.1	-	-	-	-	135.0	-	711.1	846.1	-	(711.1)	25
2019 Projects																				
Distribution System Upgrades - Various Sites	-	-	-	390.8	(31.4)	5,490.1	5,458.7	-	5,880.9	-	-	-	422.2	5,823.7	-	-	6,245.9	365.0	365.0	
Install Recloser Remote Control (2019-2020) - Rocky Harbour	-	-	-	66.1	44.1	319.9	364.0	-	386.0	-	-	-	22.0	109.4	-	-	131.4	(254.6)	(254.6)	26
Total Distribution Projects	-	-	-	456.9	12.7	14,309.1	14,321.8	3,340.4	18,106.4	-	-	-	444.2	13,254.4	3,340.4	730.4	17,769.4	(337.0)	(1,067.4)	

Table A-8: 2020 Capital Expenditures: Rural Generation ($000)

Rural Generation Projects	A				B	C	D (B+C)	E	F (A+C+E)	Actual Expenditure and Forecast								J	K (G+H+I+J)	K-F	H-D	
	2016	2017	2018	2019	Carryover to 2020	Original 2020	Revised 2020	2021 and Beyond	Total	2016	2017	2018	2019	2020	2021 and Beyond	Carryover to 2021 and Beyond	Total	Project Variance	Annual Variance	Notes
2020 Projects																						
Overhaul Diesel Units - Various	-	-	-	-	-	2,310.9	2,310.9	-	2,310.9	-	-	-	-	1,923.2	-	-	1,923.2	(387.7)	(387.7)	27
Diesel Plant Ventilation Upgrade - Nain	-	-	-	-	-	162.7	162.7	690.4	853.1	-	-	-	-	95.1	690.4	66.6	852.1	-	(66.6)	
Replace Automation Equipment - Rigolet	-	-	-	-	-	363.8	363.8	-	363.8	-	-	-	-	58.0	-	305.8	363.8	-	(305.8)	28
Replace Sewage Lift System - Rigolet	-	-	-	-	-	127.9	127.9	-	127.9	-	-	-	-	203.1	-	-	203.1	75.2	75.2	
Upgrade Fuel Storage Tanks - Charlottetown	-	-	-	-	-	467.2	467.2	-	467.2	-	-	-	-	310.7	-	-	310.7	(156.5)	(156.5)	29
Diesel Genset Replacements - Mary's Harbour	-	-	-	-	-	3,900.7	3,900.7	-	3,900.7	-	-	-	-	2,799.0	-	349.8	3,148.8	(751.9)	(1,101.7)	30
Replace Powerhouse Roofing System - L'Anse Au Loup and St. Anthony	-	-	-	-	-	125.3	125.3	1,195.8	1,321.1	-	-	-	-	121.5	1,195.8	3.9	1,321.2	0.1	(3.8)	
2019 Projects																						
Additions for Load - Isolated Generation Systems	-	-	-	1,523.6	(682.0)	658.9	(23.1)	-	2,182.5	-	-	-	2,423.6	154.6	-	-	2,578.2	395.7	177.7	31
Replace Human Machine Interface - Cartwright	-	-	-	306.9	154.0	-	154.0	-	306.9	-	-	-	152.9	97.3	-	56.7	306.9	(0.0)	(56.7)	
Diesel Genset Replacements (2019-2020)	-	-	-	525.6	385.4	3,421.8	3,807.2	-	3,947.4	-	-	-	140.2	972.6	-	2,834.6	3,947.4	0.0	(2,834.6)	32
2018 Projects																						
Diesel Plant Engine Cooling System Upgrades - Various Sites	-	-	638.4	671.6	147.0	-	147.0	-	1,310.0	-	-	149.3	1,013.7	274.5	-	-	1,437.5	127.5	127.5	33
Diesel Plant Fire Protection - Postville	-	-	505.6	336.4	296.8	-	296.8	-	842.0	-	-	37.2	508.0	326.8	-	-	872.0	30.0	30.0	
Diesel Genset Replacements - Makkovik	-	-	604.1	4,703.3	(452.0)	3,592.8	3,140.8	-	8,900.2	-	-	1,585.1	4,174.3	3,366.0	-	(225.2)	8,900.2	0.0	225.2	
Replace Automation Equipment - St. Anthony	-	-	307.4	1,565.9	(44.7)	-	(44.7)	-	1,873.3	-	-	127.2	1,790.8	160.2	-	170.0	2,248.2	374.9	204.9	34
Total Rural Generation Projects	-	-	2,055.5	9,633.3	(195.5)	15,132.0	14,936.5	1,886.2	28,707.0	-	-	1,898.8	10,203.4	10,863.6	1,886.2	3,562.2	28,414.2	(292.8)	(4,072.9)	

Table A-9: 2020 Capital Expenditures: Properties
($000)

Properties Projects	A				B	C	D (B+C)	E	F (A+C+E)	Actual Expenditure and Forecast					H	I	J	K (G+H+I+J)	K-F	H-D	
	2016	2017	2018	2019	Carryover to 2020	Original 2020	Revised 2020	2021 and Beyond	Total	2016	2017	2018	2019	2020	2021 and Beyond	Carryover to 2021 and Beyond	Total	Project Variance	Annual Variance	Notes
2020 Projects																					
Upgrade Fire Suppression System - Bishop's Falls	-	-	-	-	-	91.6	91.6	292.6	384.2	-	-	-	-	98.2	292.6	(6.6)	384.2	-	6.6	
Upgrade Line Depots - Various	-	-	-	-	-	648.3	648.3	-	648.3	-	-	-	-	724.2	-	-	724.2	75.9	75.9	
2018 Projects																					
Install Energy Efficiency Lighting in Diesel Plants - Various	-	-	104.0	119.0	57.7	122.2	179.9	-	345.2	-	-	68.0	97.3	170.6	-	-	335.9	(9.3)	(9.3)	
Total Properties Projects	-	-	104.0	119.0	57.7	862.1	919.8	292.6	1,377.7	-	-	68.0	97.3	993.0	292.6	(6.6)	1,444.3	66.6	73.2	

Table A-10: 2020 Capital Expenditures: Metering
($000)

Metering Projects	A				B	C	D (B+C)	E	F (A+C+E)
	2016	2017	2018	2019	Carryover to 2020	Original 2020	Revised 2020	2021 and Beyond	Total
2020 Projects									
Purchase Meters and Metering Equipment - Various	-	-	-	-	-	244.2	244.2	-	244.2
Purchase Meters and Metering Equipment - Various CIAC	-	-	-	-	-	-	-	-	-
Total Metering Projects	-	-	-	-	-	244.2	244.2	-	244.2

Actual Expenditure and Forecast	G				H	I	J	K (G+H+I+J)
	2016	2017	2018	2019	2020	2021 and Beyond	Carryover to 2021 and Beyond	Total
2020 Projects								
Purchase Meters and Metering Equipment - Various	-	-	-	-	180.6	-	-	180.6
Purchase Meters and Metering Equipment - Various CIAC	-	-	-	-	-	-	-	-
Total Metering Projects	-	-	-	-	180.6	-	-	180.6

K-F	H-D	
Project Variance	Annual Variance	Notes
(63.6)	(63.6)	
-	-	
(63.6)	(63.6)	

Table A-11: 2020 Capital Expenditures: Tools and Equipment
($000)

Tools and Equipment	A				B	C	D (B+C)	E	F (A+C+E)
	2016	2017	2018	2019	Carryover to 2020	Original 2020	Revised 2020	2021 and Beyond	Total
2020 Projects									
Replace Light Duty Mobile Equipment - Various Sites	-	-	-	-	-	499.6	499.6	-	499.6
Purchase Tools & Equipment Less than $50,000	-	-	-	-	-	439.4	439.4	-	439.4
2018 Projects									
Replace Off-Road Track Vehicles - Bishop's Falls and Bay d'Espoir	-	-	213.7	986.3	1,031.7	-	1,031.7	-	1,200.0
Total Tools and Equipment	-	-	213.7	986.3	1,031.7	939.0	1,970.7	-	2,139.0

Actual Expenditure and Forecast	G			H	I	J	K (G+H+I+J)	K-F	H-D	
	2016	2017	2018	2019	2020	2021 and Beyond	Carryover to 2021 and Beyond	Total	Project Variance	Annual Variance	Notes
2020 Projects											
Replace Light Duty Mobile Equipment - Various Sites	-	-	-	-	68.0	-	453.7	521.7	22.1	(431.6)	35
Purchase Tools & Equipment Less than $50,000	-	-	-	-	265.7	-	-	265.7	(173.7)	(173.7)	36
2018 Projects											
Replace Off-Road Track Vehicles - Bishop's Falls and Bay d'Espoir	-	-	249.5	12.0	1,073.0	-	-	1,334.5	134.5	41.3	37
Total Tools and Equipment	-	-	249.5	12.0	1,406.7	-	453.7	2,121.9	(17.1)	(564.0)	

Table A-12: 2020 Capital Expenditures: Information Systems
($000)

Information Systems Projects	A				B	C	D (B+C)	E	F (A+C+E)	Actual Expenditure and Forecast								K (G+H+I+J)	K-F	H-D	
	2016	2017	2018	2019	Carryover to 2020	Original 2020	Revised 2020	2021 and Beyond	Total	G 2016	G 2017	G 2018	2019	H 2020	I 2021 and Beyond	J Carryover to 2021 and Beyond	Total	Project Variance	Annual Variance	Notes
2020 Projects																				
Replace Personal Computers - Hydro Place	-	-	-	-	-	673.3	673.3	-	673.3	-	-	-	-	630.0	-	-	630.0	(43.3)	(43.3)	
Replace Peripheral Infrastructure - Hydro Place	-	-	-	-	-	222.1	222.1	-	222.1	-	-	-	-	176.6	-	-	176.6	(45.5)	(45.5)	
Upgrade Core IT Infrastructure - Hydro Place	-	-	-	-	-	193.7	193.7	-	193.7	-	-	-	-	259.5	-	-	259.5	65.8	65.8	
Refresh Security Software - Hydro Place	-	-	-	-	-	110.2	110.2	-	110.2	-	-	-	-	32.6	-	-	32.6	(77.6)	(77.6)	
Perform Minor Enhancements - Hydro Place	-	-	-	-	-	49.0	49.0	-	49.0	-	-	-	-	22.8	-	26.2	49.0	-	(26.2)	
Upgrade Software Applications - Hydro Place	-	-	-	-	-	65.4	65.4	-	65.4	-	-	-	-	55.9	-	-	55.9	(9.5)	(9.5)	
2019 Projects																				
Upgrade Energy Management System - Hydro Place	-	-	-	271.7	162.8	-	162.8	-	271.7	-	-	-	108.9	149.2	-	-	258.1	(13.6)	(13.6)	
Total Information Systems Projects	-	-	-	271.7	162.8	1,313.7	1,476.5	-	1,585.4	-	-	-	108.9	1,326.6	-	26.2	1,461.7	(123.7)	(149.9)	

Table A-13: 2020 Capital Expenditures: Telecontrol ($000)

Telecontrol Projects	A			B	C	D (B+C)	E	F (A+C+E)	Actual Expenditure and Forecast								K (G+H+I+J)	K-F	H-D	
	2016	2017	2018	2019	Carryover to 2020	Original 2020	Revised 2020	2021 and Beyond	Total	G 2016	G 2017	G 2018	G 2019	H 2020	I 2021 and Beyond	J Carryover to 2021 and Beyond	Total	Project Variance	Annual Variance	Notes
2020 Projects																				
Replace Network Communications Equipment - Various	-	-	-	-	-	186.8	186.8	-	186.8	-	-	-	-	193.3	-	-	193.3	6.5	6.5	
Upgrade Site Facilities - Various	-	-	-	-	-	45.5	45.5	-	45.5	-	-	-	-	46.4	-	-	46.4	0.9	0.9	
Replace Radomes - Various	-	-	-	-	-	384.5	384.5	-	384.5	-	-	-	-	215.1	-	-	215.1	(169.4)	(169.4)	38
Upgrade Remote Terminal Units - Various	-	-	-	-	-	157.1	157.1	-	157.1	-	-	-	-	156.0	-	-	156.0	(1.1)	(1.1)	
Replace Battery Banks and Chargers - Various	-	-	-	-	-	195.9	195.9	-	195.9	-	-	-	-	263.7	-	-	263.7	67.8	67.8	
Purchase Tools and Equipment less than $50,000	-	-	-	-	-	93.4	93.4	-	93.4	-	-	-	-	46.3	-	-	46.3	(47.1)	(47.1)	
2019 Projects																				
Upgrade Telecontrol Facilities - Gull Pond Hill and Bay d'Espoir Hill	-	-	-	96.3	(1.5)	577.6	576.1	-	673.9	-	-	-	97.8	651.4	-	-	749.2	75.3	75.3	
Total Telecontrol Projects	-	-	-	96.3	(1.5)	1,640.8	1,639.3	-	1,737.1	-	-	-	97.8	1,572.2	-	-	1,670.0	(67.1)	(67.1)	

Table A-14: 2020 Capital Expenditures: Transportation and Administrative ($000)

Transportation	A				B	C	D (B+C)	E	F (A+C+E)	Actual Expenditure and Forecast								K-F	H-D	
	2016	2017	2018	2019	Carryover to 2020	Original 2020	Revised 2020	2021 and Beyond	Total	2016	2017	2018	2019	2020	2021 and Beyond	Carryover to 2021 and Beyond	Total	Project Variance	Annual Variance	Notes
2020 Projects																				
Replace Light and Heavy Duty Vehicles (2020-2021) - Various	-	-	-	-	-	1,625.5	1,625.5	1,583.5	3,209.0	-	-	-	-	3.9	1,583.5	1,621.6	3,209.0	-	(1,621.6)	39
2019 Projects																				
Replace Vehicles and Aerial Devices - Various Sites	-	-	-	1,248.1	(136.9)	594.9	458.0	-	1,843.0	-	-	-	1,385.0	632.7	-	(174.7)	1,843.0	0.0	174.7	40
2018 Projects																				
Replace Vehicles and Aerial Devices - Various Sites	-	-	1,667.2	753.7	765.7	-	765.7	-	2,420.9	-	-	1,165.1	490.1	991.9	-	- -	2,647.1	226.2	226.2	41
Total Transportation	-	-	1,667.2	2,001.8	628.8	2,220.4	2,849.2	1,583.5	7,472.9	-	-	1,165.1	1,875.1	1,628.5	1,583.5	1,446.9	7,699.1	226.2	(1,220.7)	

Administrative	A				B	C	D (B+C)	E	F (A+C+E)	Actual Expenditure and Forecast								K-F	H-D	
	2016	2017	2018	2019	Carryover to 2020	Original 2020	Revised 2020	2021 and Beyond	Total	2016	2017	2018	2019	2020	2021 and Beyond	Carryover to 2021 and Beyond	Total	Project Variance	Annual Variance	Notes
2020 Projects																				
Remove Safety Hazards - Various	-	-	-	-	-	198.6	198.6	-	198.6	-	-	-	-	218.4	-	-	218.4	19.8	19.8	
Purchase Office Equipment	-	-	-	-	-	60.9	60.9	-	60.9	-	-	-	-	7.0	-	-	7.0	(53.9)	(53.9)	
Replace Elevator Motors and Control Equipment - Hydro Place	-	-	-	-	-	89.1	89.1	647.6	736.7	-	-	-	-	64.2	647.6	24.9	736.7	-	(24.9)	
Total Administrative	-	-	-	-	-	348.6	348.6	647.6	996.2	-	-	-	-	289.6	647.6	24.9	962.1	(34.1)	(59.0)	

Table A-15: 2020 Capital Expenditures: Allowance for Unforeseen Items, Supplemental Capital Projects, and Projects less than $50,000
($000)

Allowance For Unforeseen

	A				B	C	D (B+C)	E	F (A+C+E)	G				H	I	J	K (G+H+I+J)	K-F	H-D	
	2016	2017	2018	2019	Carryover to 2020	Original 2020	Revised 2020	2021 and Beyond	Total	2016	2017	2018	2019	2020	2021 and Beyond	Carryover to 2021 and Beyond	Total	Project Variance	Annual Variance	Notes
2020 Projects																				
Contingency Fund	-	-	-	-	-	1,000.0	1,000.0	-	1,000.0	-	-	-	-	-	-	-	-	(1,000.0)	(1,000.0)	
Generator Replacement - Charlottetown	-	-	-	-	-	-	-	-	-	-	-	-	-	74.6	-	-	74.6	74.6	74.6	
Engine Replacement - Port Hope Simpson	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Allowance for Unforeseen - Top Up P.U. 32 (2020)	-	-	-	-	-	216.4	216.4	-	216.4	-	-	-	-	-	-	-	-	(216.4)	(216.4)	
2019 Projects																				
Charlottetown Diesel Plant Restore Service Following Fire[1]	-	-	-	-	-	-	-	-	-	-	-	-	-	143.8	-	-	143.8	143.8	143.8	
Total Allowance For Unforeseen	-	-	-	-	-	1,216.4	1,216.4	-	1,216.4	-	-	-	-	218.4	-	-	218.4	(998.0)	(998.0)	42

(998.0) (998.0)

Supplemental Projects

	A				B	C	D (B+C)	E	F (A+C+E)	G				H	I	J	K (G+H+I+J)	K-F	H-D	
	2016	2017	2018	2019	Carryover to 2020	Original 2020	Revised 2020	2021 and Beyond	Total	2016	2017	2018	2019	2020	2021 and Beyond	Carryover to 2021 and Beyond	Total	Project Variance	Annual Variance	Notes
2020 Projects																				
Construction and Installation of an Electric Vehicle Fast Track Network	-	-	-	-	-	2,059.4	2,059.4	-	2,059.4	-	-	-	-	1,623.5	-	435.9	2,059.4	-	(435.9)	43
Construction and Installation of an Electric Vehicle Fast Track Network - CIAC	-	-	-	-	-	(1,800.0)	(1,800.0)	-	(1,800.0)	-	-	-	-	(1,364.1)	-	(435.9)	(1,800.0)	-	435.9	43
Construction of a line extension and the installation of power usage monitoring and control equipment at the Blocklab site	-	-	-	-	-	244.0	244.0	-	244.0	-	-	-	-	219.5	-	-	219.5	(24.5)	(24.5)	
Construction of a line extension and the installation of power usage monitoring and control equipment at the Blocklab site - CIAC	-	-	-	-	-	(192.6)	(192.6)	-	(192.6)	-	-	-	-	(232.2)	-	-	(232.2)	(39.6)	(39.6)	
Overhaul Unit 2 Turbine Valves - Holyrood	-	-	-	-	-	2,919.5	2,919.5	-	2,919.5	-	-	-	-	3,159.3	-	-	3,159.3	239.8	239.8	
Overhaul Unit 2 Generator - Holyrood	-	-	-	-	-	1,294.1	1,294.1	-	1,294.1	-	-	-	-	1,410.2	-	-	1,410.2	116.1	116.1	
Overhaul Unit 3 Boiler Feed Pump West - Holyrood	-	-	-	-	-	367.9	367.9	-	367.9	-	-	-	-	369.5	-	-	369.5	1.6	1.6	
Boiler ondition Assessment and Miscellaneous Upgrades - Holvrood	-	-	-	-	-	3,056.7	3,056.7	-	3,056.7	-	-	-	-	3,221.2	-	-	3,221.2	164.5	164.5	
Integrate Renewable PH2 - Mary's Harbour	-	-	-	-	-	332.9	332.9	165.1	498.0	-	-	-	-	256.9	165.1	76.0	498.0	(0.0)	(76.0)	
Integrate Renewable PH2 - Mary's Harbour - CIAC	-	-	-	-	-	(332.9)	(332.9)	(165.1)	(498.0)	-	-	-	-	(498.0)	(165.1)	165.1	(498.0)	0.0	(165.1)	44
Wabush L34 and L35 Protective Relays	-	-	-	-	-	43.7	43.7	215.6	259.3	-	-	-	-	24.7	215.6	19.0	259.3	(0.0)	(19.0)	
Wabush L34 and L35 Protective Relays - CIAC	-	-	-	-	-	(43.7)	(43.7)	(215.6)	(259.3)	-	-	-	-	(24.7)	(215.6)	(19.0)	(259.3)	0.0	19.0	
2019 Projects																				
Refurbishment and Upgrade of Olympus C Gas Generator – Serial Number 202204	-	-	-	393.5	(38.5)	-	(38.5)	-	393.5	-	-	-	432.0	-	-	-	432.0	38.5	38.5	
Total Supplemental Projects Approved by PUB	-	-	-	393.5	(38.5)	7,949.0	7,910.5	-	8,342.5	-	-	-	432.0	8,165.8	-	241.1	8,838.9	496.4	255.3	

496.4 255.3

Projects Less than $50,000

	A				B	C	D (B+C)	E	F (A+C+E)	G				H	I	J	K (G+H+I+J)	K-F	H-D	
	2016	2017	2018	2019	Carryover to 2020	Original 2020	Revised 2020	2021 and Beyond	Total	2016	2017	2018	2019	2020	2021 and Beyond	Carryover to 2021 and Beyond	Total	Project Variance	Annual Variance	Notes
2020 Projects																				
Replace Silencer on Unit 2073	-	-	-	-	-	25.0	25.0	-	25.0	-	-	-	-	19.0	-	-	19.0	(6.0)	(6.0)	
Diesel Plant Fibre Upgrade - Nain	-	-	-	-	-	44.8	44.8	-	44.8	-	-	-	-	37.1	-	-	37.1	(7.7)	(7.7)	
Warehouse Shelving - Bay d'Espoir	-	-	-	-	-	30.6	30.6	-	30.6	-	-	-	-	30.6	-	-	30.6	-	-	
Total Projects Less than $50,000	-	-	-	-	-	100.4	100.4	-	100.4	-	-	-	-	86.7	-	-	86.7	(13.7)	(13.7)	