

**NEWFOUNDLAND AND LABRADOR HYDRO
2017 CAPITAL BUDGET
PROJECTS OVER \$50,000
MULTI-YEAR PROJECTS
(\$000)**

Multi-year Projects Commencing in 2017

PROJECT DESCRIPTION	2017	2018	2019	2020	2021	Total
Terminal Station Refurbishment and Modernization - Various Sites	10,831.3	16,550.8				27,382.1
Diesel Genset Replacements - Port Hope Simpson and Charlottetown	658.8	5,148.0				5,806.8
Refurbish Powerhouse Station Services - Bay d'Espoir	413.2	2,473.3	1,460.6			4,347.1
Replace Exciter Controls Units 1 to 6 - Bay d'Espoir	119.2	921.2	877.0	1,429.6		3,347.0
Upgrade Corner Brook Frequency Converter - Corner Brook	194.6	2,749.2				2,943.8
Water System Replacements - Bay d'Espoir and Cat Arm	265.5	2,288.3				2,553.8
Transmission Line Upgrades - TL212 and TL218	1,378.2	1,133.3				2,511.5
Replace Vehicles and Aerial Devices - Various Sites (2017-2018)	2,001.4	398.8				2,400.2
Control Structure Refurbishments - Various Sites	1,735.3	452.9				2,188.2
Install Automated Meter Reading - Happy Valley (2017-2018)	78.6	1,891.6				1,970.2
Construct New Facilities - Various Sites	422.0	1,034.1				1,456.1
Gas Turbine Life Extension - Stephenville	847.5	505.7				1,353.2
Replace 66 kV Station Service Feed - Holyrood	62.8	1,198.6				1,261.4
Diesel Plant Engine Auxiliary Upgrades - Various Sites	790.6	416.3				1,206.9
Replace Substation - Holyrood	439.4	758.6				1,198.0
Distribution Upgrades - Various Sites (2017-2018)	64.2	1,130.9				1,195.1
Upgrade Holyrood Access Road - Holyrood	579.3	583.4				1,162.7
Replace Power Transformers - Oxen Pond	297.5	850.1				1,147.6
Replace Automation Equipment - Mary's Harbour	120.3	1,021.7				1,142.0
Upgrade Ventilation in Powerhouse 1 and 2 - Bay d'Espoir	134.1	863.8				997.9
Gas Turbine Life Extension - Hardwoods	675.3	281.4				956.7
Replace Battery Banks and Chargers - Various Sites (2017-2018)	379.3	566.2				945.5
Upgrade Telecontrol Facilities - Mary March Hill and Blue Grass Hill	91.2	665.9				757.1
Install Asset Health Monitoring System - Upper Salmon	438.0	203.4				641.4
Replace Slip Rings Units 1-6 - Bay d'Espoir	312.6	159.7				472.3
Install Recloser Remote Control - Bottom Waters	47.1	418.6				465.7
Replace Insulators - TL227	145.6	271.3				416.9
Refurbish Sump Level System for Powerhouse 2 - Bay d'Espoir	38.7	264.5				303.2
Total Multi-Year Projects over \$50,000 commencing in 2017	23,561.6	45,201.6	2,337.6	1,429.6	0.0	72,530.4

NEWFOUNDLAND AND LABRADOR HYDRO
2017 CAPITAL BUDGET
PROJECTS OVER \$50,000
MULTI-YEAR PROJECTS
(\$000)

Multi-year Projects Commencing in 2016

PROJECT DESCRIPTION	Expended						Total
	to 2016	2017	2018	2019	2020	2021	
Upgrade Circuit Breakers - Various Sites (2016-2020)	6,969.1	10,808.7	15,408.6	15,247.3	13,026.8		61,460.5
Construct 230 kV Transmission Line - Soldiers Pond to Hardwoods	3,699.0	17,489.8	5,372.1				26,560.9
Replace Site Facilities - Bay d'Espoir	928.3	4,736.3	6,316.7				11,981.3
Upgrade Distribution Systems - Various Sites (2016-2017)	285.6	6,350.3					6,635.9
Upgrade Powerhouse Building Envelope - Holyrood	2,723.8	2,969.9	784.1				6,477.8
Additions for Load Growth - L'Anse au Loup and Postville	883.4	4,746.0					5,629.4
Install Fire Protection Systems - Nain and Cartwright	3,030.7	1,376.4					4,407.1
Replace Vehicles and Aerial Devices - Various Sites (2016-2017)	1,443.3	534.2					1,977.5
Replace Disconnect Switches - Various Sites (2016-2017)	646.9	1,320.9					1,967.8
Upgrade Work - Cat Arm	558.3	1,353.0					1,911.3
Replace Protective Relays - Various Sites	700.6	1,156.4					1,857.0
Replace Aircraft Markers at Grand Lake Crossing - TL228	589.6	978.3					1,567.9
Replace Diesel Units - Charlottetown	1,384.9	46.1					1,431.0
Upgrade Microsoft Office Products - Hydro Place	366.6	511.2	513.3				1,391.1
Replace MDR 4000 Microwave Radio East - Various Sites	77.4	1,093.1					1,170.5
Rehabilitate Shoreline Protection - Cat Arm	112.2	1,030.7					1,142.9
Install Automated Meter Reading - Labrador West	433.8	533.4					967.2
Replace Battery Banks and Chargers - Various Sites (2016-2017)	425.0	456.6					881.6
Replace Powerline Carrier - Various Sites	73.4	763.4					836.8
Install Fire Protection in 230 kV Stations - Bay d'Espoir	200.0	566.0					766.0
Upgrade Telecontrol Facilities - Sandy Brook Hill	101.6	462.4					564.0
Purchase Vehicles and Aerial Devices - Various Sites	382.5	172.7					555.2
Upgrade Digital Fault Recorders - Various Sites	197.9	304.6					502.5
Upgrade Terminal Station for Mobile Substation - Cow Head	40.0	444.7					484.7
Replace Human Machine Interface - Various Sites	114.0	320.0					434.0
Replace Powerhouse 1 Station Service Transformer - Bay d'Espoir	46.7	354.5					401.2
Replace Spherical By-Pass Valves Units 1 and 2 - Bay d'Espoir	183.6	167.9					351.5
Replace Fuel Piping - Hardwoods and Stephenville	44.8	267.0					311.8
Upgrade Data Alarm Systems - Stony Brook	74.4	234.1					308.5
Refurbish Station Water System - Upper Salmon	96.6	197.6					294.2
Install Breaker Failure Protection - Various Sites	65.7	211.3					277.0
Replace Air Conditioning Units 8 and 14 - Hydro Place	34.6	229.5					264.1
Replace Surge Arrestors - Various Sites	144.4	53.0					197.4
Upgrade Warehouse Lighting - Bishop's Falls	15.2	180.4					195.6
Replace Air Conditioners - Massey Drive and Happy Valley	39.9	152.0					191.9
Install Variable Frequency Drives - Grey River	46.9	123.0					169.9
Replace Control Room/Communications Room Air Conditioning - Hinds Lake	41.3	53.0					94.3
Total Multi-Year Projects over \$50,000 commencing in 2016	27,202.0	62,748.4	28,394.8	15,247.3	13,026.8	0.0	146,619.3

Multi-year Projects Commencing before 2016

PROJECT DESCRIPTION	Expended						Total
	to 2016	2017	2018	2019	2020	2021	
Construct 230 kV Transmission Line - Bay d'Espoir to Western Avalon	87,444.6	149,895.7	54,317.7				291,658.0
Replace Instrument Transformers - Various Sites	3,196.1	471.9					3,668.0
Refurbish Anchors and Footings TL202 and TL206 - Bay d'Espoir to Sunnyside	1,278.3	901.6					2,179.9
Replace Programmable Logic Controllers - Various Sites	712.9	245.1					958.0
Total Multi-Year Projects over \$50,000 commencing before 2016	92,631.9	151,514.3	54,317.7	0.0	0.0	0.0	298,463.9