

Nalcor Energy – Lower Churchill Project



Muskrat Falls & Island Link Master Contract Package List

LCP-PT-ED-0000-SC-LS-0001-01

Comments: Updated for Gate 2 purposes. Includes both Muskrat Falls and Island Link Projects. For information related to Gull Island see MSD-MM-018	Total Page Count (including cover): <p style="text-align: center;">14</p>
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Approvals and Revision History							
Status / Revision	Date	Reason For Issue	Prepared By	Checked By	Checked By	Project Manager Approval	Project Director Approval
B1	03-Mar-11	Issued for Use					
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Additional Signatures (where required)

Status/ Revision	Date	Reason For Issue	Prepared By	Checked By	IMS Lead	Dept. Manager Approval	Project Manager Approval

Professional Engineers Stamp:
(where required)

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1.0 Purpose

The purpose of this Muskrat Falls and Island Link Master Contract Package List is to describe the Muskrat Falls and Island Link contract package requirements in accordance with the LCP Contracting and Project Management Strategy.

2.0 Scope

The attached Muskrat Falls and Island Link Master Contract Package List is a living document and will be subject to constant revision throughout the life of the Project. This document is NE-LCP view and can be used as a tool/guide/reference going forward. The final contract package arrangement as well as contract scopes will be by the EPCM Consultant as agreed by NE-LCP.

3.0 Definitions

N/A

4.0 Abbreviations and Acronyms

NE-LCP	Nalcor Energy – Lower Churchill Project
SCM	Supply Chain Management

5.0 Roles and Responsibilities

Supply Chain Management (SCM) is responsible for the maintaining of this Muskrat Falls and Island Link Master Contract Package List.

6.0 Reference Documents and/or Associated Forms

LCP-PT-MD-0000-PM-ST-0001-01	Project Management Approach and Contracting Strategy (Post Gate 2)
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7.0 Overview

In dividing the Project into discrete contract elements careful consideration has been given to the construction and financial capabilities of the heavy construction industry. The proposed scope of work to be included in each contract has been selected to provide a logical sequence of activities to meet the project scope and schedule with a minimum of interference between one contract and another. The project scope and type of contract is designed to place risk with the party in the best position to handle it. The scope of the contract packages is designed to provide the greatest possible protection of project capital by:

- Attracting the maximum number of qualified bidders.

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- Increasing competition for successive contracts among contractors who are mobilized to site or who have contracts for future work which cover mobilization costs.
 - Permitting each contractor to concentrate his most competitive approach to bidding on the limited package scope best suited to his experience, equipment and capacity (i.e. earthworks only for earthworks contractors and electrical only for electrical contractors).
 - Reducing the magnitude of risk to be assumed by each contractor. When the contract scope of work is not subject to change a Lump Sum Contract would be the most suitable whereas excavation quantities, which could be subject to change, would have a unit price contract as the most suitable.
 - Encouraging a closer control of contract supervision by having the camp, offices, lay-down areas, warehouse, etc. in close vicinity to the actual worksite

Contract packages are identified in the attached Muskrat Falls and Island Link Master Contract Package List by the following prefix letters:

- “A” – Architectural/Building type work
- “C” – Civil type work (excavation, concrete, etc)
- “E” – Electrical type work
- “M” – Mechanical type work
- “G” – General type work
- “SB” – Marine Crossings

8.0 Exclusions

The following activities are excluded from this Muskrat Falls and Island Link Master Contract Package List:

- Port Facilities Work in Happy Valley/Goose Bay
- Port Facilities Work in Cartwright
- Improvements to Blackrock Bridge on the Trans Labrador Highway
- Improvements to the Trans Labrador Highway
- Renovations to properties at 5 Wing Goose Bay

A.0 Activity Flowchart (Excel Format)

A.1. N/A

B.0 Attachments/Appendices

B1 Attachment 1 – Muskrat Falls and Island Link Master Contract Package List

Nalcor Energy - Lower Churchill Project Master Contract Package List

Package Reference No.	Contract Name	Sub-Project	IBA Listed Contract (Yes / No)	Description & Scope	Summary of Key Quantities	Notional Contract Form	Estimated Manufacturing Duration (months)	Mobilization / Delivery Duration (mobilize personnel and / or equipment)	Contract process duration (Issue EOI to award) (working days)	Engineering Deliverable Types	Project Payment Terms
A-001	Accommodations Complex Buildings	Muskrat Falls	Yes	Supply and installation of construction accommodations complex including: - Dormitories, 1,500 person capacity - Recreation Centre & Commissary (1,325 m2) - Bar / Convienece / Restaurant (700 m2) - Gymnasium / Fitness Centre (1,410 m2) - Outdoor Recreation - Camp Admin. Building & Reception Centre (170 m2) - Cafeteria and Kitchens (3,080 m2) - Laundry (170 m2)		Combination - Lump Sum & Unit Rates	12 mos.	2 months	95	Contractor to Supply; Architectural layouts General Arrangement drawings Site Layout dwgs. Interface Drawings Site Location Plans and General Specifications (to be provided with all packages) Commissioning / O & M Documentation Nalcor to provide; Design Brief Functional Specification	10% Down Payment for Engineering, 10% for Long Lead Items when Orders Committed to Subcontractors (defined), 40% progress payments through manufacture, 30% on Shipment including transportation costs if these costs are to contractor, 10% upon erection at site commissioned ready for occupancy.
A-002	Administrative Buildings	Muskrat Falls	No	Supply and Installation of construction Administrative Buildings including: - Medical Clinic / Security (180 m2) - Garage for Management Vehicles (250 m2) - Gate House (85 m2) - Management Site Offices (1,600 m2) - Fire Station & Ambulance Shelter (330 m2) - Administration / Information Building (110 m2) - Owner's Warehouse (1,860 m2)		Combination - Lump Sum & Unit Rates	N/A	2 months	110	Contractor to Supply; Architectural layouts General Arrangement drawings Site Layout dwgs. Interface Drawings Site Location Plans and General Specifications (to be provided with all packages) Commissioning / O & M Documentation Nalcor to provide; Design Brief Functional Specification	10% Down Payment for Engineering, 10% for Long Lead Items when Orders Committed to Subcontractors (defined), 40% progress payments through manufacture, 30% on Shipment including transportation costs if these costs are to contractor, 10% upon erection at site commissioned ready for occupancy.
C-001	Main Site Access Road - South Side	Muskrat Falls	Yes	- Access Road on South side of Churchill River from Muskrat Falls to near Blackrock Bridge on Trans Labrador Highway - 19 km long	Including: Clearing 40 ha Stripping 155,000 m3 Rock Excavation 30,000 m3 Rock Fill 96,500 m3 Granular Sub-base 44,000 m3 Granular Base 27,000 m3	Combination - Lump Sum & Unit Rates	N/A	3 - 4 months	96	Technical Specifications Site Location Plans and General Specifications Detailed Site Mapping Access Road Plan, Profile and Sections Culvert Locations and Details Design Brief Environmental Permitting, Mitigation and Remediation Plans and Details	5% Mob, progress payments against labour (time) and materials and equipment monthly, and 5% Demob.
C-002	Site Preparation & Site Access Roads	Muskrat Falls	Yes	Includes; - Upgrade Site Access Road - North Side to Trans Labrador Highway (3.25 km) - Temp. Access around Knoll (1.20 km) - Main Access Road to Borrow & Laydown Areas (4.76 km) - Site Prep - Camp Area (12.5 ha) - Water Supply / Distribution & Fire Protection - Sewage Treatment Plant & Sewer Mains - Site Prep - Owner's Warehouse & Laydown (1.5 ha) - Site Prerp. - Contractor's Laydown Area (12.5 ha) - Includes clearing, stripping, excavation and Primary Environmental Mitigation	Including: Clearing 45 ha Stripping 73,000 m3 Rock Exc. 14,000 m3 Rock Fill 46,500 m3 Gran Subbase 75,000 m3 Watermain 2,000 m Sewer Main 1,800 m Water Treatment Plant x 1 Sewage Treat.Plant x 1	Combination - Lump Sum & Unit Rates	N/A	1 month	180	Technical Specifications Site Location Plans and General Specifications Detailed Site Mapping Access Road Plan, Profile and Sections Culvert Locations and Details Design Brief Environmental Permitting, Mitigation and Remediation Plans and Details	5% Mob, progress payments against labour (time) and materials and equipment monthly, and 5% Demob.
C-003	Batch Plant	Muskrat Falls	No	Large Batch Plant for Site	Including: Concrete 450,000 m3	Unit Rate Contract	N/A	4 months	150	Functional Specifications Site Location Plans and General Specifications Environmental Permitting, Mitigation and Remediation Plans and Details Aggregate Sources Access Road Layouts Water Supply Source Concrete Production Schedule	5% Mob, progress payments against labour (time) and materials and equipment monthly, and 5% Demob.

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C-004	Bulk Excavation Works	Muskrat Falls	No	Includes; - Access Road Construction (10 km) - Access Road Maintenance (600 km-month) - Powerhouse / Intake Excavation - Tailrace Excavation - Spillway Excavation	Including: - Common 155,000 m3 P'Hse - Rock 1,284,000 m3 T'Race - Rock - Dry 25,000 m3 T'Race - Rock - Wet 50,000 m3 Spillway - Common 44,000 m3 Spillway - Rock 273,000 m3	Unit Rate Contract	N/A	2 months	86	Design Briefs Technical Specifications Site Location Plans and General Specifications Access Road Layouts Excavation Plans and Details Foundation Preparation Dwgs. Environmental Permitting, Mitigation and Remediation Plans and Details Site Information for Tenderers General Arrangement Drawing River Hydraulic Data Disposal Drawings Detailed Site Mapping Geotechnical Baseline Report	10% Mob, progress payments against labour (time) and materials and equipment monthly, and 5% Demob. Capital Costs vs Cost per cubic metre to be determined.
C-005	Intake and Powerhouse Construction	Muskrat Falls	No	Concrete Structures including; - Final Detailed Excavation - Formwork & Concrete - Intake Powerhouse including Draft Tube - Service & Erection Bay - including - Reinforcing Steel - Embedded parts and grounding,	Including: Reinforcing Steel 11,240 tonnes Embed Steel/Anchors 18 tonnes Intake/P'Hse Conc. 103,000 m3 Service/Erection Bay 20,000 m3 Draft Tube Concrete 124,000 m3 2nd Stage Concrete 37,000 m3	Unit Rate Contract	N/A	2.5 months	168	Technical Specifications Site Location Plans and General Specifications Access Road Layouts Excavation Plans and Details Environmental Permitting, Mitigation and Remediation Plans and Details Site Information for Tenderers General Arrangement Drawing River Hydraulic Data Concrete Drawings / Embedments Foundation Preparation and Grouting Drawings Grounding Details Gate, Trashrack, and Stoplog Details (for info) Penstock Civil Drawings Powerhouse Architectural Drawings Structural Drawing Cladding Drawings Window and Door Schedules Electrical, Mechanical and HVAC Drawings Miscellaneous Steel Drawings Elevator Drawings Site Grading, Landscaping and Paving Details Warehousing / Storage Dwgs. (various types) Crane Details (for info) Equipment Life Cycle Cost Analysis Operability Reviews	5% Mob, progress payments against labour (time) and materials and equipment monthly, and 5% Demob. (5% holdback for documentation)
C-006	Spillway Structure Construction	Muskrat Falls	No	Including; - Final Detailed Excavation - Formwork and Concrete - Secondary Concrete - Gate Guides - Reinforcing Steel	Including: Concrete 74,000 m3 Secondary / Gate Guides 560 m3 Reinforcing Steel 3,500 tonnes	Unit Rate Contract	N/A	2.5 Months	168	Design Brief Technical Specifications Site Location Plan General Specifications Design Drawings	
C-007	North Spur Stabilization & Cofferdams Construction	Muskrat Falls	No	Including; - Upstream Berm - Downstream Stabilization - Pumpwells - Crest Unloading - North End of Spur	Including: Common Excavation 862,000 m3 Dumped Till 165,000 m3 Compacted Till 73,000 m3 Dumped Rockfill 329,000 m3 Compacted Rockfill 525,000 m3 Dumped Filter 20,000 m3 Compacted Filter 32,000 m3 Toe Wall Concrete 6,000 m3 Cofferdam Removal 6,000 m3 Compacted Gran Fill 198,000 m3 New Pumpwells 44 ea Refurbish Pumpwells 22 ea	Combination - Lump Sum & Unit Rates	N/A	1.5 months	96	Design Brief Technical Specifications Site Location Plan Excavation Plan and Details Environmental Permitting, Mitigation and Remediation Plans and Details Site Information for Tenderers General Arrangement Drawing Design Drawings	

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C-008	RCC Dams - North & South Construction	Muskrat Falls	No	RCC Dam Works including; - Foundation Preparation - RCC Dam Construction - Concrete Downstream Face - Concrete Cap and Retaining Walls - Drainage Gallery - Instrumentation - Cofferdam Installation and Removal - Downstream Toe Wall	Including: Common Excavation 90,000 m3 Drill/Pressure Grout 6,000 m Found. Prep - Rock 45,000 m2 Roller Compact Conc 265,000 m3 Concrete 35,000 m3	Unit Rate Contract	N/A	1.5 months	192	Design Brief Technical Specifications Site Location Plans and General Specifications Access Road Layouts Excavation Plans and Details Environmental Permitting, Mitigation and Remediation Plans and Details Site Information for Tenderers General Arrangement Drawing River Hydraulic Data Disposal Drawings Detailed Site Mapping Dewatering Plans and Details Dam Safety Instrumentation Concrete Face and Parapet Details Concrete Interface Dams Details Foundation Preparation and Grouting Drawings Commissioning / O&M Documentation	5% Mob, progress payments against labour (time) and materials and equipment monthly, and 5% Demob. (5% holdback for documentation)
C-009	Terrestrial Habitat Construction	Muskrat Falls	No	??		??	N/A	3 months	167		5% Mob, progress payments against labour (time) and materials and equipment monthly, and 5% Demob. (5% holdback for documentation)
E-001	Construction Power	Muskrat Falls	No	Including: Bring power from 138 Transmission Line at Trans Labrador Highway to site and across Churchill River. - Substation 138 kV down to 25 kV		Lump Sum Contract	N/A	2 months	160	Technical Specifications Site Location Plans and General Specifications Environmental Permitting, Mitigation and Remediation Plans and Details	5% Mob, progress payments against labour (time) and materials and equipment monthly, and 5% Demob.
E-002	Site Electrical Services and Distribution	Muskrat Falls	No	Including; - 138 Kv Transmission Line @ Reservoir - Electrical Supply for Camp Distribution - Emergency Generator c/w Tank - 25 Kv - Switchyard, Transformer and Distribution for Construction Power - On Site Communications - Electrical Infrastructure - Need power on both sides of river		Combination - Lump Sum & Unit Rates	N/A	2 months	211	Technical Specifications Site Location Plans and General Specifications Environmental Permitting, Mitigation and Remediation Plans and Details	5% Mob, progress payments against labour (time) and materials and equipment monthly, and 5% Demob. (5% holdback for documentation)
E-003	Converter Stations @ Muskrat Falls and Soldiers Pond	Island Link	No	Converter Stations @ Muskrat Falls and Soldiers Pond & building including; - electro-mechanical equipment - switchyard civil works - site preparation - fencing - services.		EPC Lump Sum Contract	36-39 Months	2 months	211	Power, Energy and System Studies Design Brief Functional Specifications Site Studies Site Location Plans and General Specifications Detailed Site Mapping Environmental Permitting, Mitigation and Remediation Plans and Details Access Road Layouts Switchyard Layouts (for info) Sites acSLD Electrode System Drawings (for info) Interface Documentation Life Cycle Cost Analysis Operability Reviews Commissioning / O&M Documentation	

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E-004	Switchyard at Muskrat Falls	Muskrat Falls	No	Switchyard at Muskrat Falls including all site preparation, civil works, equipment supply and installation and commissioning		EPC Lump Sum Contract	36-39 Months	2 months	211	Design Brief Functional Specifications Site Location Plans and General Specifications Detailed Site Mapping Environmental Permitting, Mitigation and Remediation Plans and Details Access Road Layouts Switchyard Layouts / Grading / Drainage DC Station Servi	General Note assume 70% Equipment Costs and 30% Installation Costs. 5% Mobilization, 10% Engineering Design complete, 10% on award of all subcontracted Equipment and Materials / Long Lead Items, 25% at 50% manufacture of all equipment, 30% on shipment of
E-005	Electrode design, supply, construction	Island Link	No	Electrode design, supply, construction and Site Preparation including underwater cable and transition compound.		EPC Lump Sum Contract	12 months	2 months	211	Sites Selection Studies Design Briefs Functional Specifications Including data for tenderers Site Location Plans and General Specifications Detailed Site Mapping Environmental Permitting, Mitigation and Remediation Plans and Details Life Cycle Cost Analysis Operability Review Commissioning / O&M Documentation	10% on Engineering Design Drawing approval, 60% progress payments throughout manufacture, 20% on shipment, 5% on Commissioning and 5% on documentation.
E-007	Communications System for HVDC System	Island Link	No	Communications System for HVDC system, and remote control & monitoring of all facilities.		Lump Sum Contract	18 months	2 months	127	Design Brief (Operational Voice Network, Administrative Data Network, Operational Data Network, Optical Transport System, Microwave Transport System, Leased Services System, VHF Radio System, Teleprotection System) Functional Specifications (all systems) Study Work (all systems) Drawings (all systems) Life Cycle Cost Analysis (all systems) Commissioning / O&M Documentation (all systems) Site Location Plans and General Specifications Environmental Permitting, Mitigation and Remediation Plans and Details Communication Network Layout Transmission Network	5% Mob, progress payments against labour (time) and materials and equipment monthly, and 5% Demob. (5% holdback for documentation)
E-008	Transmission Line Construction and Installation	Muskrat Falls	No	Transmission Line Construction and Installation Contract including line clearing, access, tower erection, conductor stringing and tension, insulator installation.	- 263 km	Unit Rate Contract (Potentially two contracts)	N/A	3 months	211	Design Brief Technical Specifications (Construction & Installation, LIDAR Surveying, Staking, Geological Investigations & Photo Interpretation) Site Location Plans and General Specifications Access Roads, Bridges, Culverts, Clearing Dwgs. Camps / Storage	General Note: We expect that there will be 6 Contracts working simultaneously on this work. 5% Mobilization, 75% progress payments throughout construction schedule monthly, 15% on successful energization, 5% Demobilization.

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E-009	Conductor for AC / DC overhead lines	Common	No	Conductor for AC / DC overhead lines - Purchase		Lump Sum PO	12 months	2 months	127	Technical Specifications Delivery Schedule Bill of Materials	10% on finalized design, 20% raw material receipt ready for manufacture, 30% progress payments through manufacture, 40% on shipment.
E-010	AC and DC Insulators	Common	No	AC and DC Insulator's - Purchase		Lump Sum PO	12 months	2 months	127	Technical Specifications Delivery Schedule Bill of Materials	10% on finalized design, 20% raw material receipt ready for manufacture, 30% progress payments through manufacture, 40% on shipment.
E-011	Tower Steel	Common	No	Tower Steel including detailing, prototype testing, foundations, anchors and bolting - Purchase		Lump Sum PO	12 months	2 months	127	Technical Specifications Delivery Schedule Bill of Materials Tower Family Drawings Logistics Document	10% on approved Tower Design each type class, 10% on material receipt ready for fabrication, 10% upon type Successful Prototype testing, progress payments through fabrication and manufacture up to 35% of the value, 25% on shipment, 10% holdback.
E-012	Tower Hardware	Common	No	Tower Hardware - Purchase		Lump Sum PO	12 months	2 months	127	Technical Specifications Delivery Schedule Bill of Materials Logistics Document	10% on finalized design, 20% raw material receipt ready for manufacture, 30% progress payment, 40% on shipment.
E-013	Optical Ground Wire (OPGW) Conductors	Island Link	No	Optical Ground Wire (OPGW) Conductors - Purchase		Lump Sum PO	12 months	2 months	127	Technical Specifications Delivery Schedule Bill of Materials Logistics Document	10% on finalized design, 20% raw material receipt ready for manufacture, 30% progress payment, 40% on shipment.
E-014	Overhead Ground Wire (OHGW) Conductor	Island Link	No	Overhead Ground Wire (OHGW) Conductor including guy wires - Purchase		Lump Sum PO	12 months	2 months	127	Technical Specifications Delivery Schedule Bill of Materials Logistics Document	10% on finalized design, 20% raw material receipt ready for manufacture, 30% progress payment, 40% on shipment.
E-015	Modifications to Existing Switchyard at Churchill Falls.	Muskkrat Falls	No	Modifications to existing switchyard at Churchill Falls and associated requirements including; - Civil Works Grounding - Hardware - Supply and Install		EPC Lump Sum Contract	12 months	2 months	127	Design Brief Technical Specifications Site Location Plans (CF) and General Specifications Detailed Site Mapping Environmental Permitting, Mitigation and Remediation Plans and Details Existing Switchyard Layouts and Extension Layout SLD for Existing and Extension Provide Fenced Level Yard Interface Drawings Existing Switchyard Info. Existing Relay Building - Layout of new equipment / Potential Extension to Bldg. (Civil, mech., elect.) Control Room Mods (CF) Plan (Civil, electrical and mechanical) Life Cycle Cost Analysis Operability Review Commissioning / O&M Documentation	5% Mob, progress payments against labour (time) and materials and equipment monthly, and 5% Demob. (5% holdback for documentation)

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E-016	Transmission Line Mech. Completion	Common	No	Transmission Line Mechanical Completion		Lump Sum Contract	N/A	2 months	127	Site Location Map Book Technical Specifications Tower Drawings Transmission Line Routing Plan and Profile Sag Charts	
E-017	Other Island upgrade requirements	Island Link	No	Other Island upgrade requirements including synchronous condensers, Holyrood Upgrades, Transmission Line upgrades, breaker replacements, Gas Turbines, Switchyard at Soldiers pond.		??					
G-001	Project Office, St. John's, NL	Common	No	Project Office, St. John's, NL		Unit Rate Contract	N/A	3 months	127	General Requirements	Mobilization, Renovations (Leasehold improvements) and Furniture Costs to be negotiated as a (% in lease rate or upfront costs) monthly invoice lease costs.
G-002	EPCM Contract	Common	No	Engineering Design and Project Support Contract		Lump Sum Contract	N/A	2 months	127	BOD and Technical Reports	Monthly invoice approved timecards and expenditures.
G-003	Catering	Common	Yes	Catering including Camp Operations and Housekeeping		Unit Rate Contract	N/A	3 months	127	General Requirements Camp Layout / Buildings Info.	Monthly Account
G-004	Janitorial	Common	Yes	Janitorial		Unit Rate Contract	N/A	3 months	127	General Requirements Camp Layout / Buildings Info.	Monthly Account
G-005	Security	Common	Yes	Security		Lump Sum Contract	N/A	3 months	127	General Requirements Camp Layout / Buildings Info.	Monthly Account
G-006	Medical Services	Common	Yes	Medical Services		Lump Sum Contract	N/A	3 months	127	General Requirements Camp Layout / Buildings Info.	Monthly Account
G-007	Site Ground Transportation	Common	Yes	Transportation, at Site, Site to HVGB and Return and HVGB Airport to other destinations.		Unit Rate Contract	N/A	3 months	127	General Requirements Camp Layout / Buildings Info.	Monthly Account
G-008	Camp and Building Maintenance	Muskrat Falls	Yes	Camp and Building Maintenance		Unit Rate Contract	N/A	3 months	127	General Requirements Camp Layout / Buildings Info.	Monthly Account
G-009	Snow Removal and Road Maintenance	Muskrat Falls	No	Snow Removal and Road Maintenance		Unit Rate Contract	N/A	3 months	127	Technical Specifications / General Requirements Site Location Plans and General Specifications (Meteorological Data) Site Layout / Access Roads Layout	Monthly Account
G-010	Fuel supply and dispensing	Common	No	Fuel supply and dispensing		Unit Rate Contract	N/A	3 months	127	Technical Specifications Site Location Plans and General Specifications Environmental Permitting, Mitigation and Remediation Plans and Details Civil, Mechanical and Electrical Dwgs.	Monthly Account
G-011	Sewage & Garbage Disposal	Common	Yes	Remote Sewage Disposal, washcars / portable toilets, dryhouses, including garbage collection.		Unit Rate Contract	N/A	3 months	127	General Requirements Technical Specifications Site Location Plans and General Specifications	Monthly Account
G-012	Potable Water Delivery	Common	No	Remote Sites, Potable Water Delivery, to washcars and contractors.		Unit Rate Contract	N/A	3 months	127	General Requirements Technical Specifications Site Location Plans and General Specifications	Monthly Account
G-013	Explosives Supply and Warehouse	Common	No	Explosives Supply and Warehouse includes security, issuance and permitting.		Unit Rate Contract	N/A	3 months	127	Technical Specifications / General Requirements Site Location Plans and General Specifications Bill of Materials (including quantities) Environmental Permitting, Mitigation and Remediation Plans and Details	5% Mob, progress payments against labour (time) and materials and equipment monthly, and 5% Demob.

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G-014	Reservoir Clearing	Muskrat Falls	No	Reservoir Clearing including surveying & clearing, harvesting, collection of materials and disposal of waste, including debris and slash management.	Clearing - 3,760 ha	Unit Rate Contract	??	2 months	115	Design Brief Functional Specifications Location Plans and General Specifications Access Points to Reservoir River Hydraulic Data Environmental Permitting, Mitigation and Remediation Plans and Details Reservoir Mapping	10% Mob, progress payments against labour (time) and materials and equipment monthly, and 5% Demob.
G-015	Barge Contract	Muskrat Falls	No	Barge Contract to move Equipment to South Side to Commence Grading at Campsite, Site Access Roads, Excavation of Spillway, Intake, Approach Channel, and Powerhouse Structure. Including the Site Clearing of any Borrow and Disposal Areas		Lump Sum or Unit Rate Contract	N/A	3 months	127	Functional Specifications Site Location Plans and General Specifications River Hydraulic Data Detailed Site Mapping River Bathymetry Access Road Layouts Environmental Permitting, Mitigation and Remediation Plans and Details	5% Mob, progress payments against labour (time) and materials and equipment monthly, and 5% Demob.
G-016	Muskrat Falls Site Communications	Muskrat Falls	No	Muskrat Falls Site Communications, including Cell Towers (2), Satellite Phone, Telephone for Accommodation complex and Contractors, Cable or Satellite TV for Accommodation complex, and Computer Data Lines.		Lump Sum Contract	12 months	3 months	127	Functional Specifications and General Requirements Site Location Plans Topographic Mapping Site and Camp Layout	5% Mob, progress payments against labour (time) and materials and equipment monthly, and 5% Demob.
G-017	Happy Valley / Goose Bay Project Office	Common	No	Happy Valley / Goose Bay Project Office, including Communications, Public Relations and Administration		Unit Rate Contract	N/A	2 months	85	General Requirements	Monthly Account
G-018	Happy Valley Goose Bay Hotels	Common	No	Happy Valley Goose Bay Hotels (Mob / Demob) or Peak periods, including catering and Box Lunches.		Unit Rate Contract	N/A	2 months	25	General Requirements	Monthly Account
G-019	Freight Forwarding and Logistics	Common	No	Freight Forwarding and Logistics Contract, including Custom Duties Consultation.		Unit Rate Contract	N/A	2 months	167	General Requirements	Monthly Account
G-020	3rd Party Expediting Services	Common	No	Field expediting services from a 3rd Party Expediting Service Provider		Unit Rate Contract	N/A		127		
G-021	3rd Party Inspection Services	Common	No	Field inspection surveillance from a 3rd Party Inspection Service provider		Unit Rate Contract	N/A		127		
G-022	Site Restoration incl Landscaping, Paving, Signs etc.	Common	No			Unit Rate Contract					
M-001	Turbine & Generator - Model Testing	Muskrat Falls	No			Lump Sum Contract					
M-002	Turbine & Generators	Muskrat Falls	No	Turbine & Generators, including exciters, control systems and governors - Purchase and Install. (TBD)	Kaplan Turbines 4 ea Transformers 4 ea Spare Transformer 1 ea Electrical Ancillary 1 ls Mech. Ancilla	EPC Lump Sum Contract	53 Months	2 month	235	Functional Specifications Site Location Plans and General Specifications Powerhouse General Layouts / Cranage Interface Drawings Site Layout Access and Transportation Details	General Note: Equipment Supply would equate to 65-70% and Installation Costs 30-35% of overall cost. Engineering and Model Test equates to 5% of equipment costs spread equally over a period of 12 months from award. Material Orders for each unit 1,2,3,4,

Nalcor Energy - Lower Churchill Project Master Contract Package List

Package Reference No.	Contract Name	Sub-Project	IBA Listed Contract (Yes / No)	Description & Scope	Summary of Key Quantities	Notional Contract Form	Estimated Manufacturing Duration (months)	Mobilization / Delivery Duration (mobilize personnel and / or equipment)	Contract process duration (Issue EOI to award) (working days)	Engineering Deliverable Types	Project Payment Terms
M-003	Balance of Plant	Muskrat Falls	No	Balance of Plant (TBD) including powerhouse E&M services, transformers(15/230kv), switchyard structure, electro mechanical equipment, including diesel generator back-up unit and control systems. NEED TO REVIEW STRATEGY		EPC Lump Sum Contract	24 months	2 month	211	Functional Specifications Site Location Plans and General Specifications Powerhouse Layouts Structure Layouts Interface Drawings Site Layout Access and Transportation Details Grounding Details Structural Drawings SLD Switchyard Layout Electrical, Mechanic	General Note assume 70% Equipment Costs and 30% Installation Costs. 10% Engineering, 10% on award of all subcontracted equipment, 40% progress payments at 50% manufacture, 10% at Testing, 20% at shipment and 10% upon successful site acceptance test. Ins
M-004	Spillway Gates	Muskrat Falls	No	Spillway Gates (3) including Stop Logs (1 set) complete with storage and retrieval system, hoists and heating system and Guides / Concrete embeddments.	Including: Gates/Hoist/Embed Parts 1,019 t Stoplogs 679 t	Lump Sum PO	3 months (Anchors)	2 month	192	Functional Specifications Site Location Plans and General Specifications Concrete Details of the Structure General Arrangement of the Structure Hoist Enclosure Details Interface Drawings Equipment Arrangement Dwgs. Life Cycle Cost Analysis Commissioning Documentation	10% for Engineering, 60% on progress payments through out delivery, 30% on delivery.
M-005	Intake Gates	Muskrat Falls	No	Intake Gates (4 sets) including Bulkhead Gates (1 set), Trashracks (4 sets), hoists and heating system and Guides / Concrete embeddments and trash removal system.	Including: Gates/Hoist/Embed Parts - 1,766 t Stoplogs - 511 t Trashracks/Hoists - 1,212 t	Lump Sum PO	4 months	2 month	192	Functional Specifications Site Location Plans and General Specifications Concrete Details of the Structure General Arrangement of the Structure Hoist Enclosure Details Interface Drawings Equipment Arrangement Dwgs. Life Cycle Cost Analysis Commissioning Documentation	10% for Engineering, 60% on progress payments through out delivery, 30% on delivery.
M-006	Draft Tube Gates	Muskrat Falls	No	Draft Tube Gates (2 sets) complete with storage and retrieval system and Guides / Concrete embeddments.	Including: Draft Tube Gates/Hoists - 738 t Draft Tube Temp Plugs - 400 t	Lump Sum PO	12 months	2 month	127	Functional Specifications Site Location Plans and General Specifications Concrete Details of the Structure General Arrangement of the Structure Interface Drawings Equipment Arrangement Dwgs. Commissioning Documentation	10% for Engineering, 60% on progress payments through out delivery, 30% on delivery.
M-007	Powerhouse Crane	Muskrat Falls	No	Powerhouse Crane Supply and Install		Lump Sum PO	12 months	1 month	127	Functional Specification Equipment Arrangement Dwgs. Commissioning Documentation	
M-008	Powerhouse Building	Muskrat Falls	No	Powerhouse Building including the supply and installation including Structural Steel, Cladding, HVAC, and Electro-Mechanical Equipment.	Including: Structural Steel - 4,000 tonnes Cladding & Roof - 15,000 m2	Lump Sum Contract	18 months	1 month	127	Technical Specifications Civil and architectural dwgs. Mechanical and electrical dwgs.	
M-009	Elevator	Muskrat Falls	No	Elevator, Supply and Install		Lump Sum PO	12 months	1 month	127	Functional Specification Equipment Arrangement Dwgs. Commissioning Documentation	
M-010	Hoist Enclosures for Gates and Hoists	Muskrat Falls	No	Hoist Enclosures for Gates and Hoists		Lump Sum PO	12 months	1 month	127	Technical Specification Enclosures Dwgs.	

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SB-003	Submarine Cable Design, Supply and Install	Island Link	No	SOBI Submarine Cable and Installation including; - landing sites - cable protection - cable storage building - testing and mechanical completion. NOTE: Cable Manufacturing Slot and Cable Lay Vessel reservations required.		EPC Lump Sum Contract	6 months manufacturing time however leadtime ARO 30 -36 Months, type testing adds 6 months to one year to lead time factories taking order for 2012 and 2013 today. Vessel for installation needs to be confirmed at same time.		278	Design Brief Functional Specifications Site Location Plans and General Specifications Detailed Site Mapping / Route Engineering Additional Feasibility Study / Field Work Cable Design / Laying / Protection / Landing Point and Shore Approach Eng. Environmental Permitting, Mitigation and Remediation Plans and Details Access Road Layouts Termination Layouts Site SLD Life Cycle Cost Analysis Operability Review Commissioning / O&M Documentation	10% on Engineering Design Drawing approval, 60% progress payments throughout manufacture, 20% on shipment, 5% on Commissioning and 5% on documentation.
SB-008	HDD Detailed Design	Island Link	No	Design of HDD Transition Compounds		Unit Rate	N/A		144	General Requirements	
SB-010	HDD Construction	Island Link	No	HDD Drilling of Transition Compounds		Unit Rate	N/A		278	General Requirements	
SB-011	Rock Berm Design, Supply and Install	Island Link	No	Design & Installation of Cable Protection SOBI		Unit Rate	N/A		278	General Requirements	