From:Ait Ouferoukh, MouloudTo:Tremblay, Jean-DanielSubject:LCP Master Package DictionaryDate:Thursday, June 28, 2012 11:45:52 AMAttachments:505573-0000-39RA-I-0006 01.pdf

Attached here the package dictionary.

Thanks.

#### **Mouloud Ait Ouferoukh**

Document Control Lower Churchill Project 350 Torbay Road, Suite 2 St. John's, NL A1A 4E1 - Canada 709-752-3461 ext. 5132

		CIMFP Exhib	oit P-02	2084		Page 2	
Doc	cument Front Sheet				<b>1C</b>	e n e r g y	
	Contract or Purchase Number	and Description	· Con	tractor/Supplier	con territoria del composition		
	LC-G-002 Lower Chur				IC – Lavalin Inc.		
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NE-LCP Contractor/Supplier	EPC(M) Document Number: 505573-0000-39RA-I-0006					Number: 01	
ontra	NE-LCP Document Number:					CP Issue Number:	
CPC	LCP-SN-CD-0000-PM-LS-0001-01					B2	
NE-L	Approver's Signature: Date (dd-mmm-yyyy): 13-Apr-2012				Review Class:		
	Comments:				Equipment Tag or Model Number:		
NE-LCP or EPC(M)	REVIEW DOES NOT CONSTITUTE APPROVAL C CONTRACTOR, NOR DOES IT RELIEVE THE CON 01 - REVIEWED AND ACCEPTED - NO CO 02 - REVIEWED - INCORPORATE COMM 03 - REVIEWED - NOT ACCEPTED 04 - INFORMATION ONLY 05 - NOT REVIEWED Lead Reviewer: NE-LCP or EPCINA Management General Comments:	NTRACTOR FROM FULL CO	омрыансе v вміт -//// -//// 1-уууу):	Area Manager	R OTHER O		





# **Lower Churchill Project**

# **LCP Master Package Dictionary**

SLI Document No. 505573-0000-39RA-I-0006

Nalcor Reference No. LCP-SN-CD-0000-PM-LS-0001-01

Date: 13-April-2012

(C.Fernandez)

LCP Package Dictionaries List - Register

505573-0000-39RA-0-0006



Rev: 01

**SNC+LAVALIN** Date: 13-Apr-2012 LCP-SN-CD-0000-PM-LS-0001-01 PD Update Remarks Component Type **Revised Package Name** Code YES NO C1 C - Contract CH0002 Supply and Install Accommodations Complex Buildings C1 C - Contract CH0003 Supply and Install Administrative Buildings C1 C - Contract CH0004 Construction of Southside Access Road C1 C - Contract CH0005 Supply and Install Accommodations Complex Site Utilities Х C1 Construction of Bulk Excavation Works and Associated Works C - Contract CH0006 C1 C - Contract CH0007 Construction of Intake and Powerhouse, Spillway and Transition Dams C1 C - Contract CH0008 Construction of North Spur Stabilization Works Construction of North and South Dams C1 C - Contract CH0009 C1 C1 C1 C - Contract CH0023 Construction of Reservoir Clearing South Bank х Construction of Reservoir Clearing North Bank CH0024 C - Contract Х CH0029 Construction of Site Restoration at Muskrat Falls C - Contract Х C1 CH0030 Supply and Install Turbines and Generators C - Contract Х C1 Supply and Install Mechanical and Electrical Auxiliaries (MF) C - Contract CH0031 Х C1 C - Contract CH0032 Supply and Install Powerhouse Hydro-Mechanical Equipment C1 C - Contract CH0033 Supply and Install Powerhouse Cranes C1 C - Contract CH0034 Supply and Install Powerhouse Elevator Х Supply and Install McKenzie River Permanent Bridge Supply and Install Spillway Hydro-Mechanical Equipment C1 C1 C1 C1 C - Contract CH0039 Х CH0046 C - Contract х Construction of Site Clearing Access Road & Ancillary Areas CH0048 C - Contract C - Contract CH0049 Supply and Install Log Booms C1 Supply of Concrete including Batch Plant (MF) C - Contract CH0050 Х C1 C - Contract CH0052 Construction of Habitat Compensation Works C1 P - Purchase Order PH0014 Supply of Generator Step-up Transformer C1 P - Purchase Order PH0015 Supply of Isolated Phase Bus C1 C1 C1 P - Purchase Order PH0016 Supply of Generator Circuit Breakers P - Purchase Order PH0035 Supply of Station Service Transformers P - Purchase Order Supply of Auxiliary Transformers Supply of 25kV Switchgear PH0036 C1 P - Purchase Order PH0037 C1 Supply of Emergency Diesel Generators P - Purchase Order PH0038 Х C1 S - Service Contract SH0001 Physical Hydraulic Model C1 S - Service Contract SH0018 Provision of Catering, Housekeeping and Janitorial Services (MF) Provision of Security Services C1 S - Service Contract SH0019 C1 S - Service Contract SH0020 Provision of Medical Services C1 C1 C1 S - Service Contract SH0021 Provision of Road Maintenance and Snow Clearing Services (MF) х Provision of Fuel Supply and Dispensing Services (MF) SH0022 S - Service Contract Х Provision of Garbage Removal and Disposal Services (MF) S - Service Contract SH0040 х C1 S - Service Contract SH0041 Provision of Ground Transportation Services (HVGB to MF) Х C1 C3 SH0051 Provision of Buildings Maintenance Services (MF) Х S - Service Contract Supply and Install Converters and Cable Transition Compounds C - Contract CD0501 C - Contract CD0502 Construction of AC Substations and Synchronous Condensers Facilities C3 C3 C3 C3 C3 C3 C3 C - Contract CD0503 Construction of Earthworks at Various Power Distribution Sites Х C - Contract CD0508 Supply and Install of Electrode Sites Х C - Contract CD0509 Construction Telecommunication Services - Phase 2 Х CD0510 Supply and Install Permanent Communication Systems C - Contract Construction of Construction Power Facilities C - Contract CD0512 х Supply and Install Soldiers Pond Synchronous Condensers C3 C3 C3 C3 C3 C3 C3 C3 C - Contract CD0534 Х C - Contract CD0535 Construction Telecommunication Services - Phase 2 Remote Camps C - Contract CD0538 Supply and Install Accommodations Camp (CF) P - Purchase Order PD0505 Supply of Switchyard Equipment, AC Substations at CF, MF and SP P - Purchase Order PD0513 Supply of 138/25 kV Transformers P - Purchase Order PD0514 Supply of 138 kV & 25 kV Circuit Breakers P - Purchase Order PD0515 Supply of 230 kV, 138 kV & 25 kV Disconnect Switches СЗ P - Purchase Order PD0518 Supply of 138 kV Capacitor Voltage Transformers СЗ P - Purchase Order PD0519 Supply of 25 kV Vacuum Interrupters Х СЗ Supply of 25 kV 6 x 3.6 MVAR Capacitor Banks P - Purchase Order PD0520 C3 C3 C3 C3 C3 C3 C3 C3 P - Purchase Order PD0522 Supply of Pre-fabricated Control Room Building P - Purchase Order PD0523 Supply of Substation Service Transformer P - Purchase Order PD0529 Supply of 25 kV Reclosers х P - Purchase Order PD0530 Supply of 138 kV & 25 kV Surge Arrestors х P - Purchase Order Supply of MV Instrument Transformer PD0531 Х PD0533 Supply and Install Early Works Telecom Devices P - Purchase Order х P - Purchase Order PD0537 Supply of Power Transformers, AC Substations at CF, MF and SP Х СЗ P - Purchase Order PD0561 Supply of D20 RTU and Cabinet (CF) - Construction Power Х P - Purchase Order PD0562 Supply of Protection Front Panels and Protection Relays (CF) - Construction Power C3 C3 C3 C3 C3 C4 P - Purchase Order PD0563 Supply of 138 kV Circuit Switcher (CF), MV Switches & Fuse Cut-outs - Construction Power. S - Service Contract SD0536 Provision of Integrated Commissioning Support Services Х S - Service Contract SD0560 Provision of Early Works Construction Telecommunication Services (MF) х C - Contract Construction of 315 kV HVac Transmission Line (MF to CF) CT0319 Х Construction of 350 kV HVdc Transmission Line - Section 1 C - Contract CT0327 C - Contract CT0341 Clearing of Right-of-Way for 315 kV HVac Transmission Line (MF to CF) Х Construction of AC Transmission Lines - Island C - Contract CT0342 Х C - Contract CT0343 Clearing of Right-of-Way for HVdc Transmission Line - Section 1 C - Contract CT0345 Clearing of Right-of-Way for HVdc Transmission Line - Section 2 C - Contract CT0346 Construction of 350 kV HVdc Transmission Line - Section 2 P - Purchase Order PT0300 Supply of Transmission Line Conductors - 315 kV HVac Supply of HVac Insulators - 315 kV HVac Supply of Steel Towers - 315 kV HVac P - Purchase Order PT0301 P - Purchase Order PT0302 Supply of Tower Hardware - 315 kV HVac PT0303 P - Purchase Order Supply of Optical Ground Wire (OPGW) - 315 kV HVac P - Purchase Order PT0304 Х Supply of Steel Tower Foundations - 315 kV HVac P - Purchase Order PT0307 P - Purchase Order PT0308 Supply of Steel Tower Foundations - 350 kV HVdc P - Purchase Order PT0326 Supply of Steel Wires - 315 kV HVac Supply of Transmission Line Conductors - 350 kV HVdc P - Purchase Order PT0328 P - Purchase Order PT0329 Supply of HVdc Insulators - 350 kV HVdc х P - Purchase Order Supply of Steel Towers - 350 kV HVdc PT0330 Х C4 Supply of Tower Hardware - 350 kV HVdc P - Purchase Order PT0331 Х

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C4	P - Purchase Order	PT0334	Supply of Steel Wires - 350 kV HVdc	X
C4	P - Purchase Order	PT0335	Supply of Anchor Materials - 315 kV HVac	X
C4	P - Purchase Order	PT0336	Supply of 25 kV Distribution Line Hardware	X
C4	P - Purchase Order	PT0337	Supply of 25 kV Distribution Line ADSS Fibre Optic Cable	X
C4	P - Purchase Order	PT0338	Supply of 25 kV Distribution Line Conductors	X
C4	P - Purchase Order	PT0339	Supply of 25 kV Distribution Line Insulators	X
C4	P - Purchase Order	PT0340	Supply of Wood Poles for 138/25 kV Distribution Line	X
C4	P - Purchase Order	PT0347	Supply of Re-terminations Materials	X
C4	P - Purchase Order	PT0351	Supply of Wood Poles	X
C4	P - Purchase Order	PT0352	Supply of Anchor Materials - 350 kV HVdc	X
C4	P - Purchase Order	PT0353	Supply of Optical Ground Wire (OPGW) - 350 kV HVdc	X
C4	S - Service Contract	ST0309	Provision of Geotechnical Investigation Services - 315 kV HVac	X
C4	S - Service Contract	ST0310	Provision of Geotechnical Investigation Services - 350 kV HVdc	X
C4	S - Service Contract	ST0311	Provision of Survey Services - 315 kV HVac	X
C4	S - Service Contract	ST0312	Provision of Survey Services - 350 kV HVdc	X
SM	S - Service Contract	SM0700	Provision of General Freight Forwarding Services	X
SM	S - Service Contract	SM0701	Provision of Third Party Quality Surveillance & Inspection Services	X
SM	S - Service Contract	SM0703	Provision of Happy Valley-Goose Bay Project Office Space	X
SM	S - Service Contract	SM0704	Provision of Surveying Services	X
SM	S - Service Contract	SM0705	Provision of Laboratory Services	X
SM	S - Service Contract	SM0706	Supply and Maintenance of Project Vehicles	X
SM	S - Service Contract	SM0707	Provision of Helicopter Services	X
SM	S - Service Contract	SM0709	Provision of Air Transportation Services	X
SM	S - Service Contract	SM0710	Supply and Maintenance of various IT Equipment	X
SM	S - Service Contract	SM0713	Provision of Geotechnical Investigation Services	X
SM	S - Service Contract	SM0714	Provision of EPCM Services - SNC Lavalin Inc.	
SM	S - Service Contract	SM0715	Provision of Expediting Services	X

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# LCP PACKAGES DICTIONARIES – COMPONENT 1

#### PACKAGE DICTIONARY

Package No.: Titles (long): (short):	CH0002 Supply and Install Accommodations Comp Accommodations Complex Buildings	olex Buildings	Type: Revision No.: Date:	C-Contract 01 13-Apr-2012
•	ectural Manager: Wallace Piercey QC: Ken Morrison	Package Engineer: Contract Admin. / Buyer:	Terry McCa Line Tremb	-
Scope of work Summary:	This contract includes the des commissioning of a new 1,500 150 person starter camp. Also equipment, mechanical and el	person accommodation com included are associated furr	nplex includi nishings, fitti	ng an initial
Work Included:	<ul> <li>Accommodations Buildings comprised of either 26 Type or 16 Type 3 dormitory modules. Decision pending pose 10).</li> <li>Initial 150 person Starter camp Kitchen/Dining/Recreating 2 Type 3 dormitory modules or 3 Type 2 dormitory modules or 3 Type 2 dormitory modules.</li> <li>Main Kitchen, Dining and Recreation Centre Building (in facility).</li> <li>Weather proof corridors adjoining kitchen/recreation but modules.</li> <li>Associated fittings, equipment and furniture for each but Building foundations.</li> <li>Exterior stairs, ramps and pads.</li> <li>Water and sanitary sewer service connections from tie building footprint.</li> <li>Electrical power connections from transformers.</li> </ul>			ose (milestone ing along with Medical dormitory
Approximate Quantities (major items only):	ITEMDESC192 Person 2-storey Dorr2Kitchen/Dining/Recreation3Artic Corridors (Modules)4Starter Kitchen	on Building	UNIT ea m <sup>2</sup> m m <sup>2</sup>	QUANTITY 16 3990 220 337
Contract Basis:	Combination Lump Sun <u>Remarks</u> :	Lump Sum ⊠ n – Unit Rates □	Unit Cost Reimbu	Rates rsable
	Description Package N			
Work Excluded:	Descrip	otion	Packa	age No.

#### Lower Churchill Project

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#### PACKAGE DICTIONARY

Package No.:	CH0002	Туре:	C-Contract	
Titles (long):	Supply and Install Accommodations Complex Buildings	Revision No.:		
(short):	Accommodations Complex Buildings	Date:	13-Apr-2012	
	Installation of Camp utilities, water, sewer, and	CH0005		
	electrical distribution			
	Administrative buildings CH000		003	
	Catering and Camp maintenance	SH0018 / S	SH0051	
Quality:	Contractor shall comply with Quality Requirement Spe 0000-38RA-0003.	ecification Numb	er 505573-	
Reference	The following main documents are used to define the	scope:		
Section:	Muskrat Falls Accommodation Complex Functional De 40EB-0001-1)	•	169-MF-1501-	
nterface with other Packages:		I -		
Siller Fackages.	Description	ŀ	Package No.	
	Administrative Buildings		CH0003	
	South Side Access Road		CH0004	
	Site Clearing Access Road and Ancillary Areas		CH0048	
	Accommodation Complex Site Utilities		CH0005	
	Security		SH0019	
	Medical Services		SH0020	
	25 kV Distribution Lines		CD0512	
	Communications		CD0510	
Specific Site Conditions:	Sub-grade for this contract will be prepared under con 3 <sup>rd</sup> party bearing capacity survey required prior to start			
Specific Schedule	Any other packages that have to be started before the subject	ect package can p	roceed:	
Conditions:	CH0048 Site Clearing Access Road and Ancillary Areas			
	CH0004 South Side Access Road			
	CH0005 Accommodation Complex Site Utilities	S		
	Any other packages that cannot proceed before the subject	package has star	ted:	
	CH0006 Bulk Excavation and Associated Civil			
	CH0002 is necessary to accommodate work for	prce for CH0006	)	

#### Lower Churchill Project

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#### PACKAGE DICTIONARY

Package No.: Titles (long): (short):	CH0002Type:C-ContractSupply and Install Accommodations Complex BuildingsRevision No.:01Accommodations Complex BuildingsDate:13-Apr-2012
Specific Environment Conditions:	Contractor shall adhere to Project-Wide Environmental Protection Plan (P-WEPP) and develop a Contractor-Specific Environmental Protection Plan (C-SEPP). Contractor shall be responsible for waste disposal and fuel supply.
Specific Safety Conditions:	Use of heavy equipment. Use of cranes and slings. Working at heights in excess of 3m and therefore use of safety guards and fall arrest.
Special Requirements:	The buildings will be prefabricated modules delivered to and assembled on site.
Free Issued Materials:	Not Applicable
Major Equipment List:	Not Applicable
Schedule and Milestones:	EOI Date:TBDRFP Date:TBDAward Date:TBDAward Date:TBDReceive Initial Vendor Drawings:TBDForecast at Site:TBDConstruction Complete:Dates for milestones will be updated once the Project baseline schedule is in place.
Budget:	TBD
Applicable Sub- Project/SPV	Muskrat Falls Generation       Image: Labrador – Island Transmission Link         Labrador Transmission Assets       Image: Lower Churchill Project – General
IBA Package	YES NO

#### Lower Churchill Project

#### PACKAGE DICTIONARY

Package No.: Titles (long): (short):	CH0003 Supply and In Administrativ	nstall Administrative Buildings e Buildings		Type: Revision N Date:	C-contract Io.: 01 13-Apr-2012
•	-	'allace Piercey     Package Engineer:       en Morrison     Contract Admin. / Buyer:		-	//cCarthy remblay
Scope of work Summary:	and com Also inclu	kage includes the design missioning of administrat uded are associated furn and components.	ion buildings to support t	the overal	I project construction
Work Included:	<ul> <li>A</li> <li>S</li> <li>M</li> <li>C</li> <li>F</li> <li>S</li> <li>In</li> <li>C</li> <li>W</li> <li>G</li> <li>A</li> <li>B</li> <li>E</li> <li>W</li> <li>fc</li> <li>E</li> </ul>	package includes: dministration Office Build ecurity Building. laintenance Workshop B ommunications Building. ire/Ambulance Shelter B afety/Inductions Building spectors/Surveyors Offic oncrete Laboratory Build /ashroom trailers (Lavato ate House Building ssociated fittings, equipr uilding foundations. xterior stairs, ramps and /ater and sewer service o ootprint. lectrical power connection	uilding. uilding. e Trailers. ing. ory) nent and furniture for eac pads. connections from tie in po ns from transformers.	oint 1.5m	outside building
Approximate	ITEM	DESCE	IPTION	UNIT	QUANTITY
Quantities (major	1	Administration Office Bui		m <sup>2</sup>	2408
tems only):	2	Security Building	~	m <sup>2</sup>	202
	3	Communications Building		m²	200
	4	Fire/Ambulance Shelter		m²	334
	5	Maintenance Workshops	Building	m <sup>2</sup>	428
	6	Safety/Induction Building		m <sup>2</sup>	313
	7	Concrete Lab		m <sup>2</sup>	360
	8	Inspectors/Surveyors Off	ce Trailers	m²	1000
	9	Gate House Building		m <sup>2</sup>	36
	10	Washroom trailers (3x12)	n)	ea	5
Contract Basis:		ا – Combination Lump Sum	.ump Sum   ⊠ Jnit Rates    □		Jnit Rates

#### Lower Churchill Project

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Project Base Currency:	CAD		
Package No.:	CH0003 Tv	pe:	C-contract
Titles (long):	,	evision No.:	01
(short):	Administrative Buildings Da	ate:	13-Apr-2012
	Remarks: Lumps sum contract.		
Work Excluded:			
	Description	Packag	je No.
	Clearing, Grubbing and Grading of Camp Site	CH004	8
	Installation of utilities, water, sewer and power outside 1.5m from foundation	CH000	5
	Building maintenance	SH005 <sup>7</sup>	1
Quality:	Contractor shall comply with Quality Requirement Specificatio 38RA-0003.	n Number	505573-0000-
Reference	The following main documents are used to define the scope:		
Section:	Muskrat Falls Accommodation Complex Functional Design Br 40EB-0001-1)	ief (72346	9-MF-1501-
Interface with			
other Packages:	Description		Package No.
	Accommodations Complex Buildings		CH0002
	Accommodations Complex Buildings Southside Access Road		CH0002 CH0004
	Accommodations Complex Buildings Southside Access Road Site Clearing Access Road and Ancillary Areas		CH0002 CH0004 CH0048
	Accommodations Complex Buildings Southside Access Road Site Clearing Access Road and Ancillary Areas Accommodations Complex Site Utilities		CH0002 CH0004 CH0048 CH0005
	Accommodations Complex Buildings Southside Access Road Site Clearing Access Road and Ancillary Areas Accommodations Complex Site Utilities Security		CH0002 CH0004 CH0048 CH0005 SH0019
	Accommodations Complex Buildings Southside Access Road Site Clearing Access Road and Ancillary Areas Accommodations Complex Site Utilities Security Medical Services		CH0002 CH0004 CH0048 CH0005 SH0019 SH0020
	Accommodations Complex Buildings Southside Access Road Site Clearing Access Road and Ancillary Areas Accommodations Complex Site Utilities Security Medical Services 25 kV Distribution Lines		CH0002 CH0004 CH0048 CH0005 SH0019 SH0020 CD0512
other Packages:	Accommodations Complex Buildings         Southside Access Road         Site Clearing Access Road and Ancillary Areas         Accommodations Complex Site Utilities         Security         Medical Services         25 kV Distribution Lines         Communications		CH0002 CH0004 CH0048 CH0005 SH0019 SH0020
other Packages: Specific Site	Accommodations Complex Buildings         Southside Access Road         Site Clearing Access Road and Ancillary Areas         Accommodations Complex Site Utilities         Security         Medical Services         25 kV Distribution Lines         Communications         Subgrade for this contract will be prepared by contract CH000	4.	CH0002 CH0004 CH0048 CH0005 SH0019 SH0020 CD0512
other Packages:	Accommodations Complex Buildings         Southside Access Road         Site Clearing Access Road and Ancillary Areas         Accommodations Complex Site Utilities         Security         Medical Services         25 kV Distribution Lines         Communications	4. struction.	CH0002 CH0004 CH0048 CH0005 SH0019 SH0020 CD0512
other Packages: Specific Site Conditions: Specific Schedule	Accommodations Complex Buildings         Southside Access Road         Site Clearing Access Road and Ancillary Areas         Accommodations Complex Site Utilities         Security         Medical Services         25 kV Distribution Lines         Communications         Subgrade for this contract will be prepared by contract CH000	struction.	CH0002 CH0004 CH0048 CH0005 SH0019 SH0020 CD0512 CD0510
other Packages: Specific Site Conditions:	Accommodations Complex Buildings         Southside Access Road         Site Clearing Access Road and Ancillary Areas         Accommodations Complex Site Utilities         Security         Medical Services         25 kV Distribution Lines         Communications         Subgrade for this contract will be prepared by contract CH000         3 <sup>rd</sup> party bearing capacity survey required prior to start of cons         Any other packages that have to be started before the subject packator         •       CH0048 Site Clearing Access Road and Ancillary Areas	struction.	CH0002 CH0004 CH0048 CH0005 SH0019 SH0020 CD0512 CD0510
other Packages: Specific Site Conditions: Specific Schedule	Accommodations Complex Buildings         Southside Access Road         Site Clearing Access Road and Ancillary Areas         Accommodations Complex Site Utilities         Security         Medical Services         25 kV Distribution Lines         Communications         Subgrade for this contract will be prepared by contract CH000         3 <sup>rd</sup> party bearing capacity survey required prior to start of cons         Any other packages that have to be started before the subject packatory and the clearing Access Road and Ancillary Areatory CH0004 South Side Access Road	struction.	CH0002 CH0004 CH0048 CH0005 SH0019 SH0020 CD0512 CD0510
other Packages: Specific Site Conditions: Specific Schedule	Accommodations Complex Buildings         Southside Access Road         Site Clearing Access Road and Ancillary Areas         Accommodations Complex Site Utilities         Security         Medical Services         25 kV Distribution Lines         Communications         Subgrade for this contract will be prepared by contract CH000         3 <sup>rd</sup> party bearing capacity survey required prior to start of cons         Any other packages that have to be started before the subject packator         •       CH0048 Site Clearing Access Road and Ancillary Areas	struction.	CH0002 CH0004 CH0048 CH0005 SH0019 SH0020 CD0512 CD0510
other Packages: Specific Site Conditions: Specific Schedule	Accommodations Complex Buildings         Southside Access Road         Site Clearing Access Road and Ancillary Areas         Accommodations Complex Site Utilities         Security         Medical Services         25 kV Distribution Lines         Communications         Subgrade for this contract will be prepared by contract CH000         3 <sup>rd</sup> party bearing capacity survey required prior to start of cons         Any other packages that have to be started before the subject packatory of the subject packatory of the source of the sour	struction. age can pro as	CH0002 CH0004 CH0048 CH0005 SH0019 SH0020 CD0512 CD0510
other Packages: Specific Site Conditions: Specific Schedule	Accommodations Complex Buildings         Southside Access Road         Site Clearing Access Road and Ancillary Areas         Accommodations Complex Site Utilities         Security         Medical Services         25 kV Distribution Lines         Communications         Subgrade for this contract will be prepared by contract CH000         3 <sup>rd</sup> party bearing capacity survey required prior to start of cons         Any other packages that have to be started before the subject packatory         CH0048 Site Clearing Access Road and Ancillary Areatory         CH0005 Accommodation Complex Site Utilities         Any other packages that cannot proceed before the subject package         (Not Applicable)	struction. age can pro as e has starte	CH0002 CH0004 CH0048 CH0005 SH0019 SH0020 CD0512 CD0510
other Packages: Specific Site Conditions: Specific Schedule Conditions:	Accommodations Complex Buildings         Southside Access Road         Site Clearing Access Road and Ancillary Areas         Accommodations Complex Site Utilities         Security         Medical Services         25 kV Distribution Lines         Communications         Subgrade for this contract will be prepared by contract CH000         3 <sup>rd</sup> party bearing capacity survey required prior to start of cons         Any other packages that have to be started before the subject packatory of the subject packatory of the source of the sour	struction. age can pro as has starte	CH0002 CH0004 CH0048 CH0005 SH0019 SH0020 CD0512 CD0510
other Packages: Specific Site Conditions: Specific Schedule Conditions:	Accommodations Complex Buildings         Southside Access Road         Site Clearing Access Road and Ancillary Areas         Accommodations Complex Site Utilities         Security         Medical Services         25 kV Distribution Lines         Communications         Subgrade for this contract will be prepared by contract CH000         3 <sup>rd</sup> party bearing capacity survey required prior to start of cons         Any other packages that have to be started before the subject package         CH0048 Site Clearing Access Road         CH0004 South Side Access Road         CH0005 Accommodation Complex Site Utilities         Any other packages that cannot proceed before the subject package         (Not Applicable)         Contractor shall adhere to Project-Wide Environmental Protect	age can pro age can pro as has starte tion Plan ( (C-SEPP).	CH0002 CH0004 CH0048 CH0005 SH0019 SH0020 CD0512 CD0510

#### Lower Churchill Project

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#### PACKAGE DICTIONARY

Package No.:		CH0003	Туре:	C-contract
Titles	(long):	Supply and Install Administrative Buildings	Revision No.:	01
	(short):	Administrative Buildings	Date:	13-Apr-2012
Specific Sa Conditions		Use of heavy equipment. Use of cranes and slings. Working at heights in excess of 3m and therefore use of sa	afety guards a	and fall arrest.
Special Requireme	nts:	The buildings will be prefabricated modules delivered to an	nd assembled	on site.
Free Issued Materials:	t	Not Applicable		
Major Equi List:	pment	Not Applicable		
Schedule a Milestones		EOI Date: TBD RFP Date: TBD Award Date: TBD Receive Initial Vendor Drawings: TBD Forecast at Site: TBD Construction Complete: TBD		
				updated once the
Budget		TBD		
Applicable Project/SP		Muskrat Falls Generation 🔀 Labrador – Island Transmissio Labrador Transmission Assets 🔲 Lower Churchill Project – Gen		
IBA Packaç	je	YES 🗌 NO 🖾		

#### Lower Churchill Project

#### PACKAGE DICTIONARY

Titles (long):	CH0004 Constructior Southside A	n of Southside Access Road access Road		Type: Revision No.: Date:	C-Contract 01 13-Apr-2012	
Discipline: Civil Responsibilities: Area M QA / Q	-	Wallace Piercey Ken Morrison	Package Engineer: Contract Admin. / Buyer:	Terry McCarth Sylvain Marsar		
Scope of work Summary:	road fro main p Comple and qu alignm	om the Trans Labrador H roject site. It also include ex Site, grading of Comp arries. Decision is pend ent from the Trans Labra		of the Churchil grading of the access roads t oximately 6 kr	Il River to the Accommodation to designated pit n of new road	
Work Included:	•	<ul> <li>ment from the Trans Labrador Highway near the existing Churchill River bridge to nd of the existing Forest Access Road.</li> <li>Construction of access road to RLU70 standard from the end of the existing fores access road to the main project site at Muskrat Falls.</li> <li>Construction of access road to accommodations complex site.</li> <li>Design, supply and installation of two (2) new Panel bridges.</li> <li>Installation of one (1) Company supplied Panel bridge.</li> <li>Grubbing and grading of accommodations complex site and associated roads to complex facilities.</li> <li>Grubbing and grading of the Owner's Laydown Area.</li> <li>Construction of approximately 5 km of access road to designated gravel pits and rock quarries.</li> <li>Supply of crushed granular materials for finish grading of accommodations complex site.</li> </ul>				
	•	Construction of approxim rock quarries. Supply of crushed grant complex site.	mately 5 km of access road ular materials for finish gra clearing and maintenance	d to designated	modations	
Approximate Quantities (major	•	Construction of approxim rock quarries. Supply of crushed grant complex site. Minor upgrading, snow road during road constru-	mately 5 km of access road ular materials for finish gra- clearing and maintenance uction.	d to designated ding of accoming of the existing	modations forest access	
Quantities (major	• • •	Construction of approxim rock quarries. Supply of crushed grant complex site. Minor upgrading, snow road during road constru-	mately 5 km of access road ular materials for finish gra clearing and maintenance	d to designated ding of accomi of the existing UNI	modations forest access T QUANTITY	
Quantities (major	• • • <u>ITEM</u>	Construction of approxim rock quarries. Supply of crushed grant complex site. Minor upgrading, snow road during road constru- GRUBBING	mately 5 km of access road ular materials for finish gra- clearing and maintenance uction.	d to designated ding of accoming of the existing	modations forest access	
Quantities (major	• • • <u>ITEM</u> 1 2	Construction of approxim rock quarries. Supply of crushed grant complex site. Minor upgrading, snow road during road constru- GRUBBING EXCAVATION	mately 5 km of access road ular materials for finish gra- clearing and maintenance uction.	d to designated ding of accomi of the existing UNI HA	modations forest access T QUANTITY 44.8	
Quantities (major	• • • <u>ITEM</u> 1 2 2.1	Construction of approxim rock quarries. Supply of crushed grant complex site. Minor upgrading, snow road during road constru- GRUBBING EXCAVATION Solid Rock	mately 5 km of access road ular materials for finish gra- clearing and maintenance uction.	d to designated ding of accomination of the existing	modations forest access T QUANTITY 44.8	
Quantities (major	• • • 1 2 2.1 2.2	Construction of approxim rock quarries. Supply of crushed grant complex site. Minor upgrading, snow road during road constru- GRUBBING EXCAVATION Solid Rock Other Material	mately 5 km of access road ular materials for finish gra- clearing and maintenance uction.	d to designated ding of accomi of the existing UNI HA m <sup>3</sup> m <sup>3</sup>	T QUANTITY 44.8 131,310 154,205	
Quantities (major	• • • <u>ITEM</u> 1 2 2.1	Construction of approxim rock quarries. Supply of crushed grant complex site. Minor upgrading, snow road during road constru- GRUBBING EXCAVATION Solid Rock	mately 5 km of access road ular materials for finish gra- clearing and maintenance uction.	d to designated ding of accomination of the existing	modations forest access T QUANTITY 44.8 131,310 154,205 251,950	
Quantities (major	• • • 1 2 2.1 2.2 2.3	Construction of approximor rock quarries. Supply of crushed grant complex site. Minor upgrading, snow road during road constru- GRUBBING EXCAVATION Solid Rock Other Material Quarried Rock	mately 5 km of access road ular materials for finish grad clearing and maintenance uction.	d to designated ding of accomi of the existing UNI HA m <sup>3</sup> m <sup>3</sup>	modations forest access T QUANTITY 44.8 131,310 154,205 251,950 28,100	
Quantities (major	• • • • • • • • • • • • • • • • • • •	Construction of approxim rock quarries. Supply of crushed grant complex site. Minor upgrading, snow road during road constru- orad during road constru- grubbing EXCAVATION Solid Rock Other Material Quarried Rock Other Material Borrow SELECTED GRANULAR	mately 5 km of access road ular materials for finish grad clearing and maintenance uction.	d to designated ding of accomi of the existing UNI HA m <sup>3</sup> m <sup>3</sup> m <sup>3</sup>	modations forest access T QUANTITY 44.8 131,310 154,205 251,950 28,100	
Quantities (major	• • 1 2 2.1 2.2 2.3 2.4 3	Construction of approxim rock quarries. Supply of crushed grant complex site. Minor upgrading, snow road during road constru- orad during road constru- grubbing EXCAVATION Solid Rock Other Material Quarried Rock Other Material Borrow SELECTED GRANULAR	mately 5 km of access road ular materials for finish gra- clearing and maintenance uction. ESCRIPTION BASE COURSE (MG 3)	d to designated ding of accomi of the existing UNI HA m <sup>3</sup> m <sup>3</sup> m <sup>3</sup>	modations forest access T QUANTITY 44.8 131,310 154,205 251,950 28,100 111,000	
Quantities (major	• • • 1 2.1 2.2 2.3 2.4 3 4	Construction of approxim rock quarries. Supply of crushed grant complex site. Minor upgrading, snow road during road constru- grubbing EXCAVATION Solid Rock Other Material Quarried Rock Other Material Borrow SELECTED GRANULAR SUPPLY AND INSTALLA	mately 5 km of access road ular materials for finish gra- clearing and maintenance uction. ESCRIPTION BASE COURSE (MG 3)	d to designated ding of accomi of the existing UNI HA m <sup>3</sup> m <sup>3</sup> m <sup>3</sup> t	modations forest access T QUANTITY 44.8 131,310 154,205 251,950 28,100 111,000 820	
Quantities (major	• • • • • • • • • • • • • • • • • • •	Construction of approxim rock quarries. Supply of crushed grant complex site. Minor upgrading, snow road during road constru- road during road constru- solid Rock Other Material Quarried Rock Other Material Borrow SELECTED GRANULAR SUPPLY AND INSTALLA = 1200mm Diameter</td <td>mately 5 km of access road ular materials for finish gra- clearing and maintenance uction. ESCRIPTION BASE COURSE (MG 3)</td> <td>d to designated ding of accomi of the existing UNI HA M<sup>3</sup> m<sup>3</sup> m<sup>3</sup> m<sup>3</sup> m<sup>3</sup> m<sup>3</sup> m<sup>3</sup> m<sup>3</sup> m</td> <td>modations forest access T QUANTITY 44.8 131,310 154,205 251,950 28,100 111,000 820 93</td>	mately 5 km of access road ular materials for finish gra- clearing and maintenance uction. ESCRIPTION BASE COURSE (MG 3)	d to designated ding of accomi of the existing UNI HA M <sup>3</sup> m <sup>3</sup> m <sup>3</sup> m <sup>3</sup> m <sup>3</sup> m <sup>3</sup> m <sup>3</sup> m <sup>3</sup> m	modations forest access T QUANTITY 44.8 131,310 154,205 251,950 28,100 111,000 820 93	
	• • • 1 2 2.1 2.2 2.3 2.4 3 4 4.1 4.2	Construction of approxim rock quarries. Supply of crushed grant complex site. Minor upgrading, snow road during road constru- road during road constru- solid Rock Other Material Quarried Rock Other Material Borrow SELECTED GRANULAR SUPPLY AND INSTALLA = 1200mm Diameter</td <td>mately 5 km of access road ular materials for finish gra- clearing and maintenance uction. BASE COURSE (MG 3) ATION OF PIPE CULVERTS RCH (10.1x5.45m Standard J</td> <td>d to designated ding of accomi of the existing UNI HA M<sup>3</sup> m<sup>3</sup> m<sup>3</sup> m<sup>3</sup> m<sup>3</sup> m<sup>3</sup> m<sup>3</sup> m<sup>3</sup> m</td> <td>modations forest access T QUANTITY 44.8 131,310 154,205 251,950 28,100 111,000 820 93 20</td>	mately 5 km of access road ular materials for finish gra- clearing and maintenance uction. BASE COURSE (MG 3) ATION OF PIPE CULVERTS RCH (10.1x5.45m Standard J	d to designated ding of accomi of the existing UNI HA M <sup>3</sup> m <sup>3</sup> m <sup>3</sup> m <sup>3</sup> m <sup>3</sup> m <sup>3</sup> m <sup>3</sup> m <sup>3</sup> m	modations forest access T QUANTITY 44.8 131,310 154,205 251,950 28,100 111,000 820 93 20	

#### Lower Churchill Project

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#### PACKAGE DICTIONARY

Package No.:	CH0004	Type:	C-Contract			
	ng): Construction of Southside Access Road	Revision No				
(S	ort): Southside Access Road	Date:	13-Apr-2012			
Contract Basi	: Lump Sum		Unit Rates			
	Combination Lump Sum – Unit Rates 🛛 🖾					
	Remarks:					
	This is a combination unit price contract with lump s	um itomo				
		um items.				
	ı.					
Nork Exclude						
	Description		Package No.			
	Clearing of the access roads, pits and quarries, acc	ommodations	CH0048			
	complex site and Owner's Laydown area					
	Installation of Accommodations Complex Site utilitie	s	CH0005			
	Construction of 25 kV powerline	-	CD0512			
	Construction of McKenzies River Permanent Bridge	;	CH0039			
Quality	Contractor shall comply with Quality Requirement Sp	Contractor shall comply with Quality Requirement Specification Number 505573-0000-				
	38RA-0003.					
Reference Sec	tion. The following main desurgents are used to define the					
Reference Sec	The following main documents are used to define the scope:					
	505573-311A-41EC-0001 Design Criteria – Main Acc	cess Road				
nterface with	other					
Packages:	Description	ge No.				
	Accommodations Complex Buildings		002			
	Administrative Buildings	CHO	0003			
	Accommodation Complex Site Utilities		0005			
	Bulk Excavation Works	CH0006				
	Site Clearing Access Road and Ancillary	CH0048				
	Areas Construction Power Facilities	CD(	)512			
			)510			
Specific Site	Communication Equipment					
Conditions:	Remote site, rough terrain, several major stream crossings (Caroline Brook 50m <sup>3</sup> /s, Jacoby's Brook 66m <sup>3</sup> /s, and McKenzie River 145m <sup>3</sup> /s)					
		5)				
Specific Sche	lule Any other packages that have to be started before the sub	viect nackade ca	n proceed:			
Conditions:	CH0048 Site Clearing Access Road and Anci		in proceed.			
		naly Altas				
	Any other packages that cannot proceed before the subject	ct package has	started:			
	CH0002 Accommodations Complex Buildings					
	CH0003 Administrative Buildings					
	<ul> <li>CH0005 Accommodation Complex Site Utilities</li> </ul>					

#### Lower Churchill Project

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#### PACKAGE DICTIONARY

Package No.: Titles (long):	CH0004 Type: C-Contract Construction of Southside Access Road Revision No.: 01						
(short):	Southside Access Road     Date:     13-Apr-2012						
	CH0006 Bulk Excavation Works						
Specific Environment Conditions:	Impact to stream, wetland, and forest environments. Seasonal constraints of working near streams and crossings. Approval of Environmental Assessment. Permit Approvals.						
Specific Safety Conditions:	Use of heavy equipment in remote areas with difficult access.						
Special Requirements:	Not Applicable.						
Free Issued Materials:	Equipment to be supplied by the Company includes one (1) 15.2m prefabricated panel bridge for the initial crossing at Caroline Brook						
Equipment List:	Not Applicable						
Schedule and Milestones:	EOI Date:26-Sep-2011RFP Date:05-Dec-2011Award Date:TBDStart Construction:TBDConstruction Complete:TBDDates for milestones will be updated once the Project baseline schedule is in place.						
Budget:	тво						
Applicable Sub- Project/SPV	Muskrat Falls Generation       Image: Labrador – Island Transmission Link       Image: Labrador Transmission Assets         Labrador Transmission Assets       Image: Lower Churchill Project – General       Image: Labrador Transmission Assets						
IBA Package	YES 🛛 NO 🗌						

Project Base Currency: Package No.: Titles (long): (short):	CAD CH0005 Supply and Install Accom Accommodation Complex		Utilities	Type: Revision No.: Date:	C-Contract 01 13-Apr-2012
Discipline: Civi Responsibilities: Area	//Mechanical/Process/Electri a Manager: Wallac		Package Engineer: Contract Admin. / Buyer:	Terry McC Stella Roo	Carthy
Scope of work Summary	including mechani infrastructure for the Grading of the site being carried out by those buildings and	cal and electric he Accommodatio and the installati y other contractors d includes the po	ply and installation of al components and ons Complex site incl on of accommodation s. This contract involve table and fire water d distribution system.	connections uding admini and adminis es the supply	and associated istrative buildings. trative buildings is of site services to
Work Included:	<ul> <li>Water Distriwithin 1.5 m</li> <li>Installation of Design, sup</li> <li>Drilling and Laydown.</li> <li>Design, sup</li> <li>Sewer Distristanter camp</li> <li>Sewer Distrilaydown are</li> <li>Installation of fuel dispension</li> <li>Installation of tank.</li> <li>Installation of Supply and</li> <li>Supply and</li> <li>Finish gradii</li> <li>Supply and</li> </ul>	bution system incl from buildings. of temporary wate ply and installation development of w ply and installation ibution system inc o, manholes and s ibution system inc ea. of concrete equipment of diesel generator of diesel generator of 25kV switchgea of pad mounted ar installation of site installation of vehi ng, fencing and pa installation of app	nd pole mounted transfe	and service of oply for starte rvoir (1100 m amp, Main Ca plant. c tank and dis disposal field ding spill conta switchgear a ormers. m.	r camp. <sup>3</sup> ). Imp and Company sposal field for the buildings. for the Company ainment pad for and diesel fuel

#### Lower Churchill Project

#### PACKAGE DICTIONARY

Package No.:		CH0005	Туре:	C-Con	tract
itles	(long):	Supply and Ir	nstall Accommodations Complex Site Utilities Revision		
	(short):	Accommodat	ion Complex Site Utilities Date:	13-Ap	r-2012
pproxima	te				
uantities	(major	ltem	Description	Unit	Quantity
ems only)	:	1	IMPORTED MASS COMMON BACKFILL (SEPTIC FIELD)	m <sup>3</sup>	7,650
		2	EXCAVATION, TRENCHING & BACKFILLING		7,000
		2.1	Trench Excavation - Rock	m <sup>3</sup>	11,160
		2.2	Trench Excavation - Common	m <sup>3</sup>	44,60
		2.2		m <sup>3</sup>	
			Imported Backfill - Rock		4,226
		2.4	Granular Pipe Bedding		0.05
		2.5	Type 1	m <sup>3</sup>	2,250
		2.6	Туре 3	m <sup>3</sup>	3,360
		2.7	Washed Crushed Stone	m <sup>3</sup>	744.
		3	MANHOLES, CATCH BASINS, DITCH INLETS		
			& VALVE CHAMBERS	EACH	20
		4	SEWAGE PUMPING STATION/STORAGE TANK		
			Pre-Engineered STEP System	EACH	0
		5	SEWERAGE MAINS		
		5.1	300 mm Insulated	m	13
		5.2	200 mm Insulated	m	1,38
		5.3	150 mm (SDR 28) Insulated	m	84
		6	WATER MAINS		0.00
		6.1	300 mm HDPE DR11 Pre-insulated	m	2,23
		6.2	200 MM DI. CL. 350 Pre-insulated	m	35
		6.3	150 mm HDPE DR11 Pre-insulated	m	1,96
		6.4 7	38 mm HDPE DR11 Pre-insulated WATER STORAGE TANK	m	52
		7.1	Supply & Install Insulated 1100 m <sup>3</sup> Glass Lined, Bolted	EAOU	0
		7.2	Steel Water Storage Tank	EACH	01
		8	WATER WELLS		0-
			Supply & Install STARTER CAMP PUMP HOUSE AND CHLORINATION	EACH	07
		9	BLDG	EACH	01
		10	MAIN PUMP HOUSE AND CHLORINATION BLDG	EACH	0'
		11	SEWAGE TREATMENT PLANT		5
		11.1	Design, fabricate, install and commission		
		11.2	treatment plant for 1500-person construction camp.	EACH	0,
		12	CHAIN LINK FENCING & GATES		
		12.1	3050 mm	m	2,78
		12.2	1200 mm	m	200
ontract Ba	asis:			Jnit Rates	
			ombination Lump Sum – Unit Rates 🛛 Cost Reir	mbursable	
		<u>Remarks:</u>	2		

#### Lower Churchill Project

Project Base Currency: CAD
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Package No.:		CH0005	Type:	C-Contract			
Titles	(long):	Supply and Install Accommodations Complex Site Utilities	Revision No.:	01			
(	short):	Accommodation Complex Site Utilities	Date:	13-Apr-2012			
Work Exclude	ed.	Description		Package No.			
	<b>.</b>	•					
		Site preparation including clearing, grubbing and grading	of camp site	CH0004 /			
		and access road to the camp site		CH0048			
		The supply and installation of Accommodations Complex	and	CH0002 /			
		Administrative Buildings		CH0003			
		Supply of emergency generators including diesel fuel tan	ks,	PH0036 /			
		switchgear and transformer	PH0037 /				
				PH0038			
		Supply of granular material for finished grading of road, p and ancillary areas	arking lots	CH0004			
Quality:		Contractor shall comply with Quality Requirement Specifica 38RA-0003 for general civil work scope. Major Equipment requires determination of the Equipment Procurement packages for Free Issued Materials) :					
	·	Water Pumphouse/chlorination:					
		Determination of Equipment Criticality based on GP-5600-PR-02-E					
		High Minor Significant Negligible Moderate					
		Determination of Quality Surveillance level based on GP-5600-PR-03-E					
		<ul> <li>Continuous in process quality monitoring and verification and final verification and final quality</li> <li>Regular in process quality monitoring and verification and final quality</li> <li>Limited in process quality monitoring and verification and final quality</li> <li>Final Quality Verification</li> </ul>	ty verification.				
		0 No quality surveillance, no quality verification					

#### Lower Churchill Project

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Project Base Currency	: CAD					
Package No.:	CH0005	Туре:	C-Contract			
Titles (long):	Supply and Install Accommodations Complex Site Utilities	Revision No.:	01			
(short):	Accommodation Complex Site Utilities	Date:	13-Apr-2012			
	Water Storage Tank:					
	Determination of Equipment Criticality based on GP-5600-PR-02-E					
	High Minor Significant Negligible Moderate					
	Determination of Quality Surveillance level based on GP-5600-PR-03-E					
	4       Continuous in process quality monitoring and verification and final verification and final quality         3       Regular in process quality monitoring and verification and final quality         2       Limited in process quality monitoring and verification and final quality         1       Final Quality Verification         0       No quality surveillance, no quality verification	verification.				
	Sewage Treatment Plant:					
	Determination of Equipment Criticality based on GP-5600-PR-02-E					
	High Minor Significant Negligible Moderate X					
	Determination of Quality Surveillance level based on GP-5600-PR-03-E					
	<ul> <li>Continuous in process quality monitoring and verification and final verification.</li> <li>Regular in process quality monitoring and verification and final quality verification.</li> <li>Limited in process quality monitoring and verification and final quality verification.</li> <li>Final Quality Verification</li> <li>No quality surveillance, no quality verification</li> </ul>					
Reference	The following main documents are used to define the scope:					
Section:	Muskrat Falls Accommodation Complex Functional Design Brief (723469-MF-1501-40EB- 0001-1)					
Interface with			<b>—</b> • • • •			
other Packages:	Description		Package No.			
	Accommodations Complex Buildings		CH0002			
	Administrative Buildings		CH0003			
	Southside Access Road		CH0004			
	Site Clearing Access Road and Ancillary Areas		CH0048			
	Auxiliary Transformers		PH0036			
	25 kV Switchgear		PH0037			
	Emergency Diesel Generators		PH0038			

#### PACKAGE DICTIONARY

Package No.:	CH0005		Туре:	C-Contract		
Titles (long):	Supply and Install Accommodations Complex Site Utilities		Revision No.:	01		
(short):	Accommodation (	Complex Site Utilities	Date:	13-Apr-2012		
Specific Site Conditions:	Geotechnical STP outfall.	investigation required to substantiate volu	ume of rock excave	ation and type of		
Specific Schedule Conditions:	CH00     CH00     CH00     Any other pack	ages that have to be started before the subje 48 Site Clearing Access Road and Ancilla 04 South Side Access Road ages that cannot proceed before the subject 06 Bulk Excavation and Associated Civil \	nry Areas package has started			
	• 000	OF BUIK Excavation and Associated Civil V	VOIKS			
Specific Environment Conditions:	Permit approv	/als. wage Treatment Plant (STP) outfall not co	omplete. Plan bas	ed on		
		outfall which will require geotechnical inv				
Specific Safety Conditions:	Use of cranes and slings. Use of trench boxes in open excavations.					
Special Requirements:	Potable water water quantity	r source is from drilled (artesian) wells. W and quality.	/ell pump tests req	uired to confirm		
Free Issued Materials:	Tag Number           1570-TRF-0001           1570-TRF-0002           1570-TRF-0003           1570-TRF-0004           1570-TRF-0005           1570-TRF-0006           1570-TRF-0007           1570-TRF-0008           1570-TRF-0009           1570-TRF-0010           1570-TRF-0011           1570-TRF-0012           1570-TRF-0013           1570-TRF-0014           1570-TRF-0015           1570-TRF-0016           1570-TRF-0017           1570-TRF-0018           1570-TRF-0019           1570-TRF-0020           1570-TRF-0021           1570-TRF-0021           1570-TRF-0021           1570-TRF-0023           1570-TRF-0024           1570-SWG-0003           1570-GEN-0001	Description 500 KVA, 25KV-600/347V, OIL IMMERSED, PAD-MOU 2000 KVA, 25KV-600/347V, OIL IMMERSED, PAD-MOU 3000 KVA, 25KV-600/347V, OIL IMMERSED, POWER 3000 KVA, 25KV-600/347V, OIL IMMERSED, POWER 3750 KVA, 25/14.4KV-600V, OIL IMMERSED, POUE-MOUN 50 KVA, 12.4KV-347V, OIL IMMERSED, POLE-MOUN 50 KVA, 14.4KV-347V, OIL IMMERSED, POLE-MOUN 50 KVA, 14.4KV-240/120V, OI	DUNTED DISTRIBUTION DISTRIBUTION TRANS DISTRIBUTION TRANS DISTRIBUTION TRANS DISTRIBUTION TRANS DISTRIBUTION TR TED DISTRIBUTION TR TED DISTRIBUTION TR TED DISTRIBUTION TR TED DISTRIBUTION TR TED DISTRIBUTION TR DUNTED DISTRIBUTION DUNTED DISTRIBUTION DUNTED DISTRIBUTION DUNTED DISTRIBUTION MOUNTED DISTRIBUTION TR DUNTED DISTRIBUTION TR	TRANSFORMER FORMER FORMER ANSFORMER ANSFORMER ANSFORMER ANSFORMER ANSFORMER ANSFORMER TRANSFORMER TRANSFORMER TRANSFORMER TRANSFORMER TRANSFORMER TRANSFORMER TRANSFORMER TRANSFORMER TRANSFORMER TRANSFORMER TRANSFORMER TRANSFORMER ANSFORMER ANSFORMER TRANSFORMER TRANSFORMER		

#### Lower Churchill Project

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Project Base Currency:	CAD

Dookago No :		CH0005	Type: C-Contract
Package No.: Titles	(long):	Supply and Install Accommodations Complex Site Utilities	Type: C-Contract Revision No.: 01
Thes	(short):	Accommodation Complex Site Utilities	Date: 13-Apr-2012
	(Short).	Accommodation complex one official	Date. 10 Apr 2012
		1570-TNK-0001 MAIN FUEL STORAGE TANK FOR DG SET	S
		Maintenance Grade 3 material for finish grading.	
Major Equi	nmont	25kV Switchgear	
List:	pinem	600V Synchronizing Switchgear	
_		500 kW and 1000 kW Diesel Generators	
		Water Pumphouse/chlorination	
		Water Storage Tank	
		Sewage treatment plant	
Schedule a			
Milestones		EOI Date:	TBD
micotorico	•	RFP Date: Award Date:	TBD TBD
		1 <sup>st</sup> Vendor Data Required by:	TBD
		Construction Complete:	TBD
			Dates for milestones will be updated once
			the Project baseline schedule is in place.
Budget:		TBD	
Annliachla	Sub	Muskrat Falls Generation 🛛 Labrador – Island	d Transmission Link
Applicable Sub- Project/SPV			
1.0,000,01	•	Labrador Transmission Assets 🔲 Lower Churchill F	Project – General
		YES NO	
IBA Packa	ye		
		1	

Titles       (long):       Construction of Bulk Excavation and Associated Works       Revision No.:       01         (short):       Bulk Excavation Works       Date:       13-Apr-2012         'Discipline:       Area Manager:       Michel Maeyens       Package Engineer: Maeyens       Michel Maeyens         QA / QC:       Ken Morrison       Contract Admin. / Buyer::       Stella Roche         Scope of work       Overburden and Rock Excavation for the Spillway Structure and Intake, Powerhouse and Tailrace structure, excluding tailrace rock plug, hereafter referred to a Powerhouse Complex; Pre-construction percussion drilling to determine thickness of overburden prior to commence excavation;         Additional site investigation (powerhouse Complex, Dam and Cofferdam construction by others (CH0009) and North Spur by others (CH0008)       Construction of RCC Riverside Cofferdam and associated Rock fill Cofferdams to protec Spillway and Powerhouse Complex against flooding.         Ref: Package CH0007: Construction of Intake and Powerhouse, Spillway and Transition Dams.       Ref. Package CH0008: Construction of North Spur Stabilization Works.         Ref. Package CH0008: Construction of North Spur Stabilization Works.       Ref. Package CH0009: Construction of North and South Dams.	Project Base Currency:	CAD					
(shott):         Bulk Excavation Works         Date:         13-Apr-2012           "Desciptine:         Responsibilities:         Area Manager:         Michel Maeyens         Package Engineer: Maeyens         Michel Maeyens           CA / OC:         Ken Morrison         Contract Admin. / Buyer:         Stella Roche           Scope of work         Overburden and Rock Excavation for the Spillway Structure and Intake, Powerhouse and Taitrace structure, excluding taitrace rock plug, hereafter referred to a Powerhouse Complex; Pre-construction percussion drilling to determine thickness of overburden prior to commence excavation;           Additional site investigation (powerhouse Complex, Dam and Cofferdam construction by others (CH0009) and North Spur by others (CH0008)         Construction of RCC Riverside Cofferdam and associated Rock fill Cofferdams to protee Spillway and Powerhouse Complex gainst flooding.           Ref:         Package CH0009: Construction of Intake and Powerhouse, Spillway and Transition Dams.           Work Included:         • Additional pre-construction of North Spur Stabilization Works.           Ref. Package CH0009: Construction of North and South Dams.         • Additional pre-construction of North and South Dams.           • Construction of the RCC riverside cofferdam and Rock fill dams to protee powerhouse and spillway excavation (Up to Elevation 21.0 m, downstream of the Spillway and Elevation 26.0 m upstream of the Spillway).           • Construction of Tailrace Rock fill cofferdam to protect powerhouse excavation; (up to Elevation 21.0 m)         • Powerhouse atilrace excavation	Package No.:	CH0006			Туре:	C- Contract	
Discipline:         Area Manager:         Michel Maeyens         Package Engineer: Maeyens         Michel Maeyens           QA / QC:         Ken Morrison         Contract Admin. / Buyer:         Stella Roche           Scope of work Summary         Overburden and Rock Excavation for the Spillway Structure and Intake, Powerhouse and Taitrace structure, excluding taitrace rock plug, hereafter referred to a Powerhouse Complex; Pre-construction percussion drilling to determine thickness of overburden prior to commence excavation;           Additional site investigation (powerhouse Complex, Dam and Cofferdam construction by others (CH0009) and North Spur by others (CH0008) Construction of RCC Riverside Cofferdam and associated Rock fill Cofferdams to protec Spillway and Powerhouse Complex against flooding.           Ref: Package CH0007: Construction of Intake and Powerhouse, Spillway and Transitior Dams.           Ref. Package CH0008: Construction of North Spur Stabilization Works.           Ref. Package CH0009: Construction of North and South Dams.           • Additional pre-construction percussion drilling to validate rock elevations and define location of overburden slopes;           • Construction of Tailrace Rock fill Cofferdam and Rock fill dams to protec powerhouse and spillway and Elevation 26.0 m upstream of the Spillway).           • Construction of Tailrace Rock fill cofferdam to protect powerhouse excavation: (up to Elevation 21.0 m)           • Powerhouse intake excavation (overburden and rock) and consolidation works;           • Powerhouse intake excavation (overburden and rock) and consolidation works;	( <u>,</u>			nd Associated Works			
Responsibilities:         Area Manager: Michel Maeyens         Michel Maeyens         Package Engineer: Maeyens         Michel Maeyens           Scope of work Summary         Overburden and Rock Excavation for the Spillway Structure and Intake, Powerhouse and Taifrace structure, excluding taifrace rock plug, hereafter referred to a Powerhouse Complex; Pre-construction percussion drilling to determine thickness of overburden prior to commence excavation;           Additional site investigation (powerhouse Complex, Dam and Cofferdam construction by others (CH0009) and North Spur by others (CH0008)         Dam and Cofferdam construction by others (CH0009) and North Spur by others (CH0008)           Construction of RCC Riverside Cofferdam and associated Rock fill Cofferdams to protec Spillway and Powerhouse Complex against flooding.         Ref: Package CH0007: Construction of Intake and Powerhouse, Spillway and Transition Dams.           Ref. Package CH0009: Construction of North Spur Stabilization Works.         Ref. Package CH0009: Construction of North and South Dams.           Work Included: <ul> <li>Additional pre-construction percussion drilling to validate rock elevations and define location of overburden slopes;</li> <li>Construction of the RCC riverside cofferdam and Rock fill dams to protec powerhouse and spillway excavation (Up to Elevation 21.0 m, downstream of the Spillway and Elevation 26.0 m upstream of the Spillway).</li> <li>Construction of Tailrace Rock fill cofferdam to protect powerhouse excavation; (up to Elevation 21.0 m)</li> <li>Powerhouse intake excavation (overburden and rock) and consolidation works;</li> <li>Spillway excavation (overburden and rock) and consolidation works;<th></th><th>DUIK EXCAVA</th><th></th><th></th><th>Dale.</th><th>15-Api-2012</th></li></ul>		DUIK EXCAVA			Dale.	15-Api-2012	
QA/QC:         Ken Morrison         Contract Admin./ Buyer:         Stella Roche           Scope of work Summary         Overburden and Rock Excavation for the Spillway Structure and Intake, Powerhouse and Tailrace structure, excluding tailrace rock plug, hereafter referred to a Powerhouse Complex; Pre-construction percussion drilling to determine thickness of overburden prior to commence excavation; Additional site investigation (powerhouse Complex, Dam and Cofferdam construction by others (CH0009) and North Spur by others (CH0009) Construction of RCC Riverside Cofferdam and associated Rock fill Cofferdams to protec Spillway and Powerhouse Complex against flooding.           Ref: Package CH0007: Construction of Intake and Powerhouse, Spillway and Transition Dams.         Ref. Package CH0008: Construction of North Spur Stabilization Works.           Ref. Package CH0009: Construction of North Spur Stabilization Works.         Ref. Package CH0009: Construction of North and South Dams.           • Additional pre-construction percussion drilling to validate rock elevations and define location of overburden slopes;         • Construction of the RCC riverside cofferdam and Rock fill dams to protec powerhouse and spillway excavation (Up to Elevation 21.0 m, downstream of the Spillway and Elevation 26.0 m upstream of the Spillway).           • Construction of Tailrace Rock fill cofferdam and consolidation works;         • Powerhouse extavation (overburden and rock) and consolidation works;           • Powerhouse tailrace excavation (overburden and rock) and consolidation works;         • Powerhouse cavation (overburden and rock) and consolidation works;           • Powerhouse tailrace excavation (overburden and rock) and consolidation wor	Responsibilities: Area		Michel Maeyens	Package Engineer: Maeye	ns Michel Maey	vens	
Summary       Tailrace structure, excluding tailrace rock plug, hereafter referred to a Powerhouse Complex; Pre-construction percussion drilling to determine thickness of overburden prior to commence excavation;         Additional site investigation (powerhouse Complex, Dam and Cofferdam construction by others (CH0009) and North Spur by others (CH0008)         Construction of RCC Riverside Cofferdam and associated Rock fill Cofferdams to protect Spillway and Powerhouse Complex against flooding.         Ref: Package CH0007: Construction of Intake and Powerhouse, Spillway and Transition Dams.         Ref. Package CH0008: Construction of North Spur Stabilization Works.         Ref. Package CH0009: Construction of North and South Dams.         Vork Included:         • Additional pre-construction percussion drilling to validate rock elevations and define location of overburden slopes;         • Construction of the RCC riverside cofferdam and Rock fill dams to protect powerhouse and spillway excavation (Up to Elevation 21.0 m, downstream of the Spillway and Elevation 26.0 m upstream of the Spillway).         • Construction of Tailrace Rock fill cofferdam to protect powerhouse excavation;(up to Elevation 21.0 m)         • Powerhouse intake excavation (overburden and rock) and consolidation works;         • Powerhouse tailrace excavation (overburden and rock) and consolidation works;         • Powerhouse tailrace excavation (overburden and rock) and consolidation works;         • Powerhouse tailrace excavation (overburden and rock) and consolidation works;         • Powerhouse tailrace excavation (overburden and rock) and		-	Ken Morrison	Contract Admin. / Buyer::	Stella Roche	9	
<ul> <li>Dams.</li> <li>Ref. Package CH0008: Construction of North Spur Stabilization Works.</li> <li>Ref. Package CH0009: Construction of North and South Dams.</li> <li>Additional pre-construction percussion drilling to validate rock elevations and define location of overburden slopes;</li> <li>Construction of the RCC riverside cofferdam and Rock fill dams to protect powerhouse and spillway excavation (Up to Elevation 21.0 m, downstream of the Spillway and Elevation 26.0 m upstream of the Spillway).</li> <li>Construction of Tailrace Rock fill cofferdam to protect powerhouse excavation; (up to Elevation 21.0 m)</li> <li>Powerhouse excavation (overburden and rock) and consolidation works;</li> <li>Powerhouse tailrace excavation (overburden and rock) and consolidation works;</li> <li>Spillway excavation (overburden and rock) and consolidation works;</li> <li>Spillway excavation (overburden and rock) and consolidation works;</li> <li>Note: Consolidation works consist of Rockbolts, Rock Dowels, Welded Wiremesh and Shotcrete</li> <li>Installation of chainlink wire mesh along all excavated slopes to protect personne and equipment from potential falling rock;;</li> <li>South transition dam excavation;</li> <li>Center transition dam excavation;</li> </ul>	Scope of work Summary	Tai Pre exc Adu oth Co	Irace structure, exclud -construction percuss avation; ditional site investiga ers (CH0009) and No nstruction of RCC Ri	ling tailrace rock plug, hereafter sion drilling to determine thickne tion (powerhouse Complex, D rth Spur by others (CH0008) verside Cofferdam and associa	referred to a Po ess of overburde am and Coffer	owerhouse Complex; en prior to commence dam construction by	
<ul> <li>location of overburden slopes;</li> <li>Construction of the RCC riverside cofferdam and Rock fill dams to protect powerhouse and spillway excavation (Up to Elevation 21.0 m, downstream of the Spillway and Elevation 26.0 m upstream of the Spillway).</li> <li>Construction of Tailrace Rock fill cofferdam to protect powerhouse excavation;(up to Elevation 21.0 m)</li> <li>Powerhouse excavation (overburden and rock) and consolidation works;</li> <li>Powerhouse tailrace excavation (overburden and rock) and consolidation works;</li> <li>Powerhouse tailrace excavation (overburden and rock) and consolidation works;</li> <li>Spillway excavation (overburden and rock) and consolidation works;</li> <li>Spillway excavation (overburden and rock) and consolidation works;</li> <li>Installation of chainlink wire mesh along all excavated slopes to protect personne and equipment from potential falling rock;;</li> <li>South transition dam excavation;</li> <li>Center transition dam excavation;</li> </ul>	Work Included:	Da Re	Ref. Package CH0008: Construction of North Spur Stabilization Works. Ref. Package CH0009: Construction of North and South Dams.				
<ul> <li>Elevation 21.0 m)</li> <li>Powerhouse excavation (overburden and rock) and consolidation works;</li> <li>Powerhouse intake excavation (overburden and rock) and consolidation works;</li> <li>Powerhouse tailrace excavation ( overburden and rock) and consolidation works;</li> <li>Spillway excavation (overburden and rock) and consolidation works;</li> <li>Spillway excavation (overburden and rock) and consolidation works;</li> <li><u>Note</u>: Consolidation works consist of Rockbolts, Rock Dowels, Welded Wiremesh and Shotcrete</li> <li>Installation of chainlink wire mesh along all excavated slopes to protect personne and equipment from potential falling rock;;</li> <li>South transition dam excavation;</li> <li>Center transition dam excavation;</li> </ul>			<ul><li>location of overb</li><li>Construction of powerhouse and</li></ul>	urden slopes; the RCC riverside cofferdar spillway excavation (Up to E	m and Rock levation 21.0 m	fill dams to protect	
<ul> <li>Powerhouse intake excavation (overburden and rock) and consolidation works;</li> <li>Powerhouse tailrace excavation (overburden and rock) and consolidation works;</li> <li>Spillway excavation (overburden and rock) and consolidation works;</li> <li><u>Note</u>: Consolidation works consist of Rockbolts, Rock Dowels, Welded Wiremesh and Shotcrete</li> <li>Installation of chainlink wire mesh along all excavated slopes to protect personne and equipment from potential falling rock;;</li> <li>South transition dam excavation;</li> <li>Center transition dam excavation;</li> </ul>				-	protect powerho	use excavation;(up to	
<ul> <li>Powerhouse tailrace excavation (overburden and rock) and consolidation works;</li> <li>Spillway excavation (overburden and rock) and consolidation works;</li> <li>Note: Consolidation works consist of Rockbolts, Rock Dowels, Welded Wiremesh and Shotcrete</li> <li>Installation of chainlink wire mesh along all excavated slopes to protect personne and equipment from potential falling rock;;</li> <li>South transition dam excavation;</li> <li>Center transition dam excavation;</li> </ul>			Powerhouse exc	avation (overburden and rock) a	and consolidatio	n works;	
<ul> <li>Spillway excavation (overburden and rock) and consolidation works;</li> <li><u>Note</u>: Consolidation works consist of Rockbolts, Rock Dowels, Welded Wiremesh and Shotcrete</li> <li>Installation of chainlink wire mesh along all excavated slopes to protect personne and equipment from potential falling rock;;</li> <li>South transition dam excavation;</li> <li>Center transition dam excavation;</li> </ul>			Powerhouse inta	ke excavation (overburden and	rock) and conso	blidation works;	
<ul> <li><u>Note</u>: Consolidation works consist of Rockbolts, Rock Dowels, Welded Wiremesh and Shotcrete</li> <li>Installation of chainlink wire mesh along all excavated slopes to protect personne and equipment from potential falling rock;;</li> <li>South transition dam excavation;</li> <li>Center transition dam excavation;</li> </ul>			Powerhouse tail	ace excavation ( overburden an	d rock) and con	solidation works;	
<ul> <li>Shotcrete</li> <li>Installation of chainlink wire mesh along all excavated slopes to protect personne and equipment from potential falling rock;;</li> <li>South transition dam excavation;</li> <li>Center transition dam excavation;</li> </ul>			Spillway excavat	ion (overburden and rock) and c	consolidation wo	orks;	
<ul> <li>and equipment from potential falling rock;;</li> <li>South transition dam excavation;</li> <li>Center transition dam excavation;</li> </ul>				ion works consist of Rockbolts,	Rock Dowels, V	/elded Wiremesh and	
Center transition dam excavation;				-	cavated slopes	to protect personnel	
			South transition	dam excavation;			
<ul> <li>North transition dam excavation;</li> </ul>			Center transition	dam excavation;			
			North transition	dam excavation;			

#### Lower Churchill Project

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Project Base Currency: CAD							
Package No.: CH000	6	Туре:	: (	- Contract			
Titles (long): Const	ruction of	Bulk Excavation and Associated Works Revis	sion No.: C	1			
(short): Bulk E	xcavation W	orks Date:	1	3-Apr-2012			
	ents);						
	•	Access Roads					
Tailrace rock plug,							
Approximate Quantities							
(only major items are	Item	Description	Unit	Quantity			
included)	1	Overburden Excavation (all structures)	m <sup>3</sup>	611,000			
	2	Rock Excavation (all structures)	m <sup>3</sup>	1,820,250			
	3	Grouted Rockbolts	units	2,500			
	4	Grouted Rockdowels	m	1,800			
	5	Chain-link Mesh	m <sup>2</sup>	39,000			
	6	RCC Concrete	m <sup>3</sup>	39,000			
	7	Till (Rockfill Cofferdams)	m <sup>3</sup>	109,000			
	8	Till (Switchyard)	m <sup>3</sup>	26,000			
	9	Rockfill materials (all types)	m <sup>3</sup>	209,000			
	10	Temporary Access Roads to be constructed by Contractor (Appr quantities: Rock fill 28,500 m <sup>3</sup> and so fill 14,250 m <sup>3</sup>	bil km	3.00			
Contract Basis: Lump Sum Unit Rate Combination Lump Sum – Unit Rates Cost Reimbursal Remarks:							
Work Evoludodu							
Work Excluded:							
	Descri			Package No.			
	Main Site Access Road South Side						
	Accom	CH0002					
	Intake	CH0007					
	Intake and powerhouse construction Civil Works						
		y structure construction – Civil Works		CH0007			
	The north and center transition dams (CVC) including foundation preparation and treatment.						

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#### PACKAGE DICTIONARY

Package No.: Fitles	(long):	CH0006 Type: C Construction of Bulk Excavation and Associated Works Revision No.: 0	- Contract	
			13-Apr-2012	
		The north upstream rock fill cofferdam, including foundation preparation and treatment	CH0009	
		The north downstream cofferdam, including foundation preparation	CH0009	
		The north RCC dam, including foundation preparation, treatment, drainage, electrical works, mechanical works and instrumentation;	0110000	
		The south dam including excavation (Overburden and Rock)foundation preparation, treatment, drainage and instrumentation;	CH0009	
		North spur improvement	CH0008	
		Switchyard extension – civil works	ТВС	
		Removal of Downstream Section (downstream of the Spillway) of the Riverside RCC Cofferdam	CH0009	
		Additional site investigations inclusive of North Spur, south dam, north RCC dam, north upstream and downstream cofferdams and borrow areas. This package will include conventional core drilling, seismic and resistivity surveys, pumping tests and test pits;	SM0713	
		Clearing of Project Site area	CH0048	
		Removal of Tailrace Rock plug	CH0007	
Quality		Refer to the quality documents		
Reference S	ection	<ul> <li>The following main documents are used to define the scope:</li> <li>Design Criteria as formulated for the Lower Churchill Project</li> <li>MF 1380 – Muskrat Falls Site Information for Tenderers</li> <li>Ref no; 723468-MF 1380-40ER-0001</li> <li>Specific Design Calculations</li> </ul>		
	th Othe		Package No.	
			CH0004	
		Main Site Access Road South Side		
		Accommodation Complex Building	CH0002	
nterface wit Packages			CH0002 CH0007	

#### PACKAGE DICTIONARY

Project Base Currency: CAD CH0006 C- Contract Package No.: Type: Titles Revision No.: Construction of Bulk Excavation and Associated Works 01 (long): (short): **Bulk Excavation Works** Date: 13-Apr-2012 The Construction of structures near or in the Churchill River will require strict safety Specific Site Conditions enforcement. **Specific Schedule** The commencement date of the CH0006 package (scheduled to be on July 2, 2012) is very Conditions critical as major delays will require a rethink of the diversion structures, possibly with a higher risk for flooding of the Spillway Structure., with possible impact to its completion date, in turn very critical for CH0007. It is noted that in order to complete the diversion structures as planned that these would have to be completed before the end of October 2012, time after which freezing conditions may occur. Possible mitigation measures could be envisaged, as e.g. by building a temporary shelter (done in other projects) This will have a cost, but in turn will minimize the risk. The Contractor is asked to mobilize drilling equipment for the North Spur immediately after contract award **Specific Environment** As CH0006 will create large excavations below ground and river levels, inflow of water is Conditions expected (either natural ground water or by rain). This water will be pumped into two sedimentation ponds which will filer the water before returning it to the river at the specified suspension levels (less than 30 ppm). It will also take care of any explosive residues (particularly diesel, which will be one of the components of the explosives - ANFO). As part of the quality control the Contractor will have to demonstrate that the explosives used are totally consumed i.e. have an adequate oxygen balance, in order to minimize pollution of the water by diesel or other components. Adequate drainage systems are provided to take care of natural run-off water and have it returned to the river in a natural way. **Specific Safety** As mentioned in the Specific Site Conditions, safety is a concern when constructing Conditions structures close or in the water. Prior to commencement of any work near the river a special security fence will be constructed between the riverside perimeter and the RCC Cofferdam. The site investigations defined in this package will partly have to be done in the river between the upstream and downstream falls and will require special measures to ensure the safety of the drilling crews. The usage of large amount explosives will also need a strict control, during storage, charging and during blasting in order to avoid any accidents (by fly rock or others). Special Environmental and Safety Requirements are provided in the Agreement in several **Requirements(All)** documents. Equipment List Not Applicable Schedule and EOI Date: TBD Milestones RFP Date: TBD Award Date: TBD Receive Initial Vendor Drawings: TBD Forecast at Site: TBD **Construction Complete:** Dates for milestones will be updated once the Project baseline schedule is in place. Budget TBD

Project Base Currency: CAD		CAD					
Package No.: Titles	(long): (short):	CH0006 Construction of Bulk Excavation and Associated Works Bulk Excavation Works	ruction of Bulk Excavation and Associated Works Revision No.:				
Applicable Project/SP		Muskrat Falls Generation 🛛 Labrador – Island Trar Labrador Transmission Assets 🗌 Lower Churchill Project					
IBA Packaç	je	YES 🗌 NO 🔀					

Project Base Currency:	CAD

Package No.: Titles (long): (short):		tion of Intake and Powerhouse, Spillway and Transition Dams owerhouse, Spillway & Trans Dams			
	a Manager: / QC:	Luc Turcotte Package Engineer: Ken Morisson Contract Admin. / Buye	Hafid Bouza r: Ron Adamc		
Scope of Work Su Work Included:	Immary	This contract includes; Construction of the powerhouse and the inta structure, embedment parts and miscellaneous works related to the envelop of the powerhouse to Construction of the gated spillway including the bridges and downstream temporary bridge over to Construction of the centre and north transition da Construction of the Powerhouse/Intake coffer temporary road and temporary upstream bridge. Civil works related to permanent access roads to as well as the upstream temporary bridge over the downstream temporary bridge over the gated spill Intake and Powerhouse	s metals as well puilding. upstream and do he gated spillway ms. rdam (separation to the powerhouse the spillway appro	as the architectural ownstream permanent n wall), inclusive of e and to the spillway,	
		<ul> <li>Concreting of the powerhouse and the intake concrete from the batch plant to the pour loca</li> <li>Foundation preparation. The excavation (ov works are done by other CH0006.</li> <li>Supply and installation of the steel superst including stairs, ladders, hand rails and guard</li> <li>Downstream transformer deck including fire transformers.</li> <li>Architectural works related to the envelop (architectural interior works is included in pade)</li> <li>Civil works related to permanent access road</li> <li>Drainage holes, grouting curtains, dental exc where required within the powerhouse;</li> <li>Civil work for the interconnection cables switchyard;</li> <li>Supply and installation of embedded and no piping, embedded grounding and related work</li> </ul>	ation, formwork ar verburden and roo tructure and all n drails; walls, containmer o of the powerho kage CH0031); ls, parking area an avation and secon between the p n-embedded meta	nd related civil works). ck) and consolidation niscellaneous metals, nt and bases for GSU ouse and the intake nd retaining walls; ndary rock excavation powerhouse and the	
		<ul> <li>Spillway</li> <li>Concreting of the gated spillway (including batch plant to the pour location, formwork and</li> <li>Foundation preparation. The excavation (ov works are done by other CH0006;</li> <li>Curtain grouting;</li> <li>Supply and installation of the upstream perm</li> <li>Supply and installation of the downstream spillway;</li> <li>Supply and installation of miscellaneous meteoric enclosure steel superstructure is part of pack</li> </ul>	d related civil work verburden and row anent bridge over m permanent bri tals (supply and ir	ks); ck) and consolidation the gated spillway; idge over the gated	

Ton

3,300

#### PACKAGE DICTIONARY

Package No.:		CH0007			Туре:	C-Con	tract
Titles	(long):		ion of Intake :	and Powerhouse, Spillway and Transition Dams	Revision No.:	01	
i nico	(short):			pillway & Trans Dams	Date:	13-Ap	r-2012
			gr • Ci • Ci	upply and installation of embedded parts ounding and related works; urtain grouting; oncrete foundation for electrical building; vil work for the interconnection cables betwee			-
			Transitio	n Dams			
			cc • Fc wi • Ci • Si	oncreting of the centre and north transition oncrete from the batch plant to the pour location oundation preparation. The excavation (over orks are done under CH0006; urtain grouting and drainage; upply and installation of embedded parts, m ounding.	on, formwork an burden and roc	d relate k) and	ed civil works consolidatio
			Cofferdar	n			
			in Io • Fo we	oncreting of the Powerhouse/Intake cofferda cluding formwork and the delivery of the cond cation; oundation preparation. The excavation (over orks are done under CH0006; emoval of upstream and downstream spillway	burden and roc	atch pla	ant to the pou
			Access P	oads and Temporary Bridges			
			<ul> <li>Co th pl.</li> <li>So br</li> <li>So do</li> <li>Co</li> <li>Co</li> <li>Co</li> <li>Co</li> <li>So</li> </ul>	oncreting of abutments and centre pier of ups e spillway approach channel (including the de ant to the pour location, formwork and related upply, installation and subsequent removal/h idge over the spillway approach channel; upply, installation and subsequent removes wonstream bridge over the gated spillway; oncreting of the retaining structures related idges; vil works; upply and installation of embedded parts and	elivery of the co civil works); andover of the oval/handover to the access	tempo of th oads a	rom the batc rary upstrear e temporar
Approximat	te Quan	tities					
only major			ltem	Description		Unit	Quantity
			1	Powerhouse and Intake			
			1.1	Concrete CVC		m <sup>3</sup>	328,000
			<b></b>				,

Structural Steel

1.2

#### Lower Churchill Project

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Package No: (tengt):       CH0007 Construction of Intake and Powerhouse, Spillway and Transition Dams       Type: Revision No: 01       C-Contract 01         (tendt):       Intake, Powerhouse, Spillway at Transition Dams       Date:       13-Apr.2012         2       Spillway and other related Structures       1       13-Apr.2012         2.1       Concrete CVC       m³       67.000         2.2       Structural Steel       1       10         3.1       Concrete CVC       m³       47.000         4.1       Concrete CVC       m³       10.000         Work Excluded:       Description       Lump Sum       Cost Reimbursable       Cost Reimbursable         Bupply and installation of Hydro-Mechanical Equipment (gates, trashracks and embedments) for the intake       CH0032       Supply and installation of Hydro-Mechanical Equipment for spilway gates including the hoist enclosure steel superstructure       CH0046         Supply and installation of all electrical and mechanical equipments including the architectural interior works for the powerhouse and the powerhouse and the intake are included in package CH0007.       CH0031         Supply and installation of powerhouse	Project Base (	Currency:	CAD			
Titles       (borg):       Construction of Intake and Powerhouse. Spillway and Transition Dama       Revision No::       01         (short):       Intake, Powerhouse. Spillway & Trans Dams       Date:       13-Appr-2012         Image: Spillway and other related Structures       Image: Spillway and Transitions Dams       Image: Spillway and Image: Spillway and Transitanes Dams	Package No.:		CH0007	Туре:	C-Con	tract
2.1       Concrete CVC       m³       67,000         2.2       Structural Steel       Ton       400         3       Transitions Dams       Ton       400         3.1       Concrete CVC       m³       47,000         4       Separation Wall       -       -       -         4.1       Concrete CVC       m³       10,000         Combination Lump Sum - Unit Rates       Cost Reimbursable       -         Remarks:       Cost Reimbursable       -       Cost Reimbursable       -         Work Excluded:        Description       Package No.       Supply and installation of Hydro-Mechanical Equipment for spillway gates including the hoist enclosure steel superstructure       CH0032         Supply and installation of Hydro-Mechanical Equipment for spillway gates including the hoist enclosure steel superstructure       CH0030         Supply and installation of all electrical and mechanical equipments including the acrhitectural works related to the envelope of the intake. The architectural works related to the envelope of the intake. The architectural works related to the envelope of the intake. The architectural works related to the envelope of the intake. The architectural works related to the envelope of the intake. The architectural works related to the envelope of the intake. The architectural works related to the envelope of the intake. The architectural works related to the envelope of the intake. The architectural works related to the powerhouse and the inta	Titles					r-2012
2.1       Concrete CVC       m³       67,000         2.2       Structural Steel       Ton       400         3       Transitions Dams       Ton       400         3.1       Concrete CVC       m³       47,000         4       Separation Wall       -       -       -         4.1       Concrete CVC       m³       10,000         Combination Lump Sum - Unit Rates       Cost Reimbursable       -         Remarks:       Cost Reimbursable       -       Cost Reimbursable       -         Work Excluded:        Description       Package No.       Supply and installation of Hydro-Mechanical Equipment for spillway gates including the hoist enclosure steel superstructure       CH0032         Supply and installation of Hydro-Mechanical Equipment for spillway gates including the hoist enclosure steel superstructure       CH0030         Supply and installation of all electrical and mechanical equipments including the acrhitectural works related to the envelope of the intake. The architectural works related to the envelope of the intake. The architectural works related to the envelope of the intake. The architectural works related to the envelope of the intake. The architectural works related to the envelope of the intake. The architectural works related to the envelope of the intake. The architectural works related to the envelope of the intake. The architectural works related to the envelope of the intake. The architectural works related to the powerhouse and the inta			2	Spillway and other related Structures		
2.2       Structural Steel       Ton       400         3       Transitions Dams       -       -         3.1       Concrete CVC       m <sup>3</sup> 47,000         4       Separation Wall       -       -         4.1       Concrete CVC       m <sup>3</sup> 10,000         Work Excluded:					m <sup>3</sup>	67.000
3.1       Concrete CVC       m³       47,000         4       Separation Wall       m³       10,000         4.1       Concrete CVC       m³       10,000         Lump Sum						
4       Separation Wall       m³       10,000         Contract Basis       Lump Sum			3	Transitions Dams		
4.1       Concrete CVC       m³       10,000         Lump Sum       Unit Rates       Image: Constinution Lump Sum – Unit Rates       Image: Const Reimbursable       Image: Const Reimbursable <t< td=""><td></td><td></td><td>3.1</td><td>Concrete CVC</td><td>m<sup>3</sup></td><td>47,000</td></t<>			3.1	Concrete CVC	m <sup>3</sup>	47,000
Contract Basis       Lump Sum       Unit Rates       Unit Rates         Combination Lump Sum – Unit Rates       Cost Reimbursable       Image: Cost Reimbursable         Work Excluded:       Description       Package No.         Supply and installation of Hydro-Mechanical Equipment (gates, trashracks and embedments) for the intake       CH0032         Supply and installation of Hydro-Mechanical Equipment for spillway gates including the hoist enclosure steel superstructure       CH0046         Supply and installation of all electrical and mechanical equipments including the architectural interior works for the powerhouse and the intake. The architectural works related to the powerhouse and the intake. The architectural interior works for the powerhouse and the intake. The architectural interior works for the powerhouse and the intake. The architectural interior works for the powerhouse and the intake. The architectural interior works for the powerhouse and the intake. The architectural interior works for the powerhouse and the intake. The architectural interior works for the powerhouse and the intake. The architectural interior works for the powerhouse.       CH0031         Supply and installation of insulated power and control cables       CH0033         Supply of Concrete including Batch Plant       CH0030         Supply of Generator Step-up Transformer       PH0014         Construction of the Southside Access Road       CH0004         Bulk excavation, consolidation and slope protection works related to the powerhouse, the intake, the spillway and transition dams       CH0009			4	Separation Wall		
Lump Sum       Unit Rates         Combination Lump Sum – Unit Rates       Cost Reimbursable         Remarks:    Work Excluded:          Work Excluded:             Description       Package No.         Supply and installation of Hydro-Mechanical Equipment (gates, trashracks and embedments) for the intake       CH0032         Supply and installation of Hydro-Mechanical Equipment for spillway gates including the hoist enclosure steel superstructure       CH0046         Supply and installation of Hydro-Mechanical Equipment for spillway gates including the architectural interior works for the powerhouse and the including the architectural interior works for the powerhouse and the including the architectural works related to the envelope of the powerhouse and the intake. The architectural works related to the envelope of the cH0031         Supply and installation of ranes, hoists and associated structures       CH0034         Supply and installation of powerhouse elevator       CH0033         Supply and installation of powerhouse elevator       CH0034         Supply of Concrete including Batch Plant       CH0036         Supply of Generator Step-up Transformer       PH0014         Construction of the Southside Access Road       CH0004         Bulk excavation, consolidation and slope protection works related to the powerhouse, the intake, the spillway and transition dams       CH0009         Construction of south dam including excavation (overbu			4.1	Concrete CVC	m <sup>3</sup>	10,000
DescriptionPackage No.Supply and installation of Hydro-Mechanical Equipment (gates, trashracks and embedments) for the intakeCH0032Supply and installation of Hydro-Mechanical Equipment for spillway gates including the hoist enclosure steel superstructureCH0046Supply and installation of the turbine, generator and governorCH0030Supply and installation of all electrical and mechanical equipments including the architectural interior works for the powerhouse and the intake. The architectural works related to the envelope of the powerhouse and the intake are included in package CH0007.CH0031Supply and installation of insulated power and control cablesCH0031Supply and installation of powerhouse elevatorCH0033Supply and installation of powerhouse elevatorCH0034Supply of Concrete including Batch PlantCH0050Supply of Generator Step-up TransformerPH0014Construction of the Southside Access RoadCH0006Bulk excavation, consolidation and slope protection works related to the powerhouse, the intake, the spillway and transition damsCH0009Construction of south dam including excavation (overburden and rock) foundation preparation, treatment, drainage and instrumentationCH0009	Work Exclu	ıded:	Remar	Combination Lump Sum – Unit Rates 🗌 Co		
Supply and installation of Hydro-Mechanical Equipment (gates, trashracks and embedments) for the intakeCH0032Supply and installation of Hydro-Mechanical Equipment for spillway gates including the hoist enclosure steel superstructureCH0046Supply and installation of the turbine, generator and governorCH0030Supply and installation of all electrical and mechanical equipments including the architectural interior works for the powerhouse and the intake. The architectural works related to the envelope of the powerhouse and the intake are included in package CH0007.CH0031Supply and installation of insulated power and control cablesCH0033Supply and installation of cranes, hoists and associated structuresCH0034Supply and installation of powerhouse elevatorCH0034Supply of Concrete including Batch PlantCH0050Supply of Generator Step-up TransformerPH0014Construction of the Southside Access RoadCH0006Construction of north upstream and downstream cofferdams, including foundation preparation and treatmentCH0009Construction of prover on south dam including excavation (overburden and rock) 			Deser	ntion		
trashracks and embedments) for the intakeCH0032Supply and installation of Hydro-Mechanical Equipment for spillway gates including the hoist enclosure steel superstructureCH0046Supply and installation of the turbine, generator and governorCH0030Supply and installation of all electrical and mechanical equipments including the architectural interior works for the powerhouse and the intake. The architectural works related to the envelope of the powerhouse and the intake are included in package CH0007.CH0031Supply and installation of insulated power and control cablesCH0031Supply and installation of cranes, hoists and associated structuresCH0033Supply and installation of powerhouse elevatorCH0034Supply of Concrete including Batch PlantCH0050Supply of Generator Step-up TransformerPH0014Construction of the Southside Access RoadCH0004Bulk excavation, consolidation and slope protection works related to the powerhouse, the intake, the spillway and transition damsCH0009Construction of south dam including excavation (overburden and rock) foundation preparation, treatment, drainage and instrumentationCH0009					F	аскаде по.
gatesincluding the hoist enclosure steel superstructureCH0046Supply and installation of the turbine, generator and governorCH0030Supply and installation of all electrical and mechanical equipments including the architectural interior works for the powerhouse and the intake. The architectural works related to the envelope of the powerhouse and the intake are included in package CH0007.CH0031Supply and installation of insulated power and control cablesCH0031Supply and installation of cranes, hoists and associated structuresCH0033Supply and installation of powerhouse elevatorCH0034Supply of Concrete including Batch PlantCH0050Supply of Generator Step-up TransformerPH0014Construction of the Southside Access RoadCH0004Bulk excavation, consolidation and slope protection works related to the powerhouse, the intake, the spillway and transition damsCH0009Construction of north upstream and downstream cofferdams, including foundation preparation and treatmentCH0009			trashra	cks and embedments) for the intake		CH0032
Supply and installation of all electrical and mechanical equipments including the architectural interior works for the powerhouse and the intake. The architectural works related to the envelope of the powerhouse and the intake are included in package CH0007.CH0031Supply and installation of insulated power and control cablesCH0031Supply and installation of cranes, hoists and associated structuresCH0033Supply and installation of powerhouse elevatorCH0034Supply of Concrete including Batch PlantCH0050Supply of Generator Step-up TransformerPH0014Construction of the Southside Access RoadCH0004Bulk excavation, consolidation and slope protection works related to the powerhouse, the intake, the spillway and transition damsCH0009Construction of south dam including excavation (overburden and rock) foundation preparation, treatment, drainage and instrumentationCH0009					′ c	CH0046
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Supply and installation of cranes, hoists and associated structuresCH0031Supply and installation of powerhouse elevatorCH0034Supply of Concrete including Batch PlantCH0050Supply of Generator Step-up TransformerPH0014Construction of the Southside Access RoadCH0004Bulk excavation, consolidation and slope protection works related to the powerhouse, the intake, the spillway and transition damsCH0006Construction of north upstream and downstream cofferdams, including foundation preparation and treatmentCH0009Construction of south dam including excavation (overburden and rock) foundation preparation, treatment, drainage and instrumentationCH0009			includi intake.	ng the architectural interior works for the powerhouse and the The architectural works related to the envelope of the	e C	CH0031
Supply and installation of powerhouse elevatorCH0034Supply of Concrete including Batch PlantCH0050Supply of Generator Step-up TransformerPH0014Construction of the Southside Access RoadCH0004Bulk excavation, consolidation and slope protection works related to the powerhouse, the intake, the spillway and transition damsCH0006Construction of north upstream and downstream cofferdams, including foundation preparation and treatmentCH0009Construction of south dam including excavation (overburden and rock) foundation preparation, treatment, drainage and instrumentationCH0009			Supply	and installation of insulated power and control cables	C	CH0031
Supply of Concrete including Batch PlantCH0050Supply of Generator Step-up TransformerPH0014Construction of the Southside Access RoadCH0004Bulk excavation, consolidation and slope protection works related to the powerhouse, the intake, the spillway and transition damsCH0006Construction of north upstream and downstream cofferdams, including foundation preparation and treatmentCH0009Construction of south dam including excavation (overburden and rock) foundation preparation, treatment, drainage and instrumentationCH0009			Supply	and installation of cranes, hoists and associated structures	C	CH0033
Supply of Concrete including Batch PlantCH0050Supply of Generator Step-up TransformerPH0014Construction of the Southside Access RoadCH0004Bulk excavation, consolidation and slope protection works related to the powerhouse, the intake, the spillway and transition damsCH0006Construction of north upstream and downstream cofferdams, including foundation preparation and treatmentCH0009Construction of south dam including excavation (overburden and rock) foundation preparation, treatment, drainage and instrumentationCH0009			Supply	and installation of powerhouse elevator	C	CH0034
Construction of the Southside Access RoadCH0004Bulk excavation, consolidation and slope protection works related to the powerhouse, the intake, the spillway and transition damsCH0006Construction of north upstream and downstream cofferdams, including foundation preparation and treatmentCH0009Construction of south dam including excavation (overburden and rock) foundation preparation, treatment, drainage and instrumentationCH0009			Supply	of Concrete including Batch Plant	C	CH0050
Bulk excavation, consolidation and slope protection works related to the powerhouse, the intake, the spillway and transition damsCH0006Construction of north upstream and downstream cofferdams, including foundation preparation and treatmentCH0009Construction of south dam including excavation (overburden and rock) foundation preparation, treatment, drainage and instrumentationCH0009			Supply	of Generator Step-up Transformer	F	PH0014
powerhouse, the intake, the spillway and transition damsCH0006Construction of north upstream and downstream cofferdams, including foundation preparation and treatmentCH0009Construction of south dam including excavation (overburden and rock) foundation preparation, treatment, drainage and instrumentationCH0009			Constr	uction of the Southside Access Road	C	CH0004
foundation preparation and treatmentCH0009Construction of south dam including excavation (overburden and rock) foundation preparation, treatment, drainage and instrumentationCH0009					o the	CH0006
foundation preparation, treatment, drainage and instrumentation CH0009					ling C	CH0009
Construction of north RCC dam, including foundation preparation, CH0009					ock)	CH0009
			Constr	uction of north RCC dam, including foundation preparation,	C	CH0009

#### Lower Churchill Project

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Package No.: CH0	007	Type: C-Contract
-	struction of Intake and Powerhouse, Spillway and Transition Dams	Revision No.: 01
(short): Intak	ke, Powerhouse, Spillway & Trans Dams	Date: 13-Apr-2012
	treatment, drainage, electrical works, mechanical works instrumentation	and
	Construction of the South transition Dam	CH0009
Quality	Quality requirements are defined in document 505573-00 Quality Requirements Specification	00-38RA-I-0003 Contractor
Reference Section	<ul> <li>The following main documents were used to define the so</li> <li>LCP-PT-ED-0000-EN-RP-0001-01 - Nalcor Energy</li> </ul>	
	of Design • 723468-40ER-0001-00 - MF 1340 - Review a Layout	
	• M FA-SN-CD-3300-CV-DC-0001-01 - Design C	riteria - Civil
	Description	
	Description Construction of Southside Access Road	Package No. CH0004
	·	CH0004 ery critical to works in CP. Bulk
	Construction of Southside Access Road Bulk Excavation Works. The completion of CH0006 is v ensure CH0007 Contractor can commence the concrete time to ensure the overall construction schedule of the L	CH0004 ery critical to works in CP. Bulk
	Construction of Southside Access Road Bulk Excavation Works. The completion of CH0006 is v ensure CH0007 Contractor can commence the concrete time to ensure the overall construction schedule of the L Excavation Works shall be completed no later than April	CH0004 ery critical to works in CP. Bulk 2013
	Construction of Southside Access Road Bulk Excavation Works. The completion of CH0006 is v ensure CH0007 Contractor can commence the concrete time to ensure the overall construction schedule of the L Excavation Works shall be completed no later than April Construction of North and South Dams	CH0004 ery critical to works in CP. Bulk 2013 CH0009 CH0030
	Construction of Southside Access Road Bulk Excavation Works. The completion of CH0006 is v ensure CH0007 Contractor can commence the concrete time to ensure the overall construction schedule of the L Excavation Works shall be completed no later than April Construction of North and South Dams Supply and Install Turbines and Generators	CH0004 ery critical to works in CP. Bulk 2013 CH0009 CH0030 (MF) CH0031
	Construction of Southside Access Road Bulk Excavation Works. The completion of CH0006 is v ensure CH0007 Contractor can commence the concrete time to ensure the overall construction schedule of the L Excavation Works shall be completed no later than April Construction of North and South Dams Supply and Install Turbines and Generators Supply And Install Mechanical And Electrical Auxiliaries	CH0004 ery critical to works in CP. Bulk 2013 CH0009 CH0030 (MF) CH0031
	Construction of Southside Access Road Bulk Excavation Works. The completion of CH0006 is v ensure CH0007 Contractor can commence the concrete time to ensure the overall construction schedule of the L Excavation Works shall be completed no later than April Construction of North and South Dams Supply and Install Turbines and Generators Supply And Install Mechanical And Electrical Auxiliaries Supply and Install Powerhouse Intake Hydro-Mechanica	CH0004 ery critical to works in CP. Bulk 2013 CH0009 CH0030 (MF) CH0031 I CH0032
	Construction of Southside Access Road Bulk Excavation Works. The completion of CH0006 is v ensure CH0007 Contractor can commence the concrete time to ensure the overall construction schedule of the L Excavation Works shall be completed no later than April Construction of North and South Dams Supply and Install Turbines and Generators Supply And Install Mechanical And Electrical Auxiliaries Supply and Install Powerhouse Intake Hydro-Mechanica Supply And Install Powerhouse Cranes	CH0004           ery critical to works in CP. Bulk 2013         CH0006           2013         CH0009           CH0030         CH0031           II         CH0032           CH0033         CH0034
	Construction of Southside Access RoadBulk Excavation Works. The completion of CH0006 is v ensure CH0007 Contractor can commence the concrete time to ensure the overall construction schedule of the L Excavation Works shall be completed no later than April Construction of North and South DamsSupply and Install Turbines and Generators Supply And Install Powerhouse Intake Hydro-Mechanica Supply And Install Powerhouse CranesSupply And Install Powerhouse Elevator	CH0004           ery critical to works in CP. Bulk 2013         CH0006           CP. Bulk 2013         CH0009           CH0030         CH0031           II         CH0032           CH0034         CH0034           OCH0036         CH0046
	Construction of Southside Access RoadBulk Excavation Works. The completion of CH0006 is v ensure CH0007 Contractor can commence the concrete time to ensure the overall construction schedule of the L Excavation Works shall be completed no later than April Construction of North and South DamsSupply and Install Turbines and GeneratorsSupply And Install Mechanical And Electrical AuxiliariesSupply and Install Powerhouse Intake Hydro-Mechanical Supply And Install Powerhouse CranesSupply And Install Powerhouse ElevatorSupply And Install Spillway Hydro-Mechanical Equipment	CH0004           ery critical to works in CP. Bulk 2013         CH0006           CP. Bulk 2013         CH0009           CH0030         CH0031           II         CH0032           CH0034         CH0034           OCH0036         CH0046
Interface with Other Packages	Construction of Southside Access RoadBulk Excavation Works. The completion of CH0006 is v ensure CH0007 Contractor can commence the concrete time to ensure the overall construction schedule of the L Excavation Works shall be completed no later than April Construction of North and South DamsSupply and Install Turbines and GeneratorsSupply And Install Mechanical And Electrical Auxiliaries Supply And Install Powerhouse Intake Hydro-Mechanica Supply And Install Powerhouse ElevatorSupply And Install Spillway Hydro-Mechanical Equipmer Construction of Site Clearing Access Road and Ancillary	ery critical to works in CP. Bulk 2013 CH0009 CH0030 (MF) CH0031 II CH0032 CH0033 CH0033 CH0034 nt CH0046 r Areas CH0048

#### Lower Churchill Project

#### PACKAGE DICTIONARY

Package No.:		CH0007		Type:	C-Contract		
Titles	(long):	Constru	ction of Intake and Powerhouse, Spillway and Transition Dams	Revision No.:	01		
	(short):	Intake, F	Powerhouse, Spillway & Trans Dams	Date:	13-Apr-2012		
Specific Site Conditions Specific Schedule Conditions			<ul> <li>The construction of structures near the Chuenforcement.</li> <li>Bedrock at the Muskrat Falls site consists of hat Any other packages that have to be started before the CH0004 – Construction of Southside Access R</li> <li>CH0006 – Bulk Excavation Works. The complementer CH0007 Contractor can commence the overall construction schedule of the LCP. Bulk completed no later than April 2013.</li> </ul>	ard, unweathere subject package oad etion of CH0006 concrete works	require strict safe d gneiss e can proceed: is very critical to in time to ensure th		
			<ul> <li>CH0030 - Supply and Install Turbines and Gen passages layout drawings shall be ready by the primary anchors must be supplied before concle</li> <li>CH0032 – Supply and Install Powerhouse Intal primary anchors must be supplied before concle</li> <li>CH0034 – Supply And Install Powerhouse Eleven CH0046 – Supply and Install Spillway Hydro-M primary anchors must be supplied before concle</li> <li>CH0046 – Supply and Install Spillway Hydro-M primary anchors must be supplied before concle</li> <li>CH0046 – Supply and Install Spillway Hydro-M primary anchors must be supplied before concle</li> <li>CH0049 – Supply and Install Log Booms. Boo of the winter headpond, and must be modified</li> <li>CH0050 – Supply of Concrete including Batch shall be ready to produce first concrete no later PH0014 – Supply of Generator Step-up Transference</li> </ul>	e end of May 20 rete is poured. ke Hydro-Mecha rete is poured. vator lechanical Equip rete is poured. ms must be inst prior to impound Plant (MF). Cor r than April 2013	<ol> <li>Embedment</li> <li>Embedment</li></ol>		
			Any other packages that cannot proceed (or be completed) before the subject package has started:				
			<ul> <li>CH0030 - Supply and Install Turbines and Gensteel is required at site by 03-Mar-2014. Erective be available by 09-Oct-2014. Delays will have Generator package.</li> <li>CH0031 - Supply And Install Mechanical And ECH0032 - Supply and Install Powerhouse Intak</li> <li>CH0033 – Supply And Install Powerhouse Craterial CH0034 – Supply And Install Powerhouse Elever CH0046 – Supply And Install Spillway Hydro-N</li> <li>Intake Transition/South Access shall be completed before to El. 39.0 m</li> </ul>	ion bay and Pov a major impact Electrical Auxilia te Hydro-Mecha nes vator lechanical Equip eted by 17-May- lul-2014 y 18-Jul-2015	verhouse crane sha on the Turbine and ries (MF) nical oment 2014		
Specific Er Conditions		ent	Waste concrete from washing of the mixers and trucks appropriate approved waste disposal areas outside the Dewatering of the excavations will produce water that w	site.			

#### Lower Churchill Project

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#### PACKAGE DICTIONARY

Package No.: CH0007	Type: C-Contract
•	tion of Intake and Powerhouse, Spillway and Transition Dams Revision No.: 01
(short): Intake, F	Powerhouse, Spillway & Trans Dams Date: 13-Apr-2012
Specific Safety	ponds to filter the water before returning it to the river at the specified suspension levels (less than 30 ppm). Adequate drainage systems shall be provided to handle natural run-off water and have it returned to the river in a natural way. Strict safety is required when constructing structures close to or in the water.
Conditions	
Special Requirements (All)	Environmental and Safety Requirements are provided in the Agreement in several documents.
Free Issued Materials	Not Applicable
Major Equipment List	N/A
Schedule and Milestones	EOI Date: TBD RFP Date: TBD Award Date: TBD Receive Initial Vendor Drawings: TBD Forecast at Site: TBD Construction Complete: Dates for milestones will be updated once the Project baseline schedule is in place.
Budget	TBD
Applicable Sub- Project/SPV	Muskrat Falls Generation       Island Transmission Link         Labrador Transmission Assets       Lower Churchill Project – General
IBA Package	YES NO

#### Lower Churchill Project

#### PACKAGE DICTIONARY

Titles (long): (short):		of North Spur Stabilization V Stabilization Works	Vorks	Revision No.:	Contract 01 13-Apr-2012		
Responsibilities: Area	-	Michel Maeyens Ken Morrison	Package Engineer: Contract Admin. / Buyer:	Alvaro Ceballos Stella Roche	5		
Scope of work Summary	Stabilizati		ater control of the North spur; I pur; Minor Electrical works relat pumpwell system.				
Vork Included:	This pack	age includes:					
	• C	clearing of work areas.					
	Overburden excavation ;						
	Embankment construction of different materials;						
	Slurry cut-off walls construction;						
	Construction of relief wells;						
	<ul> <li>Pumpwells installation including the electrical and mechanical works;</li> </ul>						
	<ul> <li>Refurbishing of existing pumpwells including the electrical and mechanical works;</li> </ul>						
	<ul> <li>Instrumentation of the North spur;</li> </ul>						
	Permanent access roads construction;						
	Construction access roads;						
	Relocation and protection of a portage trail and boat launches.						
pproximate	ltem		Description	Un	it Quantity		
uantities (only ajor Items	ltem	Overburden Excavati		Un m			
uantities (only ajor Items		Overburden Excavati Embankments (All Ma	on		<sup>3</sup> 680,000		
uantities (only ajor Items	1		on aterials)	m	<sup>3</sup> 680,000 <sup>3</sup> 1,100,000		
oproximate uantities (only ajor Items cluded)	1	Embankments (All Ma	on aterials)	m	<sup>3</sup> 680,000 <sup>3</sup> 1,100,000 <sup>2</sup> 42,000		

#### Lower Churchill Project

#### PACKAGE DICTIONARY

Package No.:		CH0008	Туре:	Contract
Titles	(long):	Construction of North Spur Stabilization Works	Revision No.:	01
	(short):	North Spur Stabilization Works	Date:	13-Apr-2012

Work Excluded:						
	Description	Package No.				
	Geotechnical investigations, which are included in package WS0713	WS0713				
	Construction road from the South shore, which is included in package (RCC Dams and River Cofferdams)	CH0009				
Quality	The contractor shall comply with the Quality Requirement Specification number: 505573-0000- 38RA-0003.					
Reference Section	The following main documents are used to define the scope of the works: Design Criteria as formulated for the Lower Churchill Project; Geotechnical Investigations performed in package CH0006 (Bulk Excavation Works); Specific design calculations and specialized studies					
Interface with Other Packages	Description	Dookago No				
	Description           RCC Dams and River Cofferdams: Construction of the construction road from the south shore through the upstream cofferdam after diversion. The road will allow the utilization of rockfill coming from the required excavations.	Package No. CH0009				
	Construction of log booms access road in the upstream part of the North Spur. (Construction of Log Booms)	CH0049				
	315 kV HVac Transmission Line Construction: Transmission line will be constructed prior to stabilization works.	CT0319				
	Construction Contract for Construction Power: Construction line will be constructed prior to stabilization works and shall be diverted during the construction of the slurry cut-off wall located in the Northwest part of the Spur.	CD0512				
Specific Site Conditions	No access to the site available from the south shore until diversion of the river.					
	Aproximately 300 kVA of construction power will be supplied to the contractor.					
Specific Schedule Conditions	Some stabilization works and instrumentation shall be done before diversion of	the river.				
Specific Environment Conditions	No special requirements other than the Environmental and Safety Requirements provided in the Agreement in several documents.					

#### Lower Churchill Project

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#### PACKAGE DICTIONARY

Package No.:		CH0008	Type: Contract
Titles	(long):	Construction of North Spur Stabilization Works	Revision No.: 01
	(short):	North Spur Stabilization Works	Date: 13-Apr-2012
Specific Sa Conditions	fety	Environmental and Safety Requirements will be p	provided in the Agreement in several documents.
Equipment	List	Not applicable	
Schedule a Milestones	nd	EOI Date: RFP Date: Award Date: Receive Initial Vendor Drawings: Forecast at Site: Construction Complete:	
Budget		To be provided by Estimation	
Applicable	Sub-	Muskrat Falls Generation 🛛 Labrador – Isl	land Transmission Link
Project/SP\	/	Labrador Transmission Assets  Lower Church	hill Project – General
IBA Packag	je		
		YES 🗌 NO 🖾	

#### Lower Churchill Project

Project Base Cur	rrency:	CAD					
Package No.:		CH0009			Туре:	C-Contract	
Titles	(long):	Constru	ction of North and South D	ams	Revision No.:	01	
(:	short):	North a	nd South Dams		Date:	13-Apr-2012	
`Discipline:							
Responsibilities:	Area I	Manager:	Michel Maeyens	Package Engineer:	Michel Maey	/ens	
	QA/0	QC:	Ken Morrison	Contract Admin. / Buyer:	Stella Roche		
Scope of work Summary			impervious till core and	es the excavation and const cutoffs and associated filt Rockfill Dam and North RCC	ers and transit		
Work Include	d:	•	The North Upstream Rockfill Cofferdam, including cutoff, foundation preparation and treatment. Foundation preparation may consist of jet grouting, pending on the results of the site investigations to be undertaken in SM0713 The North Downstream Cofferdam.				
		•	The North RCC Dam, including excavation, foundation preparation, treatment, drainage, electrical works, mechanical works and instrumentation.				
		•	The South Rockfill Dam instrumentation.	n including foundation prepa	aration, treatmo	ent, drainage, and	
		•	The South Transition Dar retaining walls	m (CVC), between the Power	house and Roc	k Fill Dam, including	
		•	This package will include hardware supply for the monitoring of instrumentation consisting of vibrating wire piezometers, opens standpipe piezometers, joint meters, crest monuments, Flow –V-notch type flow meters, seismographs and central unit readout stations.				
		•	Removal of the downstrea (built by CH0006)	am part (from the Spillway D	/S) of the RCC	Riverside Cofferdam	
		•	Access Road around Nort	h Spur from the upstream cof	ferdam to the N	orth spur	
		•	Temporary Access Roads				
		•	Borrow Areas				
		Re	f: Package CH0007: Const	ruction of Intake and Powerho	ouse, Spillway a	nd Transition Dams	
		Re	f. Package CH0008: Const	ruction of North Spur Stabiliza	tion Works		
		Re	f. Package CH00006: Cons	struction of Bulk Excavation W	orks and Assoc	iated Civil Works.	

#### Lower Churchill Project

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Project Base Currency:	CAD		
Package No.:	CH0009	Type:	C-Contract
Titles (long):	Construction of North and South Dams	Revision No.:	01
(short):	North and South Dams	Date:	13-Apr-2012
(Short).		Buto.	1077012012
Anneximate			
Approximate Quantities (major	ITEM         DESCRIPTION (Base Case)           1         COFFERDAMS	UNIT	QUANTITY
items only):	I         COFFERDAMS           1.1         Overburden Excavation (all structures)	m <sup>3</sup>	24,7000 m <sup>3</sup>
iteme enig).	1.2 Till (Rockfill Cofferdams)	m <sup>3</sup>	187,000 m <sup>3</sup>
	1.3 Rockfill, granular, Rip-Rap	m <sup>3</sup>	199,000 m <sup>3</sup>
	1.4 Large blocks for Diversion	m <sup>3</sup>	52,000 m <sup>3</sup>
	2 DAMS		52,000 m
	3 NORTH RCC DAM		
	3.1 Overburden Excavation	m <sup>3</sup>	70,000 m <sup>3</sup>
	3.2 Rock Excavation	m <sup>3</sup>	$2,700 \text{ m}^3$
	3.3 RCC	m <sup>3</sup>	189,000 m <sup>3</sup>
	3.4 Conventional Concrete	m <sup>3</sup>	27,3000 m <sup>3</sup>
	3.5 Cement for Grouting	kg	110,000 kg
	3.6 Drainage holes (Foundation and Dam)	m	5,000 m
	4 SOUTH ROCKFILL DAM		
	4.1 Overburden Excavation	m <sup>3</sup>	100,500 m <sup>3</sup>
	4.2 Compacted Till	m <sup>3</sup>	22,200 m <sup>3</sup>
	4.3 Rockfill (All categories)	m <sup>3</sup>	92,300 m <sup>3</sup>
	4.5 Concrete CVC (South Transition Dam between	m <sup>3</sup>	11,900 m <sup>3</sup>
	Powerhouse and Rockfill Dam))		,
	5 Removal of RCC Cofferdam	m <sup>3</sup>	15,800 m <sup>3</sup>
		<b>I</b>	
Contract Basis:	Lump Sum		Rates
	Combination Lump Sum – Unit Rates	Cost Reimbu	rsable
	Remarks:		
	2		

# Lower Churchill Project

Project Base Cu	irrency:	CAD		
Package No.: Titles	(long):		Type: Revision No.:	C-Contract 01
	(short):		Date:	13-Apr-2012
Work Exclud	led:			
		Description		Package No.
		Tailrace Cofferdam, including foundation preparation and treatment	CH	0006
		Riverside Cofferdam to be constructed	CH	0006
		Powerhouse intake Cofferdam (separation Wall)	CH	0007
		Construction of Bulk Excavation Works and associated Civil Works inclusive of:		
		<ul> <li>Powerhouse / Intake Excavation;</li> <li>Tailrace excavation;</li> <li>Spillway excavation;</li> <li>Switchyard and switchyard extension excavation and backfill</li> </ul>		0006
		Intake and Powerhouse Construction		0007
		Spillway Structure Construction		0007
		Transition Dams(North and Centre)	CH	0007
		North Spur Improvement	CH	0008
		Construction of access road/cofferdam at upstream end of Intake App Channel	oroach CH	0007
		Construction of temporary access bridges	CH	0007
Quality		Refer to the quality documents		
Reference Section		<ul> <li>The following main documents are used to define the scope:</li> <li>Design Criteria as formulated for the Lower Churchill Proje</li> <li>MF 1380 – Muskrat Falls Site Information for Tenderers Ref no; 723468-MF 1380-40ER-0001</li> <li>Specific Design Calculations</li> </ul>	ect	

#### Lower Churchill Project

Project Base Curre	ency: CAD			
	CH0009 Drng): Construction of North and South Dams hort): North and South Dams	Type: Revision No.: Date:	C-Contract 01 13-Apr-2012	
Interface with Other Package	The completion of portions of CH0007 is very critical to er	Upstream Cofferdan ensure the constructi	n. The construction o	
	Noted is that CH0007 depends upon on the timely comple which in turn depends on the Completion of the Southside Construction of the South Dam is not on a critical path.		avation (CH0006),	
Specific Site Conditions	The closure of the river for diversion through the spillway works and the construction of the North Upstream Cofferdam will be the most critical activity. It is noted that concerns exist on the quality the foundation of the Cofferdam, potentially located on a weaker rock zone, which may require additional treatment, by Jet grouting or other techniques. Additional Site investigation in the river bed to be undertaken by CH0006 will shed more clarity on the type of foundation works to be undertaken Careful scheduling of the construction works sequence will be needed.			
Specific Scheo Conditions	dule In view of the relatively tight schedule for the construction careful scheduling of the construction works sequence will the North Upstream Cofferdam in view of potential foundation South Dam must be completed before impoundment.	I be needed. This is		
Specific Environment Conditions	The Construction of the North Upstream Cofferdam into order to avoid excessive contamination of the river during		tate extra care in	
Specific Safety Conditions	Construction of the North Upstream Cofferdam in fast flor measures in order to ensure the safety of the personnel.	wing water will requir	e extra safety	
Special Requirements	(AII) Environmental and Safety Requirements are provided in t Special care will also be required when constructing the re towards the and onto the North Spur	-		
Equipment Lis	The Contractor will be required to submit details on the int These are specified in the Technical Specifications	strumentations to be	installed in the dams	
	Equipment consists typically of vibrating wire piezome meters, crest monuments, flow –V-notch type, seismogra			

# Lower Churchill Project

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Project Base (	Currency:	CAD		
Package No.:		CH0009	Туре:	C-Contract
Titles	(long):	Construction of North and South Dams	Revisior	
	(short):	North and South Dams	Date:	13-Apr-2012
Schedule a Milestones		EOI Date: RFP Date: Award Date: Receive Initial Vendor Drawings: Forecast at Site: Construction Complete:		nes will be updated once ne schedule is in place.
Budget		TBD	<u> </u>	
Applicable Project/SP\		Muskrat Falls Generation 🛛 Labrador – Islan	d Transmission Link	
		Labrador Transmission Assets 🔲 Lower Churchill	Project – General	
IBA Packaç	je	YES NO		

Package No.: Titles (long): (short):	CH0023 Construction of Reservoir Clearing South Bank Reservoir Clearing South Bank	Type:RFQC-ContractRevision No.:01Date:13-Apr-2012
Discipline: CIVIL Responsibilities: Area QA /	Manager: Wallace Piercey Package E	Engineer: William Evans Admin. / Buyer: Stella Roche
Scope of Work Summary:	This contract includes clearing 986 ha of mere wood on the South Bank in the ice and sticku Reservoir. It also includes clearing forest acce km of road and 20 ha of storage yard areas.	p zones of the Muskrat Falls
Work Included:	<ul> <li>Construct 93 km of forest access road reservoir.</li> <li>Install 60 stream crossings which incluculverts &gt;1000 mm in diameter.</li> <li>Clear and prepare 20 ha of storage ya</li> <li>Mechanical harvesting of merchantable</li> <li>Process merchantable wood at roadsi</li> <li>Truck merchantable wood to specified</li> <li>Clear and mulch non-merchantable wood shrubs.</li> </ul>	ude 25 temporary bridges and 35 ard areas. le & non-merchantable wood. ide to remove limbs and tops. I storage yards.
	ITEM DESCRIPTION (Base Case)	UNIT QUANTITY
Quantities:	1 Merchantable and non-merchantable wo	
	2 Forest access road	km 93
	3 Storage yard areas	Ha 20
Contract Basis:	Lump Sum Combination Lump Sum – Unit Rates <u>Remarks</u> :	□ Unit Rates □ ⊠ Cost Reimbursable □
Work Excluded:	Description	Package No.
	Construction of fish habitat replacement & te habitat	errestrial CH0052
Quality:	Quality requirements are defined in do	

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Package No.: Titles (long): (short):	CH0023 Construction of Reservoir Clearing South Bank Reservoir Clearing South Bank	Type: RFQ C-Contract Revision No.: 01 Date: 13-Apr-201	
Reference Section:	<ul> <li>Reservoir Preparation Plan: LCP-PT-ED-</li> <li>Design Philosophy for Reservoir Preparat 0006-01</li> </ul>		
Interface With:	Description	Package No.	
	Construction Power to Site	CD0512	
	Bulk Excavation	CH0006	
	Construction Switch Yard	CD0502	
	Fish & Terrestrial Habitat Construction	CH0052	
	Supply and Install Log Booms	CH0049	
Specific Schedule Conditions:	proceed.	<ul> <li>CH0006 has to be started and the road to the spoil area completed before</li> </ul>	
	<ul> <li>There are no packages that cannot proce started.</li> </ul>	ed before this package has	
Specific Environmental Conditions:	Concerns with soil stabilization & runoff, and fuel storage & use.		

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Project Base Currency:	CAD	
Package No.: Titles (long): (short):	CH0023Type: RFQC-ContractConstruction of Reservoir Clearing South BankRevision No.:01Reservoir Clearing South BankDate:13-Apr-2012	
Special Requirements:	Owner reserves the right to negotiate the South Bank Reservoir Clearing with the successful bidder for the North Bank Reservoir Clearing.	
Free Issued Materials:	Not Applicable	
Equipment List:	Not Applicable	
Schedule/Dates:	EOI Date: TBD RFP Date: TBD Award Date: TBD Receive Initial Vendor Drawings: TBD Forecast at Site: TBD Construction Complete: Dates for milestones will be updated once the Project baseline schedule is in place.	
Budget:	TBD	
Applicable Sub Project/SPV:	Muskrat Falls Generation       Image: Labrador - Island Transmission Link         Labrador Transmission Assets       Image: Lower Churchill Project - General	
IBA Package:	YES 🛛 NO 🗌	

Project Base Currency:	CAD		
Package No.: Titles (long): (short):	CH0024 Construction of Reservoir Clearing North Bank Reservoir Clearing North Bank	Type: RFQ Revision No.: Date:	C-Contract 01 13-Apr-2012
Discipline: CIVIL Responsibilities: Area QA / 0	Manager: Wallace Piercey Package Engineer: DC: Ken Morrison Contract Admin. / Buyer:	William Eva Stella Roche	
Scope of Work Summary:	This contract includes clearing 756 Ha of merchantab wood on the North Bank in the ice and stickup zones Reservoir. It also includes clearing forest access road 64.8 km of road and 13 ha of storage yard areas.	of the Muskrat	Falls
Work Included:	<ul> <li>Construct 64.8 km of forest access roads along the North Bank of the reservoir.</li> <li>Install 39 stream crossings which include 17 temporary bridges and 22 culverts &gt;1000 mm in diameter.</li> <li>Clear and prepare 13 ha of storage yard areas.</li> <li>Mechanical harvesting of merchantable &amp; non-merchantable wood.</li> <li>Process merchantable wood at roadside to remove limbs and tops.</li> <li>Truck merchantable wood to specified storage yards.</li> <li>Clear and mulch non-merchantable wood, limbs and tops, deadfalls and shrubs.</li> </ul>		and 22 od. ps.
Approximate Quantities (major items only):	ITEMDESCRIPTION (Base Case)1Merchantable and Non-Merchantable Wood2Forest Access Road3Storage Yard Areas	UNIT Ha m <sup>2</sup> Ha	QUANTITY 756 64.8 13
Contract Basis:	Lump Sum Combination Lump Sum – Unit Rates <u>Remarks</u> :	Unit Cost Reimbu	Rates  rsable
Work Excluded:	Description Construction of fish habitat replacement & terrestrial habitat	Packag CH0052	e No.
Quality:	Quality requirements are defined in document 505573 Contractor Quality Requirements specification.	3-0000-38RA-I	-0003,

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Package No.: Titles (long): (short):	CH0024 Construction of Reservoir Clearing North Bank Reservoir Clearing North Bank	Type:RFQC-ContractRevision No.:01Date:13-Apr-2012	
Reference:	<ul> <li>Reservoir Preparation Plan: LCP-PT-ED-00</li> <li>Design Philosophy for Reservoir Preparation 0006-01</li> </ul>		
Interface With:	Description	Package No.	
	Clearing AC Line	CT0341	
	Construction AC Line	CT0319	
	Construction Power to Site	CD0512	
	Upstream Coffer Dam	CH0009	
	North Spur Stabilization	CH0008	
	Fish & Terrestrial Habitat Construction	CH0052	
	Supply and Install Log Booms	CH0049	
	Permanent Power to Site	TBD	
Specific Site Conditions: Specific Schedule Conditions:	<ul> <li>Access to the clearing sites from 7 locations from existing access roads.</li> <li>Camp accommodations and services will be</li> <li>Communications will be supplied by the con</li> <li>There are no packages that have to be start package can proceed.</li> <li>There are no packages that cannot proceed started.</li> </ul>	e supplied by the contractor. tractor.	
Specific Environmental Conditions:	Concerns with soil stabilization & runoff, and fuel storage & use.		
Specific Safety Conditions:	<ul> <li>Operating heavy equipment on slopes, truck terrain, operating away from base camp.</li> </ul>	king in winter conditions in steep	
Special Requirements:	<ul> <li>Owner reserves the right to negotiate the So with the successful bidder for the North Ban</li> </ul>		

#### Lower Churchill Project

CAD

#### Project Base Currency: CH0024 Type: RFQ Package No.: C-Contract Titles Construction of Reservoir Clearing North Bank Revision No.: 01 (long): (short): Reservoir Clearing North Bank Date: 13-Apr-2012 Free Issued Not Applicable Materials: **Equipment List:** Not Applicable EOI Date: TBD Schedule/Dates: **RFP** Date: TBD Award Date: TBD **Receive Initial Vendor Drawings:** TBD Forecast at Site: TBD Construction Complete: Dates for milestones will be updated once the Project baseline schedule is in place. **Budget:** TBD Applicable Sub **Muskrat Falls Generation** $\boxtimes$ Labrador - Island Transmission Link Project/SPV: Labrador Transmission Assets $\square$ Lower Churchill Project – General **IBA Project:** $\boxtimes$ YES NO

#### PACKAGE DICTIONARY

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# Lower Churchill Project

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# PACKAGE DICTIONARY

Titles (long): (	CH0029 Construction of Site Restoration at Muskrat Falls Site Restoration	Type: Revision No.: Date:	C-contract 01 13-Apr-2012
Discipline: Civil Responsibilities: Area Ma QA / QC		Terry McCa TBD	rthy
Scope of work Summary:	At the conclusion of construction, temporary infrastructure restoration of sites will be carried out in accordance with		
Work Included:	All temporary infrastructure associated with construction s removed. This includes the accommodations complexes, and laydown areas, marshalling yards and concrete plant will be established at the sites through grading to prevent along temporary access roads will be removed, road surfant natural regeneration of surface cover.	workshops, ts. Permanen erosion. Brid	material storage t drainage patterns dges and culverts
Approximate Quantities (major items only):	ITEM     DESCRIPTION       1     TBD	UNIT	QUANTITY
Contract Basis:	To be determined.		
Work Excluded:			
	Description	Pack	kage No.
	Borrow pits and quarries		
	Temporary and Permanent access roads to borrow pits and quarries		
	Temporary infrastructure for transmission lines		
Quality	Contractor chall comply with Quality Dequirement Cracifi		or 505572 0000
Quality:	Contractor shall comply with Quality Requirement Specifi 38RA-0003.	cation Numb	er 505573-0000-
Reference Section:	The following main documents are used to define the sco	ppe:	
Interface with other Packages:	Description	F	Package No.

# Lower Churchill Project

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# PACKAGE DICTIONARY

Package No.:	CH0029 Type: C-contract
Titles (long):	Construction of Site Restoration at Muskrat Falls Revision No.: 01
(short):	Site Restoration Date: 13-Apr-2012
Specific Site Conditions:	To be determined.
Specific Schedule Conditions:	Any other packages that have to be started before the subject package can proceed: (Not Applicable)
	Any other packages that cannot proceed before the subject package has started: (Not Applicable)
Specific Environment Conditions:	To be determined.
Specific Safety Conditions:	To be determined.
Special Requirements:	To be determined.
Free Issued Materials:	Not Applicable
Major Equipment List:	Not Applicable
Schedule and Milestones:	EOI Date: RFP Date:TBDRFP Date:TBDAward Date:TBDStart Construction:TBDConstruction Complete:TBDDates for milestones will be updated once the Project baseline schedule is in place.
Budget:	As per DG3
Applicable Sub- Project/SPV	Muskrat Falls Generation       Image: Labrador – Island Transmission Link         Labrador Transmission Assets       Image: Lower Churchill Project – General
IBA Package	YES 🔲 NO 🖾

Project Base Currency: CAD				
	and Install Turbines and Generators and Generators		Type: Revision No.: Date:	C- Contract 01 13-Apr-2012
Discipline: Heavy Mechanic Responsibilities: Area Manager: QA / QC:	Luc Turcotte Packa	ge Engineer: ct Admin. / Buyer:	Jean-Marc o Chris Wood	
Scope of Work Summary	Design-engineering, supply and having a capacity of 229 MVA e 15 kV. The units are of the vertical axis pole synchronous generator. Each turbine is fed from a th powerhouse and connected to returned to the tailrace through Technical Specifications and oth are imposed on the Contractor a	ach under a rat Kaplan turbine nree bay intak o a concrete an elbow draft t ner criteria/para	e d net head of type directly e on the up semi-spiral c ube.	of 35 m, 0.9 p.f. and coupled to a salient stream wall of the ase. The water is
Work Included:	<ul> <li>Kaplan Turbines, vertical axis units</li> <li>Digital Governor Systems with servential Synchronous Generators, vertical a</li> <li>Static Excitation Systems including</li> </ul>	romotors and hig axis, water/air coo	bling;	
	<ul> <li>and manual voltage regulation, etc.</li> <li>Generator Neutral Cubicles;</li> <li>Control, protection and monitoring</li> </ul>	, and black start	capability;	
	<ul> <li>protection panels and the equipme</li> <li>Split phase CT's on the line side of</li> <li>Generator neutral phase CT's;</li> </ul>		rt of the turbine	e/generator package;
	<ul> <li>Electrical and mechanical ancillary</li> <li>Cable trays inside the generator pit</li> <li>Lighting inside generator pit;</li> </ul>		ne generator pi	t and the turbine pit;
	Fire detection and protection inside	generator		

#### Lower Churchill Project

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#### PACKAGE DICTIONARY

Project Base Currency: CAD Package No.: CH0030 C- Contract Type: Titles Revision No.: (long): Supply and Install Turbines and Generators 01 **Turbines and Generators** (short): Date: 13-Apr-2012 **Approximate Quantities** (major items only): Description Quantity Item Unit Turbines, vertical Kaplan, 206 MW, 35 m head 04 1 ea Generators, vertical synchronous, 229 MVA, 15 kV, 2 04 ea 0.9 p.f.,60 Hz Governors 3 ea 04 Static Excitation Cubicle 4 04 ea Excitation transformer 5 04 ea Unit Protection system (T/G group, GSU 6 04 ea Transformer and line) Unit Control and Monitoring Systems 7 04 ea Powerhouse Control System 8 04 ea Turbines, vertical Kaplan, 206 MW, 35 m head 9 ea 01 **Contract Basis** Lump Sum  $\square$ Unit Rates Combination Lump Sum – Unit Rates Cost Reimbursable Remarks: Work Excluded: Package No. Description Main lighting and convenience outlets CH0031 Fire detection and protection system external to the CH0031 generator enclosure Building security system CH0031 Water filtration system for shaft seal lubrication and cooling CH0031 and piping outside of generator pit Plant water level indicators supplied and installed by CH0031 Electrical/Mechanical Auxiliary Contractor. Station service power CH0031 Intake gates, hoists, bulkhead gates, trashracks CH0032 Draft tube gates and draft tube overhead crane CH0046

Project Base Currency: CAD		
	Type:and Install Turbines and Generatorss and GeneratorsDate:	C- Contract n No.: 01 13-Apr-2012
	Primary grounding	CH0007
	External communications	CD 0510
	Remote Terminal Unit (RTU)	CD 0510
	Construction power	CH0512/CH0005
Quality	Requires Determination of the Equipment Quality Rating	ES X NO
	Determination of Equipment Criticality based on GP-5600-PR-02-E         High       Minor         Significant       Negligible         Determination of Quality Surveillance level based on GP-5600-PR-03-E <u>4</u> Continuous in process quality monitoring and verification and final quality in the process quality monitoring and verification and final quality in the process quality with the process quality monitoring and verification and final quality in the process quality with the process quality monitoring and verification and final quality is the process quality with the process quality process quality process quality process quality process quality process quality with the process quality process quali	erification. ty verification. y verification. y the Company. y the Contractor as per the 's Technical Specifications neer and confirmed at oduce any of the
Reference Section	<ul> <li>The following main document was used to define the scope:</li> <li>DG3 Capital Cost Estimate – Basis of Estimate Lower Churchill Project – Basis of Design; LCP-PT-ED-0</li> <li>Design Criteria as formulated for the Lower Churchill Pro RFP Scope of Work</li> <li>RFP Technical Specifications</li> <li>Preliminary Design Drawings</li> </ul>	
Interface with Other Packages		
I achayes	Description	Package No.
	Construction of the Powerhouse including the construction of the water passage for the turbines and the concrete foundations fo turbine and generator within package CH0030 as detailed in the construction schedule.	r the

Lower Churchill Project

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# PACKAGE DICTIONARY

Package No.: Titles	(long):	H0030 Type: upply and Install Turbines and Generators Revision No.:	C- Contract 01			
	(short):	urbines and Generators Date:	13-Apr-2012			
		Tie-ins to powerhouse services outside package CH0030. Adequate use of powerhouse space will require coordination during the construction phase.	e CH0031			
		Supply and Install Powerhouse Hydro-Mechanical Equipment	CH0032			
		Supply and Install Powerhouse Crane	CH0033			
		Supply of Generator Step-up Transformer	PH0014			
		Supply of Isolated Phase Bus	PH0015			
		Supply of Generator Circuit Breakers	PH0016			
Specific Sit	e Condi	As required in the RFP				
Specific Schedule Conditions		<ul> <li>Any other packages that have to be started before the subject package</li> <li>CH0007 – Powerhouse civil works</li> <li>Items that have to be completed before the subject package can produce the subject package ca</li></ul>	eed:			
		<ul> <li>Timely achievement of the installation and embedment of ma (CH0030) to be embedded in the concrete (CH0007) requires Timely execution of activities involves the 2 packages Contra</li> <li>CH0033 – Powerhouse Overhead Crane</li> </ul>	s close coordination.			
		CHOUSS – Powerhouse Overhead Crane				
		<ul> <li>Any other packages that cannot proceed before the subject package</li> <li>CH0031 - Installation of mechanical and electrical auxilia</li> <li>Powerhouse</li> </ul>				
Specific En Conditions		Environmental concerns when constructing structures close to	Environmental concerns when constructing structures close to water.			
		Follow site and Contractor's environmental management plans				
Specific Sa Conditions		Safety concerns when working close to water.	Safety concerns when working close to water.			
		Engineer will be reviewing and accepting all work procedures.				
	quireme	Environmental and Safety Requirements are provided in the Age documentation.	jreement			
Special Red (All)						
-	d Materia	Not Applicable				

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#### PACKAGE DICTIONARY

Package No.:		CH0030	Type: C- Contract
Titles	(long):	Supply and Install Turbines and Generators	Revision No.: 01
	(short):	Turbines and Generators	Date: 13-Apr-2012
Schedule a	nd Miles	EOI Date: RFP Date: Award Date: Receive Initial Vendor Drawings: Forecast at Site: Construction Complete:	TBD TBD TBD TBD TBD Dates for milestones will be updated once the Project baseline schedule is in place.
Budget		TBD	
Applicable Project/SP\			- Island Transmission Link
IBA Packaç	je	YES NO	

	nd install Mechanical and Electrical A cal and Electrical Auxiliaries (MF)	uxiliaries (MF)	Type: Revision No.: Date:	C-Contract 01 13-Apr-2012
Discipline: Generation Responsibilities: Area Manager: QA / QC:	Luc Turcotte Kenneth Morrison	Package Engineer: Contract Admin. / Buyer:	Martin Land Steve Muller	•
Scope of Work Summary	Powerhouse, Intake, Da Major Electrical Equipme of the supplied equipme	ckage CH0031 includes Me ms and Spillway Auxiliary E ent and cabling under the s ent and installations is also al Auxiliaries and Architect so included.	lectrical System upervision of S included.Supp	ms and installation of Suppliers. Site testin bly and installation of
Work Included:	Spillway - Gate Areas and T	unnels		
	<ul> <li>Normal and emerger</li> <li>Convenience and we</li> <li>600 Vac, 208/120 Va</li> <li>600-600/347 Vac an</li> <li>25 kV-600 V step-do</li> <li>600V, 2000A buswa</li> <li>25 kV power cables</li> <li>LV power, control and</li> <li>Cable trays and cond</li> <li>Water level-meter sy</li> <li>Surface grounding a</li> <li>Secondary grounding</li> <li>Fire Detection system</li> <li>Installation of:</li> <li>Telecommunication fi</li> <li>Security and CCTV si</li> <li>Intakes – Gate Rooms and M</li> <li>Supply and installation of:</li> <li>HVAC and Clear Wa</li> <li>Normal and emerger</li> <li>Convenience and we</li> <li>600 Vac, 208/120 Va</li> <li>600-600/347 Vac an</li> <li>Power, control and condition of the power of the</li></ul>	luding Fuel storage Tank ney lighting systems elding receptacles ac, 125 Vdc distribution pane d 600-208/120 Vac dry type wn transformer y from 25 kV-600 V transform and terminations id communication cables duits rstem nd connection to embedded g m panels and controllers systems <u>Maintenance Areas</u> ter Drainage ney lighting systems elding receptacles ac, 125 Vdc distribution pane d 600-208/120 Vac dry type ommunication cables e trays and conduits nd connection to embedded g em telephones, panels and	transformers mer to MCC //buried ground els and MCC's transformers	

ackage No.:		CH0031	Type:	C-Contract
Titles (long):		Supply and install Mechanical and Electrical Auxiliaries (MF)	Type: Revision No.:	01
1105	(short):	Mechanical and Electrical Auxiliaries (MF)	Date:	13-Apr-2012
	(enerty)		2010	· · · · · · · · · · · · · · · · · · ·
		North Dam, South Dam, Centre Dam and South Tra	nsition Dam	
		Supply and installation of:		
		HVAC and Clear Water Drainage	collorion and atairs	
		<ul> <li>Normal and emergency lighting systems for</li> <li>Outdoor lighting for South Dam and Centre</li> </ul>		
			<u>bum</u>	
		Powerhouse and Office Block		
		Supply and installation of:		
		Miscellaneous Hoists     Machanical avetama: HVAC, Baw Water, C	ooling Wotor Sond	ion Water Shoft So
		<ul> <li>Mechanical systems: HVAC, Raw Water, C Water, Dewatering, Clear Water Drainage, Wastewater, Piezometer and water level, L</li> </ul>	Oily Water Draina	ige, Domestic Wate
		system and Oil Handling		
		Mechanical shop equipment     Fire Detection and Protection System (inclusion)	ding fire extinguish	o.ro)
		<ul> <li>Fire Detection and Protection System (include</li> <li>600Vac switchgear and MCC's</li> </ul>	aing fire extinguishe	ers)
		<ul> <li>600 V, 2500 A busway between 600 V switch</li> </ul>	hgear and MCC's	
		<ul> <li>600/347 Vac, 208/120 Vac, 125 Vdc, 48 Vdc</li> </ul>		6
		• 600-600/347 Vac and 600-208/120 Vac dry	type transformer	
		25 kV-600 V step-up transformer	<del>-</del> ,	
		<ul> <li>Emergency diesel generator including Fuel</li> <li>125 V and 48 V batteries, chargers and batteries</li> </ul>		
		<ul> <li>120 Value 40 V ballenes, chargers and ball</li> <li>120 Vac UPS system</li> </ul>		
		Grounding connections to the surface groups of the surface gr	ounding in the pov	wer station comple
		including equipment and structure grounding	-	
		25 kV power cable complete and termination	าร	
		Power, control and communication cables     Cable trave and conduits		
		<ul> <li>Cable trays and conduits</li> <li>Power, control and communication cables be</li> </ul>	etween nowerhous	e and switchvard
		Normal and emergency lighting systems		e and switchryard
		Convenience and welding receptacles		
		Installation of:		
		Powerhouse major electrical equipment: Iso		PB), Generator circ
		<ul> <li>breakers, generator step-up (GSU) transform</li> <li>Installation of 15 kV-600/347 V station service</li> </ul>		
		<ul> <li>Telephone system and wiring</li> </ul>		
		Access control, Intrusion alarm and CCTV s	vstems	
		Others for all locations:	-	
		<ul> <li>Pre-commissioning procedures and tests o systems including submission of Test report</li> </ul>		talled equipment a
		<ul> <li>O&amp;M manuals of supplied equipment and sy</li> </ul>		
		<ul> <li>As built annotated drawings</li> </ul>		
		Unloading and storage of equipment supplie	d by others for inst	allation by CH0031
		<ul> <li>Supply and installation of the emergency of Contractor's use</li> </ul>	-	-

Project Base (	Currency:	CAD				
Package No.: Titles	(long): (short):		and install Me	echanical and Electrical Auxiliaries (MF) trical Auxiliaries (MF)	Type: Revision No.: Date:	C-Contract 01 13-Apr-2012
				tural Interior Works for Powerhouse and Office E Insulated metal wall panel system applied to inter Concrete masonry unit system for interior walls a Gypsum board wall assemblies, including non-st and acoustic insulation, for interior partitions. Interior metal doors, frames and hardware, in access doors. Interior fixed glazing in metal frames. Floor finishes, including concrete floor hardener tile, resilient sheet and tile flooring, and safety sh Wall finishes, including painting of masonry, g board systems, etc. Ceiling systems, including suspended acoustic gypsum board ceiling systems. Fire and safety systems, including fireproofing, fi Toilet and washroom accessories, including but bars, tissue & towel dispensers, waste receptac lockers, cabinets, and shelving. Architectural woodwork, including kitchen cabine plastic laminates, and trimwork. Equipment and furnishings, including kitchen blinds, marker & tack boards, identification & offices, meeting & training rooms, lunch room, et Miscellaneous architectural specialties. Pre-commissioning procedures. Operation and Maintenance manuals. As-built drawings of completed work.	erior concrete and partitions. tructural meta ncluding mec r, safety coatin neet flooring. gypsum board cal panel sys irestopping, a t not limited to cles, hand dry ets & hardwar appliances, & directional	I stud framing, therma hanical and electrica ngs, ceramic & quarry a and metal, drainage stems and suspended and safety blankets. b, toilet partitions, grat yers, soap dispensers re, washroom vanities window coverings & signage, furniture fo
Approxima (major item			<b>ITEM</b>	<b>DESCRIPTION (Base Case)</b> Station Service Switchgear, 600/347 V, 3 phas		
	is only).		2	wire, 4000 A, 42 kA IC, Unit Motor Control Centre, 600/347 V, 3 phase		
				wire, 1200 A, 42 kA IC		
			3	Essential Service MCC, 600/347 V, 3 phase, 4 1200 A, 42 kA IC,		
			4	Station Service MCC, 600/347 V, 3 phase, 4 w 3000 A, 42 kA IC,	vire, ea	a 2
			5	Intake MCC, 600/347 V, 3 phase, 4 wire, 1200 kA IC,	A, 42 ea	a 1
			6	Emergency Diesel Generator Set, rated 600 kV 0.8 pf, 600/347 V, three phase	N @ ea	a 1
			7	Panelboard, 400 A, 600/347 V, 3 phase, 4 wire circuit, 35 kA IC	e, 72 ea	a 18
			8	Panelboard, 225 A, 600/347 V, 3 phase, 4 wire circuit, 35 kA IC	e, 72 ea	a 2
			9	Panelboard, 225 A, 600/347 V, 3 phase, 4 wire	e, 42 ea	a 6

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Package No.:		CH0031		ype:	C-Contract
Fitles	(long):	Supply and install	Mechanical and Electrical Auxiliaries (MF)	evision No.:	01
	(short):	Mechanical and E	ectrical Auxiliaries (MF)	ate:	13-Apr-2012
		10	Panelboard, 225 A, 208/120 V, 3 phase, 4 wire, 4	2 ea	12
		11	circuit, 14 kA IC. Dry-type Isolation Transformer, 75 kVA, three pha	ise, ea	6
			600 V delta primary, 600/347 V wye secondary.		
		12	Dry-type Isolation Transformer, 30 kVA, three pha 600 V delta primary, 600/347 V wye secondary.	ase, ea	3
		13	Dry-type Distribution Transformer, 45 kVA, three phase, 600 V delta primary, 120/208 V wye secondary.	ea	12
		14	125 Vdc Battery Charger (Station Control and Protection), 600 V, 3 phase input, 125 Vdc, 400 / output.	ea A	4
		15	125 Vdc Battery Charger (Field Flashing and Eme Ltg), 600 V, 3 phase input, 125 Vdc, 200 A_output		2
		16	125 Vdc Battery Bank (Station Control and Protection), 60 cell, lead acid batteries, 1500 Ah,	ea	2
		17	125 Vdc Battery Bank (Field Flashing and Emerg Ltg), 60 cell, lead acid batteries, 800 Ah.	ea	1
		18	125 Vdc Station Control and Protection Distribution Panel, 600 A, 10 kA IC,	on ea	2
		19	25 Vdc Field Flashing and Emergency Lighting Distribution Panel, 200 A, 10 kA IC, 66 circuit	ea	1
		20	48 Vdc Battery Charger (Telecommunications), 60 V, 3 phase input, 48 Vdc, 400 A output.	00 ea	4
		21	48 Vdc Battery Bank (Telecommunications), 24 co lead acid batteries, 1600 Ah	ell, ea	2
		22	48 Vdc Telecommunications Distribution Panel, 1 A, 10 kA IC, 42 circuit:	00 ea	2
		23	Uninterruptible Power Supply (UPS), 20 kVA, 125 Vdc input and 600 Vac single phase bypass input 120 Vac, 60 Hz output.		2
		24	Uninterruptible Power Supply (UPS) Distribution Panel, 400 A, 120 Vac, single phase, 60 Hz, 66 circuit	ea	1
		25	Fire alarm system	lot	1
		26	Cable Tray, Ladder type, Hot Dipped Galvanized Steel, CSA Load Class D, 100 mm ca depth, straight lengths, widths as follows:	ble	
			150 mm	m	2000
			300 mm	m	3000
			450 mm	m	1200
			600 mm	m	1500
			750 mm	m	1200
		27	Rigid Steel Conduit, size 21 mm	m	7000
		28	Rigid Steel Conduit, size 27 mm	m	3000
		29	Rigid Steel Conduit, size 41 mm	m	1500
		30	Rigid Steel Conduit, size 53 mm	m	1200
		31	Rigid Steel Conduit, size 78 mm	m	1200

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Package No.:	<i>a</i> )	CH0031			C-Contract
Titles	(long):				01
	(short):	Mechanical and Elec	trical Auxiliaries (MF) D	ate:	13-Apr-2012
		32	Rigid Steel Conduit, size 103 mm	m	1200
		33	Grounding conductor, Bare Soft Drawn Copper, s 2/0 AWG	ize m	8000
		34	Grounding conductor, Bare Soft Drawn Copper, s 4/0 AWG	ize m	500
		35	Thermit weld connections (Cadwelds)	ea	1000
		36	1000 V Type TC (tray cable) Power Cable, Class stranded copper conductors insulated with XLPE type RW90 conductor sizes as follows:		
		37	2 C 14 AWG	m	2500
		38	4C14 AWG	m	10000
		39	2 C12 AWG	m	15000
		40	3C 12 AWG	m	6000
		41	2C 10 AWG	m	15000
		42	3C 10 AWG	m	6000
		43	4C 10 AWG	m	1200
		44	2C 8 AWG	m	1500
		45	3C 8 AWG	m	6000
		46	8 AWG	m	1200
		47	4C #6 AWG	m	5000
		48	3C #1 AWG	m	2500
		49	3C #1/0 AWG	m	1200
		50	3C 250 kcmil	m	1200
		51	4C 250 kcmil	m	1200
		52 53	3C 500 kcmil	m	600
			Unshielded twisted pair cable, stranded copper conductors, 14 AWG, one (1) pair	m	5000
		54	Single conductor, Class B stranded copper, 1000 XLPE Type RW90 insulation, size 500 kcmil.	V m	1000
		55	Single conductor copper ground wire, Type TW insulation, size 3 AWG	m	300
		56	Industrial type electric Blower Unit Heater, 5 kW, 6 V, three phase, complete with built-in thermostat.	600 ea	60
		57	Heavy Duty Safety Switch, 30 A, 600 V, three pha unfused, visible blade, CSA 1 enclosure.	ise, ea	100
		58	Industrial outlet box, cast iron, 150 mm x 150 mm 100 mm, complete with cover	x ea	500
		59	Fluorescent Light fixture, polycarbonate housing, enclosed and gasketted lens, 2 x 32 W lamps, premium electronic ballast, 347 V.	ea	300
		60	Fluorescent Light fixture, commercial troffer with prismatic acrylic lens, recessed in T-Bar ceiling, 4 32 W lamps, premium electronic ballast, 347 V.	ea I x	80
		61	Fluorescent Light fixture, industrial striplight with v guard, 2 x 32 W lamps, premium electronic ballas 347 V.		225

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Package No.:		CH0031		ype:	C-Contract
itles	(long):			evision No.:	01
	(short):	Mechanical and Ele	ectrical Auxiliaries (MF)	oate:	13-Apr-2012
		62	High Bay Light fixture, spun aluminum reflector, 1000W metal halide lamp and ballast, 347 V.	ea	50
		63	High Bay Light fixture, spun aluminum reflector, 1000W metal halide lamp and ballast, 250W quar auxiliary lamp, 347 V.		25
		64	Low Bay Light fixture, aluminum reflector with gla diffuser, 250W metal halide lamp and ballast, 347		80
		65	Floodlight, Enclosed Glass Dome, wall mounted, corrosion resistant housing, 150W metal halide, 347V.	ea	20
		66	Floodlight, Outdoor Wall pack, corrosion resistant housing, 250W HPS, 347V.	ea	65
		67	Floodlight, Outdoor type, pole mounted, 400W HF 347V, complete with 10m galvanized steel pole	PS, ea	40
		68	Exit Sign, LED type, universal mounting, with self powered Ni-Cad battery for minimum 90 minutes operation.		55
		69	Commercial style Emergency Lighting Battery Un 120 Vac input, 24 Vdc output, complete with two quartz halogen lamps and lead acid battery sized suit attached lamps for 90 minutes	9 W	30
		70	Industrial Emergency Lighting fixture, surface mounted on wall, with cast back box, prismatic gla globe, and 50 W, 125 Vdc incandescent lamp.	ea	100
		71	Industrial Emergency Lighting fixture, surface mounted on wall, with cast back box, prismatic gla globe, and 100 W, 125 Vdc incandescent lamp.	ea	75
		72	Welding Receptacle, pin and sleeve type complet with interlocking unfused safety switch, 60 A, 600 three phase, four wire, CSA 4X enclosure comple with spring-loaded weatherproof cover.	V,	40
		73	Convenience Receptacle, 15 A, 120 V, duplex, C type 5-15R, complete with single-gang sectional outlet box and stainless steel cover.	SA ea	150
		74	Convenience Receptacle, 20 A, 120 V, duplex, C type 5-20R, complete with surface mounted type cast outlet box and dual-lift weatherproof cover.		150
		75	Hard Drawn Copper Ground Bar, 6 mm x 100 mm	n. ea	500
		76	Stand-off insulators to mount ground bar.	ea	250
		77	Panelboard, 100 A, 125 Vdc, 30 circuit, CSA Type enclosure, complete with tinned copper bus, surfa mounting trim, provided with quantity of fourteen on breakers, each 15 A, 2-pole.	ace	12
		78	Reinforced Concrete Duct Bank, 1200 mm wide x 500 mm high, installed in 1500 mm deep trench, complete with eight 129mm (5 inch) PVC ducts at four 103mm (4 inch) PVC ducts.		10
		79	Cable Trench, 1000 mm wide x 1200 mm deep, covered with 300 mm deep sand at bottom of trer	ea	300

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Package No.:		CH0031			Туре:		C-Contract
Titles	(long):			echanical and Electrical Auxiliaries (MF)	Revision No.		1
	(short):	Mechanica	al and Elec	trical Auxiliaries (MF)	Date:	1	3-Apr-2012
		Γ		and back-filled.			
			80	Teck 90, 1000 V Power Cable, Class B stranded	d	ea	
				copper conductors insulated with XLPE type RV			1500
				size 4C # 350 kcmil.			
			81	Teck 90, 600 V Control Cable, Class B stranded		ea	
				copper conductors insulated with XLPE type RV	V90,		6000
				size 12C # 12 AWG.			
			82	Precast concrete pull pit for electrical cables, 18 1800 x 2000 mm high, complete with steel cove		ea	8
			84	Indoor Dry-Type Transformer, three phase, 60 h		ea	
				ANN, 1.6 MVA, 600 V primary, 25 kV secondary			1
			89	Copper Bus Duct assembly, suitable for indoor		ea	
				location, 2500 A, 600 V, 3 phase, 4 wire, complete			2
				with: 4 x 90° elbows; 2 x flanged end sections; 2	25 m		<u> </u>
				straight length.			
			85	Copper Bus Duct assembly, suitable for indoor		ea	
				location, 2500 A, 600 V, 3 phase, 4 wire, comple			2
				with: 4 x 90° elbows; 2 x flanged end sections; 6 straight length.			
			86			ea	
			00	Copper Bus Duct assembly, suitable for indoor		ou	
				location, 800 A, 600 V, 3 phase, 4 wire, complet with: 4 x 90° elbows; 2 x flanged end sections; 4			2
				straight length.	+0 111		
			07				
			87	Raw water and cooling water system           Automatic self-cleaning strainer		ea	4
				Cast iron body - Flanges 12" dia., class 125		ea	7
				Capacity 165 l/s - Filtration size 0.8 mm			
				Strainer, Cast iron body - Flanges 12" dia., class	s 125	ea	4
				Capacity 165 l/s - Filtration size 0.8 mm - Stainle			
				steel strainer			
				Control panel for automatic self-cleaning straine	er	ea	4
				Control panel for motorize butterfly valve		ea	4
			88	Fire protection system			
				Horizontal Centrifugal pump with electric motor		ea	2
				Cast iron body - Flanged connections 10 " & 8" class 250 - Bronze impeller - Split case - Doubl			
				suction type - ULC and FM - with steel base -			
				Capacity 107 I/s at 950 kPa - 200 HP - 1800 RP	M		
				Vertical Jockey pump, Stainless steel body - Fla		ea	1
				connections 1,25" dia simple suction - stainles	•		
				steel impeller and shaft - class 250			
				Capacity 0,63 l/s at 1100 kPa - 5 HP - 3600 RPI			
				Fire protection cabinet - capacity 75 L/s at 1200	kPa -	ea	4
				type deluge system - 6" dia ULC/UL and FM			
				Control panel for centrifugal pumps, NEMA/UL/	55A	ea	2
				type 3 et IP53 - Control conform to NFPA-20 Control panel for vertical jockey pump,		ea	1
				NEMA/UL/CSA type 3 et IP53 - Control conform		Gd	
			1				

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ïtles	(long):				Revision N		01
	(short):	Mechanica	al and Elec	trical Auxiliaries (MF)	Date:		13-Apr-2012
		Γ		NFPA-20			
				Fire protection flowmeter - Flange connection - cl	ass	ea	1
				150 - Carbon steel body - capacity 160 L/s at 950		ou	
				kPa - 10" dia FM approved			
				Fire hose cabinets 1-1/2" - surface mounted - with	h	ea	20
				100 ft hose and accessories - capacity 4,5 L/s - N	/leet		
				NFPA 14 pressure - UL - Dimensions 30" x 30" x	8"		
				depth			
				Fire extinguishers - steel body - type ABC dry		ea	51
				chemical - 9 kg - ULC/UL			
				Fire extinguishers - aluminium body - type CO2,		ea	13
				carbon dioxide - 7 kg - ULC/UL	_		-
				Fire extinguishers - stainless steel body - type K -	- 9	ea	1
				kg - ULC/UL Clean agent fire suppression system - system sha		00	1
				incule - Storage tank for clean agent, clean agent		ea	1
				smoke and heat detectors, control panel, alarm b			
				distribution pipe and nozzels and all others	, on,		
				components - Dimensions of room : Control roon	n =		
				$9 \text{ m} \times 7 \text{ m} \times 3 \text{ m}$ height - Communication room =			
				m x 7 m x 3 m height - Diesel generator room = 8	8.5		
				m x 7.5 m x 3 m height - Diesel storage room = 7	'.5 m		
				x 3 m 3 3 m height.			
			89	Domestic water system			
				Urinal - Wall mounted - Porcelain vitrified - Water		ea	5
				supply from the above - With sensor operated flue valve.			
				Y-strainer 2" dia., carbon steel body and stainless		ea	1
				steel screen, Socket weld connections, capacity 3 at 750 kPa, class 600, Filtration size 0.1 mm	3 L/s		
				totalizing flow meter, 2" dia., capacity 3 L/s at 750		ea	1
				kPa, flanged connection, class 150 - cast alumini	um		
				body			
				Elongated Toilet - Porcelain vitrified - isoleted tan	ık -	ea	10
				Used 6 Liter by flush - floor mounted			
				Kitchen sink - 18-8 Stainless steel - Size: 510 mn		ea	1
				510 mm x 200 mm height - Satin finished bowl, m finished rim, 20 gauge - with faucet			
				Washroom sink - Porcelain vitrified - oval shape -		ea	10
				Size: 432 mm x 521 mm x 178 mm height - with		Ju	
				faucet			
				Service sink - stainless steel 304 - Size: 610 mm	х	ea	1
				610 mm x 360 mm height - Satin finished - 16 ga			
				- with faucet	-		
				Floor sink - stainless steel 316 - Size: 610 mm x		ea	3
				mm x 560 mm height - Satin finished - 16 gauge	-		
				with backsplash and faucet			
				Multi-station sinks - 8 station island sink - stainles		ea	1
				steel 304 - Size: 1829 mm x 762 mm x 1169 mm			

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Titles	(long):	Supply and install M	lechanical and Electrical Auxiliaries (MF)	Revision No.:	01
	(short):	Mechanical and Ele	ctrical Auxiliaries (MF)	Date:	13-Apr-2012
			height Deliched finished 44 mount		
			height - Polished finished - 14 gauge		
			Shower faucet	ea	2
			Electric water heater, Volume 450 Liters, capacity		1
			kW, 600/3/60, 1-1/2" inlet and outlet connections	, 28-	
			1/2" dia., with cleanout	1.5 00	1
			Electric water heater, Volume 10 Liters, capacity kW, 120/3/60, 1/2" inlet and outlet connections, 1		1
			dia.	4	
			Electric tankless water heater, capacity 126 kW,	ea	3
			600/3/60, Flow 1.45 L/s 1" inlet and outlet	ea	5
			connections		
			Safety station eye/face wash and shower, stainle	ss ea	5
			steel shower head, bowl, flag handle and floor fla		Ű
			1 ¼" IPS Schedule 40 stainless steel pipe and		
			fittings, 1" IPS and $\frac{1}{2}$ " IPS stainless steel stay op	en	
			ball valves, and polished stainless steel pull rod.		
			shall have (4) polypropylene 'GS Plus' spray hea		
			with integral "flip-top" dust covers, filters, and 1.8		
			GPM flow control orifices mounted on a stainless		
			steel head assembly. Unit shall meet or exceed A	ANSI	
			Z358.1 – 2009		
			Domestic water treatment equipment, flow 4 L/s	ea	1
		90	Service water system		
			Horizontal Centrifugal pump with electric motor, C	Cast ea	3
			iron body - Flanged connections 10 " & 8" dia. C	lass	
			125, Split case - Double suction type - bronze		
			impeller - Capacity 37 l/s à 530 kPa - with steel b	ase	
			- 50 HP - 1800 RPM		
			Control panel for centrifugal pumps	ea	1
			Y-strainer 3" dia., carbon steel body and stainles	s ea	12
			steel screen, Flanged connections, class 150,		
			capacity 8 L/s at 750 kPa, Filtration size 0.1 mm		
		91	Dewatering system	4.0"	
			Vertical pump, two stages, Flanged connections		3
			dia., class 150, Capacité 170 l/s at 440 kPa, mot		
			125 HP, pump length = 36,5 meters, Stainless st	eel	
			bowl and impeller, steel column paint inside and		
			outside with epoxy coating - 1800 RPM		
			Control panel for vertical pumps		1
			Submersible pump, aluminium body, stainless ste		1
			shaft, galvanized steel strainer, 8" hose connection	JII,	
			100 L/s at 130 kPa, 50 hp - 3600 RPM Control panel for submersible pump installed on		1
				ea	I
			trolley		1
			Filter basket 20" dia., 20" Flanged connections, c 150, carbon steel body and cover, stainless steel		
			strainer, filtration 1/8"		
		92	Drainage system		
		52	Vertical pump, two stage, Flanged connections 1	0"	3
			I ventical pump, two stage, Flanged connections T	0" ea	3

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ackage No.:		CH0031		Type:	C-Contract
les	(long):	Supply and in	stall Mechanical and Electrical Auxiliaries (MF)	Revision No.:	01
	(short):	Mechanical a	nd Electrical Auxiliaries (MF)	Date:	13-Apr-2012
			dia., class 150,		
			Capacité 60 l/s at 550 kPa, motor 60 HP,		
			length = 36,5 meters, Stainless steel bow impeller, steel column paint inside and ou		
			epoxy coating - 1800 RPM		
			Control panel for vertical pumps	ea	1
			Submersible pump, 30 L/s at 400 kPa, m		1
			cast iron/chrome impeller, Stainless steel		I
			and strainer, 6" hose connection - 3600 F		
			Control panel for submersible pump insta		1
			trolley		
		ļ	3 Wastewater system		
			Submersible pump, 5 HP, Connection fla	inge 3" dia., ea	2
			class 125, capacity 5 l/s at 290 kPa, cast		
			brass impeller, stainless steel shaft and c		
			1800 RPM		
			Portative pneumatic pump, Connections		1
			Flanged connections, class 125, capacity		
			kPa, aluminium body, work at 860 kPa ai		
			Concrete septic tank, volume 13 m <sup>3</sup> , L=5.	200 mm ea	1
			W=2850 mm H= 1815 mm		
			Septic tank filter, flow capacity 5 200 L/da		1
			size = 1.6 mm, with high level switch alar		
			Septic field, Flow capacity 4 542 I/day	ea	2
			Fiberglass pumping tank, dia. 2100 mm a	and height = ea	1
			1200 mm		1
			4 Shaft seal water system	ea	1
			4 Shaft seal water system Sand filter, Flow 4 L/s, water filtered at 25	5 miorono do	3
			with all valves and accessories, skid mou		3
			Stainless steel body and pipe, 3" flanged		
			connections, class 150, 52" dia. X 72" he		
			of filtration =2,8 $L/s/m^2$ of area, working p		
			kPa		
			Control panel for sand filter	ea	1
			Y-strainer 4" dia., carbon steel body and	stainless ea	2
			steel screen, flanged connections		
			Dosing pump for hypochlorous, 3.31 L / h		2
			kPa, 115/1/60, strokes/min = 180, 1/42 a	nd 3/8"	
			connections		
			190 Liter polyethylene tank for hypochlor	ous, ea	2
			dia.=560 mm x 860 mm height		
			Totalizing flow meter, 2" dia., Capacity =		1
		11	kPa, internal coating = Polyurethane, sign	nal outlet 4-	
			20 mA		
			20 mA 5 Low pressure air system Screw compressor with integrated contro	l panel, ea	2

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# PACKAGE DICTIONARY

Package No.:		CH0031		Type:	C-Contract	
Titles	(long):	(long):	Supply and ir	stall Mechanical and Electrical Auxiliaries (MF)	Revision No.:	01
	(short):	Mechanical a	nd Electrical Auxiliaries (MF)	Date:	13-Apr-2012	
			wool and plastic fiber, Mounted on base fra			
			Connection 2" NPT, Capacity 220 L/s at 86	-		
			100 HP, aircooled	JU KF a,		
			Air filter separator, Capacity 220 L/s at 860	kPa, 2" ea	1	
			NPT Connections, liquid removal 99% of w		I	
			particule removal 3 microns, Aluminium an			
			construction with epoxy coating			
			Oil/water separator, Capacity 220 L/s at 86	0 kPa, ea	1	
			material = polyethylene	,		
			Vertical Air tank, 2700 liters - dia. 36" x 166	6" height, ea	1	
			Hot Galvanized steel, operating pressure 8			
			threaded connections, manhole 12" x 16" v	vith hinges		
			Strainer 3/4" dia., Stainless steel body and		1	
			threaded connections, capacity 1 L/s at 86	0 kPa,		
			Filtration size 0.14 mm			
		9	6 High pressure air system			
			Piston compressor, 1/2 "NPT connection, c	capacity ea	2	
			17.3 l/s at 7.6 Mpa, 25 HP, aircooled			
			Oil/water separator, Capacity 17.3 L/s at 80	60 kPa, ea	2	
			material = polyethylene	e haight	2	
			Vertical Air tank, 2700 liters - dia. 36" x 166 hot Galvanized steel, operating pressure 7		2	
			threaded connections, manhole 12" x 16" v			
			Vertical Air tank, 2700 liters - dia. 36" x 166		1	
			Hot galvanized steel, operating pressure 8	<b>U</b>	1	
			threaded connections, manhole 12" x 16" v			
			Pressure damper, hot Galvanized steel, 90		2	
			reducing pressure from 7.6 Mpa to 860 kPa			
			flanged connections, class 150			
			Y-strainer 1" dia., Stainless steel body and	screen, ea	6	
			Socket weld connections, capacity 1 L/s at	7.6 Mpa,		
			class 600, Filtration size 0.14 mm			
			Y-strainer 1" dia., Stainless steel body and		4	
			Socket weld connections, capacity 1 L/s at	860 kPa,		
			class 600, Filtration size 0.14 mm			
			Strainer 3/4" dia., Stainless steel body and		2	
			tube connections, capacity 1 L/s at 7.6 MP	a,		
			Filtration size 0.14 mm		4	
			Strainer 3/4" dia., Stainless steel body and		1	
			tube connections, capacity 1 L/s at 860 kP size 0.14 mm	a, Fiiliali011		
			Control panel for compressors		1	
			7 Lubricating/hudraulic oil handling syste	ea		
			Mobile oil purifying unit, capacity of treatme		1	
			L/s, Filtratrion size = 3 microns absolus, Be			
			=1000 et Beta $3^{\circ}$ , 2" NPT inlet and 1-1/2"	. ,		
			thd., Motors 7,5 and 1 HP, Heater capacity			
			575/3/60, with control panel on cart			
			Mobile oil pumping unit, with electric horizo	ontal gear ea	1	

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Package No.: Fitles	(long):	CH0031 Supply a	nd install	-	/pe: evision No.:	C-Contract 01
11162	(short):		cal and Ele	evision No.: ate:	13-Apr-2012	
				pump, single suction type, 1 1/2" and 1" NPT	[	
				connections, cast iron body, capacity 1L/s at 400		
				kPa, 1.5 HP, with control panel on cart		2
				Oil tank, 44000 Liters, epoxy peint carbon steel,	ea	2
				atmospheric pressure, 3 m diameter and 6.7 m		
				height, 2 two manhole 24" dia. With hinges		
				Flame arrestor vent, aluminium body, 3" Flanged	ea	2
			00	connections, class 150, FM approval		
			98	AIR HANDLING UNITS (CUSTOM BUILT)	ea	
				Horizontal Unit, Supply Fan 11393 L/s, 25 HP, VF		
				Electric Heating Coil 140 kW, Filter Section MERV	<sup>7</sup> 8,	1
				Mixing Section.	_	
				Horizontal Unit, Supply Fan 11393 L/s, 25 HP, VF		
				Electric Heating Coil 140 kW, Filter Section MERV	8,	1
				Mixing Section.	_	
				Horizontal Unit, Supply Fan 11393 L/s, 25 HP, VF		
				Electric Heating Coil 140 kW, Filter Section MERV	8,	1
				Mixing Section.		
				Horizontal Unit, Supply Fan 11393 L/s, 25 HP, VF		
				Electric Heating Coil 140 kW, Filter Section MERV	δ,	1
				Mixing Section.		
				Vertical Unit, 2 Supply Fan max.2800 L/s (each), 2		l
				motors 5 HP, VFD, Chilled Water Cooling Coil 80	kVV,	1
				Filter Section MERV 6, Supply Grille and Return		
				Grille, 575/3/60		
				Vertical Unit, 2 Supply Fan max.2800 L/s (each), 2		L
				motors 5 HP, VFD, Chilled Water Cooling Coil 80	kVV,	1
				Filter Section MERV 6, Supply Grille and Return		
				Grille, 575/3/60		
				Vertical Unit, 2 Supply Fan max.2800 L/s (each), 2		
				motors 5 HP, VFD, Chilled Water Cooling Coil 80	KVV,	1
				Filter Section MERV 6, Supply Grille and Return		
				Grille, 575/3/60		
				Vertical Unit, 2 Supply Fan max.2800 L/s (each), 2		
				motors 5 HP, VFD, Chilled Water Cooling Coil 80	KVV,	1
				Filter Section MERV 6, Supply Grille and Return		
				Grille, 575/3/60		
				Vertical Unit, 2 Supply Fan max.2300 L/s (each), 2		
				motor 5 HP, VFD, Chilled Water Cooling Coil 64 k	vv,	1
				Filter Section MERV 6, Supply Grille and Return		
				Grille, 575/3/60		
				Vertical Unit, 2 Supply Fan max.2300 L/s (each), 2		
				motor 5 HP, VFD, Chilled Water Cooling Coil 64 k	VV,	1
				Filter Section MERV 6, Supply Grille and Return		
				Grille, 575/3/60		
				Vertical Unit, 2 Supply Fan max.2300 L/s (each), 2		L
				motor 5 HP, VFD, Chilled Water Cooling Coil 64 k	W,	1
				Filter Section MERV 6, Supply Grille and Return		
				Grille, 575/3/60		

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# PACKAGE DICTIONARY

Package No.:		CH0031		Гуре:	C-Contract
itles	(long):			Revision No.:	01
	(short):	Mechanical and Ele	ctrical Auxiliaries (MF)	Date:	13-Apr-2012
			Vertical Unit, 2 Supply Fan max.2300 L/s (each), motor 5 HP, VFD, Chilled Water Cooling Coil 64 Filter Section MERV 6, Supply Grille and Return		1
			Grille, 575/3/60 Horizontal Unit, Supply Fan 4535 L/s, motor 20 H VFD, D/X Coil 70 kW, Electric Heating Coil, Filter Section MERV 8, Mixing Section, Return Fan 420 L/s, motor 15 HP, VFD, 575/3/60	•	1
			Horizontal Unit, Supply Fan 1000 L/s, motor 5 HF VFD, D/X Coil 35 kW, Electric Heating Coil, Filter Section MERV 8, Mixing Section, Return Fan 800 L/s, motor 3 HP, VFD, 575/3/60	)	1
			Horizontal Unit, Supply Fan 1000 L/s, motor 5 HF VFD, D/X Coil 35 kW, Electric Heating Coil, Filter Section MERV 8, Mixing Section, Return Fan 800 L/s, motor 3 HP, VFD, 575/3/60	)	1
			Horizontal Unit, Supply Fan 3000 L/s, motor 10 H VFD, Electric Heating Coil 25 kW, Chilled Water Cooling Coil 34 kW, Filter Section MERV 8, Mixin Section, Return Fan 1120 L/s, motor 5 HP, VFD, 575/3/60		1
			Horizontal Unit,, Supply Fan 1525 L/s, motor 7.5 Electric Heating Coil 40 kW, Filter Section MER Mixing Section, Return Fan Max. 1000 L/s, motor HP. Included with VFD. 575/3/60	/ 8,	1
			Vertical Unit, 1 Supply Fan 1300 L/s motor 5 HP, Chilled Water Cooling Coil 20 kW, Filter Section MERV 6, Included with VFD, Supply Grille and Return Grille 575/3/60	ea	1
			Horizontal Unit, Supply Fan 685 L/s, motor 3 HP, Electric Heating Coil 25 kW, Filter Section MER\ 575/3/60		1
			Horizontal Unit, Supply Fan 2500 L/s, motor 10 H Electric Heating Coil 30 kW, Filter Section MER\ 575/3/60		1
			Horizontal Unit, Supply Fan 2500 L/s, motor 10 H Electric Heating Coil 30 kW, Filter Section MER\ 575/3/60		1
		99	WATER COOLED CONDENSING UNITS		
			Water Cooled, 2 Stages, 20 Tons, 575/3/60	ea	1
			Water Cooled, 2 Stages, 10 Tons, 575/3/60	ea	1
		400	Water Cooled, 2 Stages, 10 Tons, 575/3/60	ea	1
		100	FANS Transfer Fan, Vane-axial fan by AEROVENT, 145	50 ea	1
			L/s, motor 1,5 HP, 575/3/60 Transfer Fan, Vane-axial fan by AEROVENT, 145	50 ea	1
			L/s, motor 1,5 HP, 575/3/60 Wall Exhaust fan by PENN FUMEX, 450 L/s, Mot	tor ea	1

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# PACKAGE DICTIONARY

Package No.:		CH0031 Ty	vpe:	C-Contract
Titles	(long):	Supply and install Mechanical and Electrical Auxiliaries (MF) Re	evision No.:	01
	(short):	Mechanical and Electrical Auxiliaries (MF) Da	ate:	13-Apr-2012
		1/2 HP, 575/3/60		
		Exhaust Fan by GEENHECK, Utility Set, Mod SFD	)- ea	1
		10-30A, 940 L/s, 3 HP, 575/3/60		
		Exhaust Fan by GEENHECK, Utility Set, Mod SFD	o- ea	1
		10-30A, 940 L/s, 3 HP, 575/3/60		
		Exhaust Fan by AEROVENT mod. B53 size 54,	ea	1
		17000 L/s, Motor 15 HP, 575/3/60 Exhaust Fan by AEROVENT mod. B53 size 54,		
		17000 L/s, Motor 15 HP, 575/3/60	ea	1
		Exhaust Fan by AEROVENT mod. B53 size 54,	ea	
		17000 L/s, Motor 15 HP, 575/3/60	ea	1
		Exhaust Fan by AEROVENT mod. B53 size 54,	ea	
		17000 L/s, Motor 15 HP, 575/3/60	04	1
		Exhaust Fan by AEROVENT mod. B53 size 36 ,	ea	
		4400 L/s, Motor 5 HP, 575/3/60		1
		Vane axial Fan by AEROVENT mod. VJ 24D6, 48	800 ea	4
		L/s, Motor 7,5 HP, 575/3/60		1
		Exhaust Fan by GEENHECK, Utility Set, Mod SFD	)-9- ea	1
		15A, 400 L/s, motor 1,5 HP, 575/3/60		1
		Vane axial Fan by AEROVENT mod. VJ 24D6 , 18	800 ea	1
		L/s, Motor 2 HP, 575/3/60		-
		Exhaust Fan by GEENHECK, Utility Set, Mod SFD	)- ea	1
		10-30A, 900 L/s, motor 3 HP, 575/3/60		
		Vane axial Fan by AEROVENT mod. VJ 18D8 , 11	00 ea	1
		L/s, Motor 1 HP, 575/3/60		
		Exhaust Fan by GEENHECK, Utility Set, Mod SFD 09-4C, 260 L/s, motor 1/4 HP, 120/1/60/60	)- ea	1
		Wall fan, Penn fumex, mod. FX16, 500 L/s, Motor	1/2 02	
		HP, 575/3/60	1/2 ea	1
		Supply Fan, Aerovent, Mod HD53, Mod. 30L222,	ea	
		3300 L/s,motor 2 HP, 575/3/60	Cu Cu	1
		Supply Fan, Aerovent, Vane axial Mod VJ21D7, M	lod. ea	
		2400 L/s motor 2 HP, 575/3/60		1
		Supply Fan, Aerovent, Vane axial Mod VJ21D7, M	lod. ea	
		1900 L/s motor 1,5 HP, 575/3/60		1
		Supply Fan, Aerovent, Vane axial Mod VJ21D7, M	lod. ea	1
		1900 L/s motor 1,5 HP, 575/3/60		1
		Supply Fan, Aerovent, Vane axial Mod VJ21D7, M	lod. ea	1
		1900 L/s motor 1,5 HP, 575/3/60		1
		Supply Fan, Aerovent, Vane axial Mod VJ21D7, M	lod. ea	1
		1900 L/s motor 1,5 HP, 575/3/60		· · · · · · · · · · · · · · · · · · ·
		Supply Fan, Aerovent, Mod HD53, Mod. 30L222,	ea	1
		2900 L/s,motor 2 HP, 575/3/60		
		Supply Fan, Aerovent, Vane axial Mod VJ18D8, M	lod. ea	1
		950 L/s motor 1/2 HP, 575/3/60		
		Supply Fan, Aerovent, Vane axial Mod VJ18D8, M 950 L/s motor 1/2 HP, 575/3/60	lod. ea	1
		Relief Fan, Greenheck model GB-480, 9911 L/s,	ea	1
			ea	i i

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# PACKAGE DICTIONARY

Package No.:		CH0031	Type:	C-Contract
		Supply and install Mechanical and Electrical Auxiliaries (MF)	Revision No.:	01
		Mechanical and Electrical Auxiliaries (MF)	Date:	13-Apr-2012
		motor 5 HP, 575/3/60		
		Relief Fan, Greenheck model GB-480, 99	11 L/s, ea	1
		motor 5 HP, 575/3/60		1
		Heat Recovery, Greenheck model 36-TCF motor 15 HP, 575/3/60	12000 L/s, ea	1
		Heat Recovery, Greenheck model 36-TCF	12000 L/s. ea	
		motor 15 HP, 575/3/60	12000 2/3, 04	1
		Heat Recovery, Greenheck model 36-TCF motor 15 HP, 575/3/60	12000 L/s, ea	1
		Heat Recovery, Greenheck model 36-TCF motor 15 HP, 575/3/60	12000 L/s, ea	1
		101 WELDING EXTRACTION ARM/FAN		
		Flexible Welding Hood with Fan By PLYM		
		mod. KUA-3 type Ball bearing jointed extra with fan model FUA-1301, 265 L/s, motor 575/360		1
		102 HUMIDIFIERS		
		Dry-Steem, model Vapormist, 46.3 Kg/hr, 575/3/60. Ultra-sorb Duct Distribution	34 Kw, ea	1
		Dry-Steem, model Vapormist, 21.8 Kg/hr, 575/3/60. Ultra-sorb Duct Distribution	16 Kw, ea	1
		POWERHOUSE - Architectural Interior Wo		
		Concrete masonry unit wall system		4295
		Gypsum board wall assemblies Suspended ceiling systems	m <sup>2</sup>	<u>6548</u> 2200
		Doors and windows		196
		Floor Finishes	m <sup>2</sup>	15540
		Wall finishes	m <sup>2</sup>	19200
		Miscellaneous specialties, equipment & fu	rnishings	See BOQ
Contract Ba Work Exclu		Lump Sum Combination Lump Sum – Unit Rates <u>Remarks</u> :	Cost F	Unit Rates Reimbursable
		Description		Package No
		Supply and installation of heavy mechanical equipr	nent	CH0032
		Supply and installation of draft tube gates and gan	try crane	CH0046
		Supply and installation of powerhouse civil and stru	ucture	CH0007
		Supply and installation Architectural works related powerhouse and the intake is included in package		the CH0007
		Supply and installation of turbine, generator, e governor	-	CH0030
		Supply and installation of Powerhouse and Unit		ion CH0030

# PACKAGE DICTIONARY

Package No.:		CH0031 Type: C-Contract
Titles	(long):	Supply and install Mechanical and Electrical Auxiliaries (MF) Revision No.: 01
	(short):	Mechanical and Electrical Auxiliaries (MF) Date: 13-Apr-2012
		Systems
		Supply and installation of fibre optic and control cables between the Powerhouse and the Switchyard associated with the Powerhouse and Unit Control and Protection Systems
		Supply and installation of embedded and buried grounding CH0007
		Supply and installation of embedded piping         CH0007
		Supply and installation of turbine pit hoistCH0030
		Supply and installation of draft tube gates, gantry crane and draft tube cH0046 CH0046
		Supply and installation of 315 kV overhead lines between powerhouse and switchyard
		Supply of generator step-up (GSU) transformers PH0014
		Supply of isolated phase bus (IPB) PH0015
		Supply of generator circuit breakers PH0016
		Supply of 15 kV-600/347 V station service transformers         PH0035
		Supply of level meter system
		Supply of Communication equipment and telephones
		Supply of Access control, intrusion alarm and CCTV systems
		As built drawings, O&M Documents, Commissioning procedures (of non- supplied equipment)
Quality		Requires Determination of the Equipment Quality Rating       YES       X       NO
		Determination of Equipment Criticality based on GP-5600-PR-02-E
		High     Minor     x       Significant     Negligible       Moderate
		Determination of Quality Surveillance level based on GP-5600-PR-03-E
		<ul> <li>Continuous in process quality monitoring and verification and final verification.</li> <li>Regular in process quality monitoring and verification and final quality verification.</li> <li>Limited in process quality monitoring and verification and final quality verification.</li> <li>K 1</li> <li>Final Quality Verification</li> <li>No quality surveillance, no quality verification</li> </ul>
		Work Package CH0031 is under Quality Control. All control as specified in the Technical Specification will be done by the Engineer.
		The Contractor shall do their own Quality Assurance, but no QA specific requirements are stipulated.
		Quality requirements are defined in document 505573-0000-38RA-I-0003 Contractor Quality Requirements Specification

# PACKAGE DICTIONARY

	1     Type:       r and install Mechanical and Electrical Auxiliaries (MF)     Revision No.:       nical and Electrical Auxiliaries (MF)     Date:	C-Contract 01 13-Apr-2012			
Reference Section	The following main documents are used to define the scope:				
Interface with Other	<ul> <li>&gt; 505573-343C-45EC-0001 – Design Criteria - Mechanical Auxi 505573-344C-47EC-0001 – Electrical ac Auxiliary System Desi 505573-344C-47EC-0001 – Electrical dc Auxiliary System Desi LCP-PT-ED-0000-EN-RP-0001-01 - Nalcor Energy-Lower Chur of Design         <ul> <li>723468-40ER-0001-00 - MF 1340 Review and Confirmation of Layout, Structures and Interfaces</li> <li>LCP-PT-ED-0000-EN-PH-0028-01 - Nalcor Energy-Lower Chur Philosophy for Muskrat Falls Plant Layout</li> <li>LCP-PT-ED-0000-EN-PH-0005-01 - Nalcor Energy-Lower Chur Operation &amp; Maintenance Philosophy of Design             <li>LCP No. 200-120145-00025 - Nalcor Energy-Work Protection C</li> </li></ul> </li> </ul>	ign Criteria ign Criteria rchill Project – Basis Muskrat Falls rchill Project-Design rchill Project-			
Packages	Description	Package No.			
	Powerhouse concrete structures, structural steel, architectural walls and ceilings, embedded grounding, embedded parts for supports for mechanical and electrical equipment	CH0007			
	North Dam, South Dam, Centre Dam and South Transition Dam embedded grounding, embedded parts for supports for mechanical and electrical equipment	CH0009			
	Turbine/generator control and protection systems and auxiliary equipment and systems, piping	CH0030			
	Supply of generator step-up transformers	PH0014			
	Supply of isolated phase bus	PH0015			
	Supply of generator circuit breakers	PH0016			
	Supply of station service transformers	PH0035			
	HV overhead lines	CT0319			
	Supply of communication equipment, access control, intrusion alarm and CCTV systems	PD0510			
	Supply and installation of powerhouse heavy mechanical equipment	CH0032			
	Supply and installation draft tube equipment	CH0046			
	Supply and installation of trash rack cleaning system	CH0047			
Specific Site Conditions	The Construction of structures near or in the Churchill River will require strict safety enforcement.				
Specific Schedule         Not Applicable           Conditions         Image: Condition state					

### PACKAGE DICTIONARY

Package No.: CH0031	Туре:	:	C-Contract
Titles (long): Supply a	and install Mechanical and Electrical Auxiliaries (MF) Revis	sion No.:	01
(short): Mechani	ical and Electrical Auxiliaries (MF) Date:	:	13-Apr-2012
Specific Environment Conditions	Environmental requirements are provided in the Agreement in	several de	ocuments.
Specific Safety Conditions Special Requirements	Safety requirements are provided in the Agreement in several of As mentioned in the Specific Site Conditions, safety is a conce structures close or in the water. Prior to commencement of any security fence will be constructed between the riverside perime Not Applicable	ern when c y work nea	constructing ar the river a special
(All)			
Free Issued Materials	Not Applicable		
Maion Francisco de List			
Major Equipment List	<ul> <li>The Following major equipment is to be installed by CH0031 C</li> <li>Five (5) 175/230 MVA ONAN/ONAF generator step-up</li> <li>Four (4) sets of 3-phase isolated phase bus assemblie generators, generator circuit breakers, station service transformers and generator step-up (GSU) transformer</li> <li>Four (4) 15 kV, 12,000 A generator circuit breakers</li> <li>Four (4) 2500 kVA, ANN station service transformers (tap changer (OLTC) and enclosure</li> <li>The CH0031 Contractor will supply and install multiple pieces of equipment or components and each piece of equipment with its</li> </ul>	o (GSU) trass for conr transform ers (SST) corr of mechar	ansformers nection of ers, excitation nplete with on-load nical and electrical
	detailed list of mechanical and electrical equipment is listed in t List and as listed in Approximate Quantities section in this docu	the LCP N	
Schedule and Milestones	EOI Date: TBD RFP Date: TBD Award Date: TBD Receive Initial Vendor Drawings: TBD Forecast at Site: TBD Construction Complete: Dates for mile	estones w	vill be updated ine schedule is in
Budget	TBD		
Applicable Sub- Project/SPV	Muskrat Falls Generation 🔀 Labrador – Island Transmiss Labrador Transmission Assets 🗌 Lower Churchill Project – Ge		
IBA Package	YES NO		

# Lower Churchill Project

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Project Base Currency: CAD			
	e and Install Powerhouse Hydro-Mechanical Equipment nouse Hydro-Mechanical	Revision No.:	C- Contract 01 13-Apr-2012
Discipline: Heavy Mechan Responsibilities: Area Manager: QA / QC:		Réjean Létourn Chris Woodma	
Scope of Work Summary	Design, supply and installation of powerhor equipment; The supply of one trashrack cleaning system Intake.		
Work Included:	<ul> <li>This package includes:</li> <li>Vertical-lift intake gates with a dedicated hor components, and controls.</li> <li>Intake bulkhead gates, and embedded com</li> <li>Trashracks, and embedded components</li> <li>Trashrack cleaning system.</li> <li>Installation of secondary concrete for embed</li> </ul>	ponents	bedded
Approximate Quantities (major items only): Contract Basis	ITEM       DESCRIPTION (Base Case)         1       Trashracks; 6 panels per set         2       Embedded parts for trashracks         3       Lift beam for trashracks         4       Bulkhead gates; 5 panels per set         5       Embedded parts for bulkhead gates         6       Lift beam for bulkhead gates         7       Intake emergency closure gates         8       Wire rope hoists for intake gates         9       Trashrack Cleaning System         Lump Sum Combination Lump Sum – Unit Rates         Remarks:       Image: Combination Lump Sum – Unit Rates	UNIT sets sets set set sets sets sets lot	QUANTITY       12       12       1       1       12       1       12       1       12       1       12       1       12       1       12       1       12       1       12       1       1       1       1

#### Lower Churchill Project

### PACKAGE DICTIONARY

Project Base Currency: CAD

Package No.:		CH0032	Туре:	C- Contract
Titles	(long):	Supply and Install Powerhouse Hydro-Mechanical Equipment	Revision No.:	01
	(short):	Powerhouse Hydro-Mechanical	Date:	13-Apr-2012

#### Work Excluded:

Temporary construction cofferdams and dewatering	-
pumps	CH0006
Civil contract: powerhouse primary concrete, powerhouse intake deck, and intake hoist building	CH0007
The supply and installation of the crane rails for trash cleaning system.	CH0007
Installation of primary embedded anchors in first phase concrete	CH0007
Electrical power and auxiliaries for hoist houses.	CH0031
Electrical power supply for trash cleaning system	CH0031
Mechanical auxiliaries, including drainage, heating and ventilation systems for intake hoist house, galleries and access areas	CH0031
Supply and installation of draft tube stoplogs and draft tube stoplog overhead crane	CH0046
Requires Determination of the Equipment Quality Rating	YES X NO
Determination of Equipment Criticality based on GP-5600-PR-02-E	
High Minor Significant Negligible Moderate	
Determination of Quality Surveillance level based on GP-5600-PR-03-E	
4Continuous in process quality monitoring and verification and final3Regular in process quality monitoring and verification and final qua2Limited in process quality monitoring and verification and final qual1Final Quality Verification0No quality surveillance, no quality verification	ality verification.
<ul> <li>For Work Package CH0032, Quality Assurance is conducted by</li> <li>All quality control as specified in the RFP will be done if Contractor's Quality Plan in Order to meet the Enginee</li> <li>The Quality Plan will be reviewed and accepted by Eng Award of contract.</li> <li>The Quality Plan will allow Engineer to witness and rep Contractors Quality Control Activities.</li> <li>The Engineer reserves the right to impose Quality control</li> </ul>	by the Contractor as per the r's Technical Specifications gineer and confirmed at produce any of the
	powerhouse intake deck, and intake hoist building         The supply and installation of the crane rails for trash cleaning system.         Installation of primary embedded anchors in first phase concrete         Electrical power and auxiliaries for hoist houses.         Electrical power supply for trash cleaning system         Mechanical auxiliaries, including drainage, heating and ventilation systems for intake hoist house, galleries and access areas         Supply and installation of draft tube stoplogs and draft tube stoplog overhead crane         Requires Determination of the Equipment Quality Rating         Determination of Equipment Criticality based on GP-5600-PR-02-E         High Significant Moderate         Moderate         Determination of Quality Surveillance level based on GP-5600-PR-03-E         Image and the process quality monitoring and verification and final quality in process quality monitoring and verification and final quality are process quality monitoring and verification and final quality are process quality monitoring and verification and final quality is a specified in the RFP will be done be contractor's Quality Plan in Order to meet the Enginee         • All quality Plan will allow Engineer to witness and reprocest quality Plan will allow Engineer to witness and reprocest quality Control Activities.

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Project Base Currency: CAD						
	32 y and Install Powerhouse Hydro-Mechanical Equipment rhouse Hydro-Mechanical	Type: Revision No.: Date:	C- Contract 01 13-Apr-2012			
Reference Section	The following main document was used to define the	scope:				
Interface with Other	<ul> <li>DG3 Capital Cost Estimate – Basis of Estima Lower Churchill Project – Basis of Design; LC</li> <li>Design Criteria as formulated for the Lower C</li> <li>Lower Churchill Project – Design Philoso Management; LCP-PT-ED-0000-EN-PH-(</li> <li>Technical Report 505573-332A-45ER-00 Cleaning System, as formulated for the L</li> <li>Preliminary Design Drawings</li> </ul>	P-PT-ED-0000-E hurchill Project phy for Reservo 0030-01 01-PC; Powerho	ir Trash & Debris ouse Intake Trash			
Interface with Other Packages			1			
	Description		Package No.			
	Primary concrete structures for the Powerhouse	e Intake	CH0007			
	Installation of anchors in primary concrete for embedded components (anchors and base plates)		CH0007			
	Installation of secondary concrete for embedded	d parts	CH0007			
	Installation for crane rails on intake deck for tras	sh cleaning	CH0007			
	Electrical Auxiliaries for electric power supply		CH0031			
	Mechanical Auxiliaries for services in the intake	hoist house	CH0031			
	Control interfaces with the powerhouse control	system	CH0030			
Specific Site Conditions	The Construction of structures near or in the Chrene forcement	urchill River will	require strict safety			
Specific Schedule Conditions	<ul> <li>Any other packages that have to be started before the subject package can proceed:</li> <li>CH0007 – Installation of anchors in primary concrete during construction of the intake structure</li> </ul>					
	<ul> <li>Items that have to be completed before the subject package can proceed:</li> <li>CH0007 - Installation of intake deck crane rails</li> </ul>					
	<ul> <li>Any other packages that cannot proceed before the s</li> <li>CH0031 - Installation of mechanical and e hoist and on the intake deck</li> </ul>					

#### Lower Churchill Project

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### PACKAGE DICTIONARY

	and Install Powerhouse Hydro-Mechanical Equipment Revision No.: 01						
(short): Powerh	ouse Hydro-Mechanical Date: 13-Apr-2012						
Specific Environment Conditions	Environmental concerns when constructing structures close to water.						
	Follow site and Contractor's environmental management plans.						
Specific Safety Conditions	Safety concerns when constructing structures close to water.						
	Procedures for dry and wet testing of the gates will be under the control of the Engineer. All testing and inspection of the equipment will be by the Contractor and a coordinated plan involving responsible personnel.						
	Engineer will be reviewing and accepting all work procedures.						
Special Requirements (All)	Environmental and Safety Requirements are provided in the Agreement documentation.						
Free Issued Materials	Not Applicable						
Major Equipment List	See Equipment List						
Schedule and Milestones	EOI Date: TBD RFP Date: TBD Award Date: TBD Receive Initial Vendor Drawings: TBD Forecast at Site: TBD						
	Construction Complete: Dates for milestones will be updated once the Project baseline schedule is in place.						
Budget	TBD						
Applicable Sub- Project/SPV	Muskrat Falls Generation 🛛 Labrador – Island Transmission Link						
	Labrador Transmission Assets D Lower Churchill Project – General						
IBA Package	YES NO						

#### Lower Churchill Project

#### PACKAGE DICTIONARY

Project Base Currency:	CAD

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Package No.: CHC	033 1	ype:	C- Contract
Titles (long): Sup	ply and Install Powerhouse Cranes F	Revision No.:	01
(short): Pow	rerhouse Cranes	Date:	13-Apr-2012
Discipline: Heavy Mech Responsibilities: Area Manag QA / QC:		Réjean Létourn Chris Woodma	
Scope of Work Summary	Design, Supply and Installation of the Powerhouse C	verhead Cra	nes
Work Included:	<ul> <li>Two (2) Powerhouse Overhead Cranes of 380 m with two (2) Main Hoists and one (1) Auxiliary metric tonnes.;</li> <li>Spreader beams to distribute load to both trolley cranes to pick largest load in the powerhouse;</li> </ul>	Hoist with a	capacity of 25
	600 V main disconnect switch, power conducto overhead crane travel;		J J
	<ul> <li>Perform Pre-Start Health &amp; Safety Review/Insp laws and regulations of Newfoundland and Labra</li> </ul>		equired by the
	Certification of crane for use including all certification load tests.	field testing	required for
Approximate			
Quantities	ITEM DESCRIPTION (Base Case)	UNIT	QUANTITY
(major items only)	1 Bridge Cranes	ea	2
	2 Power bus bar – 600 VAC	ea	1
	3 Hoist Spreader Beams	ea	2
	4 Crane Spreader Beam	ea	1
Contract Basis			
	Lump Sum 🛛 Combination Lump Sum – Unit Rates 🔲 <u>Remarks</u> :	U Cost Reim	nit Rates 🔲 bursable 🗍
Work Excluded:			1
	Description	P	ackage No.
	Supply and installation of the powerhouse concrete substructive steel superstructure, and crane runway rails;	ture,	CH0007
	Equipment Lifting devices		CH0030
	Electrical power supply to 600 V main disconnect switch		CH0031

#### PACKAGE DICTIONARY

Package No.:	CHOO33	Type:	C- Contract
Titles (long		Revision No	
(shoi		Date:	13-Apr-2012
		1	
Quality	Requires Determination of the Equipment Quality Rating	YES	K NO
	Determination of Equipment Criticality based on GP-5600-PR-02-E		
	High Minor Significant Negligible Moderate C		
	Determination of Quality Surveillance level based on GP-5600-PR-03-E		
	4Continuous in process quality monitoring and verification and Regular in process quality monitoring and verification and fin Limited in process quality monitoring and verification and fin Final Quality Verification1Final Quality Verification No quality surveillance, no quality verification	al quality verifica	ation.
	<ul> <li>For Work Package CH0033, Quality Assurance is conduct</li> <li>All quality control as specified in the RFP will be d Contractor's Quality Plan in Order to meet the Eng.</li> <li>The Quality Plan will be reviewed and accepted by Award of contract.</li> <li>The Quality Plan will allow Engineer to witness an Contractors Quality Control Activities.</li> <li>The Engineer reserves the right to impose Quality Contractors and its sub-suppliers</li> </ul>	one by the C jineer's Tech y Engineer ar d reproduce a	ontractor as per the nical Specifications nd confirmed at any of the
Reference Section	The following main document was used to define the scop	e:	
	<ul> <li>DG3 Capital Cost Estimate – Basis of Estimate Lower Churchill Project – Basis of Design; LCP-P<sup>-</sup></li> <li>Design Criteria as formulated for the Lower Churc</li> <li>Preliminary Design Drawings</li> </ul>		N-RP-0001-01
Interface with O	her Description		Package No.
Packages	Installation of the Rails by the General Civil Contractor.		CH0007
	Installation of subsequent unit bays to extend crane bus crane travel	bars and	CH0007
	Power supply to 600V main disconnect switch to feed the on which the crane operates.	e bus bars	CH0031
Specific Site Conditions	Powerhouse crane to be designed to lift the largest load for installation and removal.	or Turbine an	d Generator
	Two cranes with two trolleys each crane, and spreader be combinations required.	ams to be su	pplied to lift all load
	Crane load testing will certify the crane for the full rated lo powerhouse.	ad over the f	ull area of the

CAD

Project Base Currency:

#### PACKAGE DICTIONARY

CHOO33 C- Contract Package No.: Type: Titles Revision No.: Supply and Install Powerhouse Cranes 01 (long): (short): **Powerhouse Cranes** Date: 13-Apr-2012 Specific Schedule Any other packages that have to be started before the subject package can proceed: Conditions CH0007 – Powerhouse structural steel and crane rails to be installed in Service Bay before power bus bars and powerhouse cranes are erected. CH0007 – Powerhouse structural steel and crane rails to be extended over the unit's bays in sequence after which the power bus bars and crane limits will be extended into that bay. Items that have to be completed before the subject package can proceed: Powerhouse crane to be erected in the service bay and load tested to NL OH&S regulations before use. Powerhouse crane to be load tested in subsequent unit bays to NL OH&S regulations before use in those areas. Any other packages that cannot proceed before the subject package has started: CH0030 - Crane will be turned over to an erection Contractor (CH0030) for powerhouse construction and reconditioned by the manufacturer before turned over to the Company. CH0030 – Installation of Turbines & Generators for Pit Free **Specific Environment** Not Applicable **Conditions Specific Safety** Crane load testing required for the certification of the Cranes heaviest load is required Conditions according to Codes and Laws in effect **Special Requirements** Not Applicable (All) **Free Issued Materials** Not Applicable **Major Equipment List** See Equipment List Schedule and EOI Date: TBD Milestones RFP Date: TBD Award Date: TBD Receive Initial Vendor Drawings: TBD Forecast at Site: TBD Construction Complete: Dates for milestones will be updated once the Project baseline schedule is in place. Budget TBD

Project Base C	Currency:	CAD					
Package No.: Titles	(long): (short):		O33 oly and Insta erhouse Cra	house C	Cranes	Type: Revision No.: Date:	C- Contract 01 13-Apr-2012
Applicable Project/SP\			Muskrat Labrador	 		Labrador – Island Transmission Link Lower Churchill Project – General	
IBA Packag	je		YES	NO	$\boxtimes$		

#### Lower Churchill Project

### PACKAGE DICTIONARY

Package No.: Titles (long): (short):			l Powerhouse Elevat ator	or	Type: Revision No.: Date:	C- Contr 01 13-Apr-2	
•	smission Lir Manager: QC:	Luc Tu	rcotte h Morrison	Package Engineer: Contract Admin. / Buyer:	Réjean Léto Chris Wood		
Scope of Work Su	nmary	The	e work covers the c d delivery to site, ir	vator at Muskrat Falls. complete requirements for the nstallation and testing, comm tor as well as accessories.			
Work Included:		•	Elevator platform, Elevator safety sy	double panel door, car frame stem;	and guide rolle	ers;	
		•		nd anchors to guide the car diate supports required for the		erweight,	including a
		•	<ul> <li>Buffers for the car and the counterweight;</li> <li>Hoistway doors and the sills, including the supporting sill angles for the sills;</li> </ul>				
		<ul> <li>Traction machine with braking devices;</li> <li>Supply of all the necessary support beams for the machinery and the elevator;</li> </ul>					
		•		nstallation of support beams		way roof	
		•	Elevator control s Automatic levellin	ystem; selective collective aut g device;	omatic control;		
		•	Position indicators Required speed g				
		•	All circuits conner on drawings.	cting systems supplied by Co	ontractor to ele	ctrical dev	vices show
Approximate Quan major items only)	tities	•		ation of the access ladder(s)			
		ITEM	DESCRIPTION (	Base Case)	UN	11 Q	UANTITY

#### Lower Churchill Project

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Project Base Curre	ency:	CAD			
Package No.:		CHOO34 Type	e: C- Contract		
Titles (lo	ong):	Supply and Install Powerhouse Elevator Rev	ision No.:	01	
(sh	nort):	Powerhouse Elevator Date	e:	13-Apr-2012	
Contract Basis	;	Lump Sum 🛛 Combination Lump Sum – Unit Rates 🔲 <u>Remarks</u> :	Cos	Unit Rates 🔲 t Reimbursable 🗍	
Work Excluded	:			<u> </u>	
		Description		Package No.	
		The construction of the concrete elevator shaft with all landings.	CHC	0007	
		All concrete work, cutting and patching of openings through the walls and the roof of the elevator shaft and of the controller room around beams and beam pockets.	CHC	0007	
		The supply, installation and connection of the main electric power cables up to the 600 V disconnect switch in the controller room	CHC	0031	
		The supply, installation and connection of 120 V AC power cable to the junction box in the controller room.	CHC	031	
		The controller room and hoistway pit lighting.	CHC		
		The supply and installation of the heating and ventilation equipment in the controller room.	CHC	031	
		The supply, installation and connection of the telephone line between the telephone junction box and main switchboard.	CDC	501	
Quality		Requires Determination of the Equipment Quality Rating	YES	X NO	
		Determination of Equipment Criticality based on GP-5600-PR-02-E			
		High Minor Significant Negligible Moderate			
		Determination of Quality Surveillance level based on GP-5600-PR-03-E			
		4Continuous in process quality monitoring and verification and final3Regular in process quality monitoring and verification and final quality2Limited in process quality monitoring and verification and final quality1Final Quality Verification0No quality surveillance, no quality verification	uality verif	ication.	
		<ul> <li>For Work Package CH0033, Quality Assurance is conducted</li> <li>All quality control as specified in the RFP will be done Contractor's Quality Plan in Order to meet the Engine</li> </ul>	by the	Contractor as per the	

Project Base Currency: CAD
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Package No.:	CHOO34 Type:	C- Contract	
Titles (long):	Supply and Install Powerhouse Elevator Revision No.:	01	
(short):	Powerhouse Elevator Date:	13-Apr-2012	
Reference Section	<ul> <li>The Quality Plan will be reviewed and accepted by Engineer and Award of contract.</li> <li>The Quality Plan will allow Engineer to witness and reproduce a Contractors Quality Control Activities.</li> <li>The Engineer reserves the right to impose Quality control activiti Contractors and its sub-suppliers</li> <li>The following main document was used to define the scope:</li> <li>DG3 Capital Cost Estimate – Basis of Estimate SLI Document Number: 505573-0000-33RA-I-001 Nalcor Reference Number: LCP-SN-CD-0000-EP-ES-0002-01</li> </ul>	ny of the	
nterface with Other Packages			
	Description	Package No.	
	Primary concrete for elevator shaft, hoist house and elevator landings and doorways	CH0007	
	Electrical Auxiliaries: connection of the power cables in the elevator machine room	CH0031	
	Mechanical Auxiliaries: heating and ventilation equipment in the controller room.	CH0031	
	Supply, installation and connection of the telephone line between the telephone junction box and main switchboard.	CD0501	
Specific Site Condit	ons Not Applicable		
Specific Schedule Conditions	<ul> <li>Any other packages that have to be started before the subject package of None</li> </ul>	can proceed:	
	<ul> <li>Any other packages that have to be completed before the subject packa</li> <li>CH0007 – Installation of concrete structure for hoistway, doors a</li> </ul>	•	
	<ul> <li>Any other packages that cannot proceed before the subject package has</li> <li>CH0031 – Connection of power supply and telephone lines</li> </ul>	s started:	
	CH0031 – Connection of power supply and telephone lines	s started:	
Conditions Specific Safety	CH0031 – Connection of power supply and telephone lines		
Specific Environme Conditions Specific Safety Conditions	CH0031 – Connection of power supply and telephone lines     Not Applicable     Specific work methods for suspended work and Confined spaces will be		

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Project Base Currency:	CAD

Package No.: CHOO3	4	Type:	C- Contract
-	and Install Powerhouse Elevator	Revision No.:	01
	nouse Elevator	Date:	13-Apr-2012
Special Requirements (All)	Not Applicable		
Free Issued Materials	Not Applicable		
Major Equipment List	See Equipment List		
Schedule and Milestones		•	will be updated line schedule is in
Budget	TBD		
Applicable Sub- Project/SPV	Muskrat Falls Generation 🔀 Labrador – Island Labrador Transmission Assets 🗌 Lower Churchill Pr		
IBA Package	YES NO		

### Lower Churchill Project

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### PACKAGE DICTIONARY

Package No.: 0	CH0039	Туре: С-со	ontract
Titles (long): S	Supply and Install McKenzie River Permanent Bridge	Revision No.: 01	
(short): N	IcKenzie River Bridge	Date: 13-A	pr-2012
Discipline: Civil/Stru Responsibilities: Area Ma QA / QC	inager: Wallace Piercey Package Engineer:	Terry McCarthy er: Ron Adamcyk	
Scope of work Summary:	Construction of permanent bridge on McKenzie Rive site restoration.	, removal of temporary	v bridge and
Work Included:	This package includes:		
	<ul> <li>Construction of permanent bridge including cl structure.</li> <li>Removal of temporary bridge</li> <li>Site restoration/rehabilitation.</li> </ul>	vil work for approach to	o bridge
Approximate Quantities (major items only):	TBD		
Contract Basis:			
	Lump Sum Combination Lump Sum – Unit Rates ⊠ <u>Remarks</u> :	Unit Rate Cost Reimbursabl	
Work Excluded:			
	Description	Package N	No.
	Construction of Southside Access Road and Installation of temporary bridge	CH0004	
Quality:	Contractor shall comply with Quality Requirement Sp 38RA-0003.	ecification Number 505	5573-0000-
<b>Reference Section:</b>	The following main documents are used to define the	scope:	
	505573-311A-41EC-0001 Design Criteria – Main Aco	•	
Interface with other			
Packages:	Description	Packa	ge No.
	Socurity	сцл	019
	Security		
	Medical Services	SHO	020
Specific Site Conditions:	Geotechnical investigation not completed.		

### Lower Churchill Project

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### PACKAGE DICTIONARY

Package No.:		CH0039	Type: C-contract
Titles	(long):	Supply and Install McKenzie River Permanent Bridge	Revision No.: 01
	(short):	McKenzie River Bridge	Date: 13-Apr-2012
	· · /		
Specific So		Any other packages that have to be started befor	e the subject package can proceed:
Conditions	5:	(Not Applicable)	
		Any other packages that cannot proceed before t	he subject package has started:
		(Not Applicable)	
		<b>Note:</b> Complete this work as early as possib	ble. The temporary bridge is restricted to
Specific		single lane traffic.	
Specific Environme	ont	Permit approvals.	
Conditions			
Specific Sa	afetv	Use of heavy equipment.	
Conditions		Use of cranes and slings.	
		Working at heights in excess of 3m and there	efore use of safety guards and fall arrest.
Special		The bridge shall be designed to enable trans	port of the heaviest/largest items to be
Requireme	ents:	delivered to the project site.	
Free Issue	d	Not Applicable	
Materials:	u	Not Applicable	
Equipment	t List:	Not Applicable	
Schedule a	and	EOI Date:	TBD
Milestones		RFP Date:	TBD
		Award Date:	TBD
		Start Construction:	TBD
		Construction Complete:	TBD
			Dates for milestones will be updated once
			the Project baseline schedule is in place.
<b>.</b>			
Budget:		TBD	
<b>A</b>	0	Muskrat Falls Generation 🛛 Labrador – Is	land Transmission Link
Applicable Project/SP			
i i ojecti ol	v	Labrador Transmission Assets 🔲 Lower Church	nill Project – General
			—
IBA Packa	ge	YES 🛛 NO 🗌	

Project Base Currency: CAD				
	and Install Spillway Hydro-Mecha YHydro-Mechanical Equipment	anical Equipment	Type: Revision No.: Date:	C- Contract 01 13-Apr-2012
Discipline: Heavy Mechanie Responsibilities: Area Manager: QA / QC:	al Luc Turcotte Kenneth Morrison	Package Engineer: Contract Admin. / Buyer:	Réjean Léto Stella Roche	
Scope of Work Summary	components and handlin includes the design, sup	ne design, supply and in ng equipment for the Spi oply and installation of he nouse Draft Tube Stoplogs	llway at Mu eavy mecha	iskrat Falls. It als
Work Included:	<ul> <li>components, and</li> <li>Hoist support struct</li> <li>Spillway permand</li> <li>Spillway tempora components</li> <li>Upstream stoplog</li> <li>Spillway downstruct</li> <li>All Mechanical a houses, heating admission / venti</li> <li>Installation of s primary concrete</li> </ul>	actures, stair towers and he ent upstream stoplogs and ary stoplogs for installation gs hoist and controls eam stoplogs and embedd and electrical auxiliaries in systems for spillway g lation systems. econdary concrete for e structures	bist houses embedded o on of rollwa ed compone ntegrated in ates and e embedded o	components ays and embedde ents the Spillway hoi embedded part, a
Approximate Quantities (major items only)	Draft tube galle auxiliaries require     Item Description     1 Vertical surface	and embedded component ery overhead crane, wi ed for the operation, ce gates; omponents for vertical surfa	th mechani	ical and electric <u>Unit Quantity</u> ets 03 set 03
		et gates; mponents for low level out		ets 02 ets 02
	stoplogs	oplogs for low level outlet		set 01
		oplogs for vertical surface ermanent low level outlet	gates s	set 01

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Package No.:		CH0046	Туре:	C- Con	tract
Titles	(long):	Supply and Install Spillway Hydr	o-Mechanical Equipment Revision	No.: 01	
	(short):	Spillway Hydro-Mechanical Equi	pment Date:	13-Apr-	2012
			rary stoplogs for vertical surface gates, bination with permanent stoplogs	sets	02
			ded components for temporary	sets	03
			pe hoists for vertical surface gates	sets	03
		10 Hoist h	ouse and towers with 2 stairs for the ertical surface gates	set	01
		11 Hoist h	ouse for two low level outlet gates	set	01
		12 Hoist s	ystem for stoplog handling	set	01
		13 Auxilia hoist h	ry mechanical and electrical system for ouses	Lot	01
			s stairways and service platforms for el outlet gate maintenance	sets	02
			nal bottom seal sill beams for rollways	sets	03
		16 Design	, installation, and commissioning	lot	01
		17 Contro	l system for spillway gates	lot	01
		18 Draft tu	ibe stoplogs; 8 per set	sets	02
			be stoplog embedded components	sets	08
			be gallery overhead crane	lot	01
Contract Ba		22 Draft tu	ibe stoplog storage racks	sets	16
Work Exclu	ided:	Combinati <u>Remarks</u> :	on Lump Sum – Unit Rates	Cost Reimbu	rsable
			Description	Pack	age No.
		Civil contract: spil primary and seco	Iway and powerhouse ndary concrete	CH0007	
			uction cofferdams and dewatering pump	c .	
			action concretation and dowatering party	S CH0006	ì
		Electrical power f electrical switchge hoist houses junc	rom the spillway ear to the spillway	<sup>3</sup> CH0006	;
		Electrical power free electrical switchge hoist houses junct Electrical power s	rom the spillway ear to the spillway tion boxes supply to the draft on box for the draft	<sup>S</sup> CH0006 CH0003	

Project Base Currency:	CAD	
Package No.:	CH0046 Type:	
Titles (long): (short):		ion No.: 01 13-Apr-2012
(short):	Spillway Hydro-Mechanical Equipment       Date:         Determination of Equipment Criticality based on GP-5600-PR-02-E       High         Significant       Minor         Negligible       Determination of Quality Surveillance level based on GP-5600-PR-03-E            4         4         Continuous in process quality monitoring and verification and final Regular in process quality monitoring and verification and final qual Limited in process quality monitoring and verification and final qual Final Quality Verification         No quality surveillance, no quality verification         For Work Package CH0046, Quality Assurance is conducted by         • All quality control as specified in the RFP will be done to Contractor's Quality Plan in Order to meet the Engineee         • The Quality Plan will allow Engineer to witness and reproductors Quality Control Activities.         • The Quality Plan will allow Engineer to witness and reproductors and its sub-suppliers         The following main document was used to define the scope:         DG3 Capital Cost Estimate – Basis of Estimate         Lower Churchill Project – Basis of Design; LCP-PT-ED-0000-E         Design Criteria as formulated for the Lower Churchill Project	verification. lity verification. lity verification. by the Company. by the Contractor as per the r's Technical Specifications gineer and confirmed at broduce any of the crol activities to the
Interface with Othe	Preliminary Design Drawings	
Packages	Description	Package No.
	Primary concrete structures for the Spillway and Draft Tube Installation of anchors in primary concrete for embedded components (anchors and base plates)	CH0007
	Power supply to primary junction boxes in hoist houses.	CH0031
	Heating and ventilation of Draft Tube gate gallery	CH0031
	Control interfaces with the powerhouse control system	CH0030
Specific Site Condi	tions The Construction of structures near or in the Churchill River enforcement.	ver will require strict safety

### PACKAGE DICTIONARY

Package No.: CH0046		Туре:	C- Contract	
Titles (long): Supply	and Install Spillway Hydro-Mechanical Equipment	Revision No.:	01	
(short): Spillway	/ Hydro-Mechanical Equipment	Date:	13-Apr-2012	
Specific Schedule Conditions	<ul> <li>Any other packages that have to be started be</li> <li>CH0006 - Successful diversion of th</li> <li>CH0007 – Installation of anchors in the Spillway structure</li> <li>Items that have to be completed before the su</li> <li>CH0007 - Installation of spillway de</li> <li>Any other packages that cannot proceed before</li> <li>CH0031 - Installation of mechanica</li> </ul>	he Lower Churchill Rive primary concrete durin bject package can proce eck crane rails re the subject package ha	er ng construction of ed: as started:	
Specific Environment Conditions	Environmental concerns when constructing structures close to water. Follow site and Contractor's environmental management plans.			
Specific Safety Conditions	Safety concerns when constructing structures close to water. Procedures for dry and wet testing of the gates will be under the control of the Engineer. All testing and inspection of the equipment will be by the Contractor and a coordinated plan involving responsible personnel.			
	Engineer will be reviewing and accepting	all work procedures.		
Special Requirements (All)	Environmental and Safety Requirements a documentation.	are provided in the Agr	eement	
Free Issued Materials	The following are free issued materials for pac	ckage CH0046:		
Major Equipment List	See Equipment List			
Schedule and Milestones	EOI Date: RFP Date: Award Date: Receive Initial Vendor Drawings: Forecast at Site: Construction Complete:	TBD TBD TBD TBD TBD TBD Dates for milestones once the Project base place.	•	
Budget	To be provided by estimation:			
-				
Applicable Sub- Project/SPV	Muskrat Falls Generation 🛛 Labrador -	- Island Transmission Link		

Project Base Currency:	CAD		
Package No.:	CH0046	Туре:	C- Contract
Titles (long):	Supply and Install Spillway Hydro-Mechanical Equipment	Revision No.:	01
(short):	Spillway Hydro-Mechanical Equipment	Date:	13-Apr-2012
	Labrador Transmission Assets 🗌 Lower Churchill Pr	roject – General	
IBA Package	YES NO		

CAD				
CH0048 Construction of Site Clearing Access Road and Ancillary Areas Site Clearing Access Road and Ancillary Areas			Type: Revision No.: Date:	C-Contract 01 13-Apr-2012
-				erry McCarthy /Ivain Marsan
		Merchantable	& Non-Merc	hantable timber
Access ro Access Re Access ro Access ro Access ro 25 kV Ter including	ad to and the area for the Ad oads to and the areas for Gra oad to and the Owner's Lay- ad to and the Contractors La ad to and the Spoil Deposit / nporary Transmission Line ri tap station on the North side.	avel Pits and 0 down Area ay-down Area Area ght of way on	Quarries	nd South side,
<ul> <li>La</li> <li>Me are</li> <li>Mu</li> <li>Ste</li> </ul>	yout of clearing areas. echanical clearing of Mercha eas outlined above. ulching of non-merchantable ockpiling cleared timber alon	ntable & Non- timber and sh g edge of righ	Merchantab Irubs. t-of-way.	le Timber in the
ITEM	DESCRIPTION			
1	CLEARING	HA	227.	
	Combination Lump Sum – Unit F		Cost	Unit Rates
	CH0048 Construction of Site Clearing / Manager: W QC: K This pack for the foll South Sid Access ro Access R Access ro 25 kV Ter including f Main proje	CH0048 Construction of Site Clearing Access Road and Ancill Site Clearing Access Road and Ancillary Areas Vanager: Wallace Piercey C: Ken Morrison This package includes the clearing of I for the following areas: South Side Access Road Access road to and the area for the Ac Access Roads to and the areas for Gra Access Roads to and the Owner's Lay-A Access road to and the Contractors La Access road to and the Spoil Deposit 25 kV Temporary Transmission Line ri including tap station on the North side. Main project site including Switchyard CCoordination with Access Road Layout of clearing areas. Mechanical clearing of Mercha areas outlined above. Mulching of non-merchantable Stockpiling cleared timber alon Clearing and preparation of tim	CH0048         Construction of Site Clearing Access Road and Ancillary Areas         Site Clearing Access Road and Ancillary Areas         Site Clearing Access Road and Ancillary Areas         Wanager:       Wallace Piercey       Package Engineer:         DC:       Ken Morrison       Contract Admin. / I         This package includes the clearing of Merchantable for the following areas:       South Side Access Road         South Side Access Road       Access road to and the area for the Accommodation Access Roads to and the Owner's Lay-down Area         Access road to and the Contractors Lay-down Area       Access road to and the Spoil Deposit Area         25 kV Temporary Transmission Line right of way on including tap station on the North side.       Main project site including Switchyard area. <ul> <li>Coordination with Access Road contractor (C</li> <li>Layout of clearing areas.</li> <li>Mulching of non-merchantable timber and sh</li> <li>Stockpiling cleared timber along edge of right</li> <li>Clearing and preparation of timber stockpile</li> </ul> <ul> <li>Mulching of Description</li> <li>UNIT</li> <li>CLEARING</li> <li>HA</li> </ul> <ul> <li>Lump Sum Combination Lump Sum – Unit Rates</li> </ul>	CH0048       Type: Construction of Site Clearing Access Road and Ancillary Areas       Type: Revision No.:         Site Clearing Access Road and Ancillary Areas       Date:         Wanager:       Wallace Piercey       Package Engineer:       Te         Wanager:       Ken Morrison       Contract Admin. / Buyer:       System         This package includes the clearing of Merchantable & Non-Merch for the following areas:       South Side Access Road       Access road to and the area for the Accommodations Complex Access Road to and the areas for Gravel Pits and Quarries Access road to and the Owner's Lay-down Area       Access road to and the Owner's Lay-down Area         Access road to and the Spoil Deposit Area       25 kV Temporary Transmission Line right of way on the North are including tap station on the North side.         Main project site including Switchyard area.       •       Coordination with Access Road contractor (CH0004).         •       Layout of clearing areas.       •       Mulching of non-merchantable timber and shrubs.         •       Stockpiling cleared timber along edge of right-of-way.       •         •       Clearing and preparation of timber stockpile areas.         •       Item DESCRIPTION       UNIT       QUANT         1       CLEARING       HA       227.

#### Lower Churchill Project

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Project Base Currency:	CAD			
Package No.:	CH0048		Туре:	C-Contract
(Long):	Construction of Site Clearing Access Road and Ancillary	Areas	Revision No.:	01
(short):	Site Clearing Access Road and Ancillary Areas		Date:	13-Apr-2012
Nork Excluded:				
	Description		Packa	ige No.
	Permanent transmission line right of way	/S		
	Culvert installation at stream crossings		CH0004	
Quality	Contractor shall comply with Quality Requ 0000-38RA-0003.	uireme	ent Specification I	Number 505573-
Reference	The following main documents are used t	o defi	ne the scope:	
Section:	505573-311A-41EC-0001 Design Criteria	– Ma	in Access Road	
nterface with				
other Packages:	Description		Package	no.
	South Side Access Road	CH0	004	
	Accommodation Complex Utilities	CH0	005	
	Bulk Excavation Works	CH0	006	
	Construction Power	CH0	512	
Specific Site Conditions: Specific Schedule Conditions:	Remote site, rough terrain, several major stream crossings (Caroline Brook 50m <sup>3</sup> /s, Jacobe's Brook 66m <sup>3</sup> /s, and McKenzie River 145m <sup>3</sup> /s)         Any other packages that have to be started before the subject package can proceed: (Not Applicable)         Any other packages that cannot proceed before the subject package has started:         • CH0004 South Side Access Road         • CH0006 Bulk Excavation			
Environment Conditions:	Burning of cleared and mulched material	material <u>NOT PERMITTED</u>		
Specific Safety Conditions:	Use of heavy equipment in remote areas May involve some manual felling of trees.		anticult access.	
Special Requirements:	Not Applicable			

#### Lower Churchill Project

Project Base Currency	CAD			
Package No.: (Long) (short)				
Free Issued Materials:	Not Applicable			
Major Equipment List:	Not Applicable			
Schedule and Milestones:	EOI Date:25-Nov -2011RFP Date:16-Dec-2011Award Date:TBDStart Construction:TBDConstruction Complete:TBDDates for milestones will be updated once the Project baseline schedule is in place.			
Budget:	твр			
Applicable Sub- Project/SPV	Muskrat Falls Generation       Image: Labrador – Island Transmission Link         Labrador Transmission Assets       Image: Lower Churchill Project – General			
IBA Package	YES NO			

### PACKAGE DICTIONARY

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#### PACKAGE DICTIONARY

Package No.: CH0049 Titles (long): Supply a (short): Log Bool	and Install Log	Booms	Revision No.: 01	Contract
Discipline: Civil and related Responsibilities: Area Manager: QA / QC:			Todd Smith Ron Adamcyk	Api-2012
Scope of Work Summary	booms and	act package includes the design, supply, in I safety booms/buoys, including the remova Iso includes the construction of the access ro	al of debris during	the construction
Work Included: Approximate Quantities (only major items are included)	Des sub Sup Con Ins Ma dur car Res Con Des won Item	sign of the log booms, and safety booms and sign of the boom foundations/supports/ omerged; oply and delivery of the booms/buoys; nstruction of the foundations/supports/anchor tallation of the booms/buoys; intenance of the booms/buoys during the co- ing the fall and installation during the spring not remain in place during the winter months moval of debris from the booms and transpor nstruction of access road to the downstream ivery of concrete from batch plant if require rk. Description LOG BOOOMS SAFETY BOOM AND BUOYS ACCESS ROAD	anchors including rs; postruction period in g if it is determined s; t to spoil areas duri boom location; d for foundations, a <u>Unit</u> ea line	Cluding removal that the booms ng construction; anchors, or other Quantity 3 1
Contract Basis		Lump Sum	km L Cost Rein	Init Rates
Work Excluded:	Remarks:	on		Package No.
	-	on of access road to the upstream boom loca	ation	CH0008
	Constructi	on of spoil areas		CH0048
		on of access roads to the spoil areas		
	Supply of	•		CH0048
		hside Access Road		CH0050
			s during the	CH0004
Maintenance of the booms/buoys and removal of debris during the operation phase N/A				N/A

### PACKAGE DICTIONARY

Package No.: Titles (long	CH0049 ): Supply a	ind Install Log Booms	Type: Revision No.:	C-Contract 01
(short	): Log Boom	ns	Date:	13-Apr-2012
Quality		Quality requirements are defined in document 50 Quality Requirements Specification	05573-0000-38RA-I-00	03 Contractor
Reference Sectio	on	The following main documents were used to def	ine the scope:	
		Design Philosophy for LCP Environmental M	litigation LCP-PT-ED-0	000-EN-PH-0007-01
		Design Philosophy for Reservoir Trash & PH-0030-01	Debris Management L	.CP-PT-ED-0000-EN
Interface with Ot Packages	her			
		Description		Package No.
		Construction of Southside Access Road		CH0004
		Construction of North Spur Stabilization Works	i de la construcción de la constru	CH0008
		Supply of Concrete Including Batch Plant		CH0050
		Construction of Intake and Powerhouse, Spillw Dams	ay and Transition	CH0007
Specific Site Cor		Construction of the spoil areas and the access areas	roads to the spoil	SH0048
		<ul> <li>The construction of structures in and safety enforcement.</li> <li>Construction of foundations will likely be Maintenance and removal of debris will</li> <li>Booms and buoys will likely be specifie will have to resist ice forces.</li> </ul>	e required in the River. likely require work in th	e River.
		Booms and buoys are to be installed to north portage route.	o guide boaters to and	permit access to th
		• The Churchill River is a navigable river accordingly.	and booms and buoy	s are to be designe
Specific Schedul Conditions	e	<ul> <li>Any other packages that have to be started befo</li> <li>Access road to upstream log boom will be Stabilization and should be completed to of the winter headpond.</li> <li>Spoil areas and associated access road debris from the log booms.</li> <li>Maintenance and removal of debris is until project completion – this may inclucompletion of the remaining units.</li> </ul>	be constructed under C b permit removal of det ds are to be completed to continue through th	H-0008 North Spur oris following creation to enable disposal of e construction perio

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### PACKAGE DICTIONARY

Package No.:		CH0049		Type:	C-Contract	
Titles	(long):	Supply	and Install Log Booms	Revision No.:	01	
	(short):	Log Boo	ms	Date:	13-Apr-2012	
			Any other packages that cannot proceed befor	ro the subject package b	as started:	
			The booms and buoys under CH004     winter headpond / river diversion.	te are to be installed p		
			<ul> <li>The booms and buoys will require m 39m.</li> </ul>	odification prior to impo	undment to elevation	
Specific En	vironm	ent	When constructing the shore based foundatio	ns and the access road	or other similar	
Conditions		••••	activities requiring earth moving equipment, sit			
			ponds will be utilized which will filter the water	before returning it to the	river at the specified	
			suspension levels (less than 30 ppm). Adequa			
Crocific Co	fate		take care of natural run-off water and have it ru			
Specific Sa Conditions			Strict safety is required when constructing stru	ictures close to or in the	water.	
Special Rec	quireme	ents	Environmental and Safety Requirements are provided in the Agreement in several			
(AII)			documents.			
Free Issued Materials		als	Not Applicable			
Major Equi	pment l	₋ist	Log Booms			
			Safety Boom and Buoys			
				700		
Schedule a	nd Mile	stones	EOI Date: RFP Date:	TBD TBD		
			Award Date:	TBD		
			Receive Initial Vendor Drawings:	TBD		
			Forecast at Site:	TBD		
			Construction Complete:	TBD		
				Dates for milestones w		
				the Project baseline sc	hedule is in place.	
Budget			TBD			
Awwliashia	Out					
Applicable Project/SP\			Muskrat Falls Generation 🛛 Labrador -	- Island Transmission Link		
			Labrador Transmission Assets 🗌 Lower Chu	urchill Project – General		
IBA Packag	je		YES NO			

### PACKAGE DICTIONARY

	o of Concrete including Batch Plant (MF) e including Batch Plant (MF)	Type: Revision No.: Date:	C-Contract 01 13-Apr-2012
Discipline: Civil Responsibilities: Area Manager: QA / QC:	Luc Turcotte Package Engineer: Ken Morisson Contract Admin. / Buyer:	Hafid Bouza Ron Adamcy	
Scope of Work Summary	This contract package is for the supply of conventional site except the Access road and Accommodations Com Bulk Excavation contractor's requirements.	•	,
Work Included:	<ul> <li>The mobilization, installation, operation and disr</li> <li>The fabrication of the aggregates for concrete f sand gravel borrows areas.</li> <li>Supply and storage of Portland cement for the Ash and additives.</li> <li>The production of concrete at the batching plant</li> <li>The quality control at the batch plant.</li> </ul>	rom blasted ro fabrication of c	ck stockpile and from
Approximate Quantities (only major items are included)	Item         Description           1         CONCRETE		Unit Quantity m <sup>3</sup> 500,000
Contract Basis	Lump Sum Combination Lump Sum – Unit Rates <u>Remarks</u> :	Cost	Unit Rates
Work Excluded:	Description		Deskage No
	Description		Package No.
	Placement of concrete		Varies
	The quality control at the pour site		Varies
	Production of blasted rock stockpile		CH0006
	Supply of Roller Compacted Concrete (RCC)		CH0009
Quality	Quality requirements are defined in document 505573-0 Quality Requirements Specification.	000-38RA-I-00	03 Contractor

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### PACKAGE DICTIONARY

	50     Type:       v of Concrete including Batch Plant (MF)     Revision No.:       ete including Batch Plant (MF)     Date:	C-Contract 01 13-Apr-2012		
Reference Section	The following main documents were used to define the scope:			
	<ul> <li>LCP-PT-ED-0000-EN-RP-0001-01 - Nalcor Energy-Lower Basis of Design.</li> </ul>	Churchill Project		
	<ul> <li>723468-40ER-0001-00 - MF 1340 - Review and Confirmation Layout.</li> </ul>	on of Muskrat Fal		
	Design Criteria as formulated for the Lower Churchill Project.			
Interface with Other Packages				
0	Description	Package No.		
	Construction of Southside Access Road	CH0004		
	Bulk Excavation Works	CH0006		
	Construction of Intake and Powerhouse, Spillway and Transition Dams	CH0007		
	Construction of North and South Dams	CH0009		
	Supply And Install Log Booms	CH0049		
	Supply and Install Converters & Harmonic Filters & Transition Compounds	CD0501		
	Construction of Switchyard and Synchronous Condenser Facilities	CD0502		
Specific Site Conditions	The construction of structures near the Churchill River will require strict s Bedrock at the Muskrat Falls site consists of hard, unweathered gne concrete is limited to Muskrat Falls site.			
Specific Schedule Conditions	<ul> <li>Any other packages that have to be started before the subject package of CH0006 – Bulk Excavation Works shall be completed no later the Concrete Batch Plant shall be ready to produce first concrete no 2013.</li> </ul>	an April 2013		
	Any other packages that cannot proceed (or be completed) before the su started:	ibject package ha		
	CH0004 – Construction of Southside Access Road			
	CH0006 – Bulk Excavation Works			
	CH0007 – Construction of Intake and Powerhouse, Spillway and Transition Dams			
	CH0009 – Construction of North and South Dams			
	CH0049 – Supply And Install Log Booms			
	CD0501 – Supply and Install Converters & Harmonic F Compounds	ilters & Transitio		

#### PACKAGE DICTIONARY

Package No.: CH0050	51	C-Contract
		01 13-Apr-2012
	CD0502 – Construction of Switchyard and Synchronous Construction	ondenser Facilities
Specific Environment Conditions Specific Safety	Waste concrete from washing of the mixers and trucks should be dispos approved waste disposal areas outside the site. Adequate control of dust at the Aggregate Plant should be provided. Strict safety is required when constructing structures close to or in the wa	
Conditions		
Special Requirements (All)	Environmental and Safety Requirements are provided in the Agreement i documents.	n several
Free Issued Materials	The following are free issued materials for package CH0050:	
	Description	Package No.
	Blasted rock from bulk excavations will be provided for crushing by the contractor.	CH0006
Major Equipment List	N/A	
Schedule and Milestones	EOI Date: TBD RFP Date: TBD Award Date: TBD 1 <sup>st</sup> Vendor Data Required by: TBD Construction Complete: TBD Dates for milestones once the Project base in place.	
Budget	TBD	
Applicable Sub- Project/SPV	Muskrat Falls Generation       Image: Labrador – Island Transmission Link         Labrador Transmission Assets       Image: Lower Churchill Project – General	
IBA Package	YES NO	

### Lower Churchill Project

#### PACKAGE DICTIONARY

Package No.: C	CH0052	Type:	C-Contract
	Construction of Habitat Compensation Works	Revision No.:	01
(short): H	labitat Compensation	Date:	13-Apr-2012
Discipline: Civil Responsibilities: Area Ma QA / QC		Albert Clark	
Scope of work Summary:	This package includes the design, supply and constru Works for the Muskrat Falls Lower Churchill Project to Compensation Plan being developed by Nalcor and a	comply with the	Habitat
Work Included:	Supply all labor, materials and equipment to construct Compensation as per the project designs and the requ		
	<ul> <li>The design and construction of facilities require Edwards Brook delta area, Pinus Brook delta a Gull Island Area.</li> <li>Removal of vegetation and overburden where</li> <li>Re-grade the existing substrate to the design e</li> <li>Mobilize to the delta areas in the river downstrue existing vegetation and re-grade the areas to p reservoir inundation.</li> <li>Maintain buffer zones between habitat creation areas.</li> <li>Construct Helicopter landing pads for monitorin Construct access for construction purposes.</li> <li>Rehabilitation of disturbed areas not incorporal</li> </ul>	rea and the Sho required levations. eam of Gull Lake rovide fish spaw activities and e ng activities.	oals area below e and remove vning beds after xisting fish habitat
Approximate			
Quantities (major	ITEM DESCRIPTION	UNIT	QUANTITY
items only):	1 TBD		
Contract Basis:	To be determined.		
Work Excluded:	Description	Dool	age No.
			•
	Clearing and Grubbing of areas covered under the Reservoir Clearing works	CH0023/CI	10024
	Installation of camp facilities	CD0538	

#### Lower Churchill Project

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### PACKAGE DICTIONARY

	CH0052	Type:	C-Contract
	Construction of Habitat Compensation Works Habitat Compensation	Revision Date:	No.: 01 13-Apr-2012
		Dale.	15-Api-2012
Quality:	Contractor shall comply with Quality Require 38RA-0003.	ement Specification N	umber 505573-0000-
Reference Section:	The following main documents are used to c	lefine the scope:	
	To be determined.		
Interface with other Packages:	Description		Package No.
	ТВД		
Specific Site Conditions:	To be determined.		
Specific Schedule Conditions:	Any other packages that have to be started before (Not Applicable)	re the subject package	can proceed:
	Any other packages that cannot proceed before (Not Applicable)	the subject package ha	s started:
Specific Environment Conditions:	Permit approvals.		
Specific Safety Conditions:	To be determined.		
Special Requirements:	To be determined.		
Free Issued Materials:	Not Applicable		
Major Equipment List:	Not Applicable		
Schedule and Milestones:	EOI Date: RFP Date: Award Date: Start Construction:	TBD TBD TBD TBD	
	Construction Complete:		s will be updated once schedule is in place.

#### Lower Churchill Project

Project Base Currency:		CAD	
Package No.: Titles	(long): (short):	CH0052Type:C-ContractConstruction of Habitat Compensation WorksRevision No.:01Habitat CompensationDate:13-Apr-2012	
Budget:		As per DG3.	
Applicable Sub- Project/SPV		Muskrat Falls Generation       X       Labrador – Island Transmission Link         Labrador Transmission Assets       Lower Churchill Project – General	
IBA Package		YES NO X	

#### PACKAGE DICTIONARY

Package No.: Titles	PH0014 (long): Supply of ( (short): GSU Trans	Generator Step-Up Transforme sformer	r	Type: Revision No.: Date:	P-Purchase Order 01 13-Apr-2012		
Discipline: Responsibilities:	Electrical Area Manager: QA / QC:	Luc Turcotte Kenneth Morrison	Package Engineer: Contract Admin. / Buyer	William Ca : Ken O'Kee			
Scope of Work Summary	four (4) 175/	This contract package includes design, fabrication, shop testing, packaging, delivery and warranty of four (4) 175/230 MVA ONAN/ONAF generator step-up (GSU) transformers complete with 315 kV lightning arresters and accessories and one (1) spare generator step-up (GSU) transformer.					
Work Included:	<ul> <li>cool</li> <li>chai</li> <li>acco</li> <li>Isola</li> <li>will</li> <li>Insu</li> <li>HV</li> <li>One</li> <li>One</li> <li>testi</li> <li>The</li> <li>mar</li> <li>Offic</li> <li>Sup</li> <li>acco</li> <li>O&amp;M</li> <li>Factorial</li> </ul>	ed (ONAN/ONAF), GS nger, H.V. bushings, I essories. Four (4) transfo ated Phase Bus (IPB) du be a spare unit, which will lating oil for first filling of terminal lugs for ACSR o (1) set of mandatory spa (1) set of special device ng, commissioning and r transportation of the transformer bufacturer to Site;	the transformers, which are to verhead line connections; are parts; s, handling tools and testing naintenance of the above transformers, materials, equip ansformers, materials, equip s on their concrete bases; or the correct, safe and prop	with conservation panels, all n the generator of separate Contra- to be delivered i equipment requipsformers; oment and access	tor tank, off-load tap ecessary fittings and irrcuit breakers through ct. One (1) transformer n drums; ired for the installation, essories from place of		
Approximate Quantities (only major items are included)	<b>Item</b> 1 1		cription F generator step-up (GSU)	Unit ea	Quantity 05		
Contract Basis	Co <u>Remarks</u> :	L mbination Lump Sum – ۱	ump Sum ⊠ Jnit Rates □ C	Unit Rat Cost Reimbursat			

Package No.

CH0031

CH0007

PH0015

PH0015

CH0030

CT0319

CH0031

CH0007

#### **PACKAGE DICTIONARY**

Project Base Currency: CAD

Package No.:		PH0014	Туре:	P-Purchase Order
Titles	(long):	Supply of Generator Step-Up Transformer	Revision No.:	01
	(short):	GSU Transformer	Date:	13-Apr-2012

Description

# Excluded: **Transformer Installation** Transformer foundations and other civil works 15 kV isolated phase bus (IPB) between the generator circuit breaker terminals and the GSU transformers Flexible connections to the IPB Transformer protection panels and Powerhouse Control System H.V. cable connections to overhead lines Fire protection system Supply of the anchor bolts C00/2471/a

Work

	600/347 V ac auxiliary power supply	CH0031			
	125 V dc power supply	CH0031			
	Storing of material and equipment at Site (if required)	CH0031			
Quality	Requires Determination of the Equipment Quality Rating       YES       X	NO			
	Determination of Equipment Criticality based on GP-5600-PR-02-E				
	High Minor Significant X Negligible Moderate				
	Determination of Quality Surveillance level based on GP-5600-PR-03-E				
	4Continuous in process quality monitoring and verification and final verification.X3Regular in process quality monitoring and verification and final quality verification.2Limited in process quality monitoring and verification and final quality verification.1Final Quality Verification0No quality surveillance, no quality verification				
Reference	The following main documents are used to define the scope:				
Section	505573-344B-47EC-0001 – Design Criteria Powerhouse Major Electrical Equipment LCP-PT-ED-0000-EN-RP-0001-01 - Nalcor Energy-Lower Churchill Project – Basis of Design 723468-40ER-0001-00 - MF 1340 Review and Confirmation of Muskrat Falls Layout, Structures and Interfaces LCP-PT-ED-0000-EN-PH-0028-01 - Nalcor Energy-Lower Churchill Project-Design Philosophy for Muskrat Falls Plant Layout LCP-PT-ED-0000-EN-PH-0005-01 - Nalcor Energy-Lower Churchill Project-Operation & Maintenance Philosophy of Design LCP No. 200-120145-00025 - Nalcor Energy-Work Protection Code				

### PACKAGE DICTIONARY

Project Base Currency: CAD

Package No.:		PH0014	Туре:	P-Purchase Order
Titles	(long):	Supply of Generator Step-Up Transformer	Revision No.:	01
	(short):	GSU Transformer	Date:	13-Apr-2012

Interface with		
Other	Description	Package No.
Packages	Transformer foundations and anchor bolts	CH0007
•	Transformer installation, fire protection system, connections to IPB, ac	CH0031
	and dc auxiliary power supplies and control systems	
	Turbine/Generator protection and control systems	CH0030
	Isolated Phase Bus flexible connectors	PH0015
	HV overhead lines	CH0319
		·
Specific Site Conditions	Not Applicable	
Specific	Any other packages that have to be started before the subject package c	an proceed:
Schedule Conditions	<ul> <li>CH0007 – Transformer foundations and anchor bolts;</li> </ul>	
	Any other packages that cannot proceed before the subject package has	started:
	CH0030 – Turbine/Generator and Turbine/Generator protection a	and control systems
	commissioning;	,
	<ul> <li>PH0015 – Isolated Phase Bus</li> </ul>	
Specific Environment	Not Applicable	
Conditions		
Specific	Not Applicable	
Safety		
Conditions		
Special	Not Applicable	
Requirements		
(All)		
Free Issued	Not Applicable	
Materials		
Major	Tag Number         Description           3342-TRF-0001         UNIT 1 GENERATOR STEP-UP TRANSFORMER	
Equipment	3342-TRF-0002 UNIT 2 GENERATOR STEP-UP TRANSFORMER	
List	3342-TRF-0003 UNIT 3 GENERATOR STEP-UP TRANSFORMER	
	3342-TRF-0004 UNIT 4 GENERATOR STEP-UP TRANSFORMER 3342-TRF-0005 SPARE GENERATOR STEP-UP TRANSFORMER	
	3342-TRF-0003 SPARE GENERATOR STEF-OF TRANSFORMER	
Schedule and	EOI Date: TBD	
	RFP Date: TBD	
Milestones	Award Date: TBD	
	Receive Initial Vendor Drawings: TBD	
	Forecast at Site: TBD	
	Construction Complete: TBD	
		s will be updated once the

#### Lower Churchill Project

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Project Base Currency:		CAD					
Package No.: Titles	(long): (short):	Supply of Generator Step-Up Transformer R	ype: evision No.: Pate:	P-Purchase Order 01 13-Apr-2012			
		Project baseline se	chedule is ir	n place.			
Budget	TE	D					
Applicable Sub- Broicet/SBV	N	luskrat Falls Generation 🛛 Labrador – Island Transmission Link					
Project/SPV	L	abrador Transmission Assets 🗌 Lower Churchill Project – General					
IBA Package		YES NO					

### PACKAGE DICTIONARY

Package No.: PH0015 Titles (long): Supply of (short): Isolated F	Isolated Phase Bus hase Bus		Type: Revision No.: Date:	P-Purchase Order 01 13-Apr-2012
Discipline: Electrical Responsibilities: Area Manager: QA / QC:	Luc Turcotte Kenneth Morrison	Package Engineer: Contract Admin. / Buyer:	William Calc Ken O'Keefe	
Scope of Work Summary	warranty of four (4) sets	ncludes design, fabrication; shop of 3-phase isolated phase bus as rcuit breakers, station service tra GSU) transformers.	ssemblies for	connection of
Work Included:	<ul> <li>transformer and</li> <li>Three (3) single terminals and ge</li> <li>Three (3) single circuit breakers</li> <li>Three (3) single transformer cub</li> <li>Three (3) single removable links</li> <li>All necessary be GSU transformer generator circuit</li> <li>Support structur</li> <li>Equipment grout</li> <li>One (1) set of reformed the installation, phase bus;</li> <li>O &amp; M Manuals</li> <li>Factory and site</li> <li>Supervision of the installation of the installation of the installation.</li> </ul>	-phase isolated phase bus tap co to the station auxiliary service tr raided flexible connectors and ac er, excitation transformer, station t breaker; res for the isolated phase bus; anding terminations; ecommended spare parts; pecial devices, handling tools and testing, commissioning and main	connections b connections to ponnections to connections wit cansformer cul cessories for auxiliary servi d testing equip tenance of the c; phase bus;	etween generator etween generator the excitation h isolated phase bu bicle; the connection of the ces transformer and

#### Lower Churchill Project

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### PACKAGE DICTIONARY

	DUDDAE					
Package No.:	PH0015			/pe:		hase Order
Titles (long):		Isolated Pl		evision No.:	01	0040
(short):	Isolated I	Phase Bus	D	ate:	13-Apr	-2012
Approximate Quan	tities					
(only major items a		Item	Description		Unit	Quantity
included)		1	12,000 A isolated phase bus		m	4 X 97.1
		2	12,000 A isolated phase bus 90° elbow		ea	4 X 15
		3	12,000 A isolated phase bus wall seal-off		ea	4 X 3
		4	12,000 A isolated phase bus floor seal-off/fire bar	ier	ea	4 X 3
		5	600 A isolated phase bus 600 A isolated phase bus 90° elbow		m ea	4 X 62.18 6 X 3
		7	600 A isolated phase bus wall seal-off		ea	4 X 3
		8	600 A isolated phase bus floor seal-off/fire barrier		ea	4 X 3
						1
Work Excluded:		<u>Remar</u>	Lump Sum 🛛 Combination Lump Sum – Unit Rates 🔲 <u>ks</u> :	Cos	Unit t Reimbu	Rates
WOIK LACIUUEU.						
			Description		Pack	age No.
			d phase bus Installation		CH0031	
			eal assembly and wall frame installation		CH0007 8	& CH0031
		Floor fi	re barrier/seal installation		CH0007 8	& CH0031
			ormer base and other civil works		CH0007	
		Supply	of GSU transformers		PH0014	
			of generator circuit breakers		PH0016	
			of station service transformers		PH0035	
			of excitation transformers		CH0030	
			of flexible connections to the generator terminals		CH0030	
			tion of flexible connections to the generator termina		CH0031	
			tion of flexible connections to the GSU terminals of the anchor bolts		CH0031	
			7 V ac auxiliary power supply		CH0007	
			dc power supply		CH0031	
			of material and equipment at Site		CH0031	
		Storing			CH0031	

### PACKAGE DICTIONARY

Package No.:		PH0015 Type:	P-Purchase Order
Titles	(long):	Supply of Isolated Phase Bus Revision No.:	01
Thes	(short):	Isolated Phase Bus Date:	13-Apr-2012
	(SHOIL).		15-Api-2012
Quality		Requires Determination of the Equipment Quality Rating YES	X NO
		Determination of Equipment Criticality based on GP-5600-PR-02-E	
		High Minor Significant Negligible Moderate X	
		Determination of Quality Surveillance level based on GP-5600-PR-03-E	
		4Continuous in process quality monitoring and verification and final verificat3Regular in process quality monitoring and verification and final quality verifiX2Limited in process quality monitoring and verification and final quality verifi1Final Quality Verification0No quality surveillance, no quality verification	ication.
Reference S	Section	The following main documents are used to define the scope:	
		<ul> <li>505573-344B-47EC-0001 – Design Criteria Powerhouse Ma Equipment</li> <li>LCP-PT-ED-0000-EN-RP-0001-01 - Nalcor Energy-Lower Cl of Design.</li> <li>723468-40ER-0001-00 - MF 1340 Review and Confirmation Layout, Structures and Interfaces.</li> <li>LCP-PT-ED-0000-EN-PH-0028-01 - Nalcor Energy-Lower Cl Philosophy for Muskrat Falls Plant Layout.</li> <li>LCP-PT-ED-0000-EN-PH-0005-01 - Nalcor Energy-Lower Cl Operation &amp; Maintenance Philosophy of Design.</li> </ul>	nurchill Project – Basis of Muskrat Falls nurchill Project-Design
		<ul> <li>LCP No. 200-120145-00025 - Nalcor Energy-Work Protection</li> </ul>	n Code.
Interface wi	ith Othe	LCP No. 200-120145-00025 - Nalcor Energy-Work Protection r	1
Interface wi Packages	ith Othe	LCP No. 200-120145-00025 - Nalcor Energy-Work Protection	Package No.
	ith Othe	LCP No. 200-120145-00025 - Nalcor Energy-Work Protection	1
	ith Othe	<ul> <li>LCP No. 200-120145-00025 - Nalcor Energy-Work Protection</li> <li><b>Description</b>         IPB support foundations and anchor bolts, installation of wall frame assemblies, floor fire barrier/seal assemblies, and wall frame assemblies         IPB installation, fire protection system, connections to generators, generator circuit breakers, GSU transformers, station auxiliary services transformers, excitation transformers, ac and dc auxiliary     </li> </ul>	Package No.
	ith Othe	<ul> <li>LCP No. 200-120145-00025 - Nalcor Energy-Work Protection</li> <li><b>Description</b>         IPB support foundations and anchor bolts, installation of wall frame assemblies, floor fire barrier/seal assemblies, and wall frame assemblies         IPB installation, fire protection system, connections to generators, generator circuit breakers, GSU transformers, station auxiliary services transformers, excitation transformers, ac and dc auxiliary power supplies and control systems     </li> </ul>	Package No. CH0007 CH0031
	ith Othe	LCP No. 200-120145-00025 - Nalcor Energy-Work Protection      Description      IPB support foundations and anchor bolts, installation of wall frame     assemblies, floor fire barrier/seal assemblies, and wall frame     assemblies      IPB installation, fire protection system, connections to generators,     generator circuit breakers, GSU transformers, station auxiliary     services transformers, excitation transformers, ac and dc auxiliary     power supplies and control systems     Turbines and Generators	Package No.           CH0007           CH0031           CH0030
	ith Othe	<ul> <li>LCP No. 200-120145-00025 - Nalcor Energy-Work Protection</li> <li><b>Description</b>         IPB support foundations and anchor bolts, installation of wall frame assemblies, floor fire barrier/seal assemblies, and wall frame assemblies         IPB installation, fire protection system, connections to generators, generator circuit breakers, GSU transformers, station auxiliary services transformers, excitation transformers, ac and dc auxiliary power supplies and control systems     </li> </ul>	Package No.           CH0007           CH0031           CH0030           PH0014
	ith Othe	LCP No. 200-120145-00025 - Nalcor Energy-Work Protection      Description      IPB support foundations and anchor bolts, installation of wall frame     assemblies, floor fire barrier/seal assemblies, and wall frame     assemblies      IPB installation, fire protection system, connections to generators,     generator circuit breakers, GSU transformers, station auxiliary     services transformers, excitation transformers, ac and dc auxiliary     power supplies and control systems      Turbines and Generators      GSU transformers      Generator circuit breakers	Package No.           CH0007           CH0031           CH0030           PH0014           PH0016
		LCP No. 200-120145-00025 - Nalcor Energy-Work Protection <b>Description</b> IPB support foundations and anchor bolts, installation of wall frame     assemblies, floor fire barrier/seal assemblies, and wall frame     assemblies      IPB installation, fire protection system, connections to generators,     generator circuit breakers, GSU transformers, station auxiliary     services transformers, excitation transformers, ac and dc auxiliary     power supplies and control systems      Turbines and Generators      GSU transformers      Generator circuit breakers      Station service transformers	Package No.           CH0007           CH0031           CH0030           PH0014
Packages Specific Sit	e Condi	LCP No. 200-120145-00025 - Nalcor Energy-Work Protection      Description      IPB support foundations and anchor bolts, installation of wall frame     assemblies, floor fire barrier/seal assemblies, and wall frame     assemblies      IPB installation, fire protection system, connections to generators,     generator circuit breakers, GSU transformers, station auxiliary     services transformers, excitation transformers, ac and dc auxiliary     power supplies and control systems      Turbines and Generators      GSU transformers     Generator circuit breakers     Station service transformers      tions	Package No.           CH0007           CH0031           CH0030           PH0014           PH0016           PH0035
Packages	e Condi hedule	LCP No. 200-120145-00025 - Nalcor Energy-Work Protection      Description      IPB support foundations and anchor bolts, installation of wall frame     assemblies, floor fire barrier/seal assemblies, and wall frame     assemblies      IPB installation, fire protection system, connections to generators,     generator circuit breakers, GSU transformers, station auxiliary     services transformers, excitation transformers, ac and dc auxiliary     power supplies and control systems      Turbines and Generators     GSU transformers     Generator circuit breakers     Station service transformers      Not Applicable      Any other packages that have to be started before the subject package	Package No.           CH0007           CH0031           CH0030           PH0014           PH0016           PH0035
Packages Specific Sit	e Condi hedule	LCP No. 200-120145-00025 - Nalcor Energy-Work Protection     Description     IPB support foundations and anchor bolts, installation of wall frame     assemblies, floor fire barrier/seal assemblies, and wall frame     assemblies     IPB installation, fire protection system, connections to generators,     generator circuit breakers, GSU transformers, station auxiliary     services transformers, excitation transformers, ac and dc auxiliary     power supplies and control systems     Turbines and Generators     GSU transformers     Generator circuit breakers     Station service transformers     Not Applicable     Any other packages that have to be started before the subject package     • CH0030 – Turbine/Generator;	Package No.           CH0007           CH0031           CH0030           PH0014           PH0016           PH0035
Packages Specific Sit	e Condi hedule	LCP No. 200-120145-00025 - Nalcor Energy-Work Protection      Description      IPB support foundations and anchor bolts, installation of wall frame     assemblies, floor fire barrier/seal assemblies, and wall frame     assemblies      IPB installation, fire protection system, connections to generators,     generator circuit breakers, GSU transformers, station auxiliary     services transformers, excitation transformers, ac and dc auxiliary     power supplies and control systems      Turbines and Generators     GSU transformers     Generator circuit breakers     Station service transformers      Not Applicable      Any other packages that have to be started before the subject package	Package No.           CH0007           CH0031           CH0030           PH0014           PH0016           PH0035

### PACKAGE DICTIONARY

Package No.:	PH001	5	Туре:	P-Purchase Order
<b>Fitles</b>	(long): Supply	of Isolated Phase Bus	Revision No.:	01
	(short): Isolated	d Phase Bus	Date:	13-Apr-2012
		PH0035 – Station service transforme	rc	
				, halta
		CH0007 – Isolated Phase Bus suppo	n roundations and ancho	DOIIS,
		Any other packages that cannot proceed before	ore the subject package b	as started.
		<ul> <li>PH0014 – GSU transformers commis</li> </ul>		
		PH0016 – Generator circuit breakers	•	
		PH0035 – Station service transforme	•	
		CH0030 – Turbine/Generator and Tu	-	n and control
		systems commissioning;		
		systems commissioning,		
Specific Env	vironment	Not Applicable		
Conditions				
Specific Saf	fotv	Not Applicable		
Conditions	i ci y			
Special Req	ujromonte	Not Applicable		
(All)	luirements	Not Applicable		
····/				
Free Issued	Materials	Not Applicable		
	materiale			
Major Equip	oment List	• 3342-IPB-0001 – Unit 1 Isolated Pha		
		3342-IPB-0002 – Unit 2 Isolated Pha		
		3342-IPB-0003 – Unit 3 Isolated Pha		
		3342-IPB-0004 – Unit 4 Isolated Pha	se Bus	
Schedule ar	nd Milestones		TBD	
		RFP Date:	TBD	
		Award Date:	TBD	
		Receive Initial Vendor Drawings: Forecast at Site:	TBD TBD	
		Construction Complete:	TBD	
			Dates for milestones wi	Il be updated once
			the Project baseline scl	
Budget		TBD		
A	<b>C</b> h			
Applicable \$ Project/SPV		Muskrat Falls Generation 🛛 Labrador	– Island Transmission Link	
		Labrador Transmission Assets 🗌 Lower Ch	urchill Project – General	
IBA Packag	e			
		YES NO		

### PACKAGE DICTIONARY

	f Generator Circuit Breakers or Circuit Breakers		Type: Revision No.: Date:	01	ırchase Order .pr-2012
Discipline: Electrical Responsibilities: Area Manager: QA / QC:	Luc Turcotte Kenneth Morrison	Package Engineer: Contract Admin. / Buyer:	William Cald Ken O'Keefe		
Scope of Work Summary Work Included:	Supply of four (4), 15 kV (I	esting, packaging, delivery an Nominal), 12,000 A, 100 kA ir eir control panels for each of t	iterrupting capa		
	<ul> <li>individual single por cabinet mounted of cabinet mounted of One (1) 3-phase S</li> <li>One (1) 3-phase more than the other of the other othe</li></ul>	<ul> <li>individual single pole circuit breakers and a control and operating mechanism cabinet mounted on a common base each made of three identical poles, including:</li> <li>One (1) 3-phase SF6 circuit breaker;</li> <li>One (1) 3-phase motorized disconnect on the transformer side of the circuit breaker;</li> </ul>			
	<ul> <li>generator side of t</li> <li>Six (6) sets of 3 singenerator side of t</li> <li>circuit breaker;</li> <li>Three (3) sets of 3</li> <li>side of the circuit t</li> <li>One (1) separate e</li> <li>One (1) common of</li> <li>One (1) complete</li> </ul>	ngle phase 12.7 kV MCOV, m he circuit breaker; ngle phase 12,000:5 A curren he circuit breaker and three ( single phase voltage transfo preaker and one (1) on the tra enclosure per pole electrically	t transformers 3) on the transf rmers – two (2) insformer side isolated from t sociated acces	– thre former ) on th of the the su	e (3) on the side of the e generator circuit breaker pport structure;
Approximate Quantities (only major items are included)	One (1) set of reco     O &M Manuals     Special tools requi     Factory and site te     Item Description	red for installation and mainte st procedures and test report	enance; s.	Unit ea	Quantity 04
Contract Basis					

#### Lower Churchill Project

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Project Base (	Currency:	CAD						
Package No.:		PH0016	T	уре:	P-	Purchase C	rder	
Titles	(long):			Revision No.:	01			
	(short):	Generato	or Circuit Breakers D	Date:	13	-Apr-2012		_
Work Evolu	udadı.		Lump Sum 🛛 Combination Lump Sum – Unit Rates 🔲 <u>Remarks</u> :	Cos		Jnit Rates		
Work Exclu	ided:							
			Description			Packag	-	•
			Generator circuit breaker installation;			CH003	1	
			Foundations for generator circuit breaker supports and an works;	y other civ	/il	CH000	7	
			Supply flexible connections from line and load terminals to phase;	o the isola	ted	PH001	5	
			Installation of flexible connections from line and load term isolated phase;	inals to the	e	CH003	1	
			The supply and installation of the anchor bolts;			CH000	7	
			600/347 V ac auxiliary power supply;			CH003	1	
			125 V dc power supply;			CH003	1	
			External connections to and from generator circuit breake generator control panel;	er to the		CH003	1	
			Monorail for handling of a breaker single pole;			CH003	1	
			Storing of material and equipment at Site.			CH000	7	
Quality			Requires Determination of the Equipment Quality Rating	YES	х	NO		
			Determination of Equipment Criticality based on GP-5600-PR-02-E					
			High Significant X Moderate					
			Determination of Quality Surveillance level based on GP-5600-PR-03-E					
			<ul> <li>Continuous in process quality monitoring and verification and f</li> <li>Regular in process quality monitoring and verification and final</li> <li>Limited in process quality monitoring and verification and final</li> <li>Final Quality Verification</li> <li>No quality surveillance, no quality verification</li> </ul>	l quality verif	ication.			

## PACKAGE DICTIONARY

	of Generator Circuit Breakers Revision No			
· · · · ·	tor Circuit Breakers Date:	13-Apr-2012		
Reference Section	<ul> <li>The following main documents are used to define the scope:</li> <li>505573-344B-47EC-0001 – Design Criteria Powerhouse M Equipment</li> <li>LCP-PT-ED-0000-EN-RP-0001-01 - Nalcor Energy-Lower of of Design</li> <li>723468-40ER-0001-00 - MF 1340 Review and Confirmation Layout, Structures and Interfaces</li> <li>LCP-PT-ED-0000-EN-PH-0028-01 - Nalcor Energy-Lower of Philosophy for Muskrat Falls Plant Layout</li> </ul>	Churchill Project – Basis n of Muskrat Falls		
Interface with Other	<ul> <li>LCP-PT-ED-0000-EN-PH-0005-01 - Nalcor Energy-Lower Churchill Project- Operation &amp; Maintenance Philosophy of Design</li> <li>LCP No. 200-120145-00025 - Nalcor Energy-Work Protection Code</li> </ul>			
Packages	Description	Package No.		
	Generator circuit breaker support foundations, access platforms an anchor bolts Generator circuit breaker installation, , connections to isolated pha			
	bus, ac and dc auxiliary power supplies and control systems Isolated Phase Bus	PH0015		
	Turbine Generator Protection and Control System	CH0030		
Specific Site Conditions	Indoor installation			
Specific Schedule Conditions	<ul> <li>Any other packages that have to be started before the subject pack</li> <li>CH0030 – Turbine/Generator;</li> <li>PH0015 – Isolated Phase Bus;</li> <li>CH0007 – Powerhouse Turbine floor, circuit breaker founda material handling monorail.</li> <li>Any other packages that cannot proceed before the subject packag</li> <li>CH0030 – Turbine/Generator and Turbine/Generator protection systems commissioning;</li> </ul>	ations, anchor bolts and e has started:		
Specific Environment Conditions	Not Applicable			
Specific Safety Conditions	Not Applicable			

### PACKAGE DICTIONARY

Titles (long): Su	0016 oply of Generator Circuit Breakers nerator Circuit Breakers	Type:P-Purchase OrderRevision No.:01Date:13-Apr-2012
Special Requirements (All)	Not Applicable	
Free Issued Materials	The following are free issued materials for Pu	rchase Order PH0016:
	Description	Package No.
	Not Applicable	Not Applicable
Major Equipment List	<ul> <li>3342-BKR-0001 – Unit 1 Generator C</li> <li>3342- BKR -0002 – Unit 2 Generator</li> <li>3342- BKR -0003 – Unit 3 Generator</li> <li>3342- BKR -0004 – Unit 4 Generator</li> </ul>	Circuit Breaker Circuit Breaker
Schedule and Milestor	es EOI Date: RFP Date: Award Date: Receive Initial Vendor Drawings: Forecast at Site: Construction Complete:	TBD TBD TBD TBD TBD TBD Dates for milestones will be updated once the Project baseline schedule is in place.
Budget	ТВД	
Applicable Sub- Project/SPV		– Island Transmission Link
IBA Package	YES NO 🛛	

### PACKAGE DICTIONARY

	of Station Service Transformers Service Transformers		Type: Revision No.: Date:	P-Purchase Order 01 13-Apr-2012
Discipline: Electrical Responsibilities: Area Manager: QA / QC:	Wallace Piercey Kenneth Morrison	Package Engineer: Contract Admin. / Buyer:	William Cald Ken O'Keefe	
Scope of Work Summary		sting, packaging, delivery an ation service transformers (S sure.	-	with on-load tap
Work Included:	cooled (ANN), stati enclosure, on-load	e, 2500 kVA, 15kV-600/347 on auxiliary service transforr tap changer, H.V. and LV te langes for connection to the	ners, complete rminations, all	with indoor necessary fittings
	<ul> <li>range shall be ± 8 2 Delta winding;</li> <li>Short throat and fla connections to a cla</li> <li>One (1) set of flexit</li> <li>One (1) set of spect the installation, test</li> <li>The transportation place of manufactu</li> <li>The supervision of</li> <li>O&amp;M Manuals;</li> </ul>	vpe tap change is to be part of X 1.25% and tap connections nge on the 600V termination ose coupled switchgear asse ble connectors for 600V, 3 ph ial devices, handling tools ar ting, commissioning and mai of the transformers, material rer to Site; commissioning and acceptar st procedures and test report	s shall be at the s of the transfor embly, nase, 3200 A co nd testing equip ntenance of the s, equipment a nce testing at S	e mid- point of the ormers for onnection; oment required for e above transformers; nd accessories from
Approximate Quantities (only major items are included)	ItemDescription12500 kVA, ANN st	tation service transformers (	Un SST). ea	
Contract Basis	Combination Lum <u>Remarks</u> :	Lump Sum ⊠ np Sum – Unit Rates □	Cost	Unit Rates

### PACKAGE DICTIONARY

Package No.: PH0035		Type:	P-Purchase Order		
	of Station Service Transformers	Revision No.:	01		
(short): Station S	Service Transformers	Date:	13-Apr-2012		
Work Excluded:	The following works or activities are excluded from Pu	rchase Order PH	0035:		
	Description		Package No.		
	Transformer Installation		CH0031		
	Transformer foundations and other civil works		CH0007		
	15 kV isolated phase bus (IPB) between the generate SST transformers	or terminals and t	he PH0015		
	Flexible connections to the IPB		PH0015		
	Supply of the anchor bolts		CH0007		
	600/347 V ac auxiliary power supply		CH0031		
	125 V dc power supply		CH0031		
	Storing of material and equipment at Site		CH0031		
Quality	Requires Determination of the Equipment Quality Rating				
	Determination of Equipment Criticality based on GP-5600-PR-02-E         High       Minor         Significant       Negligible         Moderate       X         Determination of Quality Surveillance level based on GP-5600-PR-         4       Continuous in process quality monitoring and verification and the continuity of the process quality monitoring and verification and the continuity of the process quality monitoring and verification and the continuity of the process quality monitoring and verification and the process quality monitoring a	03-E n and final verification nd final quality verifica nd final quality verifica	ation.		
Reference Section	<ul> <li>The following main documents are used to define the scope:</li> <li>505573-344B-47EC-0001 – Design Criteria Powerhouse Major Electrical Equipment</li> <li>LCP-PT-ED-0000-EN-RP-0001-01 - Nalcor Energy-Lower Churchill Project – Basis of Design</li> <li>723468-40ER-0001-00 - MF 1340 Review and Confirmation of Muskrat Falls Layout, Structures and Interfaces</li> <li>LCP-PT-ED-0000-EN-PH-0028-01 - Nalcor Energy-Lower Churchill Project-Design Philosophy for Muskrat Falls Plant Layout</li> <li>LCP-PT-ED-0000-EN-PH-0005-01 - Nalcor Energy-Lower Churchill Project- Operation &amp; Maintenance Philosophy of Design</li> </ul>				
	• LCP No. 200-120145-00025 - Nalcor Energy-	-	Code		

## PACKAGE DICTIONARY

Package No.:	PH0035	Type: P-Pur	chase Order
Titles (long)		Revision No.: 01	-
(short)	: Station Service Transformers	Date: 13-Ap	or-2012
Interface with Oth	ner		
Packages	Description	Pa	ickage No.
	Intake and Powerhouse, Spillway and Transition I	Dams	CH0007
	Mechanical and Electrical Auxiliaries (MF)		CH0031
	Isolated Phase Bus		PH0015
	Turbines and Generators		CH0030
Specific Site Con	ditions Indoor installation		
Specific Site Con			
Specific Schedule	e Any other packages that have to be started before	the subject package can pr	oceed.
Conditions	CH0007 – Powerhouse Turbine floor, circu		
	material handling monorail.		
	Any other packages that cannot proceed before the	e subject package has start	ed:
	CH0030 – Turbine/Generator protection and		
	• PH0015 – Isolated Phase Bus;	·	0
Specific Environm	Not Applicable		
Specific Environm Conditions	nent Not Applicable		
Specific Safety	Not Applicable		
Conditions			
Special Requirem	Not Applicable		
(AII)			
Free Issued Mate	rials Not Applicable		
Major Equipment	List • 3342-TRF-0011 – Unit 1 Station Service T	ransformer	
	3342-TRF-0012 – Unit 2 Station Service Tr		
	3342-TRF-0013 – Unit 3 Station Service Tr		
	3342-TRF-0014 – Unit 4 Station Service Tr	ransformer	
Schedule and Mil			
	RFP Date: TBE		
	Award Date: TBE		
	Receive Initial Vendor Drawings: TBE Forecast at Site: TBE		
	Construction Complete: TBL		
		es for milestones will be up	dated once
		Project baseline schedule	

#### Lower Churchill Project

Project Base	Currency:	CAD		
Package No.:		PH0035	Туре:	P-Purchase Order
Titles	(long):	Supply o	f Station Service Transformers Revision No.:	01
	(short):	Station S	Service Transformers Date:	13-Apr-2012
Budget			TBD	
Applicable Project/SP			Muskrat Falls Generation 🛛 Labrador – Island Transmission Link	
			Labrador Transmission Assets 🗌 Lower Churchill Project – General	
IBA Packa	ge		YES NO	

#### Lower Churchill Project

### PACKAGE DICTIONARY

	(long): (short):		of Auxiliary Transformers 7 Transformers		Type: Revision No.: Date:	P-Purchase Order 01 13-Apr-2012
Discipline: Responsibilities:	Gene Area I QA / (	Manager:	Luc Turcotte Kenneth Morrison	Package Engineer: Contract Admin. / Buyer:	Victor Jarem Ken O'Keefe	
Scope of Wo	rk Sun	nmary	Design, fabrication, shop includes the following:	testing, packaging, delivery an	d warranty of ti	ransformers which
			Two (2) oil immersed, pa	d-mounted distribution transfor	mers;	
			Three (3) oil immersed, p	oower transformers;		
			Nineteen (19) oil immers	ed, pole-mounted distribution tr	ransformers.	
Work Include	ed:		<ul> <li>warranty of transformers</li> <li>Supply of one ( mounted transformers)</li> <li>Supply of one ( mounted transformers;</li> <li>Supply of two (2 transformers;</li> <li>Supply of one ( transformers;</li> <li>Supply of one (1 transformer;</li> </ul>	<ol> <li>three-phase, 2000 kVA, 25 mer;</li> <li>three-phase, 3,000 kVA, 25</li> <li>three-phase, 3,750 kVA, 25</li> <li>single-phase, 25 kVA, 14.4 k</li> </ol>	kV-600Y/347 \ kV-600Y/347 \ kV-600Y/347, kV-600Y/347, kV-600Y/347,	/, oil-immersed, pad- /, oil-immersed, pad- oil-immersed, power oil-immersed, power
			<ul> <li>transformers:</li> <li>Supply of one ( mount transform</li> </ul>	) single-phase, 50 kVA, 14.4 k 1) single-phase, 10 kVA, 14.4 er; phase, 50 kVA, 14.4 kV-240	kV-240/120 V	, oil-immersed, pole
			<ul><li>transformer;</li><li>Three (3) single</li></ul>	e-phase, 50 kVA, 14.4 kV-240		·
			<ul> <li>transformer;</li> <li>Six (6) single-p transformer;</li> </ul>	hase, 100 kVA, 14.4 kV-240	/120 V, oil-im	mersed, pole mount
			<ul><li>Supply of all nec</li><li>Supply of one (</li></ul>	ng arresters for all pole-mounter essary fittings and accessories 1) set of special devices, har installation, testing, commission mers;	; ndling tools ar	nd testing equipment
			-	f the transformers, materials,	equipment a	nd accessories from

#### Lower Churchill Project

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## PACKAGE DICTIONARY

Package No.: Titles	(long): (short):		f Auxiliary ⊺ Transforme	Transformers Type: Pransformers Revision Note: Transformers Date:	o.: 0	-Purchase Ordei 1 3-Apr-2012
Approxima	te Quan	itios				
(only major			Item	Description	Unit	Quantity
ncluded)			1	500 kVA pad-mounted transformer	ea	01
			2	2000 kVA pad-mounted transformer	ea	01
			3	3000 kVA power transformer	ea	02
			4	3750 kVA power transformer	ea	01
			5	10 kVA pole-mounted transformer	ea	01
			6	25 kVA pole-mounted transformer	ea	01
			7	50 kVA pole-mounted transformer	ea	08
			8	75 kVA pole-mounted transformer	ea	03
			9	100 kVA pole-mounted transformer	ea	06
Contract Ba	asis	-	<u>Remark</u>			Unit Rates mbursable
		-		Combination Lump Sum – Unit Rates  C S:	ost Rei	mbursable
		-	Descrip	Combination Lump Sum – Unit Rates  C S tion	ost Rei	mbursable Package No.
			<b>Descrip</b> Transfor	Combination Lump Sum – Unit Rates  C S tion rmer Installation	ost Rei	mbursable Package No. CH0005
		-	Descrip Transfor Transfor	Combination Lump Sum – Unit Rates C <u>s</u> : <b>ntion</b> rmer Installation rmer foundations and other civil works	ost Rei	mbursable Package No.
		-	Descrip Transfor Transfor Flexible 600 V sy	Combination Lump Sum – Unit Rates C <u>s</u> : <b>tion</b> rmer Installation rmer foundations and other civil works connections between 3750 kVA power transformer and th ynchronizing switchboard		mbursable Package No. CH0005
Contract Ba		-	Descrip Transfor Transfor Flexible 600 V sy	Combination Lump Sum – Unit Rates C <u>s</u> : <b>tion</b> rmer Installation rmer foundations and other civil works connections between 3750 kVA power transformer and th	ost Rei	mbursable Package No. CH0005 CH0005
		-	Descrip Transfor Transfor Flexible 600 V sy H.V. co	Combination Lump Sum – Unit Rates C <u>s</u> : <b>tion</b> rmer Installation rmer foundations and other civil works connections between 3750 kVA power transformer and th ynchronizing switchboard	ost Rei	Package No. CH0005 CH0005 PH0038
			Descrip Transfor Transfor Flexible 600 V sy H.V. co Supply c	Combination Lump Sum – Unit Rates C <u>s</u> : <b>tion</b> rmer Installation rmer foundations and other civil works connections between 3750 kVA power transformer and th ynchronizing switchboard nnections to overhead lines	ost Rei	Package No.           CH0005           CH0005
			Descrip Transfor Transfor Flexible 600 V sy H.V. co Supply o 208/120 125 V do	Combination Lump Sum – Unit Rates C <u>s</u> : <b>tion</b> rmer Installation rmer foundations and other civil works connections between 3750 kVA power transformer and the ynchronizing switchboard nnections to overhead lines of the anchor bolts V ac auxiliary power supply c power supply for 3750 kVA power transformer	e                 	Package No.           CH0005           CH0005           PH0038           CH0005           CH0005           PH0037/CH0
			Descrip Transfor Transfor Flexible 600 V sy H.V. co Supply o 208/120 125 V do	Combination Lump Sum – Unit Rates C <u>s</u> : <b>tion</b> rmer Installation rmer foundations and other civil works connections between 3750 kVA power transformer and the ynchronizing switchboard nnections to overhead lines of the anchor bolts V ac auxiliary power supply	e (	Package No.           CH0005           CH0005           PH0038           CH0005           CH0005           PH0037/CH0           D05           PH0037/CH0

### PACKAGE DICTIONARY

	Pliance		
Package No.: Titles (long):	PH0036	Type: P- Revision No.: 01	Purchase Order
Titles (long): (short):	Supply of Auxiliary Transformers Auxiliary Transformers		- 3-Apr-2012
· · · ·			
Quality	Requires Determination of the Equipment Quality Rating	YES X	NO
	Determination of Equipment Criticality based on GP-5600-PR-02-E		
	High     Minor       Significant     Negligible       Moderate     x		
	Determination of Quality Surveillance level based on GP-5600-PR-03-E	Ξ	
	4Continuous in process quality monitoring and verification ar3Regular in process quality monitoring and verification and fix2Limited in process quality monitoring and verification and fine1Final Quality Verification0No quality surveillance, no quality verification	inal quality verification	
	Quality requirements are defined in document 505573-00 Quality Requirements Specification	000-38RA-I-0003	Contractor
Reference Section	The following main document was used to define the sco	pe:	
Interface with Othe	<ul> <li>505573-315A-47EC-0001 – Accommodation Distribution System Design Criteria;</li> <li>505573-315A-47EB-0002 – Design Brief - Di Distribution Transformers</li> <li>505573-480A-47ER-0013 – Construction Power</li> <li>LCP-PT-ED-0000-EN-RP-0001-01 - Nalcor E Basis of Design</li> <li>LCP- PT-ED-0000-EN-PH-0029-01 – Nalcor Muskrat Falls Construction Power</li> <li>723468-40ER-0001-00 - MF 1340 Review an Layout, Structures and Interfaces</li> <li>LCP-PT-ED-0000-EN-PH-0005-01 - Nalcor E Operation &amp; Maintenance Philosophy of Desi</li> <li>LCP No. 200-120145-00025 - Nalcor Energy</li> </ul>	mensioning 25 kV wer System Study Energy-Lower Chu Energy-Design Pl nd Confirmation of Energy-Lower Chu ign	2:600 V Main Archill Project – hilosophy for Muskrat Falls Archill Project-
Packages	r Description	F	Package No.
	Transformer foundations and anchor bolts		CH0005
	Transformer installation and connection to 25 kV distribution	ution line	CH0005
	Connections to 600 V synchronising switchgear, ac and power supplies and control systems	dc auxiliary	CH0005
	Supply of 208/120 V auxiliary power		PH0037
	Supply of diesel generator sets		PH0038
	Connections between transformer secondary terminals Accommodation Complex buildings electrical services	and	CH0002

#### Lower Churchill Project

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### PACKAGE DICTIONARY

Package No.: PH0036 Titles (long): Supply	of Auxiliary Transformers Revisio	P-Purchase Order n No.: 01		
	ry Transformers Date:	13-Apr-2012		
	Connections between transformer secondary terminals and Administrative buildings electrical services	CH0003		
	25 kV overhead distribution lines and 25 kV fused cut-outs	CD0512		
Specific Site Conditions	Not Applicable	I		
Specific Schedule Conditions	Not Applicable			
Specific Environment Conditions	Environmental Requirements are provided in the Agreement in s	everal documents.		
Specific Safety Conditions	Safety Requirements are provided in the Agreement in several of	ocuments.		
Special Requirements (All)	Not Applicable			
Free Issued Materials	The following are free issued materials for Purchase Order PH0036:			
	Description	Package No.		
	Not Applicable	Not Applicable		
Major Equipment List	<ul> <li>1570-TRF-0001 – 500 kVA, 25kV-600/347 V, pad-moun</li> <li>1570-TRF-0002 – 2000 kVA, 25kV-600/347 V, pad-mou</li> <li>1570-TRF-0003 - 3000 kVA, 25kV-600/347 V, power tra</li> <li>1570-TRF-0004 - 3000 kVA, 25kV-600/347 V, power tra</li> <li>1570-TRF-0005 - 3750 kVA, 25kV-600/347 V, power tra</li> <li>1570-TRF-0006 - 50 kVA, 14,400-347 V, pole-mounted</li> <li>1570-TRF-0007 – 50 kVA, 14,400-347 V, pole-mounted</li> <li>1570-TRF-0008 – 50 kVA, 14,400-347 V, pole-mounted</li> <li>1570-TRF-0009 – 50 kVA, 14,400-347 V, pole-mounted</li> <li>1570-TRF-0010 – 50 kVA, 14,400-347 V, pole-mounted</li> <li>1570-TRF-0011 – 50 kVA, 14,400-347 V, pole-mounted</li> <li>1570-TRF-0012 – 50 kVA, 14,400-347 V, pole-mounted</li> <li>1570-TRF-0013 – 10 kVA, 14,400-240/120 V, pole-mou</li> <li>1570-TRF-0015 – 75 kVA, 14,400-240/120 V, pole-mou</li> <li>1570-TRF-0016 – 75 kVA, 14,400-240/120 V, pole-mou</li> <li>1570-TRF-0017 – 100 kVA, 14,400-240/120 V, pole-mou</li> <li>1570-TRF-0018 – 100 kVA, 14,400-240/120 V, pole-mou</li> <li>1570-TRF-0019 – 100 kVA, 14,400-240/120 V, pole-mou</li> </ul>	nted transformer; nsformer; nsformer; transformer; transformer; transformer; transformer; transformer; transformer; transformer; nted transformer; nted transformer; nted transformer; nted transformer; unted transformer;		

### PACKAGE DICTIONARY

Package No.:		PH0036			Type:	P-Purchase Order
Titles	(long):	Supply of Auxiliary Tra	sformers		Revision No.:	01
	(short):	Auxiliary Transformers			Date:	13-Apr-2012
		• 157	)-TRF-0024 – 25	5 kVA, 14,400-3	47 V, pole-mounted trans	former.
Schedule a	nd Miles	ones		EOI Date	: TBD	
				RFP Date		
				Award Date		
			Receive Initial V	endor Drawings		
				iction Complete		
			Constru		Dates for milestones v	vill be updated once
					the Project baseline so	
Budget		TBD				•
Applicable Project/SP		Muskrat Fall	s Generation	🔀 Labrado	or – Island Transmission Link	
		Labrador Tra	ansmission Assets	Lower (	Churchill Project – General	
IBA Packaç	je	YES [	] NO [	3		

### PACKAGE DICTIONARY

		of 25 kV Switchgear witchgear		Type: Revision No.: Date:	P-Purchase Order 01 13-Apr-2012
Discipline: Responsibilities:	Generation Area Manager: QA / QC:	Wallace PierceyPackage EngKenneth MorrisonContract Adr		Victor Jaren Ken O'Keef	
Scope of Wo	rk Summary	Design, fabrication, shop testing, packaging, which includes the following: Two (2) outdoor, sheltered aisle 25 kV switc	-	·	25 kV switchgear
Work Include	ed:	<ul> <li>The package includes the design, fabrication warranty of 52 kV switchgear which includes</li> <li>One (1), 25 kV outdoor switchgear a Switchgear' on the reference draw accessories;</li> <li>One (1), 25 kV outdoor switchgear Switchgear on the reference drawin accessories;</li> <li>One (1), set of special devices, handling installation, testing, commissioning</li> </ul>	the followin ssembly lab ings, compl r assembly ngs, comple ng tools and	eled 'Accomm ete with all n labeled 'Con ete with all no d testing equip	nodation Camp 25 k ecessary fittings and struction Site 25 k ecessary fittings and oment required for the
		<ul> <li>assemblies;</li> <li>The transportation of the 25 kV swith from place of manufacturer to Site.</li> </ul>	chgear, ma	terials, equipn	nent and accessories
Approximate	Quantities	<ul> <li>The transportation of the 25 kV swith from place of manufacturer to Site.</li> </ul>			
Approximate (only major it included)		• The transportation of the 25 kV swit			nent and accessories Gate 3 Estimate)
(only major it	tems are	<ul> <li>The transportation of the 25 kV swit from place of manufacturer to Site.</li> <li>Description Accommodation Camp 25 kV Switchgear</li> </ul>	Estimate 1 ea 1 ea Sum 🖂	ed Quantity (C	
(only major it included)	tems are	The transportation of the 25 kV swit from place of manufacturer to Site.	Estimate	ed Quantity (C	Gate 3 Estimate)
(only major it included) Contract Bas	tems are	The transportation of the 25 kV swit from place of manufacturer to Site.       Description     Accommodation Camp 25 kV Switchgear     Construction Site 25 kV Switchgear     Lump S     Combination Lump Sum – Unit Ra     Remarks:	Estimate	ed Quantity (C	Gate 3 Estimate)
(only major it included) Contract Bas	tems are	The transportation of the 25 kV swit from place of manufacturer to Site.	Estimate	ed Quantity (C	Gate 3 Estimate) Unit Rates
(only major it included) Contract Bas	tems are	The transportation of the 25 kV swit from place of manufacturer to Site.      Description     Accommodation Camp 25 kV Switchgear     Construction Site 25 kV Switchgear     Lump S     Combination Lump Sum – Unit Ra     Remarks:     The following works or activities are exclude     Description	Estimate	ed Quantity (C	Gate 3 Estimate)
(only major it included) Contract Bas	tems are	The transportation of the 25 kV swit from place of manufacturer to Site.      Description     Accommodation Camp 25 kV Switchgear     Construction Site 25 kV Switchgear     Lump S     Combination Lump Sum – Unit Ra     Remarks:      The following works or activities are exclude     Description     Switchgear Installation	Estimate 1 ea 1 ea Sum A ates D d from Purch	ed Quantity (C Cost	Gate 3 Estimate) Unit Rates Reimbursable H0037: Package No. CH0005
(only major it included) Contract Bas	tems are	The transportation of the 25 kV swit from place of manufacturer to Site.     Description     Accommodation Camp 25 kV Switchgear     Construction Site 25 kV Switchgear     Lump S     Combination Lump Sum – Unit Ra     Remarks:     The following works or activities are exclude     Description     Switchgear Installation     Switchgear foundations and other civil work     H.V. connections to 25/14.4 kV-600 V diese	Estimate 1 ea 1 ea 3um A ates D d from Purct (s el generator	ed Quantity (C Cost	Gate 3 Estimate) Unit Rates Reimbursable H0037: Package No. CH0005 CH0005

### PACKAGE DICTIONARY

Package No.: Titles	(long):	PH0037	of 25 kV/ Switchgoor	Type: Revision No.:	P-Purchase Order 01		
TILLES	(short):		of 25 kV Switchgear witchgear	Date:	13-Apr-2012		
	()	20 10			- , -		
			Control connections to to 600 V diesel generator sync switchgear		CH0005		
			LV power cables from 25 kV Switchgear assembly 20 board to 3750 kVA power transformer and diesel gens		CH0005		
			H.V. connections to overhead lines		CH0005		
			Supply of the anchor bolts		CH0005		
			25 kV gang operated switches and overhead distributi	on lines	CD0512		
			Storing of material and equipment at Site		CH0005		
Quality			Requires Determination of the Equipment Quality Rating	YES X	( NO		
			Determination of Equipment Criticality based on GP-5600-PR-02-E				
			High     Minor       Significant     Negligible       Moderate     x				
			Determination of Quality Surveillance level based on GP-5600-PR-0	3-E			
	<ul> <li>Continuous in process quality monitoring and verification and final verification.</li> <li>Regular in process quality monitoring and verification and final quality verification.</li> <li>Limited in process quality monitoring and verification and final quality verification.</li> <li>Final Quality Verification</li> <li>No quality surveillance, no quality verification</li> </ul>			tion.			
			Quality requirements are defined in document 505573- Quality Requirements Specification	0000-38RA-I-000	03 Contractor		
Reference S	Section		The following main document was used to define the so	ope:			
			<ul> <li>505573-315A-47EC-0001 – Accommodatic Distribution System Design Criteria;</li> <li>505573-315A-47EB-0002 – Design Brief - I Distribution Transformers</li> <li>505573-480A-47ER-0013 – Construction P</li> <li>LCP-PT-ED-0000-EN-RP-0001-01 - Nalcor Basis of Design</li> <li>LCP- PT-ED-0000-EN-PH-0029-01 – Nalcor Muskrat Falls Construction Power</li> <li>723468-40ER-0001-00 - MF 1340 Review a Layout, Structures and Interfaces</li> <li>LCP-PT-ED-0000-EN-PH-0005-01 - Nalcor Operation &amp; Maintenance Philosophy of Detection</li> <li>LCP No. 200-120145-00025 - Nalcor Energy</li> </ul>	Dimensioning 25 Power System Stur Energy-Lower C or Energy-Design and Confirmation Energy-Lower C esign	kV:600 V Main udy Churchill Project – n Philosophy for n of Muskrat Falls Churchill Project-		

## PACKAGE DICTIONARY

Package No.: P	10037	Туре:	P-Purchase Order
	upply of 25 kV Switchgear	Revision No.:	01
	kV Switchgear	Date:	13-Apr-2012
Interface with Other			
Packages	Description		Package No.
<b>j</b>	•		
	Transformer foundations and anchor bolts		CH0005
	Transformer installation and connection to 2	5 kV distribution line	CH0005
	Connections to 600 V synchronising switche power supplies and control systems	gear, ac and dc auxiliary	CH0005
	Connections between transformer secondar Accommodation Complex buildings electrica		CH0002
	Connections between transformer secondar Administrative buildings electrical services	y terminals and	CH0003
	25 kV overhead distribution lines and 25 kV	fused cut-outs	CD0512
Specific Site Conditio	ns Not Applicable		
Specific Schedule Conditions	Not Applicable		
Specific Environment Conditions	Environmental requirements are provided in t	he Agreement in several c	locuments.
Specific Safety Conditions	Safety requirements are provided in the Agre	ement in several documer	its.
Special Requirements (All)	Not Applicable		
Free Issued Materials	Not Applicable		
Major Equipment List	• 1570-SWG-0002 – Accommodation		
	<ul> <li>1570-SWG-0003 – Construction Site</li> </ul>	25 KV Switchgear	
Schedule and Milesto	nes EOI Date:	TBD	
	RFP Date:		
	Award Date:		
	Receive Initial Vendor Drawings: Forecast at Site:	TBD TBD	
	Construction Complete:		
		Dates for milestones wil	l be updated once
		the Project baseline sch	
Budget	TBD		

Project Base	Currency:	CAD	
Package No.: Titles	(long):	PH0037     Type:       Supply of 25 kV Switchgear     Revision N	
Applicable	(short): Sub-	25 kV Switchgear Date:	13-Apr-2012
Project/SP		Muskrat Falls Generation 🛛 Labrador – Island Transmission L	ink 🗌
		Labrador Transmission Assets D Lower Churchill Project – Genera	
IBA Packa	ge	YES NO	

### PACKAGE DICTIONARY

	of Emergency Diesel Generators	Type: Revision No.: Date:	P-Purchase Order 01 13-Apr-2012
Discipline: Generation Responsibilities: Area Manager: QA / QC:	Wallace Piercey       Package Engineer:         Kenneth Morrison       Contract Admin. / Buyer:	Victor Jaremki Ken O'Keefe	
Scope of Work Summary	Design, fabrication, shop testing, packaging, delivery and which includes the following: Four (4) emergency diesel generator sets;	warranty of die	sel generators
	Outdoor sound attenuated enclosures for diesel generato Main fuel tanks	or sets;	
Work Included:	The package includes the design, fabrication, shop testing warranty of diesel generators which includes the following		elivery and
	<ul> <li>Two (2) three-phase, 500 kW Prime Running Pediesel engine driven gensets, complete with of fittings and accessories;</li> <li>Two (2) three-phase, 1000 kW Prime Running Pediesel engine driven gensets, complete with of fittings and accessories;</li> <li>One (1) three phase, 600 V, 42 kA interrupting assembly complete with outdoor enclosure, all net One (1) central fuel storage tank;</li> <li>One (1) set of special devices, handling tools a the installation, testing, commissioning and main switchgear as indicated in the technical specification of the gensets, materials, equi of manufacture to Site.</li> </ul>	outdoor enclose Power (PRP), 0 putdoor enclose g rating, synch ecessary fittings and testing equi itenance of the tion; ipment and acc	ures, all necessary 8 pf, 600 V, 60 Hz, ures, all necessary ronizing switchgear and accessories; ipment required for above gensets and essories from place
Approximate Quantities	ITEM DESCRIPTION (Base Case)	UNIT	QUANTITY
(only major items are included)	500 kW, Prime Running Power, 0.8 pf, 600 V die generator sets complete with outdoor enclosures		2
,	1000 kW, Prime Running Power, 0.8 pf, 600 V d           2         generator sets complete with outdoor enclosures	iesel s ea	2
	600 V synchronizing switchgear assembly comp with outdoor enclosure	lete ea	1
	4 Central fuel storage tank	ea	1
Contract Basis	Lump Sum X Combination Lump Sum – Unit Rates I <u>Remarks</u> :	Cost R	Unit Rates 🗌 eimbursable 🗍

Project Base Currency:	CAD

Package No.:	PH	0038	Туре:	P-Purchase Order		
	-	oply of Emergency Diesel Generators	Revision No.:	01		
(Sh	ort): Eme	ergency Diesel Generators	Date:	13-Apr-2012		
Work Excluded	:	The following works or activities are excluded from Pu	urchase Order PH0	038:		
		Description		Package No.		
		Diesel genset, 600 V switchgear and central fuel sto	rage tanlk installat	ion CH0005		
		Equipment foundations and other civil works		CH0005		
		Main ground grid and ground connections to gensets switchgear		CH0005		
		Supply of L.V. flexible connectors or busway for con kV-600 V diesel generator step-up transformer		PH0036		
		Installation of L.V. flexible connectors or busway for 25/14.4 kV-600 V diesel generator step-up transform		CH0005		
		Control connections to 600 V diesel gensets		CH0005		
		Control connections to 600 V diesel generator synch	<u> </u>			
		LV power cables from 25 kV Switchgear assembly 2 board to diesel gensets	08/120 V ac panel	CH0005		
		Supply of the anchor bolts		CH0005		
		Storing of material and equipment at Site		CH0005		
Quality		Requires Determination of the Equipment Quality Rating	YES X	NO		
		Determination of Equipment Criticality based on GP-5600-PR-02-E				
		High     Minor     x       Significant     Negligible     Image: Compare the second seco				
		Determination of Quality Surveillance level based on GP-5600-PR-03-E				
		<ul> <li>Continuous in process quality monitoring and verification and final verification.</li> <li>Regular in process quality monitoring and verification and final quality verification.</li> <li>Limited in process quality monitoring and verification and final quality verification.</li> <li>Final Quality Verification</li> <li>No quality surveillance, no quality verification</li> </ul>				
		Quality requirements are defined in document 50557 Quality Requirements Specification	3-0000-38RA-I-000	03 Contractor		
Reference Sect	ion	The following main document was used to define the	scope:			
		<ul> <li>505573-315A-47EC-0001 – Accommodate Distribution System Design Criteria;</li> <li>505573-315A-47EB-0001 – Construction Generator Sizing Calculation;</li> <li>505573-315A-47EB-0002 – Design Brief Distribution Transformers</li> <li>505573-480A-47ER-0013 – Construction</li> <li>LCP-PT-ED-0000-EN-RP-0001-01 - Nalcular Basis of Design</li> </ul>	Site Distribution S - Dimensioning 25 Power System Stu	ystem - Diesel kV:600 V Main udy		

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Project Base Currency: CA	)			
Titles (long): Su	0038 oply of Emergency Diesel Generators ergency Diesel Generators	Type: Revision No.: Date:	P-Purchase Order 01 13-Apr-2012	
Interface with Other	<ul> <li>LCP- PT-ED-0000-EN-PH-0029-0 Muskrat Falls Construction Power</li> <li>723468-40ER-0001-00 - MF 1340 Layout, Structures and Interfaces</li> <li>LCP-PT-ED-0000-EN-PH-0005-01 Operation &amp; Maintenance Philosop</li> <li>LCP No. 200-120145-00025 - Nate</li> </ul>	Review and Confirmatio	n of Muskrat Falls Churchill Project-	
Packages	Description		Package No.	
	Foundations and anchor bolts for Diesel gens synchronizing switchgear and central fuel sto		CH0005	
	Installation and interconnections of for Diesel synchronizing switchgear and central fuel sto	gensets, 600 V rage tank	CH0005	
	Connections to 600 V synchronising switchge power supplies and control systems	ear, ac and dc auxiliary	CH0005	
	Supply of diesel generators step-up transform	ner	PH0036	
Specific Schedule Conditions Specific Environment Conditions	Not Applicable         Environmental requirements are provided in the Agreement in several documents.			
Specific Safety Conditions	Safety requirements are provided in the Agree	ment in several documer	nts.	
Special Requirements (All)	Not Applicable			
Free Issued Materials	Not Applicable			
Major Equipment List	<ul> <li>1570-GEN-0001 – 500 kW Diesel Gen</li> <li>1570-GEN-0002 – 500 kW Diesel Gen</li> <li>1570-GEN-0003 – 1000 kW Diesel Ge</li> <li>1570-GEN-0004 – 1000 kW Diesel Ge</li> <li>1570-TNK-0001 - Main Fuel Storage T</li> </ul>	erator Set enerator Set enerator Set Fank for DG Sets		
Schedule and Milestor	EOI Date: RFP Date: Award Date: Receive Initial Vendor Drawings: Forecast at Site: Construction Complete:	TBD TBD TBD TBD TBD Dates for milestones wil the Project baseline sch		

#### Lower Churchill Project

Project Base	Currency:	CAD		
Package No.:		PH0038	Туре:	P-Purchase Order
Titles	(long):	Supply	of Emergency Diesel Generators Revision	No.: 01
	(short):	Emerger	ncy Diesel Generators Date:	13-Apr-2012
Budget Applicable Project/SP			TBD.         Muskrat Falls Generation       X         Labrador – Island Transmission	n Link
			Labrador Transmission Assets 🔲 Lower Churchill Project – Gene	ral
IBA Packa	ge		YES NO	

#### Lower Churchill Project

### PACKAGE DICTIONARY

Titles (long): P	0001 vsical Hydraulic Model vsical Hydraulic Model	Type:S- ContractRevision No.:01Date:13-Apr-2012
`Discipline: Responsibilities: Area Ma Michel M		laeyens Daniel Damov
QA / QC	Ken Morrison Contract Admin. / Bu	uyer:: Chris Woodmass
Scope of work Summ	ry Construct a physical hydraulic model to predefined to:	d scale (1:70) and carry out tests in ord
	To verify the overall adequacy of the proposed I	layout;
	If required, to optimize the layout to improve the	
	construction costs;	
	To perform river closure tests to optimize the s rocks;	sequence of closure and the size of t
	To evaluate the hydraulic conditions during the	different construction phases; and
	To evaluate the rating curves of the hydraulic st	tructures.
Work Included:	<ul> <li>Preparation of model construction d</li> <li>Construction of the model;</li> <li>Execution of the tests;</li> <li>Documentation of the progress;</li> <li>Documentation of the tests and test</li> </ul>	-
Approximate Quantiti (only major items are included)	s Not Applicable	
Contract Basis:	Lump Sum [2 Combination Lump Sum – Unit Rates [ <u>Remarks</u> :	Unit Rates
Work Excluded:	Description	Package No.
	Design of structures	

### PACKAGE DICTIONARY

(shor):         Physical Hydraulic Model         Date:         13-Apr-2012           Quality         Work Package SH0001 is under Quality Control. All control as specified in the Technice Specification will be done by the Engineer.         The Contractor shall do its own Quality Assurance, but no specific QA requirements a stipulated.           Reference Section         The following main documents are used to define the scope:         • SNC-Lavalin, Muskrat Falls Hydroelectric Project, MF1250, Numerical Mod of Muskrat Falls Structures, May 2008, 722850-MF1250-0001-00.         • SNC-Lavalin, Muskrat Falls Hydroelectric Project, MF1360, Review and Up of Numerical Modeling of Muskrat Falls Structures, May 2011, 723468-MF1300-4HER-0001-00.           Interface with Other Packages         Not Applicable           Specific Site Conditions         Not Applicable           Specific Stee Conditions         Not Applicable           Specific Environment Conditions         Follow the supplier's normal procedure for environmental management           Conditions         Follow the supplier's normal procedure for environmental management	Package No.: SH000		Туре:	S- Contract
Quality         Work Package SH0001 is under Quality Control. All control as specified in the Technica Specification will be done by the Engineer.           The Contractor shall do its own Quality Assurance, but no specific QA requirements a stipulated.           Reference Section         The following main documents are used to define the scope:           SNC-Lavalin, Muskrat Falls Hydroelectric Project, MF1250, Numerical Mod of Muskrat Falls Structures, May 2008, 722850-MF1250-40ER-0001-00.         SNC-Lavalin, Muskrat Falls Hydroelectric Project, MF1360, Review and Up of Numerical Modeling of Muskrat Falls Structures, May 2011, 723468-MF1360-4HER-0001-00.           Interface with Other Packages         Not Applicable           Specific Site Conditions         Not Applicable           Specific Schedule Conditions         Study to provide results for the critical components by December 2011. Study to comple by first quarter of 2012.           Specific Safety Conditions         Follow the supplier's normal procedure for environmental management           Specific Safety Conditions         As specified by Supplier and accepted by the Owner		-	Revision No.:	01 13-Apr-2012
Work Package SH0001 is under Quality Control. All control as specified in the Technica Specification will be done by the Engineer.           The Contractor shall do its own Quality Assurance, but no specific QA requirements a stipulated.           Reference Section           The following main documents are used to define the scope:           • SNC-Lavalin, Muskrat Falls Hydroelectric Project, MF1250, Numerical Mod of Muskrat Falls Structures, May 2008, 722850-MF1250-40ER-0001-00.           • SNC-Lavalin, Muskrat Falls Hydroelectric Project, MF1360, Review and Up of Numerical Modeling of Muskrat Falls Structures, May 2011, 723468-MF1360-4HER-0001-00.           • SNC-Lavalin, Muskrat Falls Structure Layouts and Interfaces, March 201: 723468-MF1360-4HER-0001-00.           • SNC-Lavalin, Muskrat Falls Structure Layouts and Interfaces, March 201: 723468-MF1340-40ER-0001-PA           Not Applicable           Specific Site Conditions           Not Applicable           Specific Steconditions           Specific Solutions           Specific Shedule Conditions           Specific Safety Conditions           Specific Safety Conditions           Specific Safety Conditions           Specific Safety Conditions           Environmental and Safety Requirements are provided in the Agreement in several			Dale.	13-Api-2012
<ul> <li>SNC-Lavalin, Muskrat Falls Hydroelectric Project, MF1250, Numerical Mod of Muskrat Falls Structures, May 2008, 722850-MF1250-40ER-0001-00.</li> <li>SNC-Lavalin, Muskrat Falls Hydroelectric Project, MF1360, Review and Up of Numerical Modeling of Muskrat Falls Structures, May 2011, 723468-MF1360-4HER-0001-00.</li> <li>SNC-Lavalin, Muskrat Falls Structure Layouts and Interfaces, March 2011, 723468-MF1340-40ER-0001-PA</li> <li>Interface with Other Packages</li> <li>Specific Site Conditions</li> <li>Not Applicable</li> <li>Specific Schedule Conditions</li> <li>Study to provide results for the critical components by December 2011. Study to complete by first quarter of 2012.</li> <li>Specific Safety Conditions</li> <li>Specific Safety Conditions</li> <li>Environmental and Safety Requirements are provided in the Agreement in several</li> </ul>	Quality	Specification will be done by the Engineer. The Contractor shall do its own Quality Assurar		
of Muskrat Falls Structures, May 2008, 722850-MF1250-40ER-0001-00.         SNC-Lavalin, Muskrat Falls Hydroelectric Project, MF1360, Review and Up of Numerical Modeling of Muskrat Falls Structures, May 2011, 723468-MF1360-4HER-0001-00.         SNC-Lavalin, Muskrat Falls Hydroelectric Project, MF1340, Review and Confirmation of Muskrat Falls Structure Layouts and Interfaces, March 201: 723468-MF1340-40ER-0001-PA         Interface with Other Packages         Specific Site Conditions         Not Applicable         Specific Schedule Conditions         Study to provide results for the critical components by December 2011. Study to comple by first quarter of 2012.         Specific Safety Conditions         Specific Safety Conditions         Specific Safety Conditions         Specifie Safety Conditions         Environmental and Safety Requirements are provided in the Agreement in several	Reference Section	The following main documents are used to def	ine the scope:	
Packages       Interview of the supplicable         Specific Schedule Conditions       Study to provide results for the critical components by December 2011. Study to complete by first quarter of 2012.         Specific Environment Conditions       Follow the supplier's normal procedure for environmental management         Specific Safety Conditions       As specified by Supplier and accepted by the Owner         Special       Environmental and Safety Requirements are provided in the Agreement in several		<ul> <li>of Muskrat Falls Structures, May 2007 722850-MF1250-40ER-0001-00.</li> <li>SNC-Lavalin, Muskrat Falls Hydroele of Numerical Modeling of Muskrat Fal May 2011, 723468-MF1360-4HER-0001-00.</li> <li>SNC-Lavalin, Muskrat Falls Hydroele Confirmation of Muskrat Falls Structur 723468-MF1340-40ER-0001-PA</li> </ul>	8, ctric Project, MF1360, lls Structures, ctric Project, MF1340,	Review and Update
Specific Schedule Conditions       Study to provide results for the critical components by December 2011. Study to complet by first quarter of 2012.         Specific Environment Conditions       Follow the supplier's normal procedure for environmental management         Specific Safety Conditions       As specified by Supplier and accepted by the Owner         Special       Environmental and Safety Requirements are provided in the Agreement in several		Not Applicable		
Conditions       by first quarter of 2012.         Specific Environment Conditions       Follow the supplier's normal procedure for environmental management         Specific Safety Conditions       As specified by Supplier and accepted by the Owner         Special       Environmental and Safety Requirements are provided in the Agreement in several	Specific Site Conditions	Not Applicable		
Conditions       As specified by Supplier and accepted by the Owner         Special       Environmental and Safety Requirements are provided in the Agreement in several			ents by December 2011	. Study to complete
Conditions         Special       Environmental and Safety Requirements are provided in the Agreement in several	•	Follow the supplier's normal procedure for envi	ronmental management	:
		As specified by Supplier and accepted by the C	)wner	
			ovided in the Agreemer	nt in several
Equipment List Not Applicable	Equipment List	Not Applicable		

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### PACKAGE DICTIONARY

Package No.:		SH0001				Туре:	S- Contract
Titles	(long):	Physical	l Hydraulic Model			Revision No.:	01
	(short):	Physical	l Hydraulic Model			Date:	13-Apr-2012
Schedule a	nd Mile	stones		EOI Date:	TBD		
				RFP Date:	TBD		
				Award Date:	TBD		
			Receive Initial Ver	dor Drawings:	TBD		
				precast at Site:			
			Construc	tion Complete:	TBD		
							will be updated
						e Project base	eline schedule is in
<b>.</b>					place.		
Budget			TBD				
Applicable							
Project/SP	V		Muskrat Falls Generation	Labrador	<ul> <li>Island Tra</li> </ul>	nsmission Link	
			Labrador Transmission Assets	🗌 Lower Ch	urchill Proie	ct – General	
IBA Packag	or						
ΙΒΑ Γαυκαί	Je						
			YES NO 🗵	1			

#### Lower Churchill Project

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Package No.: Titles	(long):		ering, Housekeeping a keeping and Janitorial	and Janitorial Services (MF)	Type: Revision No.: Date:	S- Service Contract 01 13-Apr-2012
Discipline: Responsibilities:	Hydro : Area Ma	anagers: Walla	ce Piercey	Package Engineer:	Peter M. Cla	rke
	QA / QC	C: Kenne	eth Morrison	Contract Admin. / Buyer::	Stella Roche	1
Scope of wo		This c Accon Janito Janito areas	nmodations Comple rial services for al rial services extend and other locations ex excluding building Catering Services	cludes the provision of caterir x, housekeeping services for I the Accommodations Com I to other SLI buildings at th as required. Includes comple g maintenance.	the Accommon plex and Adm MF Constru- te operation of n in the Starter	dations complex a ninistrative building ction site, Lay dow the Accommodatio
Approximate	o Quantii	•	complex dormitori	es for the Starter camp, A ildings and the offsite build	ccommodations	complex building
only major				Base Case)	UN	
ncluded)		1	Person Days to f	·	Perso ys Room	n/da TBD
		2	Room Days Hou	sekeepina	s	TBD
		3	Janitorial Area	1 0	M2	
Contract Ba	sis	This is	a unit price service	type contract ( function of car	mp population).	

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Project Base Currency: CAD			
	8 ion of Catering, Housekeeping and Janitorial Services (MF) ng, Housekeeping and Janitorial.	Type: Revision No.: Date:	S- Service Contract 01 13-Apr-2012
Work Excluded:	The following works or activities are excluded from page	kage SH0022:	
	Description		Package No.
	Building Maintenance		SH0051
	Garbage Removal		SH0040
	Snow Clearing and Sanding around buildings		SH0051
Quality			
Quanty	Contractor shall comply with 'Contractor Quality Requi 505573-0000-38RA-0003.	rement Specifica	ation' Number
Reference Section	<ul> <li>The following main documents are used to define the</li> <li>Basis of Design LCP-PT-ED-0000-EN-RP-000</li> <li>Specification 505573-0000-68RA-I-0015 Gene</li> <li>505573-0000-68RA-I-0005 Project-Wide Env Component 1 and 4b</li> </ul>	1-01. eral Environmen	
Interface with Other Packages	Description		Package No.
	Provision of Garbage Removal and Disposal Services	s (MF)	SH0040
	Provision of Buildings Maintenance Services (MF)	5 (iiii )	SH0051
Specific Site Conditions	Not Applicable		
Specific Schedule Conditions	Completion of the starter camp.		
Specific Environment Conditions	Contractor must have an approved C-SEPP.		
Specific Safety Conditions	Cleaning Agents – MSDS Sheets to be consulted.		

#### Lower Churchill Project

# Page 136

Project Base Currency: CAD	
	on of Catering, Housekeeping and Janitorial Services (MF) g, Housekeeping and Janitorial. Type: S- Service Contract Revision No.: 01 Date: 13-Apr-2012
Special Requirements (All)	Not Applicable
Free Issued Materials	Not Applicable
Major Equipment List	Not Applicable
Schedule and Milestones	EOI Date: TBD RFP Date: TBD Award Date: TBD Receive Initial Vendor Drawings: TBD Forecast at Site: TBD Construction Complete: TBD
Budget	TBD
Applicable Sub- Project/SPV	Muskrat Falls Generation       Island Transmission Link         Labrador Transmission Assets       Lower Churchill Project – General
IBA Package	YES 🛛 NO 🗌

## Lower Churchill Project

Project Base Currency:	CAD

	n of Security Services Services		Revision No.: (	C- Contract D1 13-Apr-2012		
Discipline: Responsibilities: Area Manager: QA / QC:	Sean Lee Kenneth Morrison	Package Engineer: Contract Admin. :	Randy Walker Stella Roche			
Scope of work Summary	security of the	9 includes: curity and other services requir Lower Churchill Project, during n and Reservoir Clearing operatio	construction of	the Hydroelectri		
Work Included:	areas, proje Developmen Provide site Provide site Staff the Mu Provide en operating th	rvices for the Muskrat Falls Ac ct construction sites and reservoi nt of a Site Security Execution Pla surveillance. access control including personn skrat Falls Security offices and m nergency assistance to site me e emergency transport vehicles v t of site rules and regulations.	r clearing operat an. hel and vehicle se hain access gate dical and fire p	ions. earches. on a 24/7 basis. ersonnel including		
Approximate Quantities (only major items are	ITEM	DESCRIPTION	UNIT	QUANTITY		
included)		ths for security personnel	ea	TBD		
Work Excluded:	Description Medical Services	ctivities are excluded from packa	ge SH0020:	Package No. SH0020		
Quality	Camp Catering, Housekeeping and Janitorial Services       SH0018         Work Package SH0019 is not under Quality Control.					
	The Contractor shall do stipulated by the Engine	its own Quality Control, but no Q/ er.	A specific require	ements are		

### PACKAGE DICTIONARY

(short):       Security S         Reference Section       Interface with Other         Packages       Specific Site Conditions         Specific Schedule       S	<ul> <li>The following main documents are used to define the scope:</li> <li>Scope of Work Specifications Security Services 505573-0000-68EW-0001-00</li> <li>The Province of Newfoundland and Labrador Occupational He and Regulations, 2009</li> <li>505573-0000-68RA-1-0001-00 Health and Safety Managemere</li> <li>505573-0000-68RA-1-0001-00 Environmental Protection Plan</li> <li>Not Applicable</li> </ul>	nt Plan				
Reference Section         Interface with Other         Packages         Specific Site Conditions         Specific Schedule	<ul> <li>The following main documents are used to define the scope:</li> <li>Scope of Work Specifications Security Services 505573-0000-68EW-0001-00</li> <li>The Province of Newfoundland and Labrador Occupational He and Regulations, 2009</li> <li>505573-0000-68RA-1-0001-00 Health and Safety Managemere</li> <li>505573-0000-68RA-1-0001-00 Environmental Protection Plan</li> <li>Not Applicable</li> </ul>	alth and Safety Act				
Interface with Other Packages Specific Site Conditions	<ul> <li>Scope of Work Specifications Security Services 505573-0000-68EW-0001-00</li> <li>The Province of Newfoundland and Labrador Occupational He and Regulations, 2009</li> <li>505573-0000-68RA-1-0001-00 Health and Safety Management</li> <li>505573-0000-68RA-1-0001-00 Environmental Protection Plan</li> <li>Not Applicable</li> </ul>	nt Plan				
Packages Specific Site Conditions Specific Schedule	<ul> <li>505573-0000-68EW-0001-00</li> <li>The Province of Newfoundland and Labrador Occupational He and Regulations, 2009</li> <li>505573-0000-68RA-1-0001-00 Health and Safety Managemere</li> <li>505573-0000-68RA-1-0001-00 Environmental Protection Plan</li> <li>Not Applicable</li> </ul>	nt Plan				
Packages Specific Site Conditions Specific Schedule	<ul> <li>and Regulations, 2009</li> <li>505573-0000-68RA-1-0001-00 Health and Safety Managemer</li> <li>505573-0000-68RA-1-0001-00 Environmental Protection Plan</li> <li>Not Applicable</li> </ul>	nt Plan				
Packages Specific Site Conditions Specific Schedule	505573-0000-68RA-1-0001-00 Environmental Protection Plan Not Applicable The scope of work for this package will increase as the scope of work					
Packages Specific Site Conditions Specific Schedule	The scope of work for this package will increase as the scope of work					
Specific Schedule						
Specific Schedule						
Specific Schedule						
Specific Schedule	<b>Sions</b> The scope of work for this package will increase as the scope of work on and around the Muskrat Falls site progresses from early works through to the full construction of the Hydroelectric Plant and Reservoir Clearing operations.					
	Security Services must be in place prior to the start of work on the Sou	th Side Access Road				
Conditions clearing and construction.						
Specific Environment Conditions	The security services provider must adhere to the Project Environmen	tal Protection Plan.				
	The security services provider's personnel must comply with the requir Health and Safety Plan.	ements of the Project				
Special Requirements (All)	Not Applicable					
Equipment List	<ul> <li>TBD - 4/all wheel drive vehicles</li> <li>Miscellaneous security-related equipment including vehicle speed-monitoring</li> </ul>					
Schedule and Milestones	devices. Item	Date				
	EOI	TBD				
	Issue RFP	TBD				
]	Award	TBD				
	Mobilize	TBD				
	Contract Complete	TBD				
Budget	TBD					
Applicable Sub-						

Project Base Currency:	CAD

Package No.:		SH0019				Туре:	C- Contract
Titles	(long):	Provisio	n of Security	Services		Revision No.:	01
	(short):	Security	Services			Date:	13-Apr-2012
Project/SP	V		Muskrat F		ration ion Assets	Labrador – Island Transmission Link Lower Churchill Project – General	
IBA Packaç	je		YES	$\boxtimes$	NO		

#### Lower Churchill Project

### PACKAGE DICTIONARY

Package No.: SH0020 Titles (long): Provision (short): Medical	n of Medical Services Services		Type: Revision No.: Date:	C- Contract 01 13-Apr-2012
Discipline: Responsibilities: Area Manager: QA / QC:	Sean Lee Kenneth Morrison	Package Engineer: Contract Admin. :	Randy Walker Stella Roche	
Scope of work Summary	Package SH00	020 includes:		
	at the Lower	anagement of medical and hea Churchill Project, during cor nd Reservoir Clearing Operatior	struction of the I	- Hydroelectric Plan
Work Included:	transportat Provision center and Assistance emergency Assist the facilities ar Inspect an Provision of medical pe Administer Assist the	of the Muskrat Falls site n tion vehicle. of qualified medical personne I medical personnel on the Res in the planning, developme y response. Engineer in performing audits nd equipment. d monitor the accommodation f of a 24-hour on-call physician ersonnel. r site drug and alcohol testing p e Engineer in developing a on line and substation construct	el for the Muskrat ervoir Clearing site ent and operation s of construction of facilities and kitcher to provide consult rogram. medical services	Falls site medica s. of sites' medica contractor's first ai n hygiene. ration advice to sit
Approximate Quantities (only major items are	ITEM	DESCRIPTION	UNIT	QUANTITY
included)	1 Total man-mo	onths for medical personnel	ea	TBD
Work Excluded:	The following works or	activities are excluded from pa	ckage SH0020:	
	Description			Package No.
	Security Services	SH0019		

### PACKAGE DICTIONARY

Package No.: SH0020	Туре:		C- Contract			
Titles (long): Provisio	on of Medical Services Revisio	on No.:	01			
(short): Medica	l Services Date:		13-Apr-2012			
Quality	Work Package SH0020 is not under Quality Control.					
	The Contractor shall do its own Quality Control, but no QA spec stipulated by the Engineer.	cific requ	uirements are			
Reference Section	The following main documents are used to define the scope:					
	<ul> <li>Scope of Work Specifications Construction Medical and 505573-0000-68EW-0002-00</li> <li>The Province of Newfoundland and Labrador Occupation</li> </ul>					
	<ul> <li>The Province of Newfoundiand and Labrador Occupation and Regulations, 2009</li> <li>Canadian Model for Providing a Safe Workplace Alcoho</li> </ul>					
	<ul> <li>Work Rule October 2005 – Version 2 – Effective October 505573-0000-68RA-1-0001-00 Health and Safety Mana</li> <li>505573-0000-68RA-1-0008-00 Waste Management Plan</li> </ul>	er 1, 20 agemer	10			
Interface with Other Packages	Description		Package No.			
-	Not Applicable		N/A			
Specific Site Conditions	The scope of work for this package will increase as the scope of Muskrat Falls site progresses from early works through to the full Hydroelectric Plant and Reservoir Clearing operations.					
Specific Schedule Conditions	Medical Services must be in place prior to the start of work on the clearing and construction.	he Sout	h Side Access Road			
Specific Environment Conditions	The medical services provider must adhere to the Project Waste Management Plan in regards to disposal of bio-hazardous medical waste.					
Specific Safety Conditions	The medical services provider's personnel must comply with the Health and Safety Plan.	e require	ements of the Project			
Special Requirements (AII)						
<ul> <li>Equipment List</li> <li>Fully equipped 4 wheel drive mobile treatment centres</li> <li>1 emergency transport vehicle</li> </ul>						
Schedule and Milestones	Medical supplies for the Muskrat Falls medical center.      Item		Date			
	EOI		TBD			
	Issue RFP		TBD			

#### Lower Churchill Project

Project Base Currency: CAD		CAD						
Package No.:		SH0020					Туре:	C- Contract
Titles	(long):	Provisio	n of Medical	Revision No.:	01			
	(short):	Medical Services					Date:	13-Apr-2012
			Award Mobilize Contract	Comple	te			TBD TBD TBD
Budget			TBD					
Applicable Sub- Project/SPV		Muskrat Falls Generation Labrador Transmission Assets				Labrador – Island Transmission Link Lower Churchill Project – General		
IBA Packag	je		YES	$\boxtimes$	NO			

#### Lower Churchill Project

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			Maintenance and e and Snow Cleari	Snow Clearing Services (MF) ng Services (MF)	Type: Revision No.: Date:	S- Service Contract 01 13-Apr-2012		
Discipline: Hydro Responsibilities: Area Managers		Wallace Piercey		Package Engineer:	Peter M. Cla	Peter M. Clarke		
	QA / QC:	Kennetl	n Morrison	Contract Admin. / Buyer	:: Sylvain Mar	san		
Scope of wor	rk Summary	emerge Muskra includes site, the Site, the	ncy repairs to Falls Project Si the Southside A access road to	includes the maintenance various roads and parking a te and the Accommodations Access Road from the Trans o and the various areas inclu o a number of rock and grave hts.	areas which are Complex Site. I Labrador Highwa uded in the Acco	associated with th More particularly, thi ay to the main projeco mmodation Comple		
Work Include	ed:	•	Maintenance, du from Sta. 0+000	ust control and snow clearin to 5+150 km;	ng of the existin	g forest access roa		
		•	Maintenance, du	ust control and snow clearing 2+040 km including access to				
		•		ust control and snow cleari hich includes the general par				
		•		ust control and snow cleari lam site and of access (haul)				
		•	Supply of winter	sand and flake calcium chlori	de.			
		•	Ditching, waterc	ourse and culvert maintenanc	:е,			
		•	•	airs to washouts, settlements		ave continuous use		
		•	All of the abov protection plan (	e will be carried out as per C-SEPP).	r the contract s	pecific environment		
Approximate (only major it		ITEM	DESCRIPTION	(Base Case)	UN			
ncluded)		1	Maintenance G	•	t			
		2	Winter Sand		t	· · · · · · · · · · · · · · · · · · ·		
		3	Calcium Chlorid	de flake	t	,		
		4	Rock Fill		t	500		

#### Lower Churchill Project

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Project Base Currency:	CAD						
Package No.:	SH0021 Type:	S- Service Contract					
Titles (long):	Provision of Road Maintenance and Snow Clearing Services (MF) Revision No.:	01					
(short):	Road Maintenance and Snow Clearing Services (MF) Date:	13-Apr-2012					
Contract Basis	This is a unit price contract.						
	Remarks:	Unit Rates 🗌 Reimbursable 🗍					
Work Excluded:	The following works or activities are excluded from package SH0022:						
	Description	Package No.					
	5000t of Maintenance Grade 3 is available from road contractor	CH0004					
	Remaining Maintenance Grade 3 and rock fill is to be received from the Contractor for ' Supply of concrete including batch plant (MF)'	CH0050					
	Sanding and salting for pedestrian areas at the accommodations Complex	SH0051					
Quality	Contractor shall comply with 'Contractor Quality Requirement Sp Number 505573-0000-38RA-0003.	ecification'					
Reference Section	The following main documents are used to define the scope:						
	<ul> <li>505573-311A-41ES-0001 00 South Side Access Specification</li> </ul>	Road - General					
	<ul> <li>Basis of Design LCP-PT-ED-0000-EN-RP-0001-01.</li> <li>505573-311A-41EC-0001 PB Design Criteria – Main Acc</li> </ul>	•					
	<ul> <li>505573-0000-68RA-I-0005 Project-Wide Environmental Prote Component 1 and 4b</li> </ul>	<ul> <li>Specification 505573-0000-68RA-I-0015 General Environmental Requirements</li> <li>505573-0000-68RA-I-0005 Project-Wide Environmental Protection Plan- Component 1 and 4b</li> </ul>					
Interface with Othe Packages	Pr Description	Package No.					
	Construction of Southside Access Road	CH0004					
	<ul> <li>All contractors and personnel using the access road for work in Site.</li> </ul>	the Muskrat Falls					

#### Lower Churchill Project

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Project Base Currency: CAD			
Package No.: SH0021		Туре:	S- Service Contract
	n of Road Maintenance and Snow Clearing Services		01
(short): Road M	aintenance and Snow Clearing Services (MF)	Date:	13-Apr-2012
Specific Site Conditions	Not Applicable		
Specific Schedule Conditions	Completion of the access roads, accommodati	on complex and lay down	n areas.
Specific Environment Conditions	Storage and use of calcium chloride. Contrac	tor must have an approv	ed C-SEPP.
Specific Safety Conditions	The use of heavy equipment during stormy during snow clearing.		
Special Requirements (All)	This package will have certain restrictions im chloride for use on the access roads by the en- Permits will be obtained from the proper agend	vironmental regulations.	
Free Issued Materials	The following are free issued materials for pac	kage SH0021:	
	Description		Package No.
	5000 t. Maintenance Grade 3 Granulars		CH0004
	Remainder of Maintenance Grade 3 Granula	Irs	CH0050
	500 t. Rock Fill		CH0050
Major Equipment List	Not Applicable		
Schedule and Milestones	EOI Date:	TBD	
	RFP Date:	TBD	
	Award Date: Receive Initial Vendor Drawings:	TBD TBD	
	Forecast at Site:	TBD	
	Construction Complete:	TBD	
		Dates for milestones	
		once the Project base place.	aine schedule is in
Budget	TBD		
Applicable Sub- Project/SPV	Muskrat Falls Generation 🛛 Labrador -	- Island Transmission Link	
	Labrador Transmission Assets 🗌 Lower Chu	urchill Project – General	
IBA Package			

#### Lower Churchill Project

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		n of Fuel Supply and Dispen pply and Dispensing Service		Type: Revision No.: Date:	S- Service Contract 01 13-Apr-2012
Discipline: Responsibilities:	Hydro Area Managers:	Wallace Piercey	Package Engineer:	Peter M. Cla	ırke
	QA / QC:	Kenneth Morrison	Contract Admin. / Buyer::	Steve Muller	n
Scope of wor	∙k Summary	and dispensing facili Design, supply, inst facility at the Compa	allation, commissioning, mainten ities at the Company's lay down allation, commissioning, mainte any's lay down area. ment of gasoline, Arctic and #2 l	area. nance and op	eration of a waste o
Work Include	d:	<ul> <li>Design, supply, install, operate, maintain and remove the following work scope:</li> <li>Design of fuel storage and dispensing facilities;</li> <li>Supply and installation of fuel storage and dispensing facilities;</li> </ul>			
			uired fuels (gasoline, Arctic Dies		·
		<ul> <li>Provision of true contractors equ emergency gene</li> </ul>	nd maintenance of the fuel stora cking to supply fuel to the stor ipment at the work locations, a erators at the accommodations of	rage tanks on and trucking t complex site;	site, trucking to fue
			on record keeping and reporting; te oil storage facility;		
			and maintenance of the wast d oil and other hydrocarbons to	-	
		To provide expe	rienced and skilled employees to	o operate and	oversee the contract

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Project Base Currer	ncy: C	۹D			
Package No.:	SI	H0022		Туре:	S- Service Contract
			el Supply and Dispensing Services (MF)	Revision No.:	01
(she	ort): F	uel Supply and	Dispensing Services (MF)	Date:	13-Apr-2012
Approximate Q		es 📃			
(only major iter	ms are	ITEN		UNI	T QUANTITY
included)		1	Gasoline		
		2	Arctic Diesel		
		3	#2 Diesel (summer)		
Contract Basis		Capa Comp install	actor will supply and install 3 each above gro city each and a 30,000 liter capacity waste oi any will supply power, communications, and ations.	I tank. civil works associate	d with these
Contract Dasis			sum, and the operational section (supply and		
		Rem	Lump Sum Combination Lump Sum – Unit Rates <u>arks</u> :	Cost I	Unit Rates 🗌 Reimbursable 🗌
Work Excluded	l:	The fo	bllowing works or activities are excluded from	package SH0022:	
		Des	cription		Package No.
		Fuel	Supply for the Access Road contractor.		CH0004
		Civil	Works (foundations, slabs, oil/water separat	tors, etc)	CH0005
		Pow	er Supply at Lay Down area		Not allocated
		Com	munications hook up at Lay Down area		Not Allocated
Quality			actor shall comply with 'Contractors Quality F er 505573-0000-38RA-0003.	Requirement Specifica	ation' Document
Reference Sect	tion	The f	ollowing main documents are used to define Basis of Design LCP-PT-ED-0000-EN-RP- Waste Management Plan 505573-0000-68 Specification 505573-0000-68RA-I-0015	0001-01. 8RA-1-0008	al Requirements
Interface with C	Other				
Packages			Description		Package No.
		Con	struction of South Side Access Road		CH0004
		Con	struction of Site Clearing Access Road and A	ncillary Areas	CH0048
			struction of foundations, oil/water separator, og, supply of power and communications is by		

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#### PACKAGE DICTIONARY

Project Base Currency: CAD

Package No.: SH0022		Tura	S- Service Contract	
6	on of Fuel Supply and Dispensing Services (MF)	Type: Revision No.:	01	
	upply and Dispensing Services (MF)	Date:	13-Apr-2012	
	apply and Dispensing Services (MIP)	Date.		
Specific Site Conditions	Civil preparation work (foundations, oily wate the provision of a power supply and a commu		e complete as well as	
Specific Schedule Conditions	Access road must be passable for the contract	tor to deliver tanks to site		
Specific Environment Conditions	Spills of volatile liquids. Contractor must have	an approved C-SEPP.		
Specific Safety Conditions	Safety connected with the storage and handlin Gasoline is a Class 1B Flammable liquid. Dies safety associated with hazardous locations ( C training is required for personnel fuelling tanks	el is a class 11 combusti Class and Division) for equ	ble liquid) Electrical	
Special Requirements (All)	This package will have certain restrictions imposed on used oil, heating oil, storage and handling of gasoline and gasoline volatility by Newfoundland and Labrador provincial regulations. Permits will be obtained from the proper agencies by the contractor in a timely manner.			
Free Issued Materials	Not Applicable			
Major Equipment List	3 each 50,000 I. Above ground fuel storage tai	nks with dykes.		
Schedule and Milestones	EOI Date: RFP Date: Award Date: Receive Initial Vendor Drawings: Forecast at Site: Construction Complete:	TBD TBD TBD TBD TBD TBD Dates for milestones wil the Project baseline sch		
Budget	TBD			
Applicable Sub- Project/SPV		– Island Transmission Link urchill Project – General		
IBA Package	YES NO			

#### Lower Churchill Project

## Page 149

#### PACKAGE DICTIONARY

Project Base Currency: CAD

0	H0040	Туре:	S-Service Contract	
	rovision of Garbage Removal and Disposal Services (MF)	Revision No.:	01	
(short): Ga	arbage Removal and Disposal Services	Date:	13-Apr-2012	
Discipline: Environm	ental			
Responsibilities: Area Mar	nager: Wallace Piercey Package Engineer:	Peter Clarke		
QA / QC:	Ken Morrison Contract Admin. / Buyer:	Sylvain Marsa	an	
Scope of work Summary: Work Included:	<ul> <li>This service contract includes waste and garbage remove Falls project site including the accommodation complex.</li> <li>This contract commences post early works.</li> <li>The scope of this package includes: <ul> <li>Collection and disposal of domestic waste from the site.</li> <li>Collection and disposal of domestic waste from the collection and disposal of domestic waste from the laydown area sites.</li> <li>Sewage effluent disposal form site holding tanks</li> <li>Sewage sludge disposal from sewage treatment</li> <li>Transporting waste materials to the Happy Valley.</li> <li>Implementation of segregation of waste stream (hazardous, etc.) in accordance with local disposal</li> </ul> </li> </ul>	val and dispos and other lay he Accommo he Powerhou he Owner and plant. y-Goose Bay liquid, solid, re al requiremen	al at the Muskra down area sites. dations Complex se area site. d Contractor landfill site. ecyclable, ts. All waste	
	categories shall be analyzed and the principals of followed.	i reduction/re	use/recycling	
Approximate				
Quantities (major				
items only):	ITEM DESCRIPTION (Base Case)	UNIT	QUANTITY	
	Estimated Waste Volume (Year 1 to Year 6 –			
	1 after the first 6 months		4000	
	2 Domestic waste	t	1900	
	3 Sewage waste Generated to Treatment Plant	liters	525,000	
• · · •	4 Sewage sludge removed from Treatment Plant	liters	50,000	
Contract Basis:	Lump Sum Combination Lump Sum – Unit Rates <u>Remarks</u> :	Un Cost Reimt	it Rates ⊠ oursable □	
Work Excluded:			]	
	Description	Pac	kage No.	
	Construction waste and demolition material (responsibility of each contractor)			
	Janitorial and housekeeping Services	SH0018		

	SH0040	Type:	S-Service Contract		
	Provision of Garbage Removal and Disposal Services (MF)	Revision No.:	01 12 Apr 2012		
(short): (	Sarbage Removal and Disposal Services	Date:	13-Apr-2012		
	Provision of domestic waste collection services or				
	sewage sludge removal services for Contractors				
	operating during the early works phase (before June				
	2012) and those operating in remote locations				
	Hazardous waste (responsibility of each contractor).				
	Biomedical waste	SH0020			
Quality:	Contractor shall comply with 'Contractor's Quality Requ Number 505573-0000-38RA-0003.	uirement Spe	cification' Docume		
Reference Section:	The following main documents are used to define the scope:				
	505573-0000-68RA-I-0008 Waste Management Plan				
Interface with other					
Packages:	Description		Package No.		
	Provision of Catering, Housekeeping, and Janitorial Se (MF)	ervices	SH0018		
	Provision of Security Services (MF)		SH0019		
	Provision of Buildings Maintenance Services (MF).		SH0051		
	Supply and Install and Commission Package STP				
Specific Site Conditions:	Not Applicable				
On a sitis. O sh a duda	Any other packages that have to be started before the subject package can proceed:				
	(Not Applicable)				
Specific Schedule Conditions:					
	Any other packages that cannot proceed before the subject p (Not Applicable)	backage has s	tarted:		

#### Lower Churchill Project

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#### PACKAGE DICTIONARY

Project Base Currency: CAD

Package No.:		SH0040 Type:	S-Service Contract
Titles	(long):		01
	(short):		13-Apr-2012
Specific Sa Conditions		Handling of substances classes as hazardous, flammable, toxic.	
Special Requiremei	nts:		
Free Issued Materials:	I	Not Applicable	
Equipment	List:	Not Applicable	
Schedule a Milestones:		EOI Date: TBD RFP Date: TBD Award Date: TBD Receive Initial Vendor Drawings: TBD Forecast at Site: TBD Construction Complete: TBD Dates for milestones wi the Project baseline sch	•
Budget:		TBD	
Applicable Project/SP\		Muskrat Falls Generation 🔀 Labrador – Island Transmission Link 🗌 Labrador Transmission Assets 🔲 Lower Churchill Project – General	
IBA Packag	e	YES 🖾 NO 🗌	

#### Lower Churchill Project

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Project Base Currer	-				<b>T</b>	
Package No.: Titles (lor	SH0041 ng): Provisio		nd Transportation Ser	vices (HVGB to MF)	Type: Revision No.:	S- Service Contract 01
(sho		nel Transp	-		Date:	13-Apr-2012
Discipline:	Hydro					
Responsibilities: A	Area Managers	: Wallace	Piercey	Package Engineer:	Peter M. Cla	irke
	QA / QC:	Kenneth	Morrison	Contract Admin. / Buyer:	Sylvain Mars	san
Scope of work S	Summary	Goose I from Ha	Bay airport to the A ppy Valley Goose B	cludes the transportation o accommodations complex a Bay. This includes the suppl el for control and operation.	nd transportation	n of personnel to and
Work Included:				tation to and from the airpo Camp reception and departu		ey – Goose bay to the
		•	Transport of local Northwest River an	workers to & from Happ d Sheshatshiu.	y Valley Goose	Bay Area including
		•	Personnel Transpo	rt for visitors to site and any	tours of the pro	ject.
		•	Maintenance of Eq	uipment		
Approximate Q						
(only major iten included)	ns are	ITEM	DESCRIPTION (E			
		1	Trips to/from Airpo		Trip	
		2	Trips HVGB to Ac Trips Sheshatshui		Trip Trip	
		3	Thps Sheshatshu			
Contract Basis		This is a	a unit price service t	type contract (function of ca	mp population).	
Work Excluded	:	The follo	owing works or activ	vities are excluded from pac	kage SH0022:	
		Descr	ption			Package No.
			of Project Vehicles	3		SM0706
		Fuel				SH0022
			e Transportation – I			

Project Base Currency: CAD			
	041 rision of Ground Transportation Services (HVGB to MF) connel Transport	Type: Revision No.: Date:	S- Service Contract 01 13-Apr-2012
Quality	Contractor shall comply with 'Contractor Quality Red 505573-0000-38RA-0003.	quirement Specifica	ation' Number
Reference Section	<ul> <li>The following main documents are used to define th</li> <li>Basis of Design LCP-PT-ED-0000-EN-RP-0</li> <li>Specification 505573-0000-68RA-I-0015 G</li> <li>505573-0000-68RA-I-0005 Project-Wide I Component 1 and 4b</li> </ul>	001-01. eneral Environmen	•
Interface with Other Packages	Description		Package No.
	The Provision of Fuel Supply and Dispensing Serv	ices	SH0022
	Provision of Building Maintenance Services		SH0051
	Supply of Project Vehicles		SM0706
	Communications System		CD0510
Specific Site Conditions Specific Schedule Conditions	Driving on unpaved RLU 70 roads.	condition.	
Specific Environment Conditions	Contractor must have an approved C-SEPP.		
Specific Safety Conditions Special Requirements (All)	Driving on unpaved RLU 70 roads. Radio contact vehicles. Not Applicable	at all times. Backu	p audible warning
Free Issued Materials	Radio Communications Equipment		
Major Equipment List	Coach type 40 passenger vehicles. Coach Type 20 passenger vehicles.		

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Project Base	Currency:	CAD		
Package No.:		SH0041	Туре:	S- Service Contract
Titles	(long):	Provisio	on of Ground Transportation Services (HVGB to MF) Revision No.:	01
	(short):	Person	nel Transport Date:	13-Apr-2012
Schedule a	Ind Mile	stones	EOI Date: TBD RFP Date: TBD Award Date: TBD Receive Initial Vendor Drawings: TBD Forecast at Site: TBD Construction Complete: TBD	
Budget			TBD	
Applicable Project/SP			Muskrat Falls Generation       Image: Labrador – Island Transmission Link         Labrador Transmission Assets       Image: Lower Churchill Project – General	
IBA Packaç	ge			

		n of Building Maintenance Service Maintenance Services (MF)	es (MF)	Type: Revision No.: Date:	S- Service Contract 01 13-Apr-2012
Discipline: Responsibilities:	Hydro Area Manager:	Luc Turcotte/ Michel Maeyens	Package Engineer:	Peter M. Cla	rke
	QA / QC:	Kenneth Morrison	Contract Admin. / Buyer::	Lisa Cullihal	I
Scope of wor	k Summary	main systems are Water	ings and facilities at the A supply from a well system treatment plant, electrica	and chlorination	on, Fire water suppl
			buildings includes the trical and lighting system furniture.		
	_	Snow clearing and ice co Site including the Securit	ontrol to walkways and stair y kiosk.	s for the Accor	mmodations Comple
Work Include	ed:				Deckere No
		Maintenance of artesian we for the starter camp phase drilled for the main camp op	e and 4 additional wells w		Package No.
		Maintenance of and oper system for the Starter Camp	ation of the Water Trea	atment CH00	05
		Maintenance of and op chlorination building and mechanical and electrical co	pumping station includir	ng all	03
		Maintenance of the Wa accommodate fire flow mechanical and electrical co	ater Storage Tank size requirements including omponents and connections	g all	18 / SH0051
		Maintenance of the bur including service lines, gat curb stops, fire hydrants and	e valves, air release char		
		Maintenance of the seption grease traps, etc. for the St kitchen and dormitories			
		Maintenance of the septic ta the security building	ank and sewage disposal fi	eld for	
		Maintenance and operation Treatment Plant			
		Maintenance of the gravity including manholes	flow sewage collection s	ystem	

Package No.: Fitles	(long):	SH0051 Provisio	n of Building Maintenance Services (MF)	Type: Revision No.:	S- Service Contract 01
	(short):	Building	Maintenance Services (MF)	Date:	13-Apr-2012
			Maintenance and operation of the Diesel Generators ( the campsite	(4) at	
			Maintenance of the 25 kV power distribution grid aroun accommodations complex site	d the	
			Maintenance of the 25 kV Switchgear and Synchror equipment	nizing	
			Maintenance of the service drops to Accommod Complex Buildings	lation	
			Maintenance and operation of the diesel generators ware installed to provide primary power for the starter can		
			Maintenance of the 600 V synchronizing switchgear		
			Maintenance of the Fuel tanks for the generator units		
			Maintenance of site lighting, ball field lighting and pa area power outlets (vehicle block heater outlets) includin cabling, wiring and equipment for a fully functional system	ng all	
			Maintenance of pole mounted transformers including lig arrestors, pad mounted transformers and the o generator step-up transformer		
			Maintenance of the high voltage cables from the 2 overhead distribution lines to the pole and pad more transformers, to the 25 kV switchgear, and to the constraints generator step-up transformer	unted	
			Maintain the 600 V, 4000 A busway from the or generator step-up to the diesel generator synchron switchgear		
			Maintain the power and control cables from each or generator synchronizing switchgear	diesel	
			Maintain the low voltage power cables from the 2 switchgear distribution panel to each diesel generator a the diesel generator step-up transformer		
			Maintain the control cables from the 25 kV switchgear t diesel generator step-up transformer	to the	
			Maintain lighting arrestors as indicated on drawings		
			Maintain the low voltage overhead line from the pumph / chlorination building termination pole to the water sto tank		
			Maintain the electrical service from a termination pole t sewage treatment plant and the water treatment plant (p house / chlorination building)		

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Project Base (	Currency:	CAD		
Package No.: Titles	(long): (short):	SH0051 Provision of Building Maintenance Services (MF) Building Maintenance Services (MF)	Type: Revision No.: Date:	S- Service Contrac 01 13-Apr-2012
	(0.000)	Maintain the power cables from the water treatme		
		Coordination and management of specialist required to site for certain equipment such as the chlorination equipment		
		Maintenance of the accommodation complex start dormitories, kitchen/dining/recreation centr administrative buildings (Administration, Ma Workshops, Fire and Ambulance, Communications, Safety/Induction buildings)		
		Maintenance within the buildings includes the systems, electrical and lighting systems, fire alar architectural systems and furniture repair		
		Maintenance of the equipment contained accommodations buildings	in the	
		Kitchen Equipment: For a more detailed list of the equipment refer to Document 'Muskra Accommodations Complex Functional Specification 315B-44EG-0002. See section 5.3.5.7 Equipment furnishings' and section 5.4.5.7 Equipment and furn	at Falls n' 505573- ment and	
		Mechanical Equipment: For a more detailed I mechanical equipment refer to the document 'Mu Accommodations Complex Functional Specification 315B-44EG-0002. See section 5.5.8 Mechanical S	skrat Falls n' 505573-	
		Maintenance of the equipment contained Administration buildings	in the	
		Maintenance of the equipment contained Administration buildings: General Equipment: For detailed list of the general equipment refer to 'Muskrat Falls Accommodations Complex Specification' Design, Supply and Constru- Administrative Buildings at Muskrat Falls. 505 44EG-0001. Refer to the sections on each building	Document Functional uction of 573-315B-	
		Maintenance of offsite buildings including the building (included in the administrative build concrete laboratory building (at the Company's area),field personnel trailors and lavatories (a worksite) and the administrative office in Goose ba	ings), the lay down t the MF	
		Maintenance of buildings includes snow clearing control for personnel. This includes entrances to exits and emergency exits, stairs and paths building to another	buildings,	

Project Base Currency:	CAD	
Package No.:	SH0051 Type: S-	Service Contract
Titles (long):	Provision of Building Maintenance Services (MF) Revision No.: 01	
(short):	Building Maintenance Services (MF) Date: 13	3-Apr-2012
	Maintenance and operation of aspects of the communications system on site i.e. cable TV, card access system, monitoring and reaction to alarms on the SCADA system for the generators, STP and the water treatment plants	
	Initiation and operation of a PM program for all site equipment and systems	
	Verification and acceptance of Company supplied materials and equipment	
	Storage and preservation of material and equipment at Site	
	Marshalling of materials and equipment required to execute the contract	
	Coordination of work scope with the Camp Manager on a routine basis	
	Other work as authorized by the Company's representative	
Approximate Quant		
(major items only)	ITEM DESCRIPTION (Base Case) UNIT	
	1 Maintenance N/A	N/A
	Contractor will consume a quantity of CaCl <sub>2</sub> and maintenance sand around Each of the utilities will have consumables associated with them, i.e. chlorin sewage treatment plant.	
<b>Contract Basis</b>	This is a unit price contract.	
		Unit Rates 🛛 mbursable 🗍
Work Excluded:	The following works or activities are excluded from package SH0051:	
Work Excluded:	Description	Package No.
Work Excluded:	Description         Construction Telecommunications Phase 1	-
Work Excluded:	Description         Construction Telecommunications Phase 1         Communications Systems	No.
Work Excluded:	Description         Construction Telecommunications Phase 1	No. SD0509

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Titles (long): (short):		S- Service Contract o.: 01 13-Apr-2012		
	Provision of Road Maintenance and Snow Clearing Services (MF)	SH0021		
	Provision of Catering, Housekeeping and Janitorial Services (MF)	SH0018		
	Provision of Garbage Removal and Disposal Services (MF)	SH0040		
	Provision of Security Services	SH0019		
	Provision of Ground Transportation Service (HVGB to MF)	SH0041		
	Supply and Maintenance of Various IT Equipment	SM0710		
<ul> <li>Reference Section</li> <li>The following main documents are used to define the scope:</li> <li>Basis of Design LCP-PT-ED-0000-EN-RP-0001-01.</li> <li>Specification 505573-315A-40ES-0001 Accommodations Complex Site Uti Technical Specification</li> </ul>				
Interface with Oth		•		
Packages	Description	Package No.		
Packages	Description Accommodations Complex Buildings	Package No. CH0002		
Packages				
Packages	Accommodations Complex Buildings	CH0002		
Packages	Accommodations Complex Buildings Administrative Buildings	CH0002 CH0003		
Packages	Accommodations Complex Buildings Administrative Buildings Construction of Southside Access Road	CH0002 CH0003 CH0004		
Packages	Accommodations Complex Buildings Administrative Buildings Construction of Southside Access Road Accommodations Complex Site Utilities	CH0002 CH0003 CH0004 CH0005		
Packages	Accommodations Complex Buildings Administrative Buildings Construction of Southside Access Road Accommodations Complex Site Utilities Catering, Housekeeping and Janitorial Services	CH0002 CH0003 CH0004 CH0005 SH0018		
Packages	Accommodations Complex Buildings Administrative Buildings Construction of Southside Access Road Accommodations Complex Site Utilities Catering, Housekeeping and Janitorial Services Security	CH0002 CH0003 CH0004 CH0005 SH0018		
Packages	Accommodations Complex Buildings Administrative Buildings Construction of Southside Access Road Accommodations Complex Site Utilities Catering, Housekeeping and Janitorial Services Security Supply and Install STP	CH0002 CH0003 CH0004 CH0005 SH0018 SH0019		
Packages	Accommodations Complex Buildings         Administrative Buildings         Construction of Southside Access Road         Accommodations Complex Site Utilities         Catering, Housekeeping and Janitorial Services         Security         Supply and Install STP         Supply of Auxiliary Transformers	CH0002 CH0003 CH0004 CH0005 SH0018 SH0019 PH0036		

#### Lower Churchill Project

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Project Base Currency: CAD					
	n of Building Maintenance Services (MF) Maintenance Services (MF)	Type: Revision No.: Date:	S- Service Contract 01 13-Apr-2012		
Specific Site Conditions	Not Applicable				
Specific Schedule Conditions	Not Applicable				
Specific Environment Conditions	DOE will supply a 'Permit to Operate' which will require certain qualifications for the operators of the STP, Chlorination Plant and the water & Sewer distribution system. A monthly report will also be required.				
Specific Safety Conditions	Electrical safety. Specific work methods for confined space entry to the manholes and pumping chambers. Working at heights on the utility poles. Working with chlorine and other chemicals associated with the operation of the STP. All aspects of the Workplace OH&S.				
Special Requirements (All)	This package will have limits on water quality and limits on effluent quality set by the appropriate environmental regulations. Permits will be obtained from the proper agencies by the contractor in a timely manner				
Free Issued Materials	Not Applicable				
Major Equipment List	Not Applicable				
Schedule and Milestones	EOI Date: TBD RFP Date: TBD Award Date: TBD Receive Initial Vendor Drawings: TBD Forecast at Site: TBD Construction Complete: TBD Dates for milestones will be updated once the Project baseline schedule is in place.				
Budget	TBD				
Applicable Sub- Project/SPV		- Island Transmission Link urchill Project – General			
IBA Package	YES 🛛 NO 🗌				

# LCP PACKAGES DICTIONARIES – COMPONENT 3

Project Base Currency:	CAD				
Package No.: Titles (long): (short):		d Install Converters and Cal s and Cable Transition Com	-	Type: Revision No.: Date:	C-Contract 01 13-Apr-2012
Discipline: Responsibilities: Area M QA / C	Manager: QC:	Stuart Connacher Kenneth Morrison	Package Engineer: Contract Admin. / Buyer:	Jacques Dro Line Trembla	
Scope of Work Sum	nmary	engineering design, HVdc bipole operation kV, and Soldiers Pond commissioning and w For transition compou all turnkey (EPC) electromechanical wo	unds at Forteau Point, Labrac engineering design, supply	ing and electror fier rating per po 25 MW at 350 k dor and Shoal ( y and install	nechanical works for ble of 450 MW at 350 / including all testing, Cove, Newfoundland,
Work Included:		<ul> <li>This package includes:</li> <li>For converter stations, work includes thyristor valves and valve cooling systems converter transformers; smoothing reactors; surge arresters; AC filters; DC filters measuring devices; control and protection system; DC switching devices; AC breakers and switching devices; buswork and insulators; AC/DC station auxiliar power supply; smoke detection in valve hall; fire detection and suppression; cables and steel structures; including mechanical workshop and handling equipment.</li> <li>For cable transition compounds, work includes a 350 kV dc switchyard with a</li> </ul>			
		<ul> <li>telecommunicatio</li> <li>Provide potable of compound fence</li> <li>Provide untreated field at Forteau Pereception</li> <li>Quality, Surveilla</li> </ul>	ries and steel structures; n cabling; and control and pro water and sanitary services f line at Muskrat Falls and Soldi d water supply from well and pint and Shoal Cove transition ance and Inspection and any and Contractor.	from converter iers Pond. I sanitary sewer compounds.	ent. building to converte
			edule milestones with Contrac		timely basis.

#### Lower Churchill Project

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Project Base Currency:	CAD		
Package No.:	CD0501 Type	C-C	ontract
Titles (long):		ion No.: 01	
(short):	Converters and Cable Transition Compounds Date:	13-4	vpr-2012
Approximate Quant		or ad hoc basis	s, if required).
(only major items a		UNIT	QUANTITY
included)	Converter Stations and Cable Transition 1 Compounds		
Contract Basis	Lump Sum Combination Lump Sum – Unit Rates <u>Remarks</u> : • Contract Form is EPC Lump Sum.	Uı Cost Reim	hit Rates 🔲 bursable 🗌
Work Excluded:	Project Payment Terms include engineering submi installation, and commissioning at take over, including	performance	requirements.
WOIR Excluded.	Description		ge No.
	Muskrat Falls Site Earthworks and Access	CH0006	
	Construct Earthworks (Forteau Point, Shoal Cove, Soldiers Pond)	CD0503	
	Construction Power supply at Muskrat Falls and Solders Pond	CD0512 & CD0503	
	Construction Power supply at Forteau Point and Shoal Cove	CD0503	
	Water and sewer lines from fence to water supply and septic field at Muskrat Falls and Soldiers Pond	CH0031 & CD0502	
	Site access at Muskrat Falls	CH0006	
Quality	Contractor shall comply with Quality Requirement Specification	n number 5055	573-0000-
	38RA-0003. Will include Factory Acceptance Tests for major components.		

#### Lower Churchill Project

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Package No.:		CD0501		Type:	C-Contract
Titles	(long):	Supply a	and Install Converters and Cable Transition Compounds	Revision No.:	01
(short): Conver			ers and Cable Transition Compounds	Date:	13-Apr-2012
Reference	Section		<ul> <li>The following main documents are used to define the s</li> <li>Specification of the Converter Stations and Transmission</li> </ul>		nds.
Interface wi Packages	ith Othe	er	Description		Deelvege No
			Description		Package No.
			Interface with ac switchyard at Muskrat Falls and Sol	diers Pond	CD0502
			Interface with Electrode Sites at L'Anse Au Diable an Point	d Dowden's	CD0508
			Interface with ±350kV HVdc transmission line		CT0327 & CT0346
			Interface with telecommunications	rface with telecommunications	
			Interface with submarine cable at Forteau Point and	Shoal Cove	
			Interface with the Powerhouse (MFA)		CH0006 & CH0031
			Interface with Integrated Commissioning		SD0536
Specific Site Conditions			As per specification		
Specific Sc Conditions	neaule				
Specific Environment Conditions			As per specification.		
Specific Safety Conditions			Working around mobile equipment and limits of approach respecting energized equipment		
Special Red (All)	quireme	nts			
Free Issued Materials			• TBD		

Project Base Currency: CAD		CAD			
Package No.: Titles	(long): (short):		and Install Converters and Cable Transition Compounds ters and Cable Transition Compounds	Type: Revision No.: Date:	C-Contract 01 13-Apr-2012
Schedule a	nd Mile:	stones		•	will be updated line schedule is in
Budget			TBD		
Applicable Sub- Project/SPV			Muskrat Falls Generation Labrador – Island		
IBA Packaç	je		YES NO		

#### Lower Churchill Project

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Project Base Currency:	CAD				
Package No.: Titles (long): (short):	Facilities	tations and Synchronous		Type: Revision No.: Date:	C-Contract 01 13-Apr-2012
Discipline:	lanager: Fred Wilcox		ckage Engineer:	Ovidio Juan	
QA / Scope of Work Sur	All civil w mary material installatio switchgea		of building; all bulk hanical equipment ormers, supplied b	material supp (both Contra y others), as	crete foundations and bly as specified; and actor procured and s specified including
	extension 230 kV foundatio All utilitie	, for Muskrat Falls 31 ac substation, for S	5-138-25 kV south si oldiers Pond synch all) such as insulati	ide ac substati nronous cond on, HVAC, po	on, for Soldiers Pond enser buildings and ower supply, lighting,
	field to co Supply a Falls, Mu	r building(s). Provide nverter compound fen nd install of control ro skrat Falls and Soldier n of control, metering	ce line at Soldiers Po om buildings with al s Pond, ac switchyar	ond. I utilities, as s ds and synchr	pecified, for Churchill onous condenser.
	Falls, Mu Supply a Dismantli	skrat Falls and Soldier nd installation of groun ng of Construction Po	s Pond for ac substa ding system.	tions.	-
Work Included:	This pack • .Tele	chill Falls 230/138 kV. age includes: communications servi except at Muskrat Fal	•		
	<ul> <li>Quali</li> <li>Cons</li> </ul>	ty, Surveillance and ultant/Company and C	I Inspection and ontractor	Expediting co	
	• Subn	ission by Contractor o	f all Document Requ	irements on a	-

#### Lower Churchill Project

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Project Base (	Currency:	CAD					
Package No.:		CD0502			Type:		ontract
Titles	(long):	Constru Facilitie		Substations and Synchronous Condensers	Revisi	on No.: 01	
	(short):			d Synchronous Condensers Facilities	Date:	13-A	pr-2012
Approxima	te Quan	tities					
(only major	r items a	are	ITEM	DESCRIPTION		UNIT	QUANTITY
included)			1	TBD			
Contract Ba	asis						
			<u>Remar</u>	Lump Sum Combination Lump Sum – Unit Rates <u>ks</u> :		Ur Cost Reiml	nit Rates ⊠ oursable □
			Contract Form is Combination Lump Sum and Unit Rates on individual station basis.				
			Project Payment Terms include progress payments and completion of works.				
Work Exclu	Work Excluded:		Installation of control, metering and relaying panels in existing ac substations at Western Avalon, Holyrood, Oxen Pond and Hardwoods.				
				Description		Pacl	kage No.
			Muskrat Falls Site Earthworks and Access			CH0006	
			Muskrat Falls provision of sewer and water lines to converter compound fence line			CD0031	
			Supply	Supply and Install Synchronous Condensers			
			Constr	Construction of Earthworks			
			Integra	ted Commissioning		SD0536	
			Supply	of Hardware		PD0505	
Quality			Contrac 38RA-00	tor shall comply with Quality Requirement Specifi 003.	ication	number 5055	573-0000-
Reference	Section		The follo	owing main documents are used to define the sco	ope:		
			Specification for Construction				

#### Lower Churchill Project

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Project Base C	surrency.	CAD				
Package No.: Titles	(long):	CD0502 Constru Facilitie	iction of AC Substations and Synchronous Condensers Revision No.:	C-Contract 01		
	(short):		stations and Synchronous Condensers Facilities Date:	13-Apr-2012		
			Description	Package No.		
Interface with Other Packages		er	Interface with 315 kV ac and 230 kV ac transmission lines	CT0319/CT0342		
			Interface with converter stations at Muskrat Falls and Soldiers pond and at transition compounds at Forteau Point and Shoal Cove	CD0501		
			Interface with telecommunications	CD0510		
			Interface with Telecommunications	CD0535		
Specific Sit	e Condi	itions	TBD			
Specific Sc Conditions			TBD			
Specific Environment Conditions			As per specification.			
Specific Safety Conditions			Working around mobile equipment and limits of approach respecting energized equipment.			
Special Requirements (All)			TBD			
Free Issued	Free Issued Materials		Supply of Power Transformers	PD0537		
			Supply of Switchgear equipment, power and control cables and aerial conductors-AC Substations at Churchill Falls, Muskrat Falls, Soldiers Pond	DDOFOF		
Major Equip	pment L	.ist				
Schedule and Milestones		stones	Item	Date		
			Issue RFQ Award Mobilize Completion (Churchill Falls)	TBD TBD TBD TBD		
			Completion (Muskrat Falls) Completion (Soldiers Pond)	TBD TBD		

#### Lower Churchill Project

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Project Base Currency:	CAD						
Package No.:	CD0502	Туре:	C-Contract				
Titles (long):	Construction of AC Substations and Synchronous Condensers Facilities						
(short):	AC Substations and Synchronous Condensers Facilities	Date:	13-Apr-2012				
	Completion (Existing AC Substation Panels)		TBD				
Budget	ТВD						
Applicable Sub- Project/SPV	Muskrat Falls Generation Labrador – Island Tra	ansmission Link	$\boxtimes$				
	Labrador Transmission Assets 🛛 Lower Churchill Proje	ect – General					
IBA Package	YES NO						

#### Lower Churchill Project

Project Base Currency: CAD		
	ction of Earthworks at Various Power Distribution Sites rks at Various Power Distribution Sites	Type:C-ContractRevision No.:01Date:13-Apr-2012
Discipline: Responsibilities: QA / QC:	Fred Wilcox Package Engineer: Kenneth Morrison Contract Admin. / Buyer:	Tony Villaraza Line Tremblay
Scope of Work Summary	All earthworks required for ac substations at Churc converter station and ac synchronous condenser transition compounds at Forteau Point, Labrador and Work covers the clearing, grubbing, and earthworks removal of material and slope protection), rough gra Work covers construction of 25kV line to Churchill F Soldiers Pond from the existing distribution system.	station at Soldiers Pond; and fo d Shoal Cove, Newfoundland. s cut and fill (excavation, backfilling ding and site access roads.
Work Included:	<ul> <li>This package includes:</li> <li>Contractor is responsible for providing accuspervision and construction consumables.</li> <li>Contractor to provide site office for SLI and Nalo</li> <li>Quality, Surveillance and Inspection and Consultant/Company and Contractor.</li> <li>Supply and installation of the fence, gate, posts</li> <li>Agreement of schedule milestones with Contract</li> <li>Submission by Contractor of all Document Require</li> <li>Progress reporting by Supplier on a monthly basis</li> </ul>	cor Expediting coordination betweer and barrier ctor.
Approximate Quantities (only major items are included)	ITEMDESCRIPTION1Earthworks	UNIT QUANTITY
		Unit Rates 🛛 Cost Reimbursable 🗌

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Project Base Currency: CAD		
	Type: Type: Revision No. Type: Revision No. Drks at Various Power Distribution Sites Date:	C-Contract 01 13-Apr-2012
	<ul> <li>Contract Form is Combination Lump Sum and Unit Rates</li> <li>Project Payment Terms include progress payments and com</li> </ul>	pletion of works.
Work Excluded:	Description	Package No.
	Muskrat Falls Site Earthworks	CH0006
	Muskrat Falls AC Substation Civil Works (Site Preparation, Foundations)	CD0502
	Muskrat Falls and Soldiers Pond DC Converter Station Civil Works (Site Preparation, Foundations) by Converter EPC Contractor	CD0501
Quality	Contractor shall comply with Quality Requirement Specification numl 38RA-0003.	ber 505573-0000-
Reference Section	<ul><li>The following main documents are used to define the scope:</li><li>Specification</li></ul>	
Interface with Other Packages	Description	Package No.
Ū	AC Substation Civil Works (Site Preparation, Foundations)	CD0502
	Muskrat Falls and Soldiers Pond DC Converter Station Civil Works	CD0501
Specific Site Conditions	(Site Preparation, Foundations) by Converter EPC Contractor	
Specific Schedule Conditions		
Specific Environment Conditions		
Specific Safety Conditions	Working around mobile equipment.	
Special Requirements (All)		
Free Issued Materials	TBD	
Major Equipment List	TBD	

#### Lower Churchill Project

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#### PACKAGE DICTIONARY

Project Base Currency: CAD

Package No.:		CD0503 Type:	C-Contract
Titles	(long):	Construction of Earthworks at Various Power Distribution Sites Revision No.:	01
	(short):	Earthworks at Various Power Distribution Sites Date:	13-Apr-2012
Schedule a	and Miles	stones Item	Date
		Issue RFQ Award Mobilize Completion (Churchill Falls) Completion (Soldiers Pond) Completion (Forteau Point) Completion (Shoal Cove)	TBD TBD TBD TBD TBD TBD TBD
Budget		TBD	
Applicable Project/SP		Muskrat Falls Generation Labrador – Island Transmission Link	$\boxtimes$
		Labrador Transmission Assets 🛛 Lower Churchill Project – General	
IBA Packag	ge	YES NO	

#### Lower Churchill Project

#### PACKAGE DICTIONARY

Project Base Currency: CAD

Package No.: CD0508 Titles (long): Supply a (short): Electroo	and Install of Electrodes Sites		Type: Revision No.: Date:	C-Contract 01 13-Apr-2012
Discipline: Responsibilities: Area Manager: QA / QC:	Stuart Connacher Kenneth Morrison	Package Engineer: Contract Admin. / Buyer:	Daljit Dev Line Trembl	
QA / QC:       Kenneth Morrison       Contract         Scope of Work Summary       Package includes, for electrode site Point, Newfoundland         The manufacture, testing and deliver conductors for the pond electrodes       Supply will include a building for televal all utilities; metering sensors; and of transformers         Installation of electrodes including breakwaters; fences; permits; re commissioning       Work covers construction of 25kV line		electrode sites at L'Anse-A g and delivery to site of ele electrodes Iding for telecommunication nsors; and distribution line es including all civil wo permits; remediation; mo	u-Diable, Lab ctrode elemen and protection materials inc rks and site echanical cor	arador and Dowden's ts and electrode lead n equipment including cluding pole mounted preparation; roads; mpletion and static
Work Included:	<ul> <li>Quality, Surveilland Consultant/Compan</li> <li>Contractor to provide</li> <li>Agreement of sched</li> <li>Submission by Cont</li> <li>Progress reporting b</li> </ul>	ce and Inspection and y and Contractor e site office for SLI and Nalc ule milestones with Contrac ractor of all Document Requ by Contractor on a monthly b nsible for providing accom	or tor irements on a asis (or ad hor	timely basis c basis, if required)
Approximate Quantities (only major items are included)	<b>Description</b> Supply, Install Electrodes	Estimate 2	ed Quantity (C	Sate 3 Estimate)

Project Base Currency: CAD			
	8 y and Install of Electrodes Sites odes Sites	Type: Revision No.: Date:	C-Contract 01 13-Apr-2012
	High silicon cast iron electrode Anotec90 for eaNumber 4884H equipped with 30 m of 6AWG copper conductor cable withinsulation and jacket	ach site.	
Contract Basis	Lump Sum Combination Lump Sum – Unit Rates Remarks:	Cost	Unit Rates 🔲 Reimbursable 🗍
Work Excluded:	<ul> <li>Contract Form is combination lump sum and un</li> <li>Project Payment Terms include engineering installation, and commissioning at take over.</li> </ul>		livery ex-works, site
	The following works or activities are excluded: <b>Description</b> Electrode line Protection Install telecommunication equipment and racks		Package No. CD0501 CD0510
Quality	Contractor shall comply with Quality Requirement Spect 38RA-0003.	ification numbe	r 505573-0000-
Reference Section	The following main documents are used to define the so • Specification	cope:	
Interface with Other Packages	<ul> <li>Interface with Converter Stations and Transition</li> <li>Interface with Electrode Lines (CT0327 &amp; CT03</li> <li>Interface with Telecommunication (CD0510)</li> </ul>	• •	CD0501)
Specific Site Conditions			
Specific Schedule Conditions			
Specific Environment Conditions			

#### Lower Churchill Project

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#### PACKAGE DICTIONARY

Project Base Currency: CAD

Package No.:		CD0508	Тур	pe:	C-Contract
Titles (lo	ong):	Supply	and Install of Electrodes Sites Rev	vision No.:	01
(sh	nort):	Electroc	des Sites Dat	te:	13-Apr-2012
Specific Safety Conditions	/		Working around mobile equipment and limits of approach res	specting ene	ergized equipment.
Special Require (All)	emen	Its			
Free Issued Ma	ateria	ls			
Major Equipme	ent Li	st	TBD		
Schedule and Milestones		tones	ltem		Date
			Issue RFQ Award Mobilize Completion		TBD TBD TBD TBD
Budget			TBD		
Applicable Sub Project/SPV	0-		Muskrat Falls Generation   Labrador – Island Transmi	ission Link	
			Labrador Transmission Assets 🔲 Lower Churchill Project – 🤇	General	
IBA Package			YES 🗌 NO 🔀		

#### Lower Churchill Project

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Discipline: <u>Responsibilities:</u> Area Manager: QA / QC: Scope of work Summary	William DiazPackage EngineeKen MorrisonContract Admin.	er: Claude-Olivier Pitt
Scope of work Summary		
	Supply of material, deployment, installation, telecommunication infrastructure and services (Accommodation Complex, Owner's Laydown Plant, Construction Power Tap Station) during the	for the Muskrat Falls and surrounding areas Area, Contractors' Laydown Area, Hydro
Work Included:	* Telecom infrastructure for the Lower Church areas during the Main Construction Phase.	ill Project at Muskrat Falls and surrounding
	<ul> <li>Telecom rooms fitting</li> <li>Telecom emergency power</li> <li>Vertical Structured Cabling System</li> </ul>	
	* Owner corporate data service for the Low surrounding areas for the Main Construction Ph	•
	- Provision and installation of the Internet I	ink
	* Engineer corporate data service for the Lo surrounding areas for the Main Construction Ph	·
	- Provision and installation of the Internet I	ink
	* Entertainment and Contractors data service Falls and surrounding areas during the Main Co	
	<ul> <li>Provision and installation of the Internet I</li> <li>Installation of the infrastructure to provide</li> <li>Installation of the Network Management</li> <li>Commissioning of the infrastructure/service</li> <li>Maintenance of the infrastructure/service</li> </ul>	e this service System (NMS) ice (including NMS)

#### Lower Churchill Project

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Package No.: Titles	(long): (short):	CD0509 Construction Telecommunication Services - Phase 2 Telecommunication Services - Phase 2	Type: Revision No.: Date:	C- Contract 01 13-Apr-2012
		surrounding areas during the Main Construction Ph	nase.	
		- Provision and installation of the PSTN link		
		- Installation of the infrastructure to provide th	is service	
		- Commissioning of the infrastructure/service		
		- Maintenance of the infrastructure/service		
		* Entertainment telephony service for the Lower	Churchill Project a	at Muskrat Falls ar
		surrounding areas during the Main Construction Ph	nase.	
		- Installation of the infrastructure to provide th	is service	
		- Commissioning of the infrastructure/service		
		- Maintenance of the infrastructure/service		
		* Owner corporate data service, Engineer corp	oorate data service	, Entertainment ar
		contractors' data service, Corporate telephony ser	vice and Entertainm	ent telephony servi
		will be fully available when the fibre between the A	ccommodation Com	nplex at Muskrat Fa
		and Happy Valley – Goose Bay and the fibre be	etween Happy Valle	ey – Goose Bay a
		Labrador City are installed and commissioned.		
		* Television service for the Lower Churchill Project	t at Muskrat Falls a	nd surrounding area
		during the Main Construction Phase.		
		- Installation of the infrastructure to provide th	is service	
		- Commissioning of the infrastructure/service		
		- Maintenance of the infrastructure/service		
		* Closed Circuit Television (CCTV) service for the	Lower Churchill Pre	oject at Muskrat Fa
		and surrounding areas during the Main Construction	n Phase.	
		- Installation of the infrastructure to provide th	is service	
		- Commissioning of the infrastructure/service		
		- Maintenance of the infrastructure/service		

#### Lower Churchill Project

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Project Base Currency:	CAD		
Package No.:	CD0509 Type:	C- C	Contract
		on No.: 01	Nor 2012
(short):	Telecommunication Services - Phase 2 Date:		Apr-2012
	* Security Access Control System (SACS) service for the Lowe		
	Falls and surrounding areas during the Main Construction Pha		-
	all doors of the main kitchen module are excluded, except th		
	Excluded doors will be covered by another SACS provided by contractor.		Juation complex
	- Installation of the infrastructure to provide this service		
	- Commissioning of the infrastructure/service		
	- Maintenance of the infrastructure/service		
	* Electrical protection and control services for the Lower Chur	chill Proiect a	at Muskrat Falls
	and surrounding areas during the Main Construction Phase.		
	- Installation of the infrastructure to provide this service		
	- Commissioning of the infrastructure/service		
	<ul> <li>Maintenance of the infrastructure/service</li> </ul>		
Approximate Quantit		•	
(only major items are included)		UNIT	QUANTITY
,	1 Muskrat Falls Telecommunication	lot	1
			_
	Lump Sum L Combination Lump Sum – Unit Rates	Uı Cost Reim	nit Rates 📃 bursable 🗌
Contract Basis			
	Remarks:		
	A unique fixed cost for engineering, equipment provisioning a	ind Installatio	n plus a fee for
Work Excluded:	the telecommunication services and management.(EPCM)		
Work Excluded.	Description	Pac	kage No.
	Telecommunication services in Phase 1 and Starter Camp	SD0560	-
	Supply and install Early works construction Telecom devices Phase 1	PD0533	
	All telecommunication system in remote camps along transmission lines	CD0535	

Project Base Currency:	CAD		
Package No.: Titles (long):	CD0509Type:Construction Telecommunication Services - Phase 2Revisi	on No.: 01	
(short):	Telecommunication Services - Phase 2     Date:	13-Apr-2012	
	Telecommunication Services for Permanent Network	CD0510	
	All horizontal cabling	CH0002, CH0003, CH000	
	SACS system inside the main kitchen module and dormitory, except the telecommunication room doors	CH0002	
	The installation of the fibre backbone at Muskrat Falls on the 25 kV poles	CD0512	
	The fibre backbone between Muskrat Falls and the fibre along the Trans-Labrador Highway	TBD	
	The fibre from Happy Valley – Goose Bay to Labrador City	Others	
		(not in the current project)	
	The Bell network upgrade to increase the bandwidth at	Others	
	Happy Valley – Goose Bay after the fibre between Happy Valley – Goose Bay to Labrador City is ready	(not in the current project)	
Reference Section	<ul> <li>38RA-0003.</li> <li>The following main documents are used to define the scope:</li> <li>Design Basis 505573-480A-47ER-0009 as formulated Project.</li> </ul>	for the Lower Churchill	
nterface with Othe Packages	r Description	Package No.	
	Supply and Install Accommodation Complex Buildings CH000 accommodation buildings will have to be in place for the communication services and systems to be installed	2: the CH0002	
	Supply and Install Administrative Buildings CH0003: the administrative buildings will have to be in place for the communication services and systems to be installed there	CH0003	
	Construction Power facilities (CD0512). Installation of the ADS at Muskrat Falls.	SS fibre CD0512	
	ADSS Fiber Optic Cable supplying (PT0377)	PT0377	
Spacific Site Corre	tions		
Specific Site Cond	As established in document 505573-480B-47EM-0001		

#### Lower Churchill Project

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#### PACKAGE DICTIONARY

Project Base Currency: CAD

Package No.: Titles	(long):		Type: Iction Telecommunication Services - Phase 2 Revision No.: nmunication Services - Phase 2 Date:	C- Contract 01 13-Apr-2012
	(short):	Telecor	Infrunication Services - Phase 2 Date.	15-Api-2012
Specific Sc Conditions				
Specific Environment Conditions		ent	Specific work methods for suspended work and Confined spaces will b of installation of this package's equipment.	be for some aspects
Specific Sa Conditions				
Special Rec (All)	quireme	nts		
Free Issued	I Materi	als		
Schedule a	nd Mile	stones	Item	Date
			Issue RFQ Award Mobilize Installation Complete	TBD TBD TBD TBD
Budget			твр	
Applicable Project/SP\			Muskrat Falls Generation 🛛 Labrador – Island Transmission Link	
			Labrador Transmission Assets 🔲 Lower Churchill Project – General	
IBA Packag	le		YES NO	

#### Lower Churchill Project

Package No.: CD0510		Туре:	C- Contract
	nd install Permanent Communication Systems	Revision No.: Date:	01 13 Apr 2012
(short): Perman	ent Communication Systems	Dale.	13-Apr-2012
Discipline: Responsibilities: Area Manager:	William Diaz Package Engineer:	Claude-Olivi	or Ditt
QA / QC:	Ken Morrison Contract Admin. / Buyer:	TBD	
Scope of work Summary	Deploy, install and optimize the telecommunications Permanent Phase for the permanent facilities of the Lo		
Work Included:	<ul> <li>Optical transport network for the Permanent Pho</li> <li>Supply and Install the infrastructure</li> </ul>	nase of the Lowe	er Churchill Project
	<ul> <li>Commissioning of the infrastructure</li> </ul>		
	<ul> <li>SONET network for the Permanent Phase of th o Supply and Install the infrastructure</li> </ul>	ne Lower Church	nill Project
	<ul> <li>Commissioning of the infrastructure</li> </ul>		
	<ul> <li>Telecommunications infrastructure for the Peri Project</li> </ul>	manent Phase c	of the Lower Church
	<ul> <li>Telecommunications rooms fitting</li> </ul>		
	<ul> <li>Batteries rooms fitting</li> </ul>		
	<ul> <li>Vertical Structured Cabling System in a</li> </ul>	all area	
	<ul> <li>Horizontal Structured Cabling System</li> </ul>	in all areas	
	<ul> <li>Corporate data system for the Permanent Phase</li> <li>Supply and Install the infrastructure</li> </ul>	se of the Lower	Churchill Project
	<ul> <li>Commissioning of the infrastructure</li> </ul>		
	<ul> <li>Corporate telephony system for the Perma Project</li> </ul>	nent Phase of	the Lower Church
	<ul> <li>Supply and Install the infrastructure</li> </ul>		
	<ul> <li>Commissioning of the infrastructure</li> </ul>		
	<ul> <li>Corporate video conference system for the Per Project</li> </ul>	manent Phase of	of the Lower Church
	<ul> <li>Supply and Install the infrastructure</li> </ul>		
	<ul> <li>Commissioning of the infrastructure</li> </ul>		
	<ul> <li>CCTV system for the Permanent Phase of Installation of the infrastructure</li> <li>Supply and Install the infrastructure</li> </ul>	the Lower Ch	nurchill Project
	<ul> <li>Commissioning of the infrastructure</li> </ul>		

### Lower Churchill Project

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Project Base Currency	y: CAD				
Package No.: Titles (long (short	,		Permanent Communication Systems F	ype: Revision No.: Date:	C- Contract 01 13-Apr-2012
		•	<ul> <li>SACS system for the Permanent Phase of the Low         <ul> <li>Supply and Install the infrastructure</li> <li>Commissioning of the infrastructure</li> </ul> </li> <li>Network Management service for the Permanen Project         <ul> <li>Supply and Install the infrastructure</li> <li>Supply and Install the infrastructure</li> <li>Commissioning of the infrastructure</li> <li>Commissioning of the infrastructure</li> <li>Supply and Install the infrastructure</li> </ul> </li> </ul>	t Phase of t Permanent F infrastructure	the Lower Churchil Phase of the Lower
Approximate Qua (only major items		ITEM	DESCRIPTION	UNI	
included)		1	Microwave Radio Link	lot	2
		2	Optical Transmission Node	lot	12
		3	All-Raman Amplifier	lot	10
		4	SONET Multiplexer	lot	12
		5	Data System	lot	12
		6	Telephony System	lot	12
		7	Voice Conference System	lot	2
		8	Network Management System	lot	2
		9	Closed Circuit Television System	Lot	2
		10	Security Access Control System	Lot	2
		11	Data Distribution	lot	12
		12	Telephony Distribution	lot	12
		13	SACS Distribution	lot	12
		14	CCTV Distribution	lot	12
		15	Public Announcement System	lot	10

#### Lower Churchill Project

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Project Base Currency:	CAD			
Package No.: Titles (long):	CD0510	Type: C- ( Revision No.: 01	Contract	
Titles (long): (short):	Supply and install Permanent Communication Systems Permanent Communication Systems		13-Apr-2012	
Contract Basis	16       Public Announcement Distribution         17       Teleconference Distribution         18       Telecommunication Room Layout         19       Electrical Protection and Control Equipme         Lump Sum         Combination Lump Sum – Unit Rates         Remarks:		10     4     12     20   nit Rates  bursable	
Work Excluded:	Description	Pack	age No.	
	Protection and control system	CD0501, C CD0534	•	
	OPGW installation and commissioning	CT0319, C CT0342, C		
	Earthworks at Various Power Distribution Sites	CD0503		
	Provision of Construction Telecommunication Ser Phase 2	rvices – CD0509		
	Provision of Construction Telecommunication Ser Phase 2 Transmission lines	rvices - CD0535		
Quality	The Contractor shall comply with Qual 505573-0000-38RA-0003	lity Requirements Specif	ication Number	
Reference Section	The following main documents are used to define t	the scope:		
	<ul> <li>Design Brief 505573-480A-47ER-0016 Per</li> </ul>	ermanent Telecommunica	tions Network	
Interface with Other Packages	Construction of transmission lines (Package)	ges CT0319, CT0342, CT(	)346)	
	• Supply of the OPGW (Packages PT0304,	PT0353)		
	Construction of facilities in all electrical site	es (Packages CD0502, CI	00503, SD0536)	

#### Lower Churchill Project

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Package No.:		CD0510		Type:	C- Contract	
Titles	(long):		nd install Permanent Communication Systems	Revision No.:	01	
(short): Perman			nt Communication Systems	Date:	13-Apr-2012	
		Γ	Protection and control system (Packages	CD0502, CD0503, S	D0536)	
			Powerhouse (Package CH0007)			
			<ul> <li>Supply and install mechanical and electric CH0031)</li> </ul>	rical auxiliaries at M	uskrat Falls (Package	
			• Supply and install converters, harmonic CD0501)	filters and transition	compounds (Package	
			Supply and install synchronous condense	ers (Package CD0534	4)	
			Maritime project (Nalcor – MCT Maritime	Crossing Team)		
Specific Si	te Cond	itions				
Specific So		-		<i>(</i> , , , , , , , , , , , , , , , , , , ,		
Conditions	5	The end to end dynamic commissioning will be done after the OPGW is installed.				
Specific Er Conditions		ent				
Specific Safety Conditions			<ul> <li>Specific work methods for suspended w aspects of installation of this package's error</li> </ul>		aces will be for som	
			• Working at heights (towers, roofs, etc.).			
Special Re (All)	quireme	ents				
Equipment	List		Not Applicable			
Schedule a	and Mile:	stones	Item		Date	
					Juio	
			Issue RFQ		TBD	
			Award		TBD	
			Mobilize		TBD	

#### Lower Churchill Project

Project Base	Currency:	CAD		
Package No.:		CD0510	Туре:	C- Contract
Titles	(long):	Supply	and install Permanent Communication Systems Revision No.:	01
	(short):	Perman	ent Communication Systems Date:	13-Apr-2012
Budget			TBD	
Applicable Project/SP			Muskrat Falls Generation 🛛 Labrador – Island Transmission Link	$\boxtimes$
			Labrador Transmission Assets 🛛 Lower Churchill Project – General	
IBA Packa	ge			

	(long): (short):		tion of Construction Power	Facilities	Type: Revision No.: Date:	C-Contract 01 13-Apr-2012
Discipline: Responsibilities:	_ Area I QA / C	Manager: QC:	Fred Wilcox Kenneth Morrison	Package Engineer: Contract Admin. / Buyer:	Ashok Vyas Line Trembla	ay
Scope of Wo	rk Sun	nmary	and placement of installation of all switchgear and pow ac substation 230-1 substation; for cons	ompassing final grading, concre prefabricated building; all bulk electromechanical equipment ver transformers, supplied by oth 38 kV extension, and for new M struction power delivery to Mus L240). All testing and commission	material supp (both Contra ers, as specifie uskrat Falls 13 krat Falls from	ly as specified; and actor procured and ed); for Churchill Falls 8-25 kV north side ad the existing 138 kV
			transmission line fro bank; thence acros and on east by app the accommodation	nd commissioning of approxim om the new 138-25 kV ac subs s the Churchill river to the sout roximately 10 km following the n n camp to be constructed. Wo nt at Muskrat Falls and Churchill	tation at Muski h side near the new access roa rk includes the	rat Falls on the northe hydro developmen ad and terminating a e construction of the
Work Include	ed:	-	<ul> <li>138 kV ac substatio</li> <li>Supply and del station post instation</li> </ul>	livery of low voltage power cat sulators and suspension insula	bles, control cators. Lighting	ables, hardware, an
			<ul><li>Accommodation</li><li>Installation of ac</li></ul>	le and steel supports for post ins	construction s	tions.
			<ul><li>Consultant/Corr</li><li>Agreement of so</li></ul>	illance and Inspection and npany and Contractor. chedule milestones with Contrac Contractor of all Document Requ	tor.	
			Progress report	ing by Supplier on a monthly bas	sis (or ad hoc b	asis, if required).

#### Lower Churchill Project

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Project Base Currency: CAD		
Package No.: CD0512	2 Туре	: C-Contract
		sion No.: 01
(short): Constr	uction Power Facilities Date	13-Apr-2012
Approximate Quantities (only major items are included)	ITEM         DESCRIPTION           1         Construct ac substations-construction power	UNIT QUANTITY
Contract Basis	Lump Sum	Unit Rates
	Combination Lump Sum – Unit Rates 🛛 <u>Remarks</u> :	Cost Reimbursable
	<ul> <li>Contract Form is Combination Lump Sum and Unit specified.</li> <li>Project Payment Terms include progress payments ar</li> </ul>	
Work Excluded:		,
	Description	Package No.
	N/A	N/A
Quality	Contractor shall comply with Quality Requirement Specification 38RA-0003.	n number 505573-0000-
Reference Section	The following main documents are used to define the scope:	
	Scope Specification 505573-313A-47EW-0001	
Interface with Other		
Packages	Description	Package No.
	Construction of North Spur Stabilization Works	CH0008
	Construction of Southside Access Road	CH0004
	Construction of Site Clearing Access Road & Ancillary Areas	CH0048
	Construction of Bulk Excavation Works and Associated Civil	Works CH0006
	Supply and Install Accommodations Complex Buildings	CH0002
	Supply and Install Administrative Buildings	CH0003
	Supply and Install Accommodations Complex Site Utilities	CH0005
Specific Site Conditions		

### Lower Churchill Project

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Project Base Currency: CAD
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Package No.: Titles (long): (short):	CD0512Type:Construction of Construction Power FacilitiesRevision No.:Construction Power FacilitiesDate:	C-Contract 01 13-Apr-2012
Specific Schedule Conditions		
Specific Environme Conditions	ent	
Specific Safety Conditions	Working around mobile equipment and limits of approach respecting e	energized equipment.
Special Requireme (All)	nts	
Free Issued Materia	als	
	Description	Package No.
	Supply Power Transformers	PD0513
	Supply 138 & 25 kV Circuit Breakers	PD0514
	Supply 230,138, 25 kV Disconnects	PD0515
	Supply 138 kV Capacitive Voltage Transformers	PD0518
	Supply 25 kV Vacuum Interrupters	PD0519
	Supply 25 kV Capacitor Banks	PD0520
	Supply Prefabricated Control Building	PD0522
	Supply Station Service Transformers	PD0523
	Supply 25 kV Reclosers, Bypass Switches and Fused Cut-outs	PD0529
	Supply 138 kV and 25 kV Surge Arresters	PD0530
	Supply MV Instrument Transformer	PD0531
	Supply RTU Cabinet	PD0561
	Supply Specific Relays and Test Switches	PD0562
	Supply 138 kV Circuit Switcher	PD0563

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Project Base C	Currency:	CAD		
Package No.:		CD0512	Туре:	C-Contract
Titles	(long):		ction of Construction Power Facilities Revision No.:	01
	(short):	Construc	ction Power Facilities Date:	13-Apr-2012
		ſ	25 kV Line Materials	PT0336
			Supply of 25KV Distribution Line ADSS Fibre Optic Cable	PT0337
			Supply of 25KV Distribution Line Conductor	PT0338
			Supply of 25KV Distribution Line Insulators	PT0339
			Supply of Wood Poles for 138/25 KV Distribution Line	PT0340
Major Equip	oment Li	ist	• TBD	
Schedule a	nd Miles	tones	Item	Date
			Issue RFQ	TBD
			Award	TBD
			Mobilize	TBD
			Completion (Muskrat Falls)	TBD
			Completion (Muskrat Falls)	TBD
Budget			TBD	
Applicable Project/SP\			Muskrat Falls Generation 🛛 Labrador – Island Transmission Link	
			Labrador Transmission Assets 🔲 Lower Churchill Project – General	
IBA Packag	le	-	YES NO	

#### Lower Churchill Project

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Project Base Currency: CAD			
	and install Soldiers Pond Synchronous Condensers Pond Synchronous Condensers	Type: Revision No.: Date:	C-Contract 01 13-Apr-2012
Discipline: Responsibilities: QA / QC:	TBDPackage Engineer:Kenneth MorrisonContract Admin. / Buyer:	Ashok Vyas Line Trembla	Ŋ
Scope of Work Summary	Three (3) synchronous condensers, each rated 1 turnkey (EPC) engineering design, supply and instastep-up transformer to the ground point of each con-	all from the low	
Work Included:	<ul> <li>Design Engineering manufacturing, factory ac site, installation/site acceptance test, commiss condensers and associated systems and equiprent</li> </ul>	ioning of 3x150	
	<ul> <li>Associated systems and equipment include excitation system and control, protection system frequency converter (SFC) system, isolated ph circuit, generator circuit breakers and isolator switchgear, crane rail support, overhead crane,</li> </ul>	em, along with ase bus ducts <sup>-</sup> system, medi	scada system, static for main and starting um and low voltage
	<ul> <li>Installation of rail, electrical supply and crane.</li> <li>Quality, Surveillance and Inspection and Consultant/Company and Contractor.</li> </ul>	Expediting cc	pordination betweer
	Agreement of schedule milestones with Contract	ctor.	
	Submission by Contractor of all Document Requ	uirements on a t	imely basis.
Approximate Quantities	Progress reporting by Contractor on a monthly b	basis (or ad hoc	basis, if required).
(only major items are included)	ITEMDESCRIPTION1Soldiers Pond Synchronous Condensers	UNI ea	3 x 150 MVAr
Contract Basis	Lump Sum 🛛 Combination Lump Sum – Unit Rates 🗌	Cost	Unit Rates 🗌 Reimbursable 🗍
	Remarks:		
	<ul> <li>Contract Form is EPC Lump Sum.</li> <li>Project Payment Terms include engineering</li> </ul>	submittals, de	livery ex-works, site

#### Lower Churchill Project

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Project Base Currency: C	)	
	D534 Type: Dply and install Soldiers Pond Synchronous Condensers Revision	C-Contract ion No.: 01
(short): S	diers Pond Synchronous Condensers Date:	13-Apr-2012
	installation, and commissioning at take over, performar	nce guarantee.
Work Excluded:	Description	Package No.
	Construct Earthworks (Soldiers Pond)	CD0503
	Civil Works (Soldiers Pond) including building and concrete foundations (including structural support for crane rails)	CD0502
	Step up Transformer	PD0537
Quality	Contractor shall comply with Quality Requirement Specification 38RA-0003.	number 505573-0000-
Reference Section	<ul><li>The following main documents are used to define the scope:</li><li>Functional Specification TBD</li></ul>	
Packages	Description	Package No.
	Construct Earthworks (Soldiers Pond)	CD0503
	Civil Works (Soldiers Pond) including building and concrete foundations	CD0502
	Step up Transformer	PD0537
Specific Site Conditio	s Access road must allow for widest/heaviest load.	
Specific Schedule Conditions	Foundations & Structural Steel work (CD0502) are required for Condenser installation, including embedded parts.	crane and Synchronous
Specific Environment Conditions		
Specific Safety Conditions	Working around mobile equipment and limits of approach respe	ecting energized equipment.

#### Lower Churchill Project

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Project Base (	Currency:	CAD		
Package No.:		CD0534	Туре:	C-Contract
Titles	(long):	Supply a	and install Soldiers Pond Synchronous Condensers Revision No.:	01
	(short):		Pond Synchronous Condensers Date:	13-Apr-2012
Special Re (All)	-			
Free Issued	d Materi	als	Buildings for Synchronous condensers (CD0502)	
Major Equi	pment L	.ist		
Schedule a	nd Mile	stones	ltem	Date
			Issue RFQ Award Mobilize Completion	TBD TBD TBD TBD
Budget			TBD	
Applicable Project/SP			Muskrat Falls Generation Labrador – Island Transmission Link	
IBA Packag	je			

### Lower Churchill Project

# Page 193

Project Base Currency: CAD			
	ction Telecommunication Services - Phase 2 Remote Camps Tele. Services - Phase 2 Remote Camps	Type: Revision No.: Date:	C- Contract 01 13-Apr-2012
Discipline: Responsibilities: Area Manager: QA / QC:	William Diaz Package Engineer: Ken Morrison Contract Admin. / Buyer:	Claude-Olivi TBD	er Pitt
Scope of work Summary	Supply, install, commission and maintain the telecomm for the Construction Phase of the Lower Churchill pr workers in the remotes camps, the work sites offices of Stations, Transition Compound sites, Electrode sites, Sw offices and for the workers along the transmission lines	roject for the ( external to Mus witchyard, etc.)	Owner and Engineer skrat Falls (Converter , the marshalling yard
Work Included:	<ul> <li>In Labrador</li> <li>* Data service for the Owner and Engineer work sit (Converter, Transition Compound, Electrode, Switchy Phase of the Lower Churchill Project. <ul> <li>Supply and install the service</li> <li>Maintenance of the service</li> </ul> </li> <li>* Data service for the Owner and Engineer marshalling Phase of the Lower Churchill Project. <ul> <li>Supply and install the service</li> <li>Maintenance of the service</li> <li>Maintenance of the service</li> </ul> </li> <li>* Satellite telephony service for the Owner and Engin lines during the Construction Phase of the Lower Church</li> <li>Supply and configure devices and accessories</li> <li>Rent service</li> <li>Maintenance of the devices</li> </ul>	yard, etc.) dur g yard office du eer workers al	ing the Construction
	<ul> <li>In Newfoundland</li> <li>* Data service for the Owner and Engineer work site (Converter, Transition Compound, Electrode, Switchy Phase of the Lower Churchill Project.</li> <li>Supply and install the service</li> <li>Maintenance of the service</li> <li>* Data service for the Owner and Engineer marshalling Phase of the Lower Churchill Project.</li> <li>Supply and install the service</li> <li>Supply and install the service</li> <li>Maintenance of the service</li> <li>Maintenance of the service</li> </ul>	vard, etc.) dur	ing the Constructior

Project Base Currency	: CAD			
Package No.: Titles (long) (short)		uction Telecommunication Services - Phase 2 Remote Camp Tele. Services - Phase 2 Remote Camps	s Revision No.:	C- Contract 01 13-Apr-2012
		<ul> <li>* Satellite telephony service for the Owner and Enlines during the Construction Phase of the Lower Chr.</li> <li>Supply and configure devices and accessorie</li> <li>Rent service</li> <li>Maintenance of the devices</li> <li>* Cellular Telephony Service and Mobile Internet workers along the transmission lines during the Cor Project.</li> <li>Supply and configure devices and accessorie</li> <li>Rent service</li> <li>Maintenance of the devices</li> </ul> * Land Mobile Radio System for the Owner and Erlines during the Construction Phase of the Lower Chr. <ul> <li>Supply, install and configure devices and accessorie</li> <li>Rent service</li> <li>Maintenance of the devices</li> </ul>	urchill Project. es Service for the Ov nstruction Phase of es ngineer workers alor urchill Project.	wner and Engineer the Lower Churchill
Approximate Qua (only major items included)		DescriptionEstinRemote Camps TelecommunicationTBD	nated Quantity (Ga	te 3 Estimate)
Contract Basis		Lump Sum Combination Lump Sum – Unit Rates X Remarks: Provision, install and commission equipments, supply		Unit Rates 🔲 eimbursable 🗍
Work Excluded:		The following works or activities are excluded from p	ackage CD0535:	
		Description		Package No.
		All telecommunication system at Muskrat Falls.		CD0509
		Permanent Telecommunication System		CD0510
		<ul> <li>The telecommunications services of the remote can transmission lines during the tree clearing and the liphases:</li> <li>Internet and telephone lines for the offices</li> <li>Recreational services: <ul> <li>Internet (wired and Wifi)</li> </ul> </li> </ul>		CT0319, CT0327, CT0341, CT0342, CT0343, CT0345, CT0436

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Project Base Currency: CAD			
Package No.: CD0535		Type:	C- Contract
Titles (long): Construction Telecomm	unication Services - Phase 2 Remote Camps	Revision No.:	01
(short): Const. Tele. Services -	Phase 2 Remote Camps	Date:	13-Apr-2012
	o Telephony		
	o Television		
Quality			
•	or shall comply with Quality Requirement S	pecification Nu	mber 505573-0000-
Reference Section         The followin	g main documents are used to define the s	cope:	
Design Basis	s 505573-480A-47ER-0009 as formulated f	or the Lower C	hurchill Project.
Packages (Converter,	at included the remotes camps, the work si Fransition Compound, Electrode, Switchyar sion lines in Labrador and in Newfoundland	rd, etc.), the ma	
	uildings/offices will have to be in place for	r the telecomm	nunication services to
	ovided transmission lines clearing and constru	uction will hav	ve to begin for the
	ommunication devices to be provided to the		
	iced packages:		
	CH0023, CH0024 CD0501, CD0502, CD0503, CD0508, CD05	534. CD0538. S	D0536
• C4:	CT0319, CT0327, CT0341, CT0342, C		
	810, ST0311, ST0312 01, SM0704, SM0710		
Specific Site Conditions	01, 300704, 300710		
-			
Specific Schedule Conditions			
Specific Environment	ific work methods for suspended work will	be for some as	pects of installation
	s package's equipment.		
	ing at heights (towers, roofs, etc.).		
Specific Safety Conditions			
Special Requirements			
(All)			
Equipment List TBD			
Schedule and Milestones Item			Date
Issue RFQ			TBD
Award			TBD
Mobilize	2		TBD

### Lower Churchill Project

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Project Base Currency: CAD		CAD	
Package No.:		CD0535 Type:	C- Contract
Titles	(long):	Construction Telecommunication Services - Phase 2 Remote Camps Revision No.:	01
	(short):	Const. Tele. Services - Phase 2 Remote Camps Date:	13-Apr-2012
		Installation Complete	TBD
Budget		TBD	
Applicable Sub- Project/SPV		Muskrat Falls Generation   Labrador – Island Transmission Link	$\boxtimes$
		Labrador Transmission Assets 🛛 Lower Churchill Project – General	
IBA Packa	ge	YES NO	

#### PACKAGE DICTIONARY

Project Base Currency: CAD

	and Install Accommodations Ca adations Camp (CF)	mp (CF)	Type: Revision No.: Date:	C-Contract 01 13-Apr-2012
Discipline: Responsibilities: Area Manager: QA / QC:	Fred Wilcox Kenneth Morrison	Package Engineer: Contract Admin. / Buyer:	Ashok Vyas Line Trembl	
Scope of Work Summary	Churchill Falls, Labrado	n of a 150 person camp a or for the 735/315 kV ac subs	station extensio	n.
	administration building medical services; site	catering; janitorial; camp an ; reception centre; cafeter services such as snow rem osal; and sewage treatment	ia and kitcher oval, potable w	ns; laundry; security;
Work Included:	This package includes: <ul> <li>Quality, Surveillar</li> </ul>	nce and Inspection and	Expediting c	oordination between
	Consultant/Compa			
		dule milestones with Contract		timely basis
		by Supplier on a monthly ba		
Approximate Quantities (only major items are included)	<b>Description</b> Earthworks	Estimat	ed Quantity	
		ombination Lump Sum and l	Jnit Rates	
Contract Basis	Combination Lur <u>Remarks</u> :	Lump Sum 🛛 np Sum – Unit Rates 🗌	Cost	Unit Rates Reimbursable
Work Excluded:				
	D	escription		Package No.
	Construction of ac substat	tion. The camp is for the	CD05	02

#### Lower Churchill Project

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Project Base Currency:	CAD	
Package No.:	CD0538 Type:	C-Contract
Titles (long):		sion No.: 01
(short):	Accommodations Camp (CF) Date:	13-Apr-2012
Quality	Contractor shall comply with Quality Requirement Specificatior 38RA-0003	n number 505573-0000-
Reference Section	The following main documents are used to define the scope: • N/A	
Interface with Other		· · · · · · · · · · · · · · · · · · ·
Packages	Description	Package No.
	Construction of ac substation. The camp is for the accommodations of workers constructing the ac substation	CD0502
Specific Site Condit	ions	
Specific Schedule Conditions		
Specific Environme Conditions	nt	
Specific Safety Conditions		
Special Requiremer (All)	Its	
Equipment List	• TBD	

# Page 199

Project Base Currency:	CAD

Package No.:		CD0538	Т	ype:	C-Contract
Titles	(long):	Supply a	and Install Accommodations Camp (CF)	evision No.:	01
	(short):	Accommo	odations Camp (CF) D	ate:	13-Apr-2012
Schedule a	nd Mile	stones	Item		Date
			Issue RFQ Award Mobilize Completion (Churchill Falls) Ready for Occupancy		TBD TBD TBD TBD
Budget			TBD		
Applicable Project/SP			Muskrat Falls Generation Labrador – Island Transr Labrador Transmission Assets X Lower Churchill Project –		
IBA Packaç	je		YES NO		

Project Base Currency: CAD			
	<sup>05</sup> ly Switchyard Equipment-AC Substations at CF, MF and SP hyard Equipment-AC Substations at CF, MF and SP	Type: Revision No.: Date:	P-Purchase Order 01 13-Apr-2012
Discipline: Responsibilities: Area Manage QA / QC:	er: Fred Wilcox Package Engineer: Kenneth Morrison Contract Admin. / Buyer:	Ovidio Juan Fabien Cuis	Ascencio inier-Raynal
Scope of Work Summary	Supply of all ac switchgear equipment at each su circuit breakers; disconnects; ground switche transformers; lightning arresters; station service tran post insulators; all support structures for switchge panels; all in accordance with single line diagrams.	s; current tr nsformers (whe	ransformers; voltage ere applicable); station
	Work covers the complete requirements for the des acceptance testing; transport and delivery to site installation, testing, commissioning; spare parts; wa operations and maintenance manual; all Supplier De	(fob concrete rranty and per	pad); supervision of formance guarantees;
Work Included:	<ul> <li>Design review acceptance by Consultant/Compa</li> <li>Quality, Surveillance and Inspection and</li> </ul>		oordination between
	<ul><li>Consultant/Company and Supplier.</li><li>Agreement of schedule milestones with Supplier</li></ul>	r.	
	<ul> <li>Approval of inspection and test plan by Consulta</li> <li>Submission by Supplier of all Document Require</li> </ul>		nely basis.
	Factory acceptance testing witnessed by Consu	Iltant/Company	Ι.
	<ul> <li>Review of transportation logistics and coordin (and its Sub-Contractors).</li> </ul>	nation of site of	delivery with Supplie
	Progress reporting by Supplier on a monthly bas	sis (or ad hoc b	basis, if required).
Approximate Quantities (only major items are included)	Description		Estimated Quantit (Gate 3 Estimate)
,	Circuit Breakers 735 kV - CB, 800KV, 2100 KV BIL		06
	Circuit Breakers 315 kV - CB, 800KV, 2100 KV BIL		22
	Circuit Breakers 230 kV - CB, 800KV, 2100 KV BIL		21
	Circuit Breakers 138 kV - CB, 800KV, 2100 KV BIL		02
	Disconnects 735 kV - 800 KV Disconnect Switch 2100 KV		16
	Disconnects 315 kV- 362KV Disconnect Switch 1175 KV E		60
	Disconnects 230 kV- 245 KV Disconnect Switch 1050 KV I		58
	Disconnects 138 kV- 145 KV Disconnect Switch 550 KV B	IL	07

#### Lower Churchill Project

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Project Base	Currency:	CAD		
Package No.: Titles	(long): (short):	PD0505Type:Supply Switchyard Equipment-AC Substations at CF, MF and SPRevisionSwitchyard Equipment-AC Substations at CF, MF and SPDate:	on No.:	P-Purchase Order 01 13-Apr-2012
Contract B		Ground Switches - Switch w/ Ground Blades Current Transformers - Porcelain Current Transformers Voltage Transformers - Capacitive Voltage Transformers Lightning Arresters - Porcelain Surge Arrestors Station Service Transformers - Pad-Mounted Transformers Station Post Insulators - Porcelain HV Post Insulator Switchgear Support Structures - Galvanized steel supports and gantries Control, Metering, Relaying Panels - Protection and Control Panels Supply of all Power and Control Cables - Various AWG Cables Supply of all Aerial Conductors - A1 Strain bus Conductor Termination Hardware - Cable Connector		71 318 133 78 14 2200 2900 210 350,000 75,000 21,000 Unit Rates □ Reimbursable □
Contract B	0313	Combination Lump Sum – Unit Rates	COST	
Work Exclu	uded:	The following works or activities are excluded: <b>Description</b> Grounding cable and connectors Power transformers		<b>Package No.</b> CD0502 PD0537
Quality		Requires Determination of the Equipment Quality Rating	YES	x NO

### Lower Churchill Project

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Project Base Currency:	CAD
Package No.: Titles (long): (short):	PD0505Type:P-Purchase OrderSupply Switchyard Equipment-AC Substations at CF, MF and SPRevision No.:01Switchyard Equipment-AC Substations at CF, MF and SPDate:13-Apr-2012
	Determination of Equipment Criticality based on GP-5600-PR-02-E         High       Minor         Significant       Negligible         Moderate       Determination of Quality Surveillance level based on GP-5600-PR-03-E
Reference Section	The following main documents are used to define the scope: <ul> <li>Specifications</li> </ul>
Interface with Othe Packages	Construction Contract CD0502 will provide all labour, tools and equipment for installation of the contents of this package PD0505 as well as pre-commissioning.
Specific Site Condi	itions
Specific Schedule Conditions	
Specific Environme Conditions	ent
Specific Safety Conditions	Working around energized equipment; respecting limits of approach; deployment of safety watches, when applicable.
Special Requireme (All)	ents
Equipment List	• TBD

### Lower Churchill Project

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Project Base (	Currency:	CAD	
Package No.:		PD0505 Type:	P-Purchase Order
Titles	(long):	Supply Switchyard Equipment-AC Substations at CF, MF and SP Revision No.:	01
	(short):	Switchyard Equipment-AC Substations at CF, MF and SP Date:	13-Apr-2012
Schedule a	nd Miles	stones	
ooneddie d		Item	Date
		Issue RFQ	TBD
		Award	TBD
		Mobilize	TBD
		Delivery ROS (Churchill Falls)	TBD
		Delivery ROS Pad (Muskrat Falls)	TBD
		Delivery ROS Pad (Soldiers Pond)	TBD
		Installation Complete (Churchill Falls)	TBD
		Installation Complete (Muskrat Falls)	TBD
		Installation Complete (Soldiers Pond)	TBD
Dudget			
Budget		TDB	
Applicable	Sub-		
Project/SP		Muskrat Falls Generation Labrador – Island Transmission Link	$\boxtimes$
-			_
		Labrador Transmission Assets 🛛 Lower Churchill Project – General	
IRA Dookor	20		
IBA Packaç	Je		

#### Lower Churchill Project

Project Base Currency:	CAD

Package No.:PD0513Titles(long):Supply of	of 138/25 kV Transformers		Type: Revision No.:	P-Purchase Order 01
(short): 138/25 k	V Transformers		Date:	13-Apr-2012
Discipline: Responsibilities: Area Manager: QA / QC:	Fred Wilcox Kenneth Morrison	Package Engineer: Contract Admin. / Buyer:	Ashok Vyas Ken O'Keefe	
Scope of Work Summary	Supply of two (2) power t one (1) 138-25 kV, 30/40/ 230-138 kV, 75/100/125 M Work covers the complete acceptance testing; trans installation, testing, comm operations and maintena insulating oil; for two (2) po	50 MVA unit for new subs IVA unit for substation extent requirements for the desi port and delivery to site issioning; spare parts; war ance manual; all Suppli	tation at Muskr ension at Churc gn engineering (fob concrete rranty and perfo	at Falls; and one (1) shill Falls, Labrador. ; fabrication; factory pad); supervision of prmance guarantees;
Work Included:	<ul> <li>Quality, Surveillance Consultant/Company a</li> <li>Agreement of schedul</li> <li>Approval of inspection</li> <li>Submission by Supplie</li> <li>Factory acceptance te</li> <li>Review of transportate (and its Sub-Contractor)</li> </ul>	e milestones with Supplier and test plan by Consulta er of all Document Require esting witnessed by Consul- tion logistics and coordin	Expediting co nt/Company. ements on a tim tant/Company. ation of site de	ely basis. elivery with Supplier
Approximate Quantities (only major items are included)	Description Power Transformers	Estimate 2	ed Quantity (G	ate 3 Estimate)

#### Lower Churchill Project

Project Base Currency:	CAD	
Package No.:	PD0513 Type: P-Purchase Or	der
Titles (long):	Supply of 138/25 kV Transformers Revision No.: 01	
(short):	138/25 kV TransformersDate:13-Apr-2012	
Contract Basis	Lump Sum  Unit Rates Combination Lump Sum – Unit Rates Cost Reimbursable Remarks:	
Work Excluded:	The following works or activities are excluded:	
	Description Package	e No.
	The first filling of oil; oil handling; and provision of pumping/filtering equipment. PD0513 does supervision only. CD0512	
	The dressing of the transformers, e.g. installation of bushings, lightning arresters; relays. PD0513 does supervision only.	
	The supply and installation of all power and control cables. CD0512	
	The interconnection to the aerial conductors. CD0512	
	Labour and tools to assist in the testing, calibration and operation of power transformers controls and relaying. CD0512	
	Labour and tools for energization. PD0513 to witness. CD0512	<u> </u>
Quality	Requires Determination of the Equipment QualityYESXNORating	
	Determination of Equipment Criticality based on GP-5600-PR-02-E         High       Minor       x         Significant       Negligible       x         Moderate       Negligible       x         Determination of Quality Surveillance level based on GP-5600-PR-03-E       E            4         Continuous in process quality monitoring and verification and final verification. Regular in process quality monitoring and verification and final quality verification. Limited in process quality monitoring and verification and final quality verification. Final Quality Verification No quality surveillance, no quality verification	

#### Lower Churchill Project

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### PACKAGE DICTIONARY

Project Base Currency: CAD

Package No.: PD0513	3	Type:	P-Purchase Order
Titles (long): Supply	/ of 138/25 kV Transformers	Revision No.:	01
(short): 138/25	5 kV Transformers	Date:	13-Apr-2012
Reference Section			
	The following main documents are used to defi	ne the scope:	
	Newfoundland Labrador Hydro – S Transformers for Lower Churchill Project		Supply of Outdoo
	Specification PT-10-506		
Interface with Other			
Packages	Construction Contract CD0512 will provide all la the transformer foundations (concrete pads) and		
Specific Site Conditions			
Specific Schedule			
Conditions	Energization of both transformer units is depend existing supply line (TL240). The timely delivery contract are crucial to a scheduled outage windo	of the units and progre	ess of CD0512
	outage becomes unfavourable.		
Specific Environment Conditions			
Specific Safety Conditions	Working around energized equipment; respectir	ng limits of approach; c	leployment of safety
	watches, when applicable.		
Special Requirements (All)			
Equipment List			
	Tag # T1 138-25 kV, 30/40/50 MVA Po Power Substation	ower Transformer Musi	krat Falls Construction
	<ul> <li>Tag# T33 230-138 kV, 75/100/125 MVA kV Substation Extension</li> </ul>	A Power Transformer (	Churchill Falls 230-138
Schedule and Milestones	Item		Date
	Issue RFQ		TBD
	Award		TBD
	Mobilize		TBD
	Delivery FOB Pad (Muskrat Falls)		TBD
	Delivery FOB Pad (Churchill Falls)		TBD
	Installation Complete (Muskrat Falls)		TBD
	Installation Complete (Churchill Falls)		TBD

#### Lower Churchill Project

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Package No.:		PD0513					Туре:	P-Purchase Order
Titles	(long):	Supply	of 138/25 k	V Transf	ormers		Revision No.:	01
	(short):	138/25	kV Transfo	rmers			Date:	13-Apr-2012
Budget			TBD					
Applicable Sub- Project/SPV			Muskrat	Falls Ge	eneration		Labrador – Island Transmission Link	
			Labrado	or Transm	hission A	ssets	Lower Churchill Project – General	
IBA Package		YES		NO	$\boxtimes$			

Package No.: Titles	(long): (short):		f 138 kV and 25 kV Circuit Bre ind 25 kV Circuit Breakers	eakers	Type: Revision No.: Date:	P-Purchase Order 01 13-Apr-2012	
Discipline: Responsibilities:	Area	Manager: QC:	Fred Wilcox Kenneth Morrison	Package Engineer: Contract Admin. / Buyer:	Ashok Vyas Shauna Cros	sbie	
Scope of Wo	rk Sun	nmary	••••	8 kV and one (1) 25 kV circu Ills; for new Muskrat Falls cons			
			acceptance testing; t commissioning; spare maintenance manuals	plete requirements for the des transport and delivery to site parts; warranty and perform s; and all Supplier Document door use in accordance with	e; supervision nance guarant Requirements	of site testing an ees; operations an s for dead tank SF	
			138 kV units to be rate	ed 1200 A, 20 kA for 1 second,	650 kV BIL.		
			25 kV unit to be rated 1200 A, 16 kA for 1 second, 125 kV BIL.				
Work Include	ed:		<ul><li>This package includes</li><li>Support structures</li></ul>				
			Design review acc	eptance by Consultant/Compa	anv.		
			-	ance and Inspection and	·	oordination betwee	
			Agreement of sch	edule milestones with Supplier			
			Approval of inspect	ction and test plan by Consulta	nt/Company.		
			Submission by Su	pplier of all Document Require	ements on a tim	nely basis.	
			Factory acceptance	ce testing (type test review) by	Consultant/Co	mpany.	
			Review of transp (and its Sub-Conti	ortation logistics and coordinaractors).	ation of site d	elivery with Suppli	
				g by Supplier on a monthly bas	. ,		

### Lower Churchill Project

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Project Base Currency	y: CAD			
Package No.:	PD0514		Type:	P-Purchase Order
Titles (long		of 138 kV and 25 kV Circuit Breakers	Revision No.:	01
(short	i): 138 kV	and 25 kV Circuit Breakers	Date:	13-Apr-2012
Approximate Qua (only major items included)			nated Quantity (C	Gate 3 Estimate)
Contract Basis		Lump Sum Combination Lump Sum – Unit Rates <u>Remarks</u> :	Cost	Unit Rates ⊠ Reimbursable □
Work Excluded:				
WORK Excluded.		The following works or activities are excluded:		
		Description		Package No.
		Placement on concrete foundation and erection for	energization	CD0512
		Requires Determination of the Equipment Quality		
Quality		Rating	YES	x NO
		Determination of Equipment Criticality based on GP-5600-PR-02	2-F	
		High Minor x Significant Negligible		
		Moderate		
		Determination of Quality Surveillance level based on GP-5600-F	PR-03-E	
		Continuous in process quality monitoring and verifica		
		3         Regular in process quality monitoring and verification           2         Limited in process quality monitoring and verification		
		x         1         Final Quality Verification           0         No quality surveillance, no quality verification		
Reference Sectio	'n			
		The following main documents are used to define the	e scope:	
		<ul> <li>Specification – 505573-313A-47ES-0001</li> </ul>		
		• Specification – 505573-515A-47E5-0001		
Interface with Ot Packages	her	Construction Contract CD0512 will provide all labour, the circuit breaker foundations (concrete pads) and w		
Specific Site Con	nditions			

#### Lower Churchill Project

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### PACKAGE DICTIONARY

Project Base Currency: CAD

Package No.: PD0514		Туре:	P-Purchase Order
•	of 138 kV and 25 kV Circuit Breakers	<b>51</b> -	01
	and 25 kV Circuit Breakers		13-Apr-2012
		20101	
Specific Schedule Conditions	Energization of all units is dependent upon a coordir supply line (TL240). The timely delivery of the units ar crucial to a scheduled outage window ahead of winter o unfavourable.	nd progress of Cl	D0512 contract are
Specific Environment Conditions	As noted, units shall be rated for +40, -40 degrees Cels	sius ambient temp	perature range.
Specific Safety Conditions	Working around energized equipment; respecting limits watches, when applicable.	of approach; dep	loyment of safety
Special Requirements (All)			
Equipment List Schedule and Milestones	<ul> <li>Tag # B1L1302 138 kV Circuit Breaker M Substation</li> <li>Tag# B1T1 138 kV Circuit Breaker Muskrat Falls</li> <li>Tag # B2B3 25 kV Circuit Breaker Muskrat Falls</li> <li>Item</li> <li>Issue RFQ Award Mobilize Delivery ROS Pad (Muskrat Falls) Installation Complete (Muskrat Falls)</li> </ul>	s Construction Po	ower Substation
Budget	ТВО		
Applicable Sub- Project/SPV	Muskrat Falls Generation 🔀 Labrador – Island Tra		
IBA Package	YES NO		

Project Base Currency: CAD			
	of 230 kV,138 kV and 25 kV Disconnect Switches 138 kV and 25 kV Disconnect Switches	Type: Revision No.: Date:	P-Purchase Order 01 13-Apr-2012
Discipline: Responsibilities: Area Manager: QA / QC:	Fred Wilcox Package Engineer: Kenneth Morrison Contract Admin. / Buye	Ashok Vyas er: Ken O'Keefe	9
Scope of Work Summary	Supply of one (1) 230 kV disconnect switch for Falls through extension of 230-138 kV substation	•	•
	Supply three (3) 138 kV and two (2) 25 kV disc construction power substation.	onnect switches f	or new Muskrat Falls
	Work covers the complete requirements for the acceptance testing; transport and delivery to commissioning; spare parts; warranty and per maintenance manuals; and all Supplier Doc switches suitable for outdoor use in accordance temperature range.	site; supervision formance guarant ument Requirem	of site testing and tees; operations and tents for disconnect
	230 kV unit rated 1200 A, 40 kA for 1 second, 65 ground switch, manual and motor operated mech		vertical break, without
	138 kV unit rated 1200 A, 20 kA for 1 second, 65 ground switch, manual and motor operated mech		vertical break, without
	138 kV units (quantity-2) rated 1200 A, 20 kA fo break, with ground switch, manual and motor ope		
	25 kV units rated 1200 A, 20 kA for 1 second, 15 operating mechanism.	0 kV BIL, 3 pole, v	vertical break, manual
Work Included:	Support structures.		
	Design review acceptance by Consultant/Con	mpany.	
	<ul> <li>Quality, Surveillance and Inspection an Consultant/Company and Supplier.</li> </ul>	d Expediting co	oordination between
	Agreement of schedule milestones with Supp	lier.	
	Approval of inspection and test plan by Cons	ultant/Company.	
	Submission by Supplier of all Document Req	uirements on a tin	nely basis.
	Factory acceptance testing (type test review)	by Consultant/Co	mpany.

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Project Base Currency: CAD			
	of 230 kV,138 kV and 25 kV Disconnect Switches 138 kV and 25 kV Disconnect Switches	Type: Revision No.: Date:	P-Purchase Order 01 13-Apr-2012
	<ul> <li>Review of transportation logistics a (and its Sub-Contractors).</li> <li>Progress reporting by Supplier on a result of the second sec</li></ul>		
Approximate Quantities (only major items are included)	Description	Estimated Quantity (	Gate 3 Estimate)
includedy	Disconnect switches	1-230 kV disconnect s switch; 1-138 kV disco ground switch; 2-138 l switch; and 1-25 kV di	nnect switch w/o V with ground
Contract Basis	Lump S Combination Lump Sum – Unit Ra <u>Remarks</u> :		Unit Rates 🛛 t Reimbursable 🗌
Work Excluded:	The following works or activities are excluded	l:	
	<b>Description</b> Placement on concrete foundation and erec	tion for energization	Package No. CD0512
Quality	Requires Determination of the Equipment Quality Rating	Y YES X	NO
	Determination of Equipment Criticality based on GP-5         High       Minor         Significant       Negligible         Moderate       Negligible         Determination of Quality Surveillance level based on Quality Surveillance level based on Quality and Quality monitoring and Quality monitoring and Quality monitoring and Quality monitoring and Quality Cerification         X       1         Y       1	GP-5600-PR-03-E nd verification and final verificat erification and final quality verif erification and final quality verif	ication.

#### Lower Churchill Project

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### PACKAGE DICTIONARY

Project Base Currency: CAD

	5 y of 230 kV,138 kV and 25 kV Disconnect Switches /,138 kV and 25 kV Disconnect Switches	Type: Revision No.: Date:	P-Purchase Order 01 13-Apr-2012		
Reference Section	The following main documents are used to define to Specification 505573-313A-47ES-0002	the scope:			
Interface with Other Packages	th Other Construction Contract CD0512 will provide all labour, tools and equipment for preparation of the disconnect switches foundations (concrete pads) and works excluded, as outlined above.				
Specific Site Conditions					
Specific Schedule Conditions	Life Energization of all units is dependent upon a coordinated power outage to the existing supply line (TL240). The timely delivery of the units and progress of CD0512 contract are crucial to a scheduled outage window ahead of winter conditions when an outage becomes unfavourable.				
Specific Environment Conditions	As noted, units shall be rated for +40, -40 degrees Celsius ambient temperature range.				
Specific Safety Conditions	Working around energized equipment; respecting limits of approach; deployment of safety watches, when applicable.				
Special Requirements (All)					
Equipment List	<ul> <li>Tag # B1-T33 230 kV Disconnect Switch w 138 kV Substation Extension</li> </ul>	rithout ground switch	n. Churchill Falls 230		
	<ul> <li>Tag# B1L1301-1_L1301G 138 kV Disconr Falls Construction Power Substation</li> <li>Tag# B1L1302-2_L1301G 138 kV Disconr</li> </ul>				
	<ul> <li>Falls Construction Power Substation</li> <li>Tag# B1L1302 138 kV Disconnect Switch Construction Power Substation</li> </ul>	h without ground s	witch. Muskrat Fall		
	<ul> <li>Tag#s B2B3-1 and B2T1-1 25 kV disconn Power Substation.</li> </ul>	ect switches. Musk	rat Falls Constructio		

#### Lower Churchill Project

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Project Base Currency:	CAD	
Package No.: Titles (long): (short):	PD0515Type:Supply of 230 kV,138 kV and 25 kV Disconnect SwitchesRevision No.:230 kV,138 kV and 25 kV Disconnect SwitchesDate:	P-Purchase Order 01 13-Apr-2012
Schedule and Miles	tones Item	Date
	Issue RFQ Award Mobilize Delivery ROS Pad (Muskrat Falls and Churchill Falls) Installation Complete (Muskrat Falls) Installation Complete (Churchill Falls)	TBD TBD TBD TBD TBD TBD
Budget	TBD	
Applicable Sub- Project/SPV	Muskrat Falls Generation       Island Transmission Link         Labrador Transmission Assets       Lower Churchill Project – General	
IBA Package	YES NO	

#### Lower Churchill Project

#### PACKAGE DICTIONARY

Project Base Currency: CAD				
	Type:P-Purchase Orderof 138 kV Capacitor Voltage TransformersRevision No.:01Capacitor Voltage TransformersDate:13-Apr-2012			
Discipline: Responsibilities: Area Manager: QA / QC:	Fred WilcoxPackage Engineer:Ashok VyasKenneth MorrisonContract Admin. / Buyer:Shauna Crosbie			
Scope of Work Summary	Package includes:			
	• Supply of three (1) 138 kV capacitor voltage transformers for construction power delivery to Muskrat Falls; for new Muskrat Falls construction power substation.			
	<ul> <li>Units will be single phase with primary voltage of 138/1.732 kV with secondary voltages of 120-69 V; 650 kV BIL; 60 Hz. Designs will include metering and relaying accuracies, as per technical specification</li> </ul>			
Work Included:	Support structures.			
	Design review acceptance by Consultant/Company.			
	<ul> <li>Quality, Surveillance and Inspection and Expediting coordination between Consultant/Company and Supplier.</li> </ul>			
	Agreement of schedule milestones with Supplier.			
	Approval of inspection and test plan by Consultant/Company.			
	• Submission by Supplier of all Document Requirements on a timely basis.			
	Factory acceptance testing (type test review) by Consultant/Company.			
	• Review of transportation logistics and coordination of site delivery with Supplier (and its Sub-Contractors).			
	• Progress reporting by Supplier on a monthly basis (or ad hoc basis, if required).			
Approximate Quantities (only major items are included)	Description Estimated Quantity (Gate 3 Estimate)			
	Capacitor Voltage Transformers 3 at 138 kV nominal system voltage			
Contract Basis	Lump Sum Unit Rates Combination Lump Sum Unit Rates Cost Reimbursable			

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### Lower Churchill Project

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Project Base C	Currency:	CAD					
Package No.:		PD0518	Type:	P-Purchase Order			
Titles	(long):		Revision No.	: 01			
	(short):	138 kV Capacitor Voltage Transformers	Date:	13-Apr-2012			
Work Exclu	ded:	The following works or activities are excluded: <b>Description</b> Placement on concrete foundation and erection for e					
Quality		Requires Determination of the Equipment Quality Rating	YES	x NO			
		Determination of Equipment Criticality based on GP-5600-PR-02-         High       Minor         Significant       Negligible         Moderate       Negligible         Determination of Quality Surveillance level based on GP-5600-PF	R-03-E on and final verific and final quality ve	rification.			
Reference S	Section		The following main documents are used to define the scope: <ul> <li>Specification 505573-313A-47ES-0003</li> </ul>				
Interface wi Packages	ith Othe	Construction Contract CD0512 will provide all labour,	Construction Contract CD0512 will provide all labour, tools and equipment for preparation of the capacitor voltage transformers foundations (concrete pads) and works excluded, as outlined above.				
Specific Sit	e Cond	litions					
Specific Sc Conditions		Energization of all units is dependent upon a coordina supply line (TL240). The timely delivery of the units ar crucial to a scheduled outage window ahead of winter unfavourable.	Energization of all units is dependent upon a coordinated power outage to the existing supply line (TL240). The timely delivery of the units and progress of CD0512 contract are crucial to a scheduled outage window ahead of winter conditions when an outage becomes unfavourable.				
Specific En Conditions	vironm	As noted, units shall be rated for +40, -40 degrees Ce	As noted, units shall be rated for +40, -40 degrees Celsius ambient temperature range.				
Specific Sat Conditions	fety	Working around energized equipment; respecting limit watches, when applicable.	Working around energized equipment; respecting limits of approach; deployment of safety watches, when applicable.				

#### Lower Churchill Project

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Project Base Currency: CA	D	
Titles (long): Su	D518Type:oply of 138 kV Capacitor Voltage TransformersRevision No.:8 kV Capacitor Voltage TransformersDate:	P-Purchase Order 01 13-Apr-2012
Special Requirements (All)		
Equipment List	<ul> <li>Tag#s CVT L1301-1, L1301-2, L1301-3 Capacitor Voltage Tran Falls Construction Power Substation.</li> </ul>	nsformers. Muskrat
Schedule and Mileston	es Item	Date
	Issue RFQ Award Mobilize Delivery ROS Pad (Muskrat Falls) Installation Complete (Muskrat Falls)	TBD TBD TBD TBD TBD
Budget	TBD	
Applicable Sub- Project/SPV	Muskrat Falls Generation       Image: Labrador – Island Transmission Link         Labrador Transmission Assets       Image: Lower Churchill Project – General	
IBA Package	YES NO	

#### Lower Churchill Project

Discipline: <u>Responsibilities:</u> QA / QC: Scope of Work Summary	Fred Wilcox Kenneth Morrison			13-Apr-2012
Scope of Work Summary		Package Engineer: Contract Admin. / Buyer:	Ashok Vyas Shauna Cros	sbie
Work Included:	<ul> <li>power delivery to substation.</li> <li>Units will be nomina kV; 400 A; 60 Hz; 15</li> <li>Support structures, g</li> <li>Design review accept</li> <li>Quality, Surveilland Consultant/Company</li> <li>Agreement of sched</li> <li>Approval of inspection</li> <li>Submission by Support</li> <li>Factory acceptance</li> </ul>	otance by Consultant/Compa ce and Inspection and y and Supplier. Tule milestones with Supplier on and test plan by Consulta plier of all Document Require testing (type test review) by tation logistics and coordina	Muskrat Falls maximum cont of 12.5 kA; 3 p any. Expediting co nt/Company. ements on a tim Consultant/Co	construction powe
Approximate Quantities (only major items are included)	Progress reporting b     Description	by Supplier on a monthly bas		asis, if required). ate 3 Estimate)

### Lower Churchill Project

Project Base Currency: CAD				
	of 25 kV Vacuum Interrupters Vacuum Interrupters	Type: Revision No.: Date:	P-Purchase Order 01 13-Apr-2012	
Contract Basis	Lump Sum Combination Lump Sum – Unit Rates <u>Remarks</u> :	Cost	Unit Rates ⊠ Reimbursable □	
Work Excluded:	The following works or activities are excluded: <b>Description</b> Placement on concrete foundation and erection for end	ergization	<b>Package No</b> CD0512	·-
Quality	Requires Determination of the Equipment Quality Rating	YES x	NO	
	Determination of Equipment Criticality based on GP-5600-PR-02-E         High       Minor         Significant       Negligible         Moderate       Determination of Quality Surveillance level based on GP-5600-PR-0         4       Continuous in process quality monitoring and verification and Limited in process quality monitoring and verification and Limited in process quality monitoring and verification and Final Quality Verification         0       No quality surveillance, no quality verification	03-E and final verification d final quality verification	cation.	
Reference Section	The following main documents are used to define the s <ul> <li>Specification 505573-313A-47ES-0010</li> </ul>	cope:		
Interface with Other Packages	Construction Contract CD0512 will provide all labour, to the vacuum interrupter foundations (concrete pads) and			
Specific Site Conditions				
Specific Schedule Conditions	Energization of all units is dependent upon a coordinate supply line (TL240). The timely delivery of the units and crucial to a scheduled outage window ahead of winter c unfavourable.	progress of CI	00512 contract are	:S

#### Lower Churchill Project

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### PACKAGE DICTIONARY

Package No.:		Туре:	P-Purchase Order
Titles (long):		Revision No.:	01
(short):	25 kV Vacuum Interrupters	Date:	13-Apr-2012
Specific Environm Conditions	As noted, units shall be rated for +40, -40 degrees Celsius	s ambient terr	nperature range.
Specific Safety Conditions	Working around energized equipment; respecting limits of watches, when applicable.	approach; de	ployment of safety
Special Requireme (All)	nts		
Equipment List	<ul> <li>Tag #s B3-C1, B3C-2, B3-C3, B3-C4, B3-C5, B3-C</li> <li>Construction Power Substation.</li> </ul>	C6, B3-C7. M	uskrat Falls
Schedule and Mile	stones Item		Date
	Issue RFQ Award Mobilize Delivery ROS Pad (Muskrat Falls) Installation Complete (Muskrat Falls)		TBD TBD TBD TBD TBD
Budget	TBD		
Applicable Sub- Project/SPV	Muskrat Falls Generation 🛛 Labrador – Island Trans		
IBA Package	YES NO		

Project Base Currency: CAD				
	of 25 kV 6 x 3.6 MVAR Capacito x 3.6 MVAR Capacitor Banks	or Banks	Type: Revision No.: Date:	P-Purchase Order 01 13-Apr-2012
Discipline: Responsibilities: Area Manager: QA / QC:	Fred Wilcox Kenneth Morrison	Package Engineer: Contract Admin. / Buyer:	Ashok Vyas Shauna Cro	sbie
Scope of Work Summary	<ul> <li>to Muskrat Falls; fo</li> <li>Units will be nomin kV; rated output (3 kVAR/phase/unit; I</li> </ul>	5 kV, 3.6 MVAR capacitor ba r new Muskrat Falls construc al system voltage of 25 kV; 3 phase) of 3.6 MVAR; 60 I (short circuit) of 12.5 kA; co g switches, surge arresters,	tion power sub maximum con Hz; 150 kV Bl omplete with p	station. tinuous voltage of 2 L; with rating of 200 post insulators, series
Work Included:	<ul> <li>Design review acce</li> <li>Quality, Surveillar Consultant/Compar</li> <li>Agreement of schere</li> <li>Approval of inspect</li> </ul>	metallic galvanized steel. eptance by Consultant/Compance and Inspection and my and Supplier. dule milestones with Supplier ion and test plan by Consulta plier of all Document Require	Expediting co	
	<ul> <li>Factory acceptance</li> <li>Review of transpo (and its Sub-Contra)</li> </ul>	e testing (type test review) by rtation logistics and coordin	Consultant/Co ation of site c	ompany. Ielivery with Supplie
Approximate Quantities (only major items are included)	<b>Description</b> Capacitor Banks		ed Quantity (G V nominal syst	<b>ate 3 Estimate)</b> em voltage.

### Lower Churchill Project

Project Base Currency: CAD			
	of 25 kV 6 x 3.6 MVAR Capacitor Banks 6 x 3.6 MVAR Capacitor Banks	Type: Revision No.: Date:	P-Purchase Order 01 13-Apr-2012
Contract Basis	Lump Sum Combination Lump Sum – Unit Rates <u>Remarks</u> :	Cost	Unit Rates 🛛 Reimbursable 🗌
Work Excluded:	The following works or activities are excluded: <b>Description</b> Placement on concrete foundation and erection for ene	rgization	<b>Package No.</b> CD0512
Quality	Requires Determination of the Equipment Quality Rating	YES x	NO
	Determination of Equipment Criticality based on GP-5600-PR-02-E         High       Minor         Significant       Negligible         Moderate       Negligible         Determination of Quality Surveillance level based on GP-5600-PR-02         4       Continuous in process quality monitoring and verification and Regular in process quality monitoring and verification and Limited in process quality monitoring and verification and Final Quality Verification         0       No quality surveillance, no quality verification	and final verification final quality verification	cation.
Reference Section	<ul> <li>The following main documents are used to define the sc</li> <li>Specification 505573-313A-47ES-0004</li> </ul>	:ope:	
Interface with Other Packages	Construction Contract CD0512 will provide all labour, too the capacitor bank foundations (concrete pads) and work		
Specific Site Conditions			
Specific Schedule Conditions	Energization of all units is dependent upon a coordinated supply line (TL240). The timely delivery of the units and p crucial to a scheduled outage window ahead of winter co unfavourable.	progress of CI	D0512 contract are

#### Lower Churchill Project

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### PACKAGE DICTIONARY

Package No.: PD052	)	Туре:	P-Purchase Order
Titles (long): Supply	of 25 kV 6 x 3.6 MVAR Capacitor Banks	Revision No.:	01
(short): 25 kV	6 x 3.6 MVAR Capacitor Banks	Date:	13-Apr-2012
Specific Environment Conditions	As noted, units shall be rated for +40, -40 degrees Cel	sius ambient ter	nperature range.
Specific Safety Conditions	Working around energized equipment; respecting limits watches, when applicable.	of approach; de	eployment of safety
Special Requirements (All)			
Equipment List	• Tag #s C1, C2, C3, C4, C5, C6. Muskrat Falls	Construction Po	wer Substation.
Schedule and Milestones	ltem		Date
	Issue RFQ Award Mobilize Delivery ROS Pad (Muskrat Falls) Installation Complete (Muskrat Falls)		TBD TBD TBD TBD TBD
Budget	TBD		
Applicable Sub- Project/SPV	Muskrat Falls Generation 🛛 Labrador – Island Ti		
IBA Package	Labrador Transmission Assets   Lower Churchill Proj     YES   NO	ect – General	

#### Lower Churchill Project

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Package No.: Titles	(long): (short):		f Pre-fabricated Control Roor cated Control Room Building	-	Type: Revision No.: Date:	P-Purchase Order 01 13-Apr-2012
Discipline: Responsibilities:	Area M QA / Q	lanager: C:	Fred Wilcox Kenneth Morrison	Package Engineer: Contract Admin. / Buyer:	Ricardo Quij Ken O'Keefe	
Scope of Work Summary Work Included:		mary	<ul> <li>Protection and Construction</li> <li>The Prefabricated site assembled with connected, minime</li> <li>All equipment instruments and construction of the prefabrication of the prefabrication</li></ul>	ture, testing, supply and deliver ontrol Building. d Substation Protection and Co vith a marshalling cabinet to whi nizing and simplifying the install stalled shall be prewired, teste net and ready for cabling to outco Il be installed in the 138/25 kV	ontrol Building ich all the outd ation works at ed at factory a door equipmen	shall be delivered a oor equipment will be site. Ind terminated at the t.
			<ul> <li>Quality, Surveill Consultant/Comp</li> <li>Agreement of sch</li> <li>Approval of inspe</li> <li>Submission by Se</li> <li>Factory acceptant</li> <li>Review of transperient (and its Sub-Context)</li> <li>Progress reporting</li> </ul>	ng by Supplier on a monthly bas	Expediting co	nely basis. lelivery with Supplie asis, if required).

### Lower Churchill Project

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Project Base C	urrency:	CAD					
Package No.: Titles	(long): (short):		of Pre-fabricated Control Room Building ricated Control Room Building	Type: Revision N Date:	lo.:	P-Purchase Orde 01 13-Apr-2012	er
Approximat (only major included) Contract Ba	items a		Prefabricated Control Building 1 Lump Sum Combination Lump Sum – Unit Rates	Estimated Quantin unit		a <b>te 3 Estimate</b> Unit Rates Reimbursable	 ) 
Work Exclu	ded:		Remarks: The following works or activities are excluded:				
			<b>Description</b> Wiring and cable terminations from switchyard t	to prefabricated bu	uildin	Package g. CD0512	No.
Quality			Requires Determination of the Equipment Quality Rating	YES	x	NO	_
			Determination of Equipment Criticality based on GP-5600-         High       Minor         Significant       Negligible         Moderate       Negligible         Determination of Quality Surveillance level based on GP-5         4       Continuous in process quality monitoring and verific         2       Limited in process quality monitoring and verific         5       Final Quality Verification         0       No quality surveillance, no quality verification	600-PR-03-E prification and final veri cation and final quality	verific	ation.	
Reference S	Section		The following main documents are used to define	e the scope:			
			<ul> <li>Scope Specification 505573-313A-47ES</li> <li>TS1 505573-313A-47ES-0005</li> <li>TS2 505573-313A-47ES-0012</li> <li>TS3 505573-313A-47ES-0011</li> <li>TS4 505573-313A-47ES-0014</li> </ul>	-0015			

#### Lower Churchill Project

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### PACKAGE DICTIONARY

Package No.: PD0522		Tupo:	P-Purchase Order
	of Pre-fabricated Control Room Building	Type: Revision No.:	01
	ricated Control Room Building	Date:	13-Apr-2012
	Icaled Control Room Building	Date.	
Interface with Other Packages	Construction Contract CD0512 will provide all labour, to the prefabricated control building foundations (concrete outlined above.		
Specific Site Conditions			
Specific Schedule Conditions	Energization of all units is dependent upon a coordinate supply line (TL240). The timely delivery of the units and crucial to a scheduled outage window ahead of winter c unfavourable.	progress of CD	0512 contract are
Specific Environment Conditions	As noted, units shall be rated for +40, -40 degrees Cels	sius ambient ter	nperature range.
Specific Safety Conditions	Working around energized equipment; respecting limits of approach; deployment of safety watches, when applicable.		
Special Requirements (All)			
Equipment List	<ul> <li>Tag # PFB1 Prefabricated Control Building. Mus Substation.</li> </ul>	skrat Falls Cons	struction Power
Schedule and Milestones	ltem		Date
	Issue RFQ Award Mobilize Delivery ROS Pad (Muskrat Falls) Installation Complete (Muskrat Falls)		TBD TBD TBD TBD TBD
Budget	ТВD		
Applicable Sub- Project/SPV	Muskrat Falls Generation 🛛 Labrador – Island Transmission Assets 🗌 Lower Churchill Proje		
IBA Package	YES NO		

#### Lower Churchill Project

	f Substation Service Transformer on Service Transformer		Type: Revision No.: Date:	P-Purchase Order 01 13-Apr-2012
Discipline: <u>Responsibilities:</u> QA / QC:	Fred Wilcox Kenneth Morrison	Package Engineer: Contract Admin. / Buyer:	Ashok Vyas Hartfield Ste	
Scope of Work Summary Work Included:	<ul> <li>construction power del power substation. One</li> <li>Units will be single phase</li> <li>Design review acceptare</li> <li>Quality, Surveillance Consultant/Company at</li> <li>Agreement of schedule</li> <li>Approval of inspection at</li> <li>Submission by Supplier</li> <li>Factory acceptance tes</li> <li>Review of transportation (and its Sub-Contractor)</li> </ul>	se rated 25 kVA; 14.4 kV nce by Consultant/Compa and Inspection and nd Supplier. milestones with Supplier and test plan by Consulta r of all Document Require ting (type test review) by on logistics and coordin	for new Musk -120/240 V; 60 any. Expediting c	nely basis.
Approximate Quantities (only major items are included)	<b>Description</b> Substation Service Transforme		ed Quantity (G	<b>Gate 3 Estimate)</b> as spare.
Contract Basis	Combination Lump S <u>Remarks</u> :	Lump Sum 🔲 Sum – Unit Rates 🗌	Cost	Unit Rates 🛛 Reimbursable 🗌

#### Lower Churchill Project

Project Base Currer	y: CAD		
Package No.:	PD0523	Туре:	P-Purchase Order
Titles (lor (sho		Revision No.: Date:	01 13-Apr-2012
Work Excluded	The following works or activities are exc <b>Description</b> Pole mounting and erection for energiz		<b>Package No.</b> CD0512
Quality	Requires Determination of the Equipment C Rating		< NO
	Determination of Equipment Criticality based on         High       Minor         Significant       Negligible         Moderate       Determination of Quality Surveillance level base         4       Continuous in process quality monitoring         3       Regular in process quality monitoring         2       Limited in process quality monitoring         X       1         0       No quality surveillance, no quality verification	d on GP-5600-PR-03-E ring and verification and final verifica and verification and final quality ver and verification and final quality veri	ification.
Reference Sect	<ul> <li>The following main documents are used</li> <li>Specification 505573-313A-47E</li> </ul>		
Interface with C Packages	her Construction Contract CD0512 will provi the capacitor voltage transformers found outlined above.		
Specific Site Co	nditions		
Specific Schede Conditions	le Energization of all units is dependent up supply line (TL240). The timely delivery crucial to a scheduled outage window all unfavourable.	of the units and progress of C	CD0512 contract are
Specific Enviro	Ment As noted, units shall be rated for +40, -4	10 degrees Celsius ambient t	emperature range.
Specific Safety Conditions	Working around energized equipment; re watches, when applicable.	especting limits of approach;	deployment of safety

#### Lower Churchill Project

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Project Base Currency: CAD		
		P-Purchase Order ion No.: 01 13-Apr-2012
Special Requirements (All)		
Equipment List	<ul> <li>Tag#s SAT-1, SAT-2, SAT-3, SAT-4 Substation Servic Falls Construction Power Substation.</li> </ul>	e Transformers. Muskrat
Schedule and Milestones	ltem	Date
	Issue RFQ Award Mobilize Delivery ROS Pad (Muskrat Falls) Installation Complete (Muskrat Falls)	TBD TBD TBD TBD TBD
Budget	TBD	
Applicable Sub- Project/SPV	Muskrat Falls Generation 🔀 Labrador – Island Transmiss Labrador Transmission Assets 🗌 Lower Churchill Project – Ge	
IBA Package	YES NO	

#### Lower Churchill Project

### PACKAGE DICTIONARY

	(long): (short):	PD0529 Supply o 25 kV Re	f 25 kV Reclosers eclosers		Type: Revision No.: Date:	P-Purchase Order 01 13-Apr-2012
Discipline: Responsibilities:	Area	Manager: QC:	Fred Wilcox Kenneth Morrison	Package Engineer: Contract Admin. / Buyer:	Ashok Vyas Hartfield Ste	
Scope of Work Summary			Package includes <ul> <li>Supply of three (3)</li> </ul>	: 3) 25 kV reclosers for construct	tion power deli	verv to Muskrat Falls
			<ul><li>for new Muskrat F</li><li>Reclosers to be 2</li></ul>	Falls construction power substa 5 kV, 560 A, 150 kV BIL, 12.5 echanisms and steel support s	kA for 1 seco	
Work Included:			-	ceptance by Consultant/Compa ance and Inspection and		oordination betweer
			Agreement of sch	edule milestones with Supplier		
			Submission by Supplier of all Document Requirements on a timely basis.			
			Factory acceptan	ce testing (type test review) by	Consultant/Co	ompany.
			<ul> <li>Review of transp (and its Sub-Cont</li> </ul>	ortation logistics and coordin ractors).	ation of site o	delivery with Supplie
			Progress reportin	g by Supplier on a monthly bas	sis (or ad hoc b	basis, if required).
Approximate (only major in included)			Description	Estimate	ed Quantity (G	Gate 3 Estimate)
,			Reclosers	3		

#### Lower Churchill Project

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Project Base Currency:	CAD

Package No.:	PD0529 Type:		P-Purchase Order
Titles (long):	Supply of 25 kV Reclosers Revisio	n No.:	01
(short):	25 kV Reclosers Date:		13-Apr-2012
Contract Basis	Lump Sum Combination Lump Sum – Unit Rates <u>Remarks</u> :	Cost	Unit Rates
Work Excluded:	The following works or activities are excluded: <b>Description</b> For reclosers: Placement on concrete foundation and erection energization	for	<b>Package No.</b> CD0512
Quality	Requires Determination of the Equipment Quality Rating       YI         Determination of Equipment Criticality based on GP-5600-PR-02-E         High Significant Moderate       Minor Negligible         Determination of Quality Surveillance level based on GP-5600-PR-03-E         4 3 2 2 1 3 3 2 2 3 3 3 3 3 3 3 3 3 3 3 3	lity verifie	cation.
Reference Section	<ul> <li>The following main documents are used to define the scope:</li> <li>Specification 505573-313A-47ES-0009</li> </ul>		
Interface with Othe Packages	Construction Contract CD0512 will provide all labour, tools and the recloser foundations (concrete pads) and works excluded, a		
Specific Site Cond	ions		

### PACKAGE DICTIONARY

Package No.:	PD0529		Туре:	P-Purchase Order	
Titles (long):	Supply	of 25 kV Reclosers	Revision No.:	01	
(short):	25 kV R	Reclosers	Date:	13-Apr-2012	
Specific Schedule Conditions		Energization of all units is dependent upon a coordinate supply line (TL240). The timely delivery of the units and crucial to a scheduled outage window ahead of winter co unfavourable.	progress of CD	00512 contract are	
Specific Environm Conditions	nent	As noted, units shall be rated for +40, -40 degrees Celsi	us ambient terr	perature range.	
Specific Safety Conditions					
Special Requireme (All)	ents				
Equipment List		<ul> <li>Tag #s. Muskrat Falls Construction Power Subs</li> <li>25 kV Reclosers: L1-R1, L2-R1 and L3-R1.</li> </ul>	tation.		
Schedule and Mile	estones	Item		Date	
		Issue RFQ Award Mobilize Delivery ROS Pad (Muskrat Falls) Installation Complete (Muskrat Falls)		TBD TBD TBD TBD TBD	
Budget		TBD			
Applicable Sub- Project/SPV		Muskrat Falls Generation 🛛 Labrador – Island Tra			
IBA Package		YES NO			

#### Lower Churchill Project

Project Base Currency: CAD				
	0 / of 138 kV and 25 kV Surge Arresters / and 25 kV Surge Arresters		Type: Revision No.: Date:	P-Purchase Order 01 13-Apr-2012
Discipline: Responsibilities: Area Manager QA / QC:		e Engineer: ct Admin. / Buyer:	Ashok Vyas Hartfield Ste	
Scope of Work Summary	<ul> <li>Package includes:</li> <li>Engineering design, manufactur surge arresters for construction Falls construction power substated</li> </ul>	n power delivery		
Work Included:	<ul> <li>Design review acceptance by C</li> <li>Quality, Surveillance and In Consultant/Company and Suppl</li> <li>Agreement of schedule milestor</li> </ul>	spection and ier.	expediting c	oordination between
	<ul> <li>Approval of inspection and test</li> <li>Submission by Supplier of all Do</li> <li>Factory acceptance testing (type</li> <li>Review of transportation logist (and its Sub-Contractors).</li> <li>Progress reporting by Supplier of</li> </ul>	ocument Require e test review) by ics and coordina	ements on a tir Consultant/Co ation of site o	ompany. delivery with Supplier
Approximate Quantities (only major items are included)	<ul> <li>Description</li> <li>138 kV surge arresters: MCOV=98 kV; Ur=120 kV; 650 kV BIL; 0 kA; 7 kJ/kV; station class with galvanized steel structures and discharge counter.</li> <li>25 kV surge arresters: MCOV=19.5 kV Ur=24 kV; 150 kV BIL;10 kA; 7 kJ/kV; station class, with discharge counter</li> </ul>	6	ed Quantity (C	Gate 3 Estimate)

### Lower Churchill Project

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Project Base Currency:	CAD		
Package No.:	PD0530	Туре:	P-Purchase Order
Titles (long):	Supply of 138 kV and 25 kV Surge Arresters	Revision No.:	01
(short):	138 kV and 25 kV Surge Arresters	Date:	13-Apr-2012
Contract Basis	Lump Sum Combination Lump Sum – Unit Rates <u>Remarks</u> :	Co	Unit Rates ⊠ st Reimbursable □
Work Excluded:	The following works or activities are excluded:		
	Description		Package No.
	Foundations and Erection.		-
			CD0512
Quality	Requires Determination of the Equipment Quality	YES	< NO
	Rating		
Poforonce Section	Determination of Equipment Criticality based on GP-5600-PR-02-E         High       Minor         Significant       Negligible         Moderate       Determination of Quality Surveillance level based on GP-5600-PR-0         4       Continuous in process quality monitoring and verification and Limited in process quality monitoring and verification and Final Quality Verification         0       No quality surveillance, no quality verification	and final verifica I final quality ver	ification.
Reference Section	<ul> <li>The following main documents are used to define the so</li> <li>Specification 505573-313A-47ES-0008</li> </ul>	cope:	
Interface with Othe Packages	r Construction Contract CD0512 will provide all labour, too foundations and works excluded, as outlined above.	ols and equip	ment for preparation of
Specific Site Condi	tions		

### PACKAGE DICTIONARY

Package No.: PD0530		Туре:	P-Purchase Order		
-	of 138 kV and 25 kV Surge Arresters	Revision No.:	01		
( 3, 944)	and 25 kV Surge Arresters	Date:	13-Apr-2012		
Specific Schedule Conditions	Energization of all units is dependent upon a coordinate supply line (TL240). The timely delivery of the units and crucial to a scheduled outage window ahead of winter co unfavourable.	progress of CD	0512 contract are		
Specific Environment Conditions	As noted, units shall be rated for +40, -40 degrees Celsi	us ambient terr	perature range.		
Specific Safety Conditions	Working around energized equipment; respecting limits of approach; deployment of safety watches, when applicable.				
Special Requirements (All)					
Equipment List	<ul> <li>Tag #s. Muskrat Falls Construction Power Substation.</li> <li>SAL1301-1 to 6 inclusive for 138 kV class</li> <li>SA25-1 to 27 inclusive for 25 kV class</li> </ul>				
Schedule and Milestones	Item		Date		
	Issue RFQ Award Mobilize Delivery ROS Pad (Muskrat Falls) Installation Complete (Muskrat Falls)		TBD TBD TBD TBD TBD		
Budget	TBD				
Applicable Sub- Project/SPV	Muskrat Falls Generation 🛛 Labrador – Island Tra Labrador Transmission Assets 🗌 Lower Churchill Proje				
IBA Package	YES NO				

#### Lower Churchill Project

	(long): (short):		f MV Instrument Transformer ument Transformer			Type: Revision No.: Date:	P-Purchase Order 01 13-Apr-2012
Discipline: Responsibilities:	_ Area N QA / C	Nanager: IC:	Fred Wilcox Kenneth Morrison	Package Engine Contract Admin		Ashok Vyas Hartfield Ste	
Scope of Wo	rk Sum	imary	(MV) instrument t	n, manufacture, test	ed CT and	PT units) fo	of a medium voltage or construction power ower substation.
Work Included:			<ul> <li>Quality, Surveilla Consultant/Compa</li> <li>Agreement of sche</li> <li>Approval of inspect</li> <li>Submission by Superside Submission by Superside Su</li></ul>	Design review acceptance by Consultant/Company. Quality, Surveillance and Inspection and expediting coordination between Consultant/Company and Supplier. Agreement of schedule milestones with Supplier. Approval of inspection and test plan by Consultant/Company. Submission by Supplier of all Document Requirements on a timely basis. Factory acceptance testing (type test review) by Consultant/Company. Review of transportation logistics and coordination of site delivery with Supplier			
Approximate (only major it			Progress reporting     Description	by Supplier on a m		·	basis, if required).
included)	u	-	25 kV voltage transforme 150 kV BIL; 60 Hz; accura (winding 1) and 0.3wxyz ( phase; outdoor installatio	acy of 0.6wxyz (winding 2); 1	3		
			25 kV current transformer A; 27 kV; 150 kv BIL; 60 l outdoor installation.		12		

#### Lower Churchill Project

Project Base Currency: CAD					
	of MV Instrument Transformer trument Transformer	Type: Revision No Date:	o.:	P-Purchase C 01 13-Apr-2012	rder
Contract Basis	Lump Sum Combination Lump Sum – Unit Rates <u>Remarks</u> :	C	ost F	Unit Rates Reimbursable	_
Work Excluded:	The following works or activities are excluded:				
	Description Foundations and Erection.			Packag CD051	-
Quality	Requires Determination of the Equipment Quality Rating	YES	x	NO	
	Determination of Equipment Criticality based on GP-5600-PR-02-         High       Minor         Significant       Negligible         Moderate       Determination of Quality Surveillance level based on GP-5600-PF         4       Continuous in process quality monitoring and verification at Limited in process quality monitoring and verification at Limited in process quality monitoring and verification at Final Quality Surveillance, no quality verification	R-03-E on and final verific and final quality ve	erifica	ation.	
Reference Section	<ul> <li>The following main documents are used to define the s</li> <li>Specification 505573-313A-47ES-0007</li> </ul>	scope:			
Interface with Other Packages	Construction Contract CD0512 will provide all labour, to foundations and works excluded, as outlined above.	tools and equ	ipme	ent for prepa	ation of
Specific Site Conditions					
Specific Schedule Conditions	Energization of all units is dependent upon a coordinal supply line (TL240). The timely delivery of the units an crucial to a scheduled outage window ahead of winter unfavourable.	nd progress of	f CD	0512 contrac	are are

#### Lower Churchill Project

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### PACKAGE DICTIONARY

Package No.:		PD0531		Туре:	P-Purchase Order		
Titles	(long):		of MV Instrument Transformer	Revision No.:	01		
	(short):	MV Inst	trument Transformer	Date:	13-Apr-2012		
Specific En Conditions	vironm	ent	As noted, units shall be rated for +40, -40 degrees Celsius ambient temperature range.				
Specific Sa Conditions			Working around energized equipment; respecting limits of watches, when applicable.	approach; de	eployment of safety		
Special Red (All)	quireme	ents					
Equipment	List		Tag #s. Muskrat Falls Construction Power Substa	tion.			
			CT-1 to 12 inclusive.				
			VT-B2-1 to 3 inclusive.				
Schedule a	nd Mile	stones	Item		Date		
			Issue RFQ		TBD		
			Award		TBD		
			Mobilize		TBD		
			Delivery ROS Pad (Muskrat Falls)		TBD		
			Installation Complete (Muskrat Falls)		TBD		
Budget			TBD				
Applicable Project/SP\			Muskrat Falls Generation 🛛 Labrador – Island Tran	smission Link			
			Labrador Transmission Assets   Lower Churchill Project	t – General			
IBA Packag	le		YES NO				

Package No.: Titles (long): (short):		and Install Early Works Te 'orks Telecom Devices	lecom Devices	Type: Revision No.: Date:	P- Purchase Order 01 13-Apr-2012
Discipline: <u>Responsibilities:</u> Area QA /	Manager: QC:	William Diaz Ken Morrison	Package Engineer: Contract Admin. / Buyer:	Claude-Olivi Sylvain Mars	
Scope of work Sun	nmary		e telecommunication devices for action Phase and the Starter C		•
Work Included:			ervice devices (Portables and Mo e Early Works Construction Phase	,	
		=> The supply/renting	of the SLI and NALCOR radio de	vices	
		- Portable: Motorola	a XPR 6550 or equivalent		
		Noise Cancellir High capacity b Impres intellige Car charger			
		- Mobile: Motorola X	(PR 4550 or equivalent		
		Installation of v	ehicles/mobile radio kits		
		Each kit cor	ntains:		
		Cables a Mounting 24 to 12	ounted antenna and connectors g brackets and clamps volts, 12A converter when require mountable control heads when re		
		Cellular network data the Early Construction	and voice devices for the Lower ( Work Phase	Churchill Projec	ct at Muskrat Falls for
		=> The supply of the S	SLI and NALCOR data and voice of	devices	
		- Voice devices: Mo	torola M800 Bag Phone and acce	essories	
		Car roof mount	ted antenna		
		- Data devices: Net	gear MBR1210 Turbo Hub with ar	nd accessories	
		Car roof mount	ted antenna or Yagi roof/pole mou	inted antenna	
		Car inverter (ba	attery voltage to 120Vac)		

#### Lower Churchill Project

# Page 240

Package No.: Titles	(long): (short):		and Install Early Works Telecom Devices orks Telecom Devices	Revision No.: 0'	Purchase Order
	<b>、</b>				1
			Notes:		
			<ol> <li>It shall be possible for the contractors Churchill Project to use the same cor supply/rental and the installation of th</li> </ol>	ntract (terms and conditions) for	
Approximate Quantities (only major items are included)			Description	Estimated Quantity (Gate	3 Estimate)
		re	Radio devices (only for the Early Works Construction Phase)		
			Portable device and accessories	40	
			Mobile device and accessories	30	
			Mobile hardware (vehicle)	30	
			Installation (vehicle)	30	
			Cellular devices (only for the Early Works Construction Phase)		
			Bag Kit	29	
			Bag kit external antenna	29	
			Turbo hub	12	
			Turbo hub external antenna	12	
			Turbo hub inverter	12	
Work Exclu	ded:		The following works or activities are excluded	d from package CD0533:	
			Description		
			Providing the SLI, NALCOR and contractors	s' LMRS and cellular services.	SD0560
			The supply of the contractors' radio and cellular devices.		Contractors

#### Lower Churchill Project

# Page 241

Project Base C	Currency:	CAD				
Package No.:		PD0533		Туре:	P- Purchase (	Order
Titles	(long):		and Install Early Works Telecom Devices	Revision No.		
	(short):	Early W	orks Telecom Devices	Date:	13-Apr-2012	
			Lump Sum		Unit Rates	s 🖂
			Combination Lump Sum – Unit Rates	Co	st Reimbursable	e 🗌
Contract Ba	sis		Remarks:			
			Unit Price			
Quality			Requires Determination of the Equipment Quality Rating	YES	x NO	
			Determination of Equipment Criticality based on GP-5600-PR-02-E			
			High Minor X			
			Significant Negligible			
			Moderate			
			Determination of Quality Surveillance level based on GP-5600-PR-03	3-E		
			4 Continuous in process quality monitoring and verification a	and final verifica	ation.	
			3 Regular in process quality monitoring and verification and	final quality ver	rification.	
			2 Limited in process quality monitoring and verification and f	final quality veri	ification.	
			x 1 Final Quality Verification			
			0 No quality surveillance, no quality verification			
Reference S	Section		The following main documents are used to define the sc	ope:		
			<ul> <li>Design Basis 505573-480A-47ER-0015 as formula</li> </ul>	ulated for the	e Lower Church	ill
			Project.			

#### Lower Churchill Project

# Page 242

Project Base Currency:	CAD					
Package No.:	PD0533		Type:	P- Purchase Order		
Titles (long):	Supply a	and Install Early Works Telecom Devices	Revision No.:	01		
(short):	Early W	orks Telecom Devices	Date:	13-Apr-2012		
Interface with Other Packages		Early Works Construction Phase Contract for services SD0560: it will be required to test the and mobiles and CTS and MIS devices) by pa	e devices (LMRS portables	SD0560		
Specific Site Condition	ons			1		
Specific Schedule Conditions		LMRS mobile devices installation in the vehicles must be done after the construction vehicles are bought.				
Specific Environmen Conditions	nt					
Specific Safety Conditions						
Special Requirement (All)	ts					
Equipment List		Not Applicable				
Schedule and Milest	ones	EOI Date:	TBD			
		RFP Date:	TBD			
		Award Date:	TBD			
		Receive Initial Vendor Drawings:	TBD			
		Forecast at Site:	TBD			
		Construction Complete:	TBD			
			Dates for milestones will the Project baseline sche			
Budget		TBD	1			

#### Lower Churchill Project

Project Base	Currency:	CAD		
Package No.:		PD0533 Typ	e:	P- Purchase Order
Titles	(long):	Supply and Install Early Works Telecom Devices Rev	vision No.:	01
	(short):	Early Works Telecom Devices Dat	e:	13-Apr-2012
Applicable Project/SP		Muskrat Falls Generation Labrador – Island Transmi Labrador Transmission Assets Lower Churchill Project – C		
IBA Packaç	je	YES 🛛 NO 🗌		

#### Lower Churchill Project

# Page 244

	(long): (short):		Power Transformers, AC Sul ransformers, AC Substation		Type: Revision No.: Date:	P-Purchase Order 01 13-Apr-2012
Discipline: Responsibilities:	_ Area I QA / (	Manager: QC:	Fred Wilcox Kenneth Morrison	Package Engineer: Contract Admin. / Buyer:	Ovidio Juan Shauna Cro	
Scope of Wo	rk Sun		<ul> <li>Package includes:</li> <li>Supply of the followi</li> <li>Churchill Falls: t ONAN/ONAF/OI</li> <li>Muskrat Falls: t ONAN/ONAF/OI</li> <li>Soldiers Pond: 230-13.8-25 kV,</li> <li>Work covers th factory accepta supervision of performance g Document Requi</li> <li>Design review a</li> <li>Quality, Survei Consultant/Com</li> <li>Agreement of so</li> </ul>	ng power transformers: wo (2) autotransformers rated 7 NAF. Units will be single phase. two (2) autotransformers rated	735-315-13.8 k I 315-138-25 k (for synchrono the design en- elivery to site ioning; spare naintenance r any. Expediting c r.	V; 500/667/833 MVA V; 75/100/125 MVA us condensers) rated gineering; fabrication (fob concrete pad) parts; warranty and
			Factory accepta	Supplier of all Document Requirence testing witnessed by Consumportation logistics and coordirent tractors).	Iltant/Company	Ι.
			- Drogroop roporti	ng by Supplier on a monthly ba	aia (ar ad haa k	

Lower Churchill Project

# Page 245

Project Base Currency:	CAD
Package No.:	PD0537 Type: P-Purchase Order
Titles (long):	Supply Power Transformers, AC Substations at CF, MF and SP Revision No.: 01
(short):	Power Transformers, AC Substations at CF, MF and SP Date: 13-Apr-2012
Approximate Quan (only major items a included)	
	15/25/230 KV
Contract Basis	Lump Sum 🛛 Unit Rates 🗌 Combination Lump Sum – Unit Rates 🗍 Cost Reimbursable 🗍 <u>Remarks</u> :
Work Excluded:	The following works or activities are excluded:
	DescriptionPackage No.The first filling of oil; oil handling; and provision of pumping/filtering equipment. PD0537 does supervision only.CD0502
	The dressing of the transformers, e.g. installation of bushings, lightning arresters; relays. PD0537 does supervision only. CD0502
	The supply and installation of all power and control cables. CD0502
	The interconnection to the aerial conductors. CD0502
	Labour and tools to assist in the testing, calibration and operation of power transformers controls and relaying. CD0502
	Labour and tools for energization. PD0537 to witness. CD0502
Quality	Requires Determination of the Equipment Quality     YES     x     NO

### Lower Churchill Project

# Page 246

Project Base Currency:	CAD
Package No.:	PD0537 Type: P-Purchase Order
Titles (long):	Supply Power Transformers, AC Substations at CF, MF and SP Revision No.: 01
(short):	Power Transformers, AC Substations at CF, MF and SP Date: 13-Apr-2012
Reference Section	Determination of Equipment Criticality based on GP-5600-PR-02-E         High       Minor         Significant       Minor         Moderate       Minor         Determination of Quality Surveillance level based on GP-5600-PR-03-E
	<ul> <li>Single Line diagram 505573-480B-47DD-0063 PB</li> <li>Specification of power transformers (TBD)</li> </ul>
Interface with Other Packages	r Construction Contract CD0502 will provide all labour, tools and equipment for preparation of the transformer foundations (concrete pads) and works excluded as outlined above.
Specific Site Condi	tions
Specific Schedule Conditions	
Specific Environme Conditions	nt
Specific Safety Conditions	Working around energized equipment; respecting limits of approach; deployment of safety watches, when applicable.
Special Requiremer (All)	nts

#### Lower Churchill Project

# Page 247

Project Base (	Currency:	CAD	
Package No.: Titles	(long): (short):	PD0537Type:Supply Power Transformers, AC Substations at CF, MF and SPRevision No.:Power Transformers, AC Substations at CF, MF and SPDate:	P-Purchase Order 01 13-Apr-2012
Equipment	List	• TBD	
Schedule a	nd Miles	stones Item	Date
		Issue RFQ Award Mobilize Delivery FOB Pad (Churchill Falls) Delivery FOB Pad (Muskrat Falls) Delivery FOB Pad (Soldiers Pond) Installation Complete (Churchill Falls) Installation Complete (Muskrat Falls) Installation Complete (Soldiers Pond)	TBD TBD TBD TBD TBD TBD TBD TBD TBD
Budget		TBD	
Applicable Project/SP		Muskrat Falls Generation       Labrador – Island Transmission Link         Labrador Transmission Assets       Lower Churchill Project – General	
IBA Packaç	je	YES NO	

#### Lower Churchill Project

# Page 248

Project Base Currency: CAD				
	020 RTU & Cabinet (CF) -Constructio J & Cabinet (CF) -Construction Powe		Type: Revision No.: Date:	P-Purchase Order 01 13-Apr-2012
Discipline: Responsibilities: Area Manager: QA / QC:	Fred Wilcox Kenneth Morrison	Package Engineer: Contract Admin. / Buyer:	Ricardo Quij Shauna Cro	
Scope of Work Summary	This package is part substation required for the substatio			
	<ul> <li>Package includes:</li> <li>Engineering design, manufacturing, testing, supply and delivery of a remote terminal unit (RTU) and cabinet to Churchill Falls.</li> </ul>			
	<ul> <li>Unit to be delivered to si</li> <li>Cabinet to be designed</li> </ul>		-	as specified.
Work Included:	<ul> <li>Design review acceptan</li> <li>Quality, Surveillance Consultant/Company and</li> </ul>	and Inspection and	expediting co	pordination between
	<ul> <li>Agreement of schedule milestones with Supplier.</li> <li>Approval of inspection and test plan by Consultant/Company.</li> </ul>			
	Submission by Supplier			nely basis.
		acceptance testing (type test review) by Consultant/Company. of transportation logistics and coordination of site delivery with Suppl Sub-Contractors).		
	<ul><li>Progress reporting by St</li><li>On-site testing and com</li></ul>			asis, if required).
Approximate Quantities (only major items are included)	Description D20 RTU and cabinet .	Estimate	ed Quantity (G	ate 3 Estimate)

### Lower Churchill Project

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Project Base C	urrency:	CAD			
Package No.: Titles	(long): (short):		D20 RTU & Cabinet (CF) -Construction Power IU & Cabinet (CF) -Construction Power	Type: Revision No.: Date:	P-Purchase Order 01 13-Apr-2012
Contract Ba	sis		Lump Sum X Combination Lump Sum – Unit Rates I <u>Remarks</u> :	Cos	Unit Rates 🗌 t Reimbursable 🗍
Work Excluded:			The following works or activities are excluded: <b>Description</b> Installation.		<b>Package No.</b> CD0512
Quality			Requires Determination of the Equipment Quality Rating	YES x	NO
			Determination of Equipment Criticality based on GP-5600-PR-02-E         High       Minor         Significant       Negligible         Moderate       Negligible         Determination of Quality Surveillance level based on GP-5600-PR         4       Continuous in process quality monitoring and verification an Limited in process quality monitoring and verification an Final Quality Verification         0       No quality surveillance, no quality verification	-03-E n and final verifica nd final quality veri	fication.
Reference S	Section		<ul> <li>The following documents are used to define the scope:</li> <li>Engineering specifications defining the RTU ar</li> </ul>		abinet requirements.
Interface wit Packages	th Othe	er	Construction Contract CD0512 will provide all labour, to foundations and works excluded, as outlined above.	ools and equip	ment for preparation of
Specific Site	e Cond	itions			
Specific Schedule Conditions			Energization of all units is dependent upon a coordinate supply line (TL240). The timely delivery of the units and crucial to a scheduled outage window ahead of winter of unfavourable.	d progress of C	D0512 contract are

### PACKAGE DICTIONARY

Package No.: PD	561	Туре:	P-Purchase Order
Titles (long): Su	ply D20 RTU & Cabinet (CF) -Construction Power	Revision No.:	01
(short): D2	RTU & Cabinet (CF) -Construction Power	Date:	13-Apr-2012
Specific Environment Conditions	Units shall be rated for +40, -40 degrees Celsius amb	ient temperature	range.
Specific Safety Conditions	Working around energized equipment; respecting limit watches, when applicable.	ts of approach; d	eployment of safety
Special Requirements (All)			
Equipment List	<ul> <li>Tag #s. For Churchill Falls 230-138 kV ac sub Construction Power. Tag # TBD</li> </ul>	ostation extensior	n for Muskrat Falls
Schedule and Mileston	es Item		Date
	RFP Delivery ROS (Churchill Falls) IIn-service (Churchill Falls)		TBD TBD TBD
Budget	TBD		
Applicable Sub- Project/SPV	Muskrat Falls Generation 🛛 Labrador – Island Labrador Transmission Assets 🗌 Lower Churchill Pr		
IBA Package	YES NO		

1

Project Base Currency: CAD		
Constru	of Protection Front Panels and Protection Relays (CF) – ction Power on Front Panels (CF)	Type:P-Purchase OrderRevision No.:01Date:13-Apr-2012
Discipline: Responsibilities: Area Manager: QA / QC:	Fred Wilcox Package Engineer: Kenneth Morrison Contract Admin. / Buyer	Ricardo Quijada :: Shauna Crosbie
Scope of Work Summary	<ul> <li>This package is part of the extension of substation required for the construction power</li> <li>Package includes:</li> <li>Manufacturing, testing, supply and delivery of t</li> <li>Manufacturing, testing, supply and delivery of out relays, test switches, control switches and etc. These materials are to be mounted in the</li> <li>Two new Protection Panels will be installed</li> </ul>	delivery to Muskrat Falls. wo (2) Protection Front Panels. protection relays, self trip relays, lock miscellaneous wire, fuses, terminal, Protection Front Panels.
Work Included:	<ul> <li>Product review acceptance by Consultant/Com</li> <li>Quality, Surveillance and Inspection and Consultant/Company and Supplier.</li> <li>Submission by Supplier of all Document Requi</li> <li>Review of transportation logistics and coordinatits Sub-Contractors).</li> </ul>	npany. I expediting coordination between rements on a timely basis.
Approximate Quantities (only major items are included)	<ul> <li>Schweitzer SEL-387 protection relay</li> </ul>	ated Quantity (Gate 3 Estimate)
Contract Basis	<ul> <li>Schweitzer SEL-551 protection relays 2</li> <li>Schweitzer SEL-321 protection relay 1</li> <li>Schweitzer SEL-351A protection relay 1</li> <li>Protection Front Panel with auxiliary 2 devices (auxiliary relays, switches, fuses, wiring, etc.)</li> </ul>	Unit Rates

Project Base Currency: CAD							
Package No.:		PD0562	Туре:	Type: P-Purchase Order		ler	
Titles	(long):	Supply of Protection Front Panels and Protection Relays (CF) – Construction Power	Revision No	0.:	01		
	(short):	Protection Front Panels (CF)	Date:		13-Apr-2012		
		Combination Lump Sum – Unit Rates	C	ost F	Reimbursable		
Work Excluded:		The following works or activities are excluded:					
		Description Installation and commissioning.					
Quality		Requires Determination of the Equipment Quality Rating	YES	x	NOT		
Reference \$	Section	Determination of Equipment Criticality based on GP-5600-PR-02-E         High       Minor         Significant       Negligible         Moderate       Determination of Quality Surveillance level based on GP-5600-PR-02-E	and final verifi d final quality v final quality ve	erifica	ation.		
Interface with Other Packages			Construction Contract CD0512 will provide all labour, tools and equipment for installation and works excluded, as outlined above.				
Specific Sit	e Condi	itions					
Specific Schedule Conditions		supply line (TL240). The timely delivery of the units and	Energization of all units is dependent upon a coordinated power outage to the existing supply line (TL240). The timely delivery of the units and progress of CD0512 contract are crucial to a scheduled outage window ahead of winter conditions when an outage becomes unfavourable.				
Specific Environment Conditions			Units shall be rated for +40, -40 degrees Celsius ambient temperature range.				

Project Base Currency	c CAD		
Package No.:	PD0562	Type:	P-Purchase Order
Titles (long)	Supply of Protection Front Panels and Protection Relays (CF) – Construction Power		01
(short)		Date:	13-Apr-2012
Specific Safety Conditions	Working around energized equipment; respecting limits of watches, when applicable.	f approach; depl	oyment of safety
Special Requirem (All)	ients		
Equipment List	<ul> <li>Tag #s. For Churchill Falls 230-138 kV ac substa Construction Power. Tag # TBD</li> </ul>	tion extension fo	or Muskrat Falls
Schedule and Mil	estones Item	C	Date
	Issue RFP all items Delivery ROS (Churchill Falls) Installation Complete (Churchill Falls)	т	BD BD BD
Budget	TBD		
Applicable Sub- Project/SPV	Muskrat Falls Generation 🛛 Labrador – Island Tran Labrador Transmission Assets 🗌 Lower Churchill Project		
IBA Package	YES NO		

## Lower Churchill Project

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## PACKAGE DICTIONARY

Project Base Currency: CAD				
Constru	138 kV Circuit Switcher (CF), I ction Power Circuit Switcher (CF), MV Swit	MV Switches & Fuse Cut-outs -	Type: Revision No.: Date:	P-Purchase Order 01 13-Apr-2012
Discipline: Responsibilities: Area Manager: QA / QC:	Fred Wilcox Kenneth Morrison	Package Engineer: Contract Admin. / Buyer:	Ashok Vyas Shauna Cros	sbie
QA / QC: Scope of Work Summary Work Included:	<ul> <li>Package includes</li> <li>Engineering desi circuit switcher fo Bypass switches Falls;</li> <li>Unit will be rated galvanized support</li> <li>Bypass switches outdoor vertical refuse opening; and</li> <li>Fused cut-outs to single pole outdot transformer arrant</li> <li>Fuse handling too</li> <li>Design review act</li> <li>Quality, Surveilla Consultant/Comp</li> <li>Agreement of sch</li> <li>Approval of inspete</li> <li>Submission by Su</li> </ul>	singhamanufacturing, testing, su r extension of Churchill Falls 2 & 3 nos. fuse cutouts for com- at 138 kV, 1200 A; 650 kV BIL rt structure and recommended to be 25 kV, 600 A, 150 kV B nounting on steel structure; S d 2 pole load buster disconnect to be 27 kV rated, 100A, 150 por installation. Fused cut-ou gement. of of 15 foot length suitable for s ceptance by Consultant/Compa- ance and Inspection and	upply and deli 30-138 kV ac s struction powe ; 40 kA for 1 s spare parts. IL, 12.5 kA for MD-40 fuse s s (vertical). kV BIL, 12.0 its to be used SMD-40 fuses any. expediting co	every of one 138 kV substation and 9 nos. or delivery to Muskrat econd; complete with 1 second; to include witch with 90 degree kA for 1 second; for d for station service switch.
	(and its Sub-Cont	ortation logistics and coordinar ractors). g by Supplier on a monthly bas		

Project Base Currency:	CAD		
Package No.:	PD0563	Туре:	P-Purchase Order
Titles (long):	Supply 138 kV Circuit Switcher (CF), MV Switches & Fuse Cut-outs - Construction Power	Revision No.:	01
(short):	138 kV Circuit Switcher (CF), MV Switches & Fuse Cut-outs	Date:	13-Apr-2012
Approximate Quan (only major items a included)		ed Quantity (G	Gate 3 Estimate)
,	138 kV circuit switcher1Bypass Switches for Reclosers9		
	Fused Cut-outs 3		
	Fuse Handling Tool <sup>1</sup>		
Contract Basis	Lump Sum Combination Lump Sum – Unit Rates <u>Remarks</u> :	Cost	Unit Rates ⊠ Reimbursable □
Work Excluded:	The following works or activities are excluded:		
	<b>Description</b> Foundations and Erection.		Package No.
	For bypass switches and fused cut-outs; Erection for e	energization	CD0512
Quality	Requires Determination of the Equipment Quality Rating	YES x	NO
	Determination of Equipment Criticality based on GP-5600-PR-02-E         High       Minor         Significant       Negligible         Moderate       Determination of Quality Surveillance level based on GP-5600-PR-1	and final verification	cation.
Reference Section	The following main documents are used to define the so	cope:	
	<ul> <li>Specification 505573-313A-47ES-0024</li> </ul>		

## Lower Churchill Project

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Project Base (	Currency:	CAD			
Package No.:		PD0563	Ту	/pe:	P-Purchase Order
Titles	(long):		138 kV Circuit Switcher (CF), MV Switches & Fuse Cut-outs - Rection Power	evision No.:	01
	(short):			ate:	13-Apr-2012
Interface w Packages	ith Othe	ər 🛛	Construction Contract CD0512 will provide all labour, tools a foundations and works excluded, as outlined above.	and equipme	ent for preparation of
Specific Sit	te Cond	itions			
Specific Sc Conditions			Energization of all units is dependent upon a coordinated po supply line (TL240). The timely delivery of the units and prog crucial to a scheduled outage window ahead of winter condit unfavourable.	gress of CD0	0512 contract are
Specific En Conditions		ent	As noted, units shall be rated for +40, -40 degrees Celsius a	ambient temp	perature range.
Specific Sa Conditions			Working around energized equipment; respecting limits of ap watches, when applicable.	pproach; de	ployment of safety
Special Ree (All)	quireme	ents			
Equipment	List		<ul> <li>Tag #s. For Churchill Falls 230-138 kV ac substation Construction Power. Tag # TBD</li> </ul>	n extension f	for Muskrat Falls
Schedule a	nd Mile	stones	Item		Date
			Issue RFQ Award Mobilize Delivery ROS (Churchill Falls & Muskrat Falls) Installation Complete (Churchill Falls & Muskrat Falls)		TBD TBD TBD TBD TBD
Budget			TBD		
Applicable Project/SP			Muskrat Falls Generation 🛛 Labrador – Island Transm Labrador Transmission Assets 🗌 Lower Churchill Project –		
IBA Packaç	je	·	YES NO		

Package No.: Titles (long): (short):	SD0536 Provision of Integrated Commissioning Support Servic Integrated Commissioning Support Services	Type: es Revision No.: Date:	S-Service Contract 01 13-Apr-2012
Discipline: Responsibilities:	Manager:	ract Admin. / Buyer: TBD	
Scope of Work Summary	<ul> <li>Package includes:</li> <li>Provision of specialized techr electromechanical equipment tes for this contract and commissionir</li> </ul>	ing and commissioning. Acce	eptance of personne
Work Included:	<ul> <li>Pre-commissioning tests of subs and Soldiers Ponds once CD0502</li> <li>Pre-commissioning tests of Pond au Diable and Dowden's Point on</li> <li>Pre-commissioning of electromed Western Avalon, Holyrood, Oxe Valley/Goose Bay,</li> <li>Pre-commissioning of electromed by CH0030</li> <li>Support for Energization and Com</li> <li>Pre-commissioning and commission Interface and coordination with ot</li> <li>On-site management of pre-commission</li> </ul>	mechanical completion is real Electrode electromechanical ce CD0508 mechanical completion hanical equipment related to n Pond and Hardwoods and hanical equipment of MF Hyd missioning test of the Island I oning reports her EPC Contractors commiss	ached equipment at L'anse letion is reached System Upgrades ir d possibly in Happy lro Plant not covered _ink
Approximate Quan (only major items a included)	tities	Estimated Quantity number of tests based of equipment	on quantity of

#### PACKAGE DICTIONARY

Project Base Currency: CAD

Package No.: SD053 Titles (long): Provis	36 sion of Integrated Commissioning Support Services	Type: Revision No.:	S-Service Contract 01
	ated Commissioning Support Services	Date:	13-Apr-2012
Contract Dania	Lump Sum		Unit Rates
Contract Basis	Combination Lump Sum – Unit Rates	Cost R	eimbursable
	<u>Remarks</u> :		
	Pre-commissioning tests: based on unit rate per type of based on unit rate per day or month of personnel.	equipment Con	nmissioning;
Work Excluded:	The following works or activities are excluded:		
	Description		Package No
	Services included with turnkey packages		CD0501 CD0508 CD0534 CH0030
	All works related to Construction Power and telecom		
Quality	Contractor shall comply with Quality Requirement Specifi 38RA-0003.	cation number	505573-0000-
Reference Section	The following main documents are used to define the sco	ope:	
	<ul> <li>Substations Single line diagrams and list of equip</li> <li>Commissioning time schedule</li> </ul>	oment	
Interface with Other Packages	<ul> <li>As referenced in Work Excluded</li> <li>Interface with CFLCo. for CF extension and NL H substations</li> </ul>	lydro in SP and	upgraded
Specific Site Conditions	Tests in existing facilities with energized conditions where supervised by CFLCo. and NL Hydro	e outage must b	be scheduled and
Specific Schedule Conditions	<ul> <li>Energization</li> <li>First reduced level power transfer on the Island L</li> <li>Integration of MF T/G unit</li> </ul>	ink	
	Full power transfer of Island Link to program depending of	on network disp	atcher
Specific Environment Conditions	<ul> <li>Outdoor for yard equipment in winter and spring</li> <li>Indoor for equipment in buildings</li> </ul>	time	
Specific Safety Conditions	<ul> <li>Pre-commissioning: Works in energised installati Holyrood, Oxen Pond and Hardwoods) and HV/G</li> </ul>		Vestern Avalon,

Project Base Currency: CAD			
Package No.: SD05	36	Type: S-Service Contra	act
Titles (long): Provi	sion of Integrated Commissioning Support Services	Revision No.: 01	
(short): Integr	ated Commissioning Support Services	Date: 13-Apr-2012	
Special Requirements (All)	<ul> <li>Responsiveness of Contractor to be based on con proposed personnel as well as previous project re protocols and compliance with time schedule</li> </ul>		and
Equipment List	Bidders to submit their instrument list to perform the tests		
Schedule and Milestones	Item	Date	
	Issue RFQ Award Mobilize Initialization Completion	TBD TBD TBD TBD TBD	
Budget			
Applicable Sub- Project/SPV	Muskrat Falls Generation 🛛 Labrador – Island Trans		
IBA Package	YES NO		

oe: vision No.: te:	S- Service Contract n No.: 01 13-Apr-2012
Claude-Oliv Sylvain Mar	ıde-Olivier Pitt ain Marsan
	es for the Lower Church er Camp Phase at Muskr
	ces for the Lower Church rring the Early Construction
	Churchill project at Muskr uction Work Phase and th
eement fo	ent for providing the LMR
t Falls alley – Gc	uskrat Falls and Happy lls y – Goose Bay office avalin Inc. Happy Valley
opy Vall krat Falls phone Ne rnet acces ne Networ	at Muskrat Falls and Valley – Goose Ba Falls Starter Camp site a ne Network services access at Muskrat Falls letwork access at Muskr
e	

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Project Base Currency:	CAD				
Package No.: Titles (long): (short):	D0560 Provision of Early Works Telecommunication Services (MF) Early Works Tele. Services (MF)	Revision No.:	S- Service Contract 01 13-Apr-2012		
Approximate Quant (only major items a included)		Estimated Quantity 40 30 1 29 12 m	Unit Rates		
Contract Basis	Combination Lump Sum – Unit Rate <u>Remarks</u> : Service Agreement		eimbursable		
Work Excluded:	The following works or activities are excluded           Description           Providing the SLI and NALCOR LMRS and c           The supply of the contractors' radio and cellu           Providing the contractors' LMRS and cellular	cellular devices. Ilar services.	Package No. PD0533 Contractors Contractors		
Quality		Contractor shall comply with Quality Requirement Specification number 505573-0000-			
Reference Section	<ul> <li>Design Basis 505573-480A-47ER-007</li> <li>Project.</li> </ul>	<ul> <li>The following main documents are used to define the scope:</li> <li>Design Basis 505573-480A-47ER-0015 as formulated for the Lower Churchill Project.</li> </ul>			
Interface with Other Packages	<ul> <li>Early Works Construction Phase Contract for Telecommunication devices PD0533: devices (LMRS portables and mobiles and CTS and MIS) will be required to test th radio services.</li> <li>Provision of Happy Valley – Goose Bay Project Office Space SM0703: The office will be required to install the telecommunication services.</li> <li>Supply and Install Accommodation Complex Buildings: The Starter Camp will be required to install the telecommunication services and infrastructure.</li> </ul>				
Specific Site Condit	· · · · · · · · · · · · · · · · · · ·				
Specific Schedule Conditions					

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Project Base C	Currency:	CAD	
Package No.: Titles	(long): (short):	SD0560       Type:       S- Service Con         Provision of Early Works Telecommunication Services (MF)       Revision No.:       01         Early Works Tele. Services (MF)       Date:       13-Apr-2012	itract
Specific En Conditions			
Specific Sa Conditions Special Rec (All)	-	nts	
Equipment	List	Not Applicable	
Schedule a	nd Mile	EOI Date: TBD RFP Date: TBD Award Date: TBD Receive Initial Vendor Drawings: TBD Forecast at Site: TBD Construction Complete: TBD Dates for milestones will be updated of the Project baseline schedule is in plan	
Budget		TBD	
Applicable Project/SPV		Muskrat Falls Generation       Labrador – Island Transmission Link       Image: Comparison Com	
IBA Packag	e	YES NO	

# LCP PACKAGES DICTIONARIES – COMPONENT 4

Package No.: Titles (long) (short)		ction of 315 kV HVac Transmis ction of HVac TL	sion Line (MF TO CF)	Type: Revision No.: Date:	C- Contract 01 13-Apr-2012
Responsibilities: Are	nsmission Li a Manager: / QC:	nes Kumar Kandaswamy Kenneth Morrison	Package Engineer: Contract Admin. / Buyer:	Hamidreza E Stella Roch	
Scope of Work Summary:			ludes the construction work hase, 315 kV HVac transmis Falls to Churchill Falls.		•
		approximately 0.6 km each Churchill Falls. Plus, four	package includes two sh , between the existing switch short 315 kV interconnection rerhouse and the proposed sy	yard and the province the province of the prov	roposed substation a imately 0.5 km each
		each (considering two circ 735 kV interconnection line	divided into two contracts wit uits per 125 km section). Th is and the second contract wi ured so bidders may bid on	ne first contract Il include the 3	will also include th 15 kV interconnectio
Work Included:		138 kV (TL240) wood pole Substation and Happy Val tangent, light angle, self-su phase configuration and tw a total right-of-way (ROW) 138 kV transmission line. (OHSW) on one peak and length of the line. Further structures along the entire aluminum conductor, steel	smission lines will generally le e H-Frame transmission line ley-Goose Bay. Transmission apporting heavy angle and str to peaks for shielding. The ne width of 100 m adjacent to Each transmission line will an optical ground wire (OP more, counterpoise conduct length of the line. Phase con reinforced (ACSR) Drake and PGW will be of similar me ork includes:	between the ex- n lines will typic rain lattice struct ew transmission the 20 m wide Il employ an o PGW) on the or tor will be use ductor is twin b d OHSW condu	xisting Churchill Fal cally employ guyed- ctures, with horizonta n lines will be built o ROW of the existin overhead shield win ther, along the entire ther, along the entire d to connect all the oundle 795 kcmil 26/ uctor is 12.7 mm (½
		accommodation ca	ruction of the Contractor's ow mp, including all associated p v down area and camp;	•	
			ments needed by the Contrac ne Contractor's responsibili		
		-	rom the marshalling yard to th		-
			ccess previously created by on, as per the requirements o		

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Package No.: Titles (long): (short):		CT0319 Construction of Construction of H	315 kV HVac Transmission Line (MF TO CF) Vac TL	Type: Revision No.: Date:	C- Contract 01 13-Apr-2012
		•	Supply and installation of temporary bridge construction purposes, as per the requirement		
		•	Staking of tower locations;		
		•	Installation of foundations for the lattice st (suspension) and self-supporting structures responsible for supplying HP piles and concr	s (dead-ends). Th	• •
		•	Assembly and erection of lattice steel towers	;	
		•	Installation of insulators, guy wires, structure assembly hardware;	e grounding syster	ns and all associate
		•	Installation of counterpoise conductor along for obstacle avoidance (rivers, road, etc.);	the lines. Ground	ling rods will be use
		•	Stringing and sagging of phase conductor spacer dampers and dampers;	s, OHSW and C	PGW complete w
		•	Pre-commissioning;		
		•	Meeting all environmental requirements;		
		•	Inspection, site cleanup and mark-up of as-b	uilt drawings at the	e end of construction
		•	The Contractor is to restore any damage ca of the Engineer; and	used to any prope	erty to the satisfacti
		•	Demobilization.		
			e will be five types of towers used for the constr 00 metric tonnes of steel) and the associated to		
		•	1,042 Type A, Tangent Tower (0° to 1°), Guy	ved-Y Design;	
		•	66 Type B, Light Angle Tower (0° to 8°), Guy	ed-Y Design;	
		•	68 Type C, Angle Dead-End - Strain (0 $^{\circ}$ to 30	0°), Self-Supportin	g Towers;
		•	84 Type D, Angle Dead-End - Strain (0 $^{\circ}$ to 4	5°), Self-Supportin	g Towers; and
		•	16 Type E, Angle Dead-End - Strain (45° to $\$$	90°), Self-Supporti	ng Towers.
			e will be five types of foundations used for oximately 1,960 tonnes of steel) and the associ		
		•	320 Type 1: 250 kPa Steel Grillage;		
		•	150 Type 2: 100 kPa Steel Grillage;		
		•	680 Type 3: Steel Foundation Anchored to B	edrock;	
		•	78 Type 4: Driven Pile Foundation;		

#### Lower Churchill Project

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Project Base (	Currency:	CAD				
Package No.: Titles	(long): (short):		uction of 31	5 kV HVac Transmission Line (MF TO CF) TL	Type: Revision No.: Date:	C- Contract 01 13-Apr-2012
			•	48 Type 5: Bog Foundation;		
				Quantity and Type of Foundation for 735 kV Inter Determined; and	connection l	ines To Be
				Quantity and Type of Foundation for 315 kV Inter Determined.	connection l	ines To Be
			There will be two types of conductors used for the construction of the HVac lines associated total estimated quantities are:			
			•	3,083 km of 795 kcmil 26/7 ACSR Drake; and		
			•	15 km of 954 kcmil 54/7 Strands Cardinal ACSR.		
				vill be two types of OPGW used for the consti ted total estimated quantities are:	ruction of th	e HVac lines and the
				550.2 km of 12.7 mm (½") Galvanized (Class B) \$ and	Stranded Ste	eel Wire, Grade 220;
			•	1.2 km of 14.3 mm (9/16") Galvanized (Class B)	Stranded Ste	el Wire, Grade 220.
				vill be two types of OHSW used for the constr ted total estimated quantities are:	ruction of th	e HVac lines and the
			•	504 km of 12.7 mm (½") Galvanized (Class B) St	randed Stee	Wire, Grade 220; and
			•	1.2 km of 14.3 mm (9/16") Galvanized (Class B) \$	Stranded Ste	el Wire, Grade 220.
			respons is respo consum	s will be free-issued by Nalcor at designated man ible for material transport from the marshalling yan nsible for providing all labour, supervision, equips ables required to construct the lines, as well as p roads, accommodations, transportation, security	ard to the wo ment and co rovide all inc	rk site. The Contractor nstruction lirect support such as
Approxima	te Quan	tities	Item	Description	Unit	Quantity
(Major Item			1	Type 4, Driven Pile Foundation	each	78
			2	Type 5: Bog Foundation	each	48
			3	Remaining Items		To Be Determined
Contract Ba	asis:			ntract basis is: Lump Sum 🔲 nation Lump Sum – Unit Rates 🖾 Cos	Unit Ra t Reimbursa	

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rrency: CAD	ase Currency:	Ject Base C
CT0319	lo.:	ckage No.:
	(long):	es
(short): Construction of HVa	(short):	
ed: Descr	cluded:	ork Exclu
Cleari to CF)		
Supply		
Handl		
Contra 38RA-0		uality:
ection: The foll	ce Section:	ference S
Lower ( SLI Doo Nalcor		
n Other Descr	e with Other	erface wi
Provis	es:	ckages:
Provis		
Third		
Suppl		
Conditions: Not App	Site Condi	ecific Sit
edule Any oth	Specific Schedule Conditions:	
• •		

Project Base Currency:	CAD

Package No.: Titles (long): (short):	CT0319 Construction Construction of	of 315 kV HVac Transmission Line (MF TO CF) HVac TL	Type: Revision No.: Date:	C- Contract 01 13-Apr-2012
	•	ST0311 – Provision of Survey Services - 315	5 kV HVac	
	Any •	other packages that cannot proceed before the s Not Applicable	subject package ha	as started:
Specific Environme Conditions:		e environmental requirements for the Lower Churchill Project are described in owing documents: Project-Wide Environmental Protection Plan – Component 1 and 4b, Volume I II (SLI Document #: 505573-0000-68RA-I-0005; Nalcor Document #:LCP-SN-0		and 4b, Volume I an
	b)	0000-EV-PL-0002-01) Project-Wide Rehabilitation Plan (SLI Do Nalcor Document # LCP-SN-CD-0000-EV-Pl		3-0000-68RA-I-0007
	c)	Regulatory Compliance Plan (SLI Documer Document # LCP-SN-CD-0000-RT-PL-0001-		-68RA-I-0003, Nalco
	d)	Waste Management Plan – Component 1 a 68RA-I-0008, Nalcor Document # LCP-SN-0	•	
	e)	Emergency Response Plan (SLI Documen Document # LCP-SN-CD-0000-HS-PL-0004-		68RA-I-0012, Nalco
	f)	Contract-Specific Environmental Protection Document # 505573-0000-68RA-I-0011, Nal PL-0006-01)		, , ,
	g)	Technical Specification - General Environm 505573-0000-68RA-I-0015, Nalcor Docume 01).		•
	h)	Exhibit 6 – Environmental and Regulatory Co	ompliance Require	ments
	i)	Design Criteria – Erosion and Sedimentati 315A-4EEC-0001, Nalcor Document # MFA-	•	
	j)	Environmental Design Criteria – Site Water ( 4EEC-0002, Nalcor Document # MFA-SN-CI	•	
	k)	Recommendation on Biodegradable Fluids Document #. 505573-0000-4EER-0002, Nale RP-0002-01)		•
	I)	Recommendation on Wood Preservation C (SLI Document # 505573-0000-4EER-0001, EV-RP-0001-01)		•
	Not	e: Permit requirements are noted in Exhibit 6 (ite	m h above)	

#### Lower Churchill Project

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Package No.: Titles (long): (short):	CT0319 Construction of 315 kV HVac Transmission Line (MF TO CF) Construction of HVac TL	Type: Revision No.: Date:	C- Contract 01 13-Apr-2012
Specific Safety Conditions:	The health and safety and security requirements described in the following documents: <ul> <li>SNC-Lavalin Health and Safety Management</li> </ul>		-
	SNC-Lavalin Site Security and Access Control	ol Plan (505573-0	000-68RA-I-0002-0
	SNC-Lavalin Global Power Health and Safet     68-AG-0001)	y Management S	ystem (503011-000
	SNC-Lavalin Critical Risk Control Protocols (6	845.2.1.1-EN-Re	ev.4 03/11)
Special Requireme	its: Not Applicable		
Free Issued Materia	Is: Description		Package No.
	The supply of transmission line conductors		PT0300
	The supply of HVac insulators		PT0301
	The supply of steel towers		PT0302
	The supply of tower hardware		PT0303
	The supply of optical ground wire (OPGW)		PT0304
	The supply of steel tower foundations		PT0307
	The supply of steel wires		PT0326
	The supply of anchor materials		PT0335
Major Equipment L	st: Not Applicable		
Schedule and	EOI Date:	17-Aug-2011	
Milestones:	RFP Date:	To Be Determine	ed
	Award Date:	To Be Determine	ed
	1 <sup>st</sup> Vendor Data Required by:	To Be Determine	
	Construction Complete:	To Be Determine	ed
	Construction Complete.		
	Dates for milestones will be updated once the Project	ct baseline sched	ule is in place.

## Lower Churchill Project

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Project Base	Currency:	CAD		
Package No.:		CT0319	Type:	C- Contract
Titles	(long):	Construction of 315 kV HVac Transmission Line (MF TO CF)	Revision No.:	01
	(short):	Construction of HVac TL	Date:	13-Apr-2012
Applicable Project/SP			- Island Transmissio Churchill Project – G	
IBA Packag	ge:	Yes 🗌 No 🖂		

Package No.: Titles (long): (short):		ction of 350 kV HVdc Transmiss tion of HVdc TL – 1	ion Line – Section 1	Type: Revision No.: Date:	C- Contract 01 13-Apr-2012
	smission Li Manager: QC:	nes Keenan Healey Kenneth Morrison	Package Engineer: Contract Admin. / Buyer:	Hamidreza E Sylvain Mars	
Scope of Work Summary:		±350 kV HVdc transmissi Mountains including approx towers from Muskrat Falls to	des the construction work for on line from Muskrat Fall kimately 385 km of electrod o approximately 20 km from	s to the end e line carried o the coast.	of the Long Range n the ±350 kV HVdc
		km, near Lanse au Diable. The scope of work will k approximately 309 km of electrode line. The second transmission line, approxim	The scope of work will be divided into two contracts. The first contract will include approximately 309 km of $\pm$ 350 kV HVdc transmission line and approximately 309 km of electrode line. The second contract will include approximately 301 km of $\pm$ 350 kV HVdc transmission line, approximately 76 km of electrode line and approximately 20 km of wood pole electrode line. The scope is structured so bidders may bid on either contract		
Work Included:		The Labrador section from Muskrat Falls to around Bujeault River is approximately 309 km and the section from Bujeault River to the end of the Long Range Mountains (LRM) is approximately 301 km. The new transmission line will be built on a total right-of-way (ROW) width of 60 m. The construction work includes:			
		<ul> <li>Mobilization, construction of the Contractor's own lay of accommodation camp, including all associated permits operation of the lay down area and camp;</li> </ul>		•	
			ements needed by the Contractor and telecom connections the Contractor's responsibility and must meet all regula		
		Material handling fi	om the marshalling yard to t	he Contractor's	lay down areas;
			f access previously created by the clearing contractor, as require tion, as per the requirements of the Owner supplied permits;		
			tallation of temporary bridges, culverts, etc. that are necessary for rposes, as per the requirements of the owner supplied permits;		
		Staking of tower loc	cations;		
		(suspension) and	dations for the lattice stee self-supporting structures ( plying HP piles and concrete	dead-ends). Th	• •

Package No.:		CT0327		Type:	C- Contract	
Titles	(long): (short):	Construction of Construction of H	350 kV HVdc Transmission Line – Section 1 /dc TL – 1	Revision No.: Date:	01 13-Apr-2012	
		•	Assembly and erection of lattice steel towers	•		
		•	Installation of optical ground wire (OPGW) of structure grounding systems and all associat	• •		
		•	Installation of counterpoise conductor along for obstacle avoidance (rivers, road, etc.);	the line. Ground	ing rods will be us	
		•	<ul> <li>Installation and testing of all-dielectric self-supporting (ADSS)</li> </ul>			
		•	Stringing and sagging of the two pole 3 conductors (ASC), electrode conductors (11 steel reinforced (ACSR) Grackle for 50 mm ACSR Falcon for Alpine load zone) on the La	92.5 kcmil 54/19 n ice load zone a	aluminum conduct nd 1590 kcmil 54,	
		•	Installation of the wood pole electrode line 1192.5 kcmil 54/19 ACSR Grackle conductor		•	
		•	Pre-commissioning;			
		•	Meeting all environmental requirements;			
		•	Inspection, site cleanup and mark-up c construction;	f as-built drawi	ngs at the end	
		•	The Contractor is to restore any damage can of the Engineer; and	used to any prope	erty to the satisfact	
		•	Demobilization.			
			will be five types of towers used for the constr 0 tonnes of steel) and the associated total estim			
		•	1,808 Type A, Tangent Tower (0° to 1°), Guy	ed-Y Design;		
		•	47 Type B, Light Angle Tower (0° to 8°), Guy	ed-Y Design;		
		•	108 Type C, Angle Dead-End - Strain (0 $^{\circ}$ to 3	80°), Self-Supporti	ng Towers;	
		•	80 Type D, Angle Dead-End - Strain (0° to 45	5°), Self-Supportin	g Towers; and	
		•	27 Type E, Angle Dead-End - Strain (45° to 9	00°), Self-Supporti	ng Towers.	
		(appro	e will be five types of foundations used fo oximate amount of steel is to be determined ities are:			
		•	To Be Determined for Type 1: 250 kPa Steel	Grillage;		
		•	To Be Determined for Type 2: 100 kPa Steel	Grillage;		
		•	To Be Determined for Type 3: Steel Foundati	on Anchored to B	edrock;	
		•	To Be Determined for Type 4: Driven Pile For	undation;		

Project Base (	Currency:	CAD				
Package No.: Titles	(long): (short):		uction of 35 ction of HVd	0 kV HVdc Transmission Line – Section 1 c TL – 1	Type: Revision No.: Date:	C- Contract 01 13-Apr-2012
			•	To Be Determined for Type 5: Bog Foundation;		
				vill be four types of conductors used for the cor ted total estimated quantities are:	nstruction of	the HVdc line and the
			•	1,279,262 m of 3640 kcmil 91/0 ASC Pole Condu	uctors;	
				350,380 m of 1192.5 kcmil 54/19 ACSR Grackle Load Zone);	Electrode Co	onductor (50 mm Ice
				104,607 m of 1590 kcmil 54/19 ACSR Falcon Ele Alpine Load Zone); and	ectrode Conc	luctor (135 mm Ice
				70,000 m of 1192.5 kcmil 54/19 ACSR Grackle E Electrode Line).	lectrode Co	nductor (Wood Pole
				will be three types of OPGW used for the const ted total estimated quantities are:	struction of	the HVdc line and the
			•	420,386 m of 140 kN,14.5 mm 24 Fibre OPGW (	50 mm Ice Z	one);
			•	106,294 m of 177 kN,15.5 mm 24 Fibre OPGW (	75 mm Ice Z	one);
			•	119,102 m of 277 kN, 20.6 mm 24 Fibre OPGW	(135 mm lce	Alpine Zone);
				vill be will be approximately 20 km of all-dielectric sed for the construction of the wood pole electro ned.		•
			The us location	e of helicopters will likely be required for sect is.	ions of the	LRM and some other
			respons is resp consum	Is will be free-issued by Nalcor at designated m sible for material transport from the marshalling y ponsible for providing all labour, supervision hables required to construct the lines, as well as roads, accommodations, transportation, security	ard to the wo on, equipmo provide all ir	ork site. The Contractor ent and construction indirect support such as
Approvime	to Quen	414100				
Approximation (Major Item			ltem	Description           Type 4, Driven Pile Foundation	Unit	Quantity To Be Determined
			2	Type 5, Bog Foundation		To Be Determined
			3	Remaining Items		To Be Determined
Contract Ba	asis:			ontract basis is: Lump Sum 🔲 ination Lump Sum – Unit Rates 🛛 Cos	Unit Ra t Reimbursa	

#### Lower Churchill Project

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Package No.:		CT0327		Type:	C- Contract
Titles	(long):	Construe	ction of 350 kV HVdc Transmission Line – Section 1	Revision No.:	01
	(short):	Construct	tion of HVdc TL – 1	Date:	13-Apr-2012
Work Exclu	ıded:		Description		Package No.
			Clearing of Right-of-Way for HVdc Transmission Line	e - Section 1	CT0343
			Supply of Owner's Telecom and IT Equipment		Not Applicable
			Handling of Marshalling Yard		To Be Determine
		-			
Quality:			Contractor shall comply with Quality Requirement	Specification	Number 505573-00
<b>,</b>			38RA-0003.		
	Section:			·	
Reference	Section:		38RA-0003.	scope: Management F	Plan
Reference			38RA-0003. The following main document was used to define the s Lower Churchill Phase 1 Development – Construction SLI Document Number: 505573-0000-30PL-I-0003 Nalcor Reference Number: LCP-SN-CD-0000-CS-PL-	scope: Management F	
Reference s			38RA-0003. The following main document was used to define the s Lower Churchill Phase 1 Development – Construction SLI Document Number: 505573-0000-30PL-I-0003 Nalcor Reference Number: LCP-SN-CD-0000-CS-PL- Description	Scope: Management F 0002-01	Plan Plan Package No. ST0310
			38RA-0003. The following main document was used to define the s Lower Churchill Phase 1 Development – Construction SLI Document Number: 505573-0000-30PL-I-0003 Nalcor Reference Number: LCP-SN-CD-0000-CS-PL-	Scope: Management F 0002-01	Package No.
Reference s			38RA-0003. The following main document was used to define the s Lower Churchill Phase 1 Development – Construction SLI Document Number: 505573-0000-30PL-I-0003 Nalcor Reference Number: LCP-SN-CD-0000-CS-PL- Description Provision of Geotechnical Investigation Services - 35	Scope: Management F 0002-01	Package No.           ST0310           ST0312
Reference s			38RA-0003. The following main document was used to define the s Lower Churchill Phase 1 Development – Construction SLI Document Number: 505573-0000-30PL-I-0003 Nalcor Reference Number: LCP-SN-CD-0000-CS-PL- Description Provision of Geotechnical Investigation Services - 35 Provision of Survey Services - 350 kV HVdc	Scope: Management F 0002-01	Package No. ST0310
Reference s			38RA-0003. The following main document was used to define the s Lower Churchill Phase 1 Development – Construction SLI Document Number: 505573-0000-30PL-I-0003 Nalcor Reference Number: LCP-SN-CD-0000-CS-PL- Description Provision of Geotechnical Investigation Services - 35 Provision of Survey Services - 350 kV HVdc Supply and Install Converters, Harmonic Filters & Tra Compounds Construction of Electrodes Sites	Scope: Management F 0002-01 50 kV HVdc	Package No.           ST0310           ST0312
Reference s			38RA-0003. The following main document was used to define the s Lower Churchill Phase 1 Development – Construction SLI Document Number: 505573-0000-30PL-I-0003 Nalcor Reference Number: LCP-SN-CD-0000-CS-PL- Description Provision of Geotechnical Investigation Services - 35 Provision of Survey Services - 350 kV HVdc Supply and Install Converters, Harmonic Filters & Tra Compounds	Scope: Management F 0002-01 50 kV HVdc ansition	Package No.           ST0310           ST0312           CD0501
Reference s			38RA-0003. The following main document was used to define the s Lower Churchill Phase 1 Development – Construction SLI Document Number: 505573-0000-30PL-I-0003 Nalcor Reference Number: LCP-SN-CD-0000-CS-PL- Description Provision of Geotechnical Investigation Services - 35 Provision of Survey Services - 350 kV HVdc Supply and Install Converters, Harmonic Filters & Tra Compounds Construction of Electrodes Sites	Scope: Management F 0002-01 50 kV HVdc ansition	Package No.           ST0310           ST0312           CD0501           CD0508

Package No.:		CT0327		Type:	C- Contract
Titles	(long):		350 kV HVdc Transmission Line – Section 1	Revision No.:	01
	(short):	Construction of H		Date:	13-Apr-2012
Specific So Conditions		Any 6 • • • • •	other packages that have to be complete before CT0343 – Clearing of Right-of-Way for HVdd PT0308 – Supply of Steel Tower Foundation PT0328 – Supply of Transmission Line Cond PT0329 – Supply of HVdc Insulators - 350 k PT0330 – Supply of Steel Towers - 350 kV H PT0331 – Supply of Tower Hardware - 350 k PT0334 – Supply of Steel Wires - 350 kV H PT0351 – Supply of Wood Poles PT0352 – Supply of Anchor Materials - 350	c Transmission Lin n - 350 kV HVdc ductors - 350 kV H V HVdc HVdc kV HVdc Vdc	e - Section 1
		• • • Any o	PT0353 – Supply of Optical Ground Wire (O ST0310 – Provision of Geotechnical Investig ST0312 – Provision of Survey Services - 35 SM0707 – Provision of Helicopter Services other packages that cannot proceed before the Not Applicable	9PGW) - 350 kV H\ gation Services - 38 0 kV HVdc	50 kV HVdc
Specific Er Conditions			environmental requirements for the Lower ( wing documents: Project-Wide Environmental Protection Plar II (SLI Document #: 505573-0000-68RA-I-( 0000-EV-PL-0002-01)	n – Component 1 a	and 4b, Volume I an
		b)	Project-Wide Rehabilitation Plan (SLI Do Nalcor Document # LCP-SN-CD-0000-EV-P		3-0000-68RA-I-0007
		c)	Regulatory Compliance Plan (SLI Docume Document # LCP-SN-CD-0000-RT-PL-0001		-68RA-I-0003, Nalco
		d)	Waste Management Plan – Component 1 a 68RA-I-0008, Nalcor Document # LCP-SN-0	•	
		e)	Emergency Response Plan (SLI Documer Document # LCP-SN-CD-0000-HS-PL-0004		68RA-I-0012, Nalco
		f)	Contract-Specific Environmental Protecti Document # 505573-0000-68RA-I-0011, Na PL-0006-01)	•	· · · ·
		g)	Technical Specification - General Environr 505573-0000-68RA-I-0015, Nalcor Docum 01).		•

Package No.:	(1)	CT0327		Type:	C- Contract
Titles	(long):		f 350 kV HVdc Transmission Line – Section 1	Revision No.:	01
	(short):	Construction of	AVdC TL - 1	Date:	13-Apr-2012
		h)	Exhibit 6 – Environmental and Regulatory C	ompliance Require	ments
		i)	Design Criteria – Erosion and Sedimentat 315A-4EEC-0001, Nalcor Document # MFA	,	
		j)	Environmental Design Criteria – Site Water 4EEC-0002, Nalcor Document # MFA-SN-C	•	
		k)	Recommendation on Biodegradable Fluids Document #. 505573-0000-4EER-0002, Na RP-0002-01)		•
		I)	Recommendation on Wood Preservation ( (SLI Document # 505573-0000-4EER-0001, EV-RP-0001-01)	•	•
		Note	: Permit requirements are noted in Exhibit 6 (ite	m h above)	
		•	SNC-Lavalin Health and Safety Managemen SNC-Lavalin Site Security and Access Co 00) SNC-Lavalin Global Power Health and Safe 68-AG-0001)	ontrol Plan (50557 ety Management S	3-0000-68RA-I-000 ystem (503011-000
		•	SNC-Lavalin Critical Risk Control Protocols	(6845.2.1.1-EN-Re	ev.4 03/11)
Special Rec	quireme	nts: Not /	Applicable		
Free Issued	Matori		scription		Paakaga No
100 135000	materia	500	e supply of conductors		Package No. PT0328
			e supply of insulators		PT0329
			e supply of tower steel		PT0329
			e supply of tower lardware		PT0331
			e supply of optical ground wire (OPGW)		PT0353
			e supply of steel tower foundations		PT0308
			e supply of steel wires		PT0308
			e supply of wood poles		
					PT0351
			e supply of anchor materials		PT0352
Major Equip		Inti Net	Applicable		

#### Lower Churchill Project

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## PACKAGE DICTIONARY

Project Base Currency: CAD

Package No.:		CT0327 Type:	C- Contract
Titles	(long):		01
	(short):	: Construction of HVdc TL – 1 Date:	13-Apr-2012
Schedule and Milestones:		EOI Date: To Be Determine RFP Date: To Be Determine Award Date: To Be Determine 1 <sup>st</sup> Vendor Data Required by: To Be Determine Construction Complete: To Be Determine	ed ed ed ed
Budget:		Dates for milestones will be updated once the Project baseline sched To Be Determined	ule is in place.
Applicable Sub- Project/SPV:		Muskrat Falls Generation Labrador – Island Transmis Labrador Transmission Assets Lower Churchill Project –	_
IBA Package:		Yes 🗌 No 🖾	

Project Base Currency: 0	CAD				
Titles (long): (	CT0341 Clearing of F CF) Clearing of RC		Vac Transmission Line(MF to	Type: Revision No.: Date:	C- Contract 01 13-Apr-2012
, , , , , , , , , , , , , , , , , , ,					
Discipline: Transmi Responsibilities: Area Ma QA / QC		umar Kandaswamy enneth Morrison	Package Engineer: Contract Admin. / Buyer:	Ananth Rao Stella Roche	
Scope of Work Sumr	ap	proximately 500 km of t	ludes the right-of-way clearing two parallel, single circuit, 3-ph 250 km in length) from Muskra	ase, 315 kV H∖	ac transmission
	ap		ct package includes four sh each, between the proposed ls.		
	ea 31	ch (considering two circ	divided into two contracts with cuits per 125 km section). The les. The scope is structured so cts.	second contrac	t will also include the
Work Included:	Th •		construction of the Contractor mits for the installation and ope		
	•		ements needed by the Contrac the Contractor's responsibilit		
	•	•	construction of the Contractor's		
	•		llation of temporary bridges, c W) clearing purposes, as pe		
	•	felling all trees an	g work will be carried out on a id shrubs higher than 1 m at m , measured from the highest le	aturity. Trees a	
	•		vaging of all commercial stems piled along and within the RO		are bucked in 2.5 m
	•		ranches and cutting residue s, non-commercial size stems		
	•	Meeting all enviro	nmental requirements;		
	•	The Contractor is of the Engineer; a	to restore any damage cause and	d to any prope	ty to the satisfaction
	•	Demobilization.			

## Lower Churchill Project

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Project Base (	Jurrency:	CAD				
Package No.:		CT0341			Туре:	C- Contract
Titles	(long):	Clearin CF)	g of Right-c	of-Way for 315 kV HVac Transmission Line(MF to	Revision No.:	01
	(short):		of ROW HV	/ac TL	Date:	13-Apr-2012
			For Con	tract 1, there will be an approximate total clearin	g area of 1,173	.5 ha.
			For Con	tract 2, there will be an approximate total clearin	g area is 1,172	.3 ha.
			Addition	ally, this contract package includes the ROW cle	earing for the 31	15 kV
			intercon	nection lines. It is important to note that this part ract package CH0048 at a later date.	-	
			construc	ontractor is responsible for providing all lab ction consumables required for clearing, as well ss roads, accommodations, transportation, secu	as provide all i	indirect support such
Approxima	to Quan	titioe				0
(Major Item			Item	Description	Unit	Quantity 1,173.5
(	, <b>,</b>	-	2	Clearing for Contract 1 Clearing for Contract 2	ha ha	1,172.3
					Па	1,172.5
Contract Ba			Combi	Lump Sum 🔲 Ination Lump Sum – Unit Rates 🛛 Cos	Unit Rates st Reimbursable	
Work Exclu	ided:		Descri			Package No.
				onstruction Work		CT0319
			Supply	of Owner's Telecom and IT Equipment		Not Applicable
			Permit	s: Tree Clearing, Fording, Temporary Bridges, C	ulverts, etc.	Not Applicable
Quality:			Contrac 38RA-0	tor shall comply with Quality Requirement S 003.	pecification Nu	mber 505573-0000-
Reference	Section	:	The follo	owing main document was used to define the sco	ope:	
			Lower C	hurchill Phase 1 Development – Construction M	anagement Pla	ın
				ument Number: 505573-0000-30PL-I-0003		
			Nalcor F	Reference Number: LCP-SN-CD-0000-CS-PL-00	02-01	
Interface w	ith Othe	ar	Deser	ntian		Deckare No.
Packages:		•1	Descri Constr	<b>ρτιοn</b> uction of 315 kV HVac Transmission Lines (MF t	to CF)	Package No. CT0319
			Provisi	on of Surveying Services		SM0704

## Lower Churchill Project

#### PACKAGE DICTIONARY

Package No.: C	T0341		Туре:	C- Contract
	learing of Rig F)	ht-of-Way for 315 kV HVac Transmission Line(MF to	Revision No.:	01
	earing of ROW	HVac TL	Date:	13-Apr-2012
Specific Site Conditic	ns: Not A	Applicable		
Specific Schedule Conditions:	Any c	other packages that have to be started before the s Not Applicable	subject package	e can proceed:
	Any c	other packages that cannot proceed before the sub CT0319 – Construction of 315 kV HVac Transm		
Specific Environment Conditions:		environmental requirements for the Lower Chu	urchill Project a	are described in th
	a)	Project-Wide Environmental Protection Plan – II (SLI Document #: 505573-0000-68RA-I-000 0000-EV-PL-0002-01)	•	
	b)	Project-Wide Rehabilitation Plan (SLI Docu Nalcor Document # LCP-SN-CD-0000-EV-PL-0		3-0000-68RA-I-0007
	c)	Regulatory Compliance Plan (SLI Document a Document # LCP-SN-CD-0000-RT-PL-0001-01		-68RA-I-0003, Nalco
	d)	Waste Management Plan – Component 1 and 68RA-I-0008, Nalcor Document # LCP-SN-000		
	e)	Emergency Response Plan (SLI Document # Document # LCP-SN-CD-0000-HS-PL-0004-01		68RA-I-0012, Nalco
	f)	Contract-Specific Environmental Protection Document # 505573-0000-68RA-I-0011, Nalco PL-0006-01)		
	g)	Technical Specification - General Environmer 505573-0000-68RA-I-0015, Nalcor Document 01).	•	· ·
	h)	Exhibit 6 – Environmental and Regulatory Com	pliance Require	ments
	i)	Design Criteria – Erosion and Sedimentation 315A-4EEC-0001, Nalcor Document # MFA-SN	•	
	j)	Environmental Design Criteria – Site Water Con 4EEC-0002, Nalcor Document # MFA-SN-CD-2	•	
	k)	Recommendation on Biodegradable Fluids fo Document #. 505573-0000-4EER-0002, Nalcor RP-0002-01)		• •

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Project Base (	Currency:	CAD
Package No.:		CT0341 Type: C- Contract
Titles	(long):	Clearing of Right-of-Way for 315 kV HVac Transmission Line(MF to Revision No.: 01 CF)
	(short):	Clearing of ROW HVac TL Date: 13-Apr-2012
		<ul> <li>Recommendation on Wood Preservation Options for the Lower Churchill Project (SLI Document # 505573-0000-4EER-0001, Nalcor Document # LCP-SN-CD-0000- EV-RP-0001-01)</li> <li>Note: Permit requirements are noted in Exhibit 6 (item h above)</li> </ul>
Specific Sa Conditions	-	<ul> <li>The health and safety and security requirements for the Lower Churchill Project are described in the following documents:</li> <li>SNC-Lavalin Health and Safety Management Plan (505573-0000-68RA-1-0001-00)</li> </ul>
		SNC-Lavalin Site Security and Access Control Plan (505573-0000-68RA-I-0002-00)
		<ul> <li>SNC-Lavalin Global Power Health and Safety Management System (503011-0000- 68-AG-0001)</li> </ul>
		• SNC-Lavalin Critical Risk Control Protocols (6845.2.1.1-EN-Rev.4 03/11)
Special Red	quireme	ents: Not Applicable
Free Issued	l Materi	als: Description Package No.
		Not Applicable     Not Applicable
Major Equi	pment L	.ist: Not Applicable
Schedule a Milestones		EOI Date: 13-Jan-2012 RFP Date: To Be Determined Award Date: To Be Determined 1 <sup>st</sup> Vendor Data Required by: To Be Determined Construction Complete: To Be Determined
		Dates for milestones will be updated once the Project baseline schedule is in place.
Budget:		To Be Determined
Applicable Project/SP\		Muskrat Falls Generation 🔲 Labrador – Island Transmission Link 🗌
-		Labrador Transmission Assets 🖾 Lower Churchill Project – General 🗌

Project Base Currency:		CAD		
Package No.:		CT0341	Туре:	C- Contract
Titles (long):		Clearing of Right-of-Way for 315 kV HVac Transmission Line(MF to CF)	Revision No.:	01
	(short):	Clearing of ROW HVac TL	Date:	13-Apr-2012
IBA Packaç	ge:	Yes 🗌 No 🖂		

Package No.:		CT0342			Туре:	C-Contract
Titles	(long):	Constru	uction of AC Transmission Li	nes – Island	Revision No.:	01
	(short):	Construc	ction of AC TL – Island		Date:	13-Apr-2012
Discipline:	Trans	mission Li	nes			
Responsibilities	: Area	Manager:	Kumar Kandaswamy	Package Engineer:	Ananth Rao	
	QA /	QC:	Kenneth Morrison	Contract Admin. / Buyer:	Sylvain Mars	san
Scope of Work Summary:		This contract package includes the construction work and right-of-way (ROW) clearing for approximately 15 km of wood pole electrode line, between Soldiers Pond and Dowden's Point.				
			four existing 230 kV HV proposed Soldiers Pond	ct package includes the construc ac transmission lines (TL201, TL d Converter Station. Plus, the mo	217, TL218 an dification of thr	d TL242) at the ree existing 230 kV
				s (TL201, TL204 and TL 232), tw ne existing 69 kV transmission lin Pond.	-	
Work Includ	ed:		accommodation	ncludes: construction of the Contracton camp, if required, including operation of the lay down area a	g all associat	
			connections for	quirements, if required, neede the Owner, if required, will be egulatory requirements.		
			Material handlin	ng from the marshalling yard to th	ne Contractor's	lay down areas;
			<b>3</b> , (	ROW) clearing, as required f f the Owner supplied permits;	for line const	ruction, as per th
				tallation of temporary bridges, c rposes, as per the requirements		
			Staking of towe	r locations;		
			Installation of for	oundations;		
			Assembly and e	erection of lattice steel towers;		
				nsulators, guy wires, structure gr	ounding syster	ms and all associate
				counterpoise conductor along the obstacle avoidance (rivers, road		line. Grounding roc
			Installation and	testing of all-dielectric self-suppo	orting (ADSS);	
				agging of conductors (various), n conductor, steel reinforced (AG		
			Pre-commission	nina:		

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Project Base Currency:	CAD	
Package No.:	CT0342 Type:	C-Contract
Titles (long): (short):	Construction of AC Transmission Lines – IslandRevision No.:Construction of AC TL – IslandDate:	01 13-Apr-2012
	Meeting all environmental requirements;	
	<ul> <li>Inspection, site cleanup and mark-up of as-built drawings at th</li> </ul>	e end of construction:
	The Contractor is to restore any damage caused to any prop	
	of the Engineer; and	
	Demobilization.	
	There will be will be approximately 15 km of all-dielectric self-support cable used for the construction of the wood pole electrode line but t determined.	• • • •
	Materials will be free-issued by Nalcor at designated marshalling yards responsible for material transport from the marshalling yard to the wor is responsible for providing all labour, supervision, equipment and con consumables required to construct the lines, as well as provide all indi access roads, accommodations, transportation, security and medical s	k site. The Contractor struction rect support such as
Approximate Quant		Quantitu
(Major Items Only):	Item         Description         Unit           1         Work In Progress         Image: Comparison of the progress of t	Quantity Work In Progress
Contract Basis:	This contract basis is:	
	Lump Sum Unit Rat Combination Lump Sum – Unit Rates Cost Reimbursat	
Work Excluded:	Description	Package No.
	350 kV HVdc Transmission Line Construction	CT0327 CT0346
	350 kV HVdc Right-of-Way (ROW) Clearing	CT0343
	Supply of Owner's Telecom and IT Equipment	CT0345 Not Applicable
	Handling of the Marshalling Yard	To Be Determined
Quality:	Contractor shall comply with Quality Requirement Specification N 38RA-0003.	lumber 505573-0000-
Reference Section:	The following main document was used to define the scope:	
	Lower Churchill Phase 1 Development – Construction Management P SLI Document Number: 505573-0000-30PL-I-0003 Nalcor Reference Number: LCP-SN-CD-0000-CS-PL-0002-01	an

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## Lower Churchill Project

Project Base Currency:	CAD

Package No.:	CT0342		Туре:	C-Contract
Titles (long):	Construction o	f AC Transmission Lines – Island	Revision No.:	01
(short):	Construction of	AC TL - Island	Date:	13-Apr-2012
Interface with Othe	Dea	scription		Package No.
Packages:		nstruction of 350 kV HVdc Transmission Lin		CT0346
		vision of Geotechnical Investigation Service	es - 350 kV HVdc	ST0310
		vision of Survey Services - 350 kV HVdc		ST0312
		oply and Install Converters, Harmonic Filters	s & Transition	CD0501
		nstruction of Electrodes Sites		CD0508
		rd Party Quality Surveillance & Inspection S		SM0701
	Sup	oply and Maintenance of Various IT Equipm	ent	SM0710
Specific Site Cond	tions: Not	Applicable		
Specific Schedule Conditions:	•	other packages that have to be started befor PT0308 – Supply of Steel Tower Found PT0347 – Supply of Modification and Re PT0351 – Supply of Wood Poles PT0353 – Supply of Optical Ground Wir other packages that cannot proceed before Not Applicable	ation - 350 kV HVdc e-termination Materials re (OPGW) – 350 kV HV	/dc
Specific Environme Conditions:		environmental requirements for the Low wing documents: Project-Wide Environmental Protection II (SLI Document #: 505573-0000-68R 0000-EV-PL-0002-01)	Plan – Component 1 a	and 4b, Volume I ar
	b)	Project-Wide Rehabilitation Plan (SL Nalcor Document # LCP-SN-CD-0000-E		3-0000-68RA-I-000
	c)	Regulatory Compliance Plan (SLI Doc Document # LCP-SN-CD-0000-RT-PL-0		68RA-I-0003, Nalco
	d)	Waste Management Plan – Componen 68RA-I-0008, Nalcor Document # LCP-\$	•	
	e)	Emergency Response Plan (SLI Docu Document # LCP-SN-CD-0000-HS-PL-(		68RA-I-0012, Nalco
	f)	Contract-Specific Environmental Pro Document # 505573-0000-68RA-I-0011 PL-0006-01)		

Project Base Currency Package No.:	CAD CT0342	Туре:	C-Contract
Titles (long) (short)		f AC Transmission Lines – Island Revision AC TL – Island Date:	No.: 01 13-Apr-2012
	g)	Technical Specification - General Environmental Requi 505573-0000-68RA-I-0015, Nalcor Document # MFA- 01).	•
	h)	Exhibit 6 – Environmental and Regulatory Compliance Re	equirements
	i)	Design Criteria – Erosion and Sedimentation Control ( 315A-4EEC-0001, Nalcor Document # MFA-SN-CD-2000	•
	j)	Environmental Design Criteria – Site Water Control (SLI 4EEC-0002, Nalcor Document # MFA-SN-CD-2000-EV-D	
	k)	Recommendation on Biodegradable Fluids for the Lov Document #. 505573-0000-4EER-0002, Nalcor Documer RP-0002-01)	•
	1)	Recommendation on Wood Preservation Options for th (SLI Document # 505573-0000-4EER-0001, Nalcor Docu EV-RP-0001-01)	•
	Note	: Permit requirements are noted in Exhibit 6 (item h above)	
Specific Safety Conditions:		health and safety and security requirements for the Lo cribed in the following documents: SNC-Lavalin Health and Safety Management Plan (5055)	-
	•	SNC-Lavalin Site Security and Access Control Plan (505	573-0000-68RA-I-0002-00)
	•	SNC-Lavalin Global Power Health and Safety Managem 68-AG-0001)	ent System (503011-0000-
	SNC	C-Lavalin Critical Risk Control Protocols (6845.2.1.1-EN-Rev.	4 03/11)
Special Requirem	ents: Not	Applicable	
Free Issued Mate	ials: Des	scription	Package No.
	Sup	oply of steel towers	PT0308
	cou	oply of OHSW (as required), insulators, hardware, accessorie interpoise, fittings, guy wires, conductor, electrode conductor unding materials, steel grillage and rock anchors.	
		oply of wood poles	PT0351
Major Equipment	List: Not A	Applicable	

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#### PACKAGE DICTIONARY

Project Base Currency: CAD

Package No.:		CT0342 Type: C-Contract	
Titles	(long):	Construction of AC Transmission Lines – Island Revision No.: 01	
	(short):	Construction of AC TL – Island Date: 13-Apr-2012	
Schedule a	nd	EOI Date: To Be Determined	
Milestones	:	RFP Date: To Be Determined	
		Award Date: To Be Determined	
		1 <sup>st</sup> Vendor Data Required by: To Be Determined	
		Construction Complete: To Be Determined	
		Dates for milestones will be updated once the Project baseline schedule is in place.	
Budget:		To Be Determined	
Applicable Project/SP\		Muskrat Falls Generation	
		Labrador Transmission Assets 🛛 Lower Churchill Project – General 🗌	
IBA Packag	je:	Yes 🗌 No 🖾	

Project Base Currency: CAD			
	g of Right of-Way for HVdc Transmission Line – Section 1 of ROW HVdc TL – 1	Type: Revision No.: Date:	C- Contract 01 13-Apr-2012
Discipline: Transmission Li Responsibilities: Area Manager: QA / QC:	nes Keenan Healey Package Engineer: Kenneth Morrison Contract Admin. / Buyer:	Ananth Rao Stella Roche	
Scope of Work Summary:	This contract package includes the right-of-way (ROW) clearing for the construction of approximately 610 km of 900 MW, ±350 kV HVdc transmission line from Muskrat Falls to the end of the Long Range Mountains (LRM) including approximately 385 km of electrode line carried on the ±350 kV HVdc towers from Muskrat Falls to approximately 20 km from the coast. Additionally, this contract package includes the ROW clearing for approximately 20 km of wood pole electrode line, near Lanse au Diable.		
<ul> <li>Work Included:</li> <li>The work includes:</li> </ul>			
	<ul> <li>Mobilization and construction of the Contraction all associated permits for the installation and construction.</li> <li>All telecom requirements needed by the Contractor's responsible requirements.</li> <li>Preparation and construction of the Contractor</li> </ul>	operation of the car ractor and telecor vility and must	amp; n connections for the meet all regulatory
	<ul> <li>Supply and installation of temporary bridges right-of-way (ROW) clearing purposes, as supplied permits;</li> </ul>	ts of the Owner so , culverts, etc. th	upplied permits; at are necessary for
	• The ROW clearing work will be carried out or felling all trees and shrubs higher than 2 m at a height of 15 cm, measured from the highest	maturity. Trees a	
	<ul> <li>Trimming and salvaging of all commercial ste to 3.5 m logs and piled along and within the R</li> </ul>		are bucked in 2.5 m
	<ul> <li>Elimination of branches and cutting resid commercial stems, non-commercial size ster or piling;</li> </ul>		
	<ul> <li>Meeting all environmental requirements;</li> </ul>		
	The Contractor is to restore any damage cau	sed to any prope	rty to the satisfaction

Lower Churchill Project

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Project Base Currency: CAD						
		of Right of-Way for HVdc Transmission Line – Section 1       Type:       O         of ROW HVdc TL – 1       Date:       1				
		of the Engineer; and				
	•	Demobilization.				
	For Con	tract 1, there will be an approximate total clearing	area of 1,206	.1 ha.		
	For Con	tract 2, there will be an approximate total clearing	area of 743.9	ha.		
	For Con	tract 3, there will be an approximate total clearing	area of 1,059	.6 ha.		
	construc	ntractor is responsible for providing all laboration consumables required for clearing, as well as roads, accommodations, transportation, security	as provide all i	ndirect support such		
Approximate Quantities	Item	Description	Unit	Quantity		
(Major Items Only):	1	Clearing for Contract 1	ha	1,206.1		
	2	Clearing for Contract 2	ha	743.9		
	3	Clearing for Contract 3	ha	1,059.6		
Contract Basis:		ntract basis is: Lump Sum 🗌 nation Lump Sum – Unit Rates 🖾 Cost	Unit Rates Reimbursable			
Work Excluded:	Descri	ntion		Package No.		
		onstruction Work		CT0327		
	Right-of-Way Clearing Electrode Line Near Lanse au Diable		CT0342			
	Supply of Owner's Telecom and IT Equipment			Not Applicable		
	Permits	s: Tree Clearing, Fording, Temporary Bridges, Cu	lverts, etc.	Not Applicable		
Quality:	Contractor shall comply with Quality Requirement Specification Number 505573-0000-38RA-0003.					
Reference Section:	The following main document was used to define the scope:					
	SLI Doc	hurchill Phase 1 Development – Construction Ma ument Number: 505573-0000-30PL-I-0003 Reference Number: LCP-SN-CD-0000-CS-PL-000	-	n		

Project Base Currency: CAD			
	Type:C- Contractg of Right of-Way for HVdc Transmission Line – Section 1Revision No.:01of ROW HVdc TL – 1Date:13-Apr-2012		
Interface with Other Packages:	DescriptionPackage No.Construction of 350 kV HVdc Transmission Line - Section 1CT0327Provision of Survey Services - 350 kV HVdcST0312		
Specific Site Conditions:	Not Applicable		
Specific Schedule Conditions:	<ul> <li>Any other packages that have to be started before the subject package can proceed:</li> <li>Not Applicable</li> </ul>		
	<ul> <li>Any other packages that cannot proceed before the subject package has started:</li> <li>CT0327 – Construction of 350 kV HVdc Transmission Line - Section 1</li> </ul>		
Specific Environment Conditions:	<ul> <li>The environmental requirements for the Lower Churchill Project are described in the following documents:</li> <li>a) Project-Wide Environmental Protection Plan – Component 1 and 4b, Volume I and II (SLI Document #: 505573-0000-68RA-I-0005; Nalcor Document #:LCP-SN-CD-0000-EV-PL-0002-01)</li> </ul>		
	b) Project-Wide Rehabilitation Plan (SLI Document # 505573-0000-68RA-I-0007, Nalcor Document # LCP-SN-CD-0000-EV-PL-0004-01);		
	c) Regulatory Compliance Plan (SLI Document # 505573-0000-68RA-I-0003, Nalcor Document # LCP-SN-CD-0000-RT-PL-0001-01);		
	Waste Management Plan – Component 1 and 4b (SLI Document # 505573-0000- 68RA-I-0008, Nalcor Document # LCP-SN-0000-EV-PL-0005-01);		
	e) Emergency Response Plan (SLI Document # 505573-0000-68RA-I-0012, Nalcor Document # LCP-SN-CD-0000-HS-PL-0004-01).		
	<ul> <li>f) Contract-Specific Environmental Protection Plan Template (C-SEPP) (SLI Document # 505573-0000-68RA-I-0011, Nalcor Document # LCP-SN-CD-0000-EV- PL-0006-01)</li> </ul>		
	g) Technical Specification - General Environmental Requirements (SLI Document # 505573-0000-68RA-I-0015, Nalcor Document # MFA-SN-CD-0000-EV-SP-0001-01).		
	h) Exhibit 6 – Environmental and Regulatory Compliance Requirements		
	i) Design Criteria – Erosion and Sedimentation Control (SLI Document # 505573- 315A-4EEC-0001, Nalcor Document # MFA-SN-CD-2000-EV-DC-0001-01).		
	j) Environmental Design Criteria – Site Water Control (SLI Document # 505573-315A-		

Project Base Currency: CAD	
	3Type:C- Contractng of Right of-Way for HVdc Transmission Line – Section 1Revision No.:01ng of ROW HVdc TL – 1Date:13-Apr-2012
	4EEC-0002, Nalcor Document # MFA-SN-CD-2000-EV-DC-0002-01).
	<ul> <li>k) Recommendation on Biodegradable Fluids for the Lower Churchill Project (SLI Document #. 505573-0000-4EER-0002, Nalcor Document # LCP-SN-CD-0000-EV- RP-0002-01)</li> </ul>
	<ul> <li>Recommendation on Wood Preservation Options for the Lower Churchill Project (SLI Document # 505573-0000-4EER-0001, Nalcor Document # LCP-SN-CD-0000- EV-RP-0001-01)</li> </ul>
	Note: Permit requirements are noted in Exhibit 6 (item h above)
Specific Safety Conditions:	<ul> <li>The health and safety and security requirements for the Lower Churchill Project are described in the following documents:</li> <li>SNC-Lavalin Health and Safety Management Plan (505573-0000-68RA-1-0001-00)</li> </ul>
	• SNC-Lavalin Site Security and Access Control Plan (505573-0000-68RA-I-0002-00)
	• SNC-Lavalin Global Power Health and Safety Management System (503011-0000- 68-AG-0001)
	SNC-Lavalin Critical Risk Control Protocols (6845.2.1.1-EN-Rev.4 03/11)
Special Requirements:	Not Applicable
Free Issued Materials:	Description Package No.
	Not Applicable     Not Applicable
Major Equipment List:	Not Applicable
Schedule and Milestones:	EOI Date: 13-Jan-2012 RFP Date: To Be Determined
	Award Date: To Be Determined
	1 <sup>st</sup> Vendor Data Required by: To Be Determined Construction Complete: To Be Determined
	Dates for milestones will be updated once the Project baseline schedule is in place.
Budget:	To Be Determined

Project Base	Currency:	CAD			
Package No.:		CT0343		Туре:	C- Contract
Titles	(long):	Clearing	g of Right of-Way for HVdc Transmission Line – Section 1	Revision No.:	01
	(short):	Clearing	of ROW HVdc TL – 1	Date:	13-Apr-2012
Applicable Project/SP'				and Transmiss rchill Project –	
IBA Packag	ge:		Yes 🗌 No 🖾		

Project Base Currency: CAD			
	g of Right-of-Way for HVdc Transmission Line– Section 2 of ROW HVdc TL – 2	Type: Revision No.: Date:	C- Contract 01 13-Apr-2012
Discipline: Transmission L Responsibilities: Area Manager: QA / QC:	nes Keenan Healey Package Engineer: Kenneth Morrison Contract Admin. / E	Ananth Rao Buyer: Stella Roche	
Scope of Work Summary:	This contract package includes the right-of-way cl approximately 470 km of 900 MW, ±350 kV HVdc Long Range Mountains (LRM) to Soldiers Pond. The scope of work will be divided into two contract approximately 290 km from the end of the LRM to 7). The second contract will include approximately Soldiers Pond (Segment 8). The scope is structur individually or both contracts together.	transmission line from ts. The first contract v Central Newfoundlan / 180 km from Central	n the end of the vill include nd (Segment 6 and Newfoundland to
Work Included:	<ul> <li>The work includes:</li> <li>Mobilization and construction of the Corall associated permits for the installation a</li> <li>All telecom requirements needed by the Cover will be the Contractor's response requirements.</li> <li>Preparation and construction of the Contrastream crossings, etc., as per the requirement and construction of the contrastream construction contrastream const</li></ul>	and operation of the ca Contractor and telecor onsibility and must ractor's own access ro ments of the Owner su	amp; n connections for the meet all regulatory pads, corduroy roads, upplied permits;
	<ul> <li>Supply and installation of temporary brid right-of-way (ROW) clearing purposes, supplied permits;</li> <li>The ROW clearing work will be carried or felling all trees and shrubs higher than 2 a height of 15 cm, measured from the hig</li> </ul>	as per the requiren ut on a 60 m wide co m at maturity. Trees a	nents of the Owner rridor and consists of
	<ul> <li>Trimming and salvaging of all commercia to 3.5 m logs and piled along and within th</li> <li>Elimination of branches and cutting r commercial stems, non-commercial size or piling;</li> </ul>	he ROW; residues on the soil	l (dead trees, non-
	<ul> <li>Meeting all environmental requirements;</li> <li>The Contractor is to restore any damage of the Engineer; and</li> </ul>	caused to any prope	rty to the satisfaction
	<ul> <li>Demobilization.</li> <li>For Contract 1, there will be an approximate total</li> <li>For Contract 2, there will be an approximate total</li> <li>The Contractor is responsible for providing</li> <li>1</li> </ul>	clearing area of 772.4	ha.

### Lower Churchill Project

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	g of Right-of-Way for HVdc Transmission Line– Section 2 of ROW HVdc TL – 2	Type: Revision No.: Date:	C- Contract 01 13-Apr-2012		
	construction consumables required for clearing, as we as access roads, accommodations, transportation, sec				
Approximate Quantities	Item Description	Unit	Quantity		
(Major Items Only):	1 Clearing for Contract 1	ha	2,213.1		
	2 Clearing for Contract 2	ha	772.4		
Contract Basis:	This contract basis is: Lump Sum  Combination Lump Sum – Unit Rates  C	Unit Rates ost Reimbursable			
Work Excluded:	Description		Package No.		
	Line Construction Work	CT0327			
	Right-of-Way Clearing for Wood Pole Electrode Line Near Lanse au         CT0343           Diable         CT0343				
	Supply of Owner's Telecom and IT Equipment		Not Applicable		
Permits: Tree Clearing, Fording, Temporary Bridges, Culverts, etc.			Not Applicable		
Quality:	Contractor shall comply with Quality Requirement Specification Number 505573-000 38RA-0003.				
Reference Section:	The following main document was used to define the s	cope:			
	Lower Churchill Phase 1 Development – Construction Management Plan SLI Document Number: 505573-0000-30PL-I-0003 Nalcor Reference Number: LCP-SN-CD-0000-CS-PL-0002-01				
Interface with Other	Description		Package No.		
Packages:	Construction of 350 kV HVdc Transmission Line - Ser Provision of Survey Services - 350 kV HVdc	ction 2	CT0346 ST0312		
Specific Site Conditions:	Not Applicable				

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Project Base Currency:	CAD

Package No.: Titles (long): (short):	CT0345 Clearing of Rig Clearing of ROW	ht-of-Way for HVdc Transmission Line– Section 2 ′ HVdc TL – 2	Type: Revision No.: Date:	C- Contract 01 13-Apr-2012
Specific Schedule	Any o	other packages that have to be started before the Not Applicable	subject package	can proceed:
Conditions:				
	Anyo	other packages that cannot proceed before the su		
	•	CT0346 – Construction of 350 kV HVdc Trans		
Creatitia Environme		environmental requirements for the Lower Ch	nurchill Project a	are described in th
Specific Environm Conditions:	a)	wing documents: Project-Wide Environmental Protection Plan - II (SLI Document #: 505573-0000-68RA-I-00 0000-EV-PL-0002-01)	•	
	b)	Project-Wide Rehabilitation Plan (SLI Doc Nalcor Document # LCP-SN-CD-0000-EV-PL-		3-0000-68RA-I-000
	c)	Regulatory Compliance Plan (SLI Document Document # LCP-SN-CD-0000-RT-PL-0001-0		68RA-I-0003, Nalc
	d)	Waste Management Plan – Component 1 an 68RA-I-0008, Nalcor Document # LCP-SN-00	•	
	e)	Emergency Response Plan (SLI Document Document # LCP-SN-CD-0000-HS-PL-0004-0		68RA-I-0012, Nalc
	f)	Contract-Specific Environmental Protectior Document # 505573-0000-68RA-I-0011, Nalc PL-0006-01)	•	· · · ·
	g)	Technical Specification - General Environme 505573-0000-68RA-I-0015, Nalcor Documer 01).	•	•
	h)	Exhibit 6 – Environmental and Regulatory Cor	npliance Require	ments
	i)	Design Criteria – Erosion and Sedimentatio 315A-4EEC-0001, Nalcor Document # MFA-S		
	j)	Environmental Design Criteria – Site Water C 4EEC-0002, Nalcor Document # MFA-SN-CD		
	k)	Recommendation on Biodegradable Fluids Document #. 505573-0000-4EER-0002, Nalco RP-0002-01)		• •
	I)	Recommendation on Wood Preservation Op (SLI Document # 505573-0000-4EER-0001, N EV-RP-0001-01)		•
		Permit requirements are noted in Exhibit 6 (item		

#### Lower Churchill Project

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Project Base Currency: CAD		
	g of Right-of-Way for HVdc Transmission Line– Section 2	Type:C- ContractRevision No.:01Date:13-Apr-2012
Specific Safety Conditions:	<ul> <li>The health and safety and security requirements for described in the following documents:</li> <li>SNC-Lavalin Health and Safety Management Plan</li> <li>SNC-Lavalin Site Security and Access Control Plan</li> <li>SNC-Lavalin Global Power Health and Safety Management Plan</li> <li>SNC-Lavalin Global Power Health and Safety Management Plan</li> <li>SNC-Lavalin Critical Risk Control Protocols (6845)</li> </ul>	n (505573-0000-68RA-1-0001-00) an (505573-0000-68RA-I-0002-00) anagement System (503011-0000-
Special Requirements:	Not Applicable	
Free Issued Materials:	Description           Not Applicable	Package No.Not Applicable
Major Equipment List:	Not Applicable	
Schedule and Milestones:	RFP Date: To I Award Date: To I 1 <sup>st</sup> Vendor Data Required by: To I	Be Determined Be Determined Be Determined Be Determined Be Determined seline schedule is in place.
Budget:	To Be Determined	
Applicable Sub- Project/SPV:		nd Transmission Link 🛛
IBA Package:	Yes 🗌 No 🖾	

Package No.:		CT0346				Туре:	C- Contract
Titles (long): Constru		Constru	ction of 350 kV HVdc Transmission Line – Section 2			Revision No.:	01
	(short):	Construc	tion of H∖	′dc TL – 2		Date:	13-Apr-2012
Discipline:	Trans	mission Li	nes				
Responsibilities: Area Manager:				n Healey	Package Engineer:	Hamidreza E	Bakhshi
	QA / (	QC:	Kenne	th Morrison	Contract Admin. / Buyer:	Sylvain Mars	san
Scope of Work Summary:			±350 F Pond. The s approx approx	COPE of work will the second s	udes the construction work fo on line from the end of the be divided into two contrac 350 kV HVdc transmission lin ±350 kV HVdc transmission contract individually or both co	Long Range M cts. The first ne. The second n line. The sc	fountains to Soldier contract will incluc d contract will incluc
Work Included:			sectio way (F		section is approximately 290 80 km. The new transmission udes:		
			<ul> <li>Mobilization, construction of the Contractor's own lay down areas and accommodation camp, including all associated permits for the installation and operation of the lay down area and camp;</li> </ul>				
			•		ments needed by the Contrac ne Contractor's responsibilit		
			•	Material handling fi	rom the marshalling yard to th	ne Contractor's	lay down areas;
			•		ccess previously created by n, as per the requirements of	-	
			•		ation of temporary bridges, c ses, as per the requirements		
			•	Staking of tower lo	cations;		
		•	(suspension) and	ndations for the lattice steel self-supporting structures (opplying HP piles and concrete	dead-ends). Tl	• •	
			•	Assembly and erec	ction of lattice steel towers;		
			•		cal ground wire (OPGW) on a gsystems and all associated		
		•		nterpoise conductor along the ance (rivers, road, etc.);	e line. Ground	ing rods will be use	
			<b>e</b>	gging of the two pole 364			

### Lower Churchill Project

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Package No.:		CT0346	Type:	C- Contract				
Titles	(long):	Construction of 350 kV HVdc Transmission Line – Section 2	Revision No.:	01				
	(short):	Construction of HVdc TL – 2	Date:	13-Apr-2012				
		conductors (ASC) per pole and OPGW;						
		Pre-commissioning;						
		Meeting all environmental requirements;						
		Inspection, site cleanup and mark-up of as-t	ouilt drawings at the	e end of construction				
		<ul> <li>The Contractor is to restore any damage ca of the Engineer; and</li> </ul>	aused to any prope	erty to the satisfactio				
		Demobilization.						
		There will be five types of towers used for the cons 12,845 tonnes of steel) and the associated total esti-						
		• 1,364 Type A, Tangent Tower (0° to 1°), Gu	yed-Y Design;					
		• 36 Type B, Light Angle Tower (0° to 8°), Gu	yed-Y Design;					
		• 82 Type C, Angle Dead-End - Strain (0° to 3	82 Type C, Angle Dead-End - Strain (0° to 30°), Self-Supporting Towers;					
		• 60 Type D, Angle Dead-End - Strain (0° to 4	5°), Self-Supportin	g Towers; and				
		• 21 Type E, Angle Dead-End - Strain (45° to	90°), Self-Supporti	ng Towers.				
		There will be five types of foundations used f (approximate amount of steel is to be determine quantities are:						
		• To Be Determined for Type 1: 250 kPa Stee	l Grillage;					
		• To Be Determined for Type 2: 100 kPa Stee	l Grillage;					
		To Be Determined for Type 3: Steel Founda	tion Anchored to B	edrock;				
		• To Be Determined for Type 4: Driven Pile Fo	oundation;					
		To Be Determined for Type 5: Bog Foundati	on;					
		There will be three types of conductors used for the associated total estimated quantities are:	e construction of t	he HVdc line and th				
		• 965,058 m of 3640 kcmil 91/0 ASC Pole Co	nductors;					
		• 264,322 m of 1192.5 kcmil 54/19 aluminum Grackle Electrode Conductor (50 mm Ice Lo		inforced (ACSR)				
		• 78,914 m of 1590 kcmil 54/19 ACSR Falcon Alpine Load Zone).	Electrode Conduc	tor (135 mm Ice				
		There will be three types of OPGW used for the associated total estimated quantities are:	There will be three types of OPGW used for the construction of the HVdc line ar associated total estimated quantities are:					
		• 317,134 m of 140 kN, 14.5 mm 24 Fibre OP	• 317,134 m of 140 kN, 14.5 mm 24 Fibre OPGW (50 mm Ice Zone);					

Project Base Currency:	CAD					
Package No.: Titles (long): (short):	CT0346 Construction of 35 Construction of HVd	0 kV HVdc Transmission Line – Section 2 2 TL – 2	Type: Revision No.: Date:	C- Contract 01 13-Apr-2012		
	one); Alpine Zone); ards. The Contractor is ork site. The Contractor ent and construction adirect support such as services.					
Approximate Quant (Major Items Only):	ities Item 1 2 3	Description Type 4, Driven Pile Foundation Type 5, Bog Foundation Remaining Items	Unit	Quantity To Be Determined To Be Determined To Be Determined		
Contract Basis:		This contract basis is: Lump Sum Unit Rates Combination Lump Sum – Unit Rates Cost Reimbursable				
Work Excluded:	Description         Clearing of Right-of-Way for HVdc Transmission Line - Section 2         Electrode Line Construction Between Soldiers Pond and Dowden's         Point         Supply of Owner's Telecom and IT Equipment         Handling of Marshalling Yard		Package No. CT0345 CT0342 Not Applicable To Be Determined			
Quality:		Contractor shall comply with Quality Requirement Specification Number 505573-0000- 38RA-0003.				
Reference Section:       The following main document was used to define the scope:         Lower Churchill Phase 1 Development – Construction Management Plan         SLI Document Number: 505573-0000-30PL-I-0003         Nalcor Reference Number: LCP-SN-CD-0000-CS-PL-0002-01			lan			

Project Base Curre	ency: CAD			
	nort): Constr	s uction of 350 kV HVdc Transmission Line – Section 2 uction of HVdc TL – 2 Description	Type: Revision No.: Date:	C- Contract 01 13-Apr-2012 Package No.
Packages:		Construction of ac Transmission Lines – Island Provision of Geotechnical Investigation Services - 38 Provision of Survey Services - 350 kV HVdc Supply and Install Converters, Harmonic Filters & Tr Compounds Third Party Quality Surveillance & Inspection Servic Supply and Maintenance of Various IT Equipment	ransition	CT0342 ST0310 ST0312 CD0501 SM0701 SM0710
Specific Site C	onditions:	Not Applicable		
Specific Sched Conditions:	lule	<ul> <li>Any other packages that have to be started before the</li> <li>CT0345 – Clearing of Right-of-Way for HVdc</li> <li>PT0308 – Supply of Steel Tower Foundation</li> <li>PT0329 – Supply of Transmission Line Cond</li> <li>PT0329 – Supply of HVdc Insulators - 350 kV</li> <li>PT0330 – Supply of Steel Towers - 350 kV H</li> <li>PT0331 – Supply of Tower Hardware - 350 k</li> <li>PT0334 – Supply of Steel Wires - 350 kV HV</li> <li>PT0352 – Supply of Anchor Materials - 350 k</li> <li>PT0353 – Supply of Optical Ground Wire (OF</li> <li>ST0310 – Provision of Geotechnical Investiga</li> <li>ST0312 – Provision of Survey Services - 350</li> <li>Any other packages that cannot proceed before the s</li> <li>CT0342 – Construction of ac Transmission Li</li> </ul>	Transmission Lin - 350 kV HVdc uctors - 350 kV H V HVdc Vdc V HVdc dc V HVdc PGW) - 350 kV HV ation Services - 38 kV HVdc ubject package ha	e - Section 2 Vdc /dc 50 kV HVdc
Specific Environment Conditions:		<ul> <li>The environmental requirements for the Lower C following documents:</li> <li>a) Project-Wide Environmental Protection Plan II (SLI Document #: 505573-0000-68RA-I-000000-EV-PL-0002-01)</li> <li>b) Project-Wide Rehabilitation Plan (SLI Document # LCP-SN-CD-0000-EV-PL</li> </ul>	– Component 1 a 005; Nalcor Docu cument # 50557	and 4b, Volume I and iment #:LCP-SN-CD-
		c) Regulatory Compliance Plan (SLI Documen Document # LCP-SN-CD-0000-RT-PL-0001-		-68RA-I-0003, Nalcor
		d) Waste Management Plan – Component 1 a 68RA-I-0008, Nalcor Document # LCP-SN-00	•	

#### Lower Churchill Project

Project Base Currency:	CAD
Package No.: Titles (long): (short):	CT0346Type:C- ContractConstruction of 350 kV HVdc Transmission Line – Section 2Revision No.:01Construction of HVdc TL – 2Date:13-Apr-2012
	e) Emergency Response Plan (SLI Document # 505573-0000-68RA-I-0012, Nalc Document # LCP-SN-CD-0000-HS-PL-0004-01).
	<ul> <li>f) Contract-Specific Environmental Protection Plan Template (C-SEPP) (S Document # 505573-0000-68RA-I-0011, Nalcor Document # LCP-SN-CD-0000-E PL-0006-01)</li> </ul>
	g) Technical Specification - General Environmental Requirements (SLI Document 505573-0000-68RA-I-0015, Nalcor Document # MFA-SN-CD-0000-EV-SP-000 01).
	h) Exhibit 6 – Environmental and Regulatory Compliance Requirements
	i) Design Criteria – Erosion and Sedimentation Control (SLI Document # 50557 315A-4EEC-0001, Nalcor Document # MFA-SN-CD-2000-EV-DC-0001-01).
	j) Environmental Design Criteria – Site Water Control (SLI Document # 505573-315/ 4EEC-0002, Nalcor Document # MFA-SN-CD-2000-EV-DC-0002-01).
	<ul> <li>k) Recommendation on Biodegradable Fluids for the Lower Churchill Project (S Document #. 505573-0000-4EER-0002, Nalcor Document # LCP-SN-CD-0000-E RP-0002-01)</li> </ul>
	<ul> <li>Recommendation on Wood Preservation Options for the Lower Churchill Proje (SLI Document # 505573-0000-4EER-0001, Nalcor Document # LCP-SN-CD-000 EV-RP-0001-01)</li> </ul>
	Note: Permit requirements are noted in Exhibit 6 (item h above)
Specific Safety Conditions:	The health and safety and security requirements for the Lower Churchill Project a described in the following documents: • SNC-Lavalin Health and Safety Management Plan (505573-0000-68RA-1-0001-00
	SNC-Lavalin Site Security and Access Control Plan (505573-0000-68RA-I-0002-00
	• SNC-Lavalin Global Power Health and Safety Management System (503011-000 68-AG-0001)
	SNC-Lavalin Critical Risk Control Protocols (6845.2.1.1-EN-Rev.4 03/11)
Special Requireme	nts: Not Applicable

Lower Churchill Project

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Project Base Currency: CAD			
Package No.: CT0346	З Туре:	C- Contract	
-	uction of 350 kV HVdc Transmission Line – Section 2 Revision No.:	01	
(short): Constru	iction of HVdc TL – 2 Date:	13-Apr-2012	
Free Issued Materials:	Description	Package No.	
	The supply of conductors	PT0328	
	The supply of insulators	PT0329	
	The supply of tower steel	PT0330	
	The supply of tower hardware	PT0331	
	The supply of optical ground wire (OPGW)	PT0353	
	The supply of steel tower foundations	PT0308	
	The supply of steel wires	PT0334	
	The supply of anchor materials	PT0352	
Major Equipment List:	Not Applicable		
Schedule and	EOI Date: To Be Determine	hé	
Milestones:	RFP Date: To Be Determined		
winestones.	Award Date: To Be Determine		
	1 <sup>st</sup> Vendor Data Required by: To Be Determine		
	Construction Complete: To Be Determine		
	Dates for milestones will be updated once the Project baseline schedu	ule is in place.	
Budget:	To Be Determined		
Applicable Sub			
Applicable Sub- Project/SPV:	Muskrat Falls Generation 🗌 Labrador – Island Transmiss	sion Link 🛛	
	Labrador Transmission Assets  Lower Churchill Project –	General	
IBA Package:	Yes 🗌 No 🖂		

Project Base Currency: CAD					
Package No.: PT0300				Туре:	P-Purchase Order
Titles (long): Supply	of Transmis	ssion Line Conductors– 315 k	/ HVac	Revision No.:	01
(short): Supply c	f Conductors	s – HVac		Date:	13-Apr-2012
Discipline: Transmission Li Responsibilities: Area Manager: QA / QC:	Kumar K		ackage Engineer: ontract Admin. / Buyer:	Ananth Rao Fabien Cuisi	inier Raynal
Scope of Work Summary:	phase co 3-phase Muskrat Addition approxin Churchil	tract package includes the onductors for the constructi , 315 kV HVac transmission Falls to Churchill Falls. ally, this contract package nately 0.6 km each, betwee I Falls. Plus, four short 315 the proposed powerhouse	on of approximately 5 n lines (each approxin includes two short 73 on the existing switchy kV interconnection lin	500 km of two j mately 250 km 5 kV interconn yard and the pi nes, approxima	barallel, single circuit, in length) from ection lines, roposed substation at ately 0.5 km each,
Work Included:	• • The con The stee	tract package includes: 795 kcmil aluminum condu transmission lines; 954 kcmil 54/7 Strands Ca 795 kcmil ACSR Drake for ductors shall be delivered el reels may be returnable l ction will be the responsibili	rdinal ACSR for the 7 the 315 kV interconn on steel reels of spec out the collection from	35 kV intercon ection lines. ified lengths to n the marshallin	nection lines; and the marshalling yard. ng yard following
Approximate Quantities	Item	Description		Unit	Quantity
(Major Items Only):	1	795 kcmil 26/7 ACSR Dra	ke	km	3,083
	2	954 kcmil 54/7 Strands C	ardinal ACSR	km	15
Contract Basis:		ntract basis is: Lump S nation Lump Sum – Unit Ra		Unit Rate st Reimbursabl	
Work Excluded:	Descri				Package No.
		tion of Supplies			CT0319
	May Ex	clude Delivery Depending	On Project Logistics	Plan	To Be Determined

### Lower Churchill Project

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Project Base Currency: C	AD		
Package No.: P	T0300	Туре:	P-Purchase Order
	upply of Transmission Line Conductors– 315 kV HVac	Revision No.:	01
(short): S	upply of Conductors – HVac	Date:	13-Apr-2012
Quality:	Requires Determination of the Equipment Quality Rating:	Yes 🛛	No 🗌
	Determination of Equipment Criticality based on GP-5600-	-PR-02-E	
	High I Minor I Significant I Negligible I Moderate I		
	Determination of Quality Surveillance level based on GP-5	5600-PR-03-E	is to be determined.
	<ul> <li>Continuous in process quality monitoring and verificat</li> <li>Regular in process quality monitoring and verificat</li> <li>Limited in process quality monitoring and verificat</li> <li>Final quality verification</li> <li>No quality surveillance, no quality verification</li> </ul>	tion and final of	quality verification
Reference Section:	The following main document was used to define the score DG3 Capital Cost Estimate – Basis of Estimate SLI Document Number: 505573-0000-33RA-I-001 Nalcor Reference Number: LCP-SN-CD-0000-EP-ES-000		
Interface with Other Packages:	Description		Package No.
i acrages.	Construction of 315 kV HVac Transmission Lines (MF to Supply of Tower Hardware - 315 kV HVac	CF)	CT0319 PT0303
Specific Site Condition	ons: Not Applicable		
Specific Schedule Conditions:	<ul><li>Any other packages that have to be started before the sub</li><li>Not Applicable</li></ul>	oject package	can proceed:
	<ul> <li>Any other packages that cannot proceed before the subject</li> <li>CT0319 – Construction of 315 kV HVac Transmis</li> </ul>		
Specific Environmen Conditions:	Not Applicable		

#### Lower Churchill Project

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Project Base Currency: CAD		
	of Transmission Line Conductors– 315 kV HVac Revision No.: 0	-Purchase Order 1 3-Apr-2012
Specific Safety Conditions:	Not Applicable	
Special Requirements:	Not Applicable	
Free Issued Materials:	Description Not Applicable	Package No.
Major Equipment List:	Not Applicable	
Schedule and Milestones:	EOI Date: 24-Aug-2011 RFP Date: To Be Determined Award Date: To Be Determined 1 <sup>st</sup> Vendor Data Required by: To Be Determined Construction Complete: To Be Determined Dates for milestones will be updated once the Project baseline schedule	is in place.
Budget:	To Be Determined	
Applicable Sub- Project/SPV:	Muskrat Falls Generation  Labrador – Island Transmission Labrador Transmission Assets  Lower Churchill Project – Ge	_
IBA Package:	Yes 🗌 No 🖂	

	(long): short):		ofHVac Ins	sulators – 315 kV HVa - HVac	ac	Type: Revision No.: Date:	P-Purchase Order 01 13-Apr-2012
Discipline: Responsibilities:		mission Lir Manager: QC:	Kumar k	Kandaswamy I Morrison	Package Engineer: Contract Admin. / Buyer:	Ananth Rao Hartfield Ste	vens
Scope of Work Summary:			and war approxir	rranty for ball and nately 500 km of	ludes the design, fabrication socket type suspension ins two parallel, single circuit, 3- 250 km in length) from Muskra	ulator disks fo -phase, 315 k	r the construction c V HVac transmission
			approxir Churchi	nately 0.6 km each Il Falls. Plus, four	package includes two sho between the existing switch short 315 kV interconnection rerhouse and the proposed sw	yard and the pi lines, approxi	roposed substation a imately 0.5 km each
Work Included:			•	ntract package inclu CS-3 70 kN suspe lines;	ides: nsion insulators for jumpers fo	or the 315 kV F	IVac transmission
				CS-11 220 kN sus transmission lines;	pension insulators for phase o	conductor for th	ne 315 kV HVac
				210 kN insulators ( lines;	(exact types to be determined	) for the 735 k <sup>v</sup>	√ interconnection
			•	300 kN insulators ( lines;	(exact types to be determined	) for the 735 k <sup>v</sup>	√ interconnection
			• CS-3 70 kN suspension insulators for jumpers for the 315 kV interconnection lines; and				
			CS-11 220 kN suspension insulators for phase conductor for the 315 kV interconnection lines;				
			There are two acceptable types of insulator disks; porcelain and glass.				
		type tes 361C-42	ts for complete su	ackage includes the electrical spension assembly as per c e tests for complete tension ES-0006.	lause 5.3 of S	LI Doc. No. 505573	
			The insu	ulators shall be deli	vered in suitable crates to the	marshalling ya	ard.
Approximate			Item	Description		Unit	Quantity
(Major Items (	Only):		1		ension Insulators for Jumpers		10,203
			2	CS-11 220 kN Su Conductor	spension Insulators for Phase	e disks	94,730

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Project Base Currency:	CAD	
Package No.:	PT0301 Type:	P-Purchase Order
Titles (long):	Supply of HVac Insulators – 315 kV HVac Revision No.:	01
(short):	Supply of Insulators - HVac Date:	13-Apr-2012
	3 210 kN Insulators disks	900
	4 300 kN Insulators disks	2,304
	5 Type Test Suspension Assembly each	1
	6 Type Test Tension Assembly each	1
Contract Basis:	This contract basis is: Lump Sum	
Work Excluded:	Description	Destaura Nie
WORK Excluded.	Description	Package No. CT0319
	Installation of Supplies May Exclude Delivery Depending On Project Logistics Plan	To Be Determined
		To be betermined
Quality:	Requires Determination of the Equipment Quality Rating:       Yes         Determination of Equipment Criticality based on GP-5600-PR-02-E         High       Minor         Significant       Negligible         Moderate          Determination of Quality Surveillance level based on GP-5600-PR-03-         4       Continuous in process quality monitoring and verification and final         2       Limited in process quality monitoring and verification and final         1       Final quality verification         0       No quality surveillance, no quality verification	E is to be determined. final verification l quality verification
Reference Section:	The following main document was used to define the scope: DG3 Capital Cost Estimate – Basis of Estimate SLI Document Number: 505573-0000-33RA-I-001 Nalcor Reference Number: LCP-SN-CD-0000-EP-ES-0002-01	
Interface with Other		
Interface with Other		Package No.
Packages:	Construction of 315 kV HVac Transmission Lines (MF to CF) Supply of Optical Ground Wire (OPGW) - 315 kV HVac	CT0319 PT0304
		F10304

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#### PACKAGE DICTIONARY

Package No.: PT0301		Туре:	P-Purchase Order
	ofHVac Insulators – 315 kV HVac of Insulators - HVac	Revision No.: Date:	01 13-Apr-2012
Specific Site Conditions:	Not Applicable		
Specific Schedule Conditions:	<ul><li>Any other packages that have to be started before the</li><li>Not Applicable</li></ul>	subject package	can proceed:
	<ul> <li>Any other packages that cannot proceed before the su</li> <li>CT0319 – Construction of 315 kV HVac Transit</li> </ul>		
Specific Environment Conditions:	Not Applicable		
Specific Safety Conditions:	Not Applicable		
Special Requirements:	Not Applicable		
Free Issued Materials:	Description		Package No.
	Not Applicable		
Major Equipment List:	Not Applicable		
Schedule and	EOI Date:	30-Aug-2011	
Milestones:	RFP Date:	To Be Determine	
	Award Date: 1 <sup>st</sup> Vendor Data Required by:	To Be Determine To Be Determine	
	Construction Complete:	To Be Determine	d
	Dates for milestones will be updated once the Project	baseline schedu	le is in place.
Budget:	To Be Determined		
Applicable Sub- Project/SPV:	Muskrat Falls Generation  Labrador –	Island Transmiss	ion Link
· • · · · · ·	Labrador Transmission Assets 🛛 Lower Ch	nurchill Project –	General

Project Base C	urrency:	CAD		
Package No.:		PT0301	Туре:	P-Purchase Order
Titles	(long):	Supply ofHVac Insulators – 315 kV HVac	Revision No.:	01
	(short):	Supply of Insulators - HVac	Date:	13-Apr-2012
IBA Packag	e:	Yes 🗌 No 🖂		

	2 y of Steel Towers – 315 kV HVac ⁄ of Towers– HVac	:	Type: Revision No.: Date:	P-Purchase Order 01 13-Apr-2012
Discipline: Transmission Responsibilities: Area Manage QA / QC:		Package Engineer: Contract Admin. / Buyer:	Ananth Rao Fabien Cuis	inier Raynal
Scope of Work Summary	full load testing of selecte steel for the construction 315 kV HVac transmission to Churchill Falls. Additionally, this contract p	ludes the detailing, fabrication of tower types, delivery and of approximately 500 km of n lines (each approximately 2 package includes two short 73 n, between the existing switch	warranty of ga two parallel, si 250 km in lengt 35 kV interconn	Ivanized lattice towe ngle circuit, 3-phase h) from Muskrat Fall ection lines,
Work Included:	The design of the towers will be completed by SLI and will be provided to the Supplier for preparation of shop drawings to facilitate the production of tower members. Towers will be designed for horizontal phase configuration, using 2-bundle 795 kcmil 26/7 aluminum conductor, steel reinforced (ACSR) Drake as phase conductors, with two shielding peaks carrying one 12.7 mm (½") stranded galvanized steel Grade 220 overhead shield wire (OHSW) and one optical ground wire (OPGW) similar to the mechanical characteristics to that of the OHSW.			
	For the 315 kV HVac trans types of towers:	mission lines, this contract pa	ackage will inclu	ude the following five
	Type A, Tangent T	Fower (0° to 1°), Guyed-Y De	sign;	
	Type B, Light Ang	le Tower (0° to 8°), Guyed-Y	Design;	
	• Type C, Angle Dea	ad-End - Strain (0° to 30°), So	elf-Supporting;	
	Type D, Angle Dea	ad-End - Strain (0° to 45°), Se	elf-Supporting;	and
	• Type E, Angle Dea	ad-End - Strain (45° to 90°), S	Self-Supporting	
	The types of towers for the	e 735 kV interconnection lines	s are to be dete	rmined.
	The spans are approximat	tely 400 m.		
	TOWER Models and manu	nsible for preparing shop draw ufacturing tower members as ns, which will be provided to	per Tower Des	ign and
	-	I members and accessories s will be provided to the Suppli		•

#### Lower Churchill Project

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Project Base Currency: CAD			
	of Steel Towers – 315 kV HVac	Гуре: Revision No.: Date:	P-Purchase Order 01 13-Apr-2012
Approximate Quantities (Major Items Only):	ItemDescription1Type A Towers2Type B Towers3Type C Towers4Type D Towers5Type E Towers6735 kV Towers	Unit each each each each each	Quantity         1,042         66         68         84         16         To Be Determined
Contract Basis:	This contract basis is: Lump Sum	Unit Rat Reimbursat	
Work Excluded:	DescriptionInstallation of SuppliesDesign of the TowersMay Exclude Delivery Depending On Project Logistics Plan	an	Package No. CT0319 Not Applicable To Be Determined
Quality:	Requires Determination of the Equipment Quality Rating: Determination of Equipment Criticality based on GP-5600-1 High I Minor I Significant I Negligible I Moderate I		I No □
	Determination of Quality Surveillance level based on GP-504Continuous in process quality monitoring and verifi3Regular in process quality monitoring and verificati2Limited in process quality monitoring and verification1Final quality verification0No quality surveillance, no quality verification	cation and ion and fina	final verification I quality verification

### PACKAGE DICTIONARY

Package No.: PT030		Туре:	P-Purchase Order
	y of Steel Towers – 315 kV HVac	Revision No.:	01
(short): Supply	of Towers- HVac	Date:	13-Apr-2012
Reference Section:	The following main document was used to define the	e scope:	
	DG3 Capital Cost Estimate – Basis of Estimate		
	SLI Document Number: 505573-0000-33RA-I-001		
	Nalcor Reference Number: LCP-SN-CD-0000-EP-E	S-0002-01	
nterface with Other	Description		Package No.
Packages:	Construction of 315 kV HVac Transmission Lines (	MF to CF)	CT0319
	Supply of Steel Tower Foundations - 315 kV HVac		PT0307
Specific Site Conditions:	Not Applicable		
Specific Schedule Conditions:	Any other packages that have to be started before the Not Applicable	he subject package	e can proceed:
	<ul> <li>Any other packages that cannot proceed before the</li> <li>CT0319 – Construction of 315 kV HVac Tra</li> </ul>		
Specific Environment Conditions:	Not Applicable		
Specific Safety Conditions:	Not Applicable		
Special Requirements:	For prototype tower testing please see the following	document:	
	315 kV HVac (Muskrat Falls to Churchill Falls) Trans	smission Line - Full	Scale Tower Load
	Testing - Technical Specification		
	SLI Document #: 505573-361B-43ES-0003 NE-LCP Document #: MFA-SN-CD-6140-TL-TS-007	13-01	
Free Issued Materials:	Description		De al a va N
ו וכב וססטכט ווומוצו ומוס.	Description           Not Applicable		Package No.
Major Equipment List:	Not Applicable		

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#### PACKAGE DICTIONARY

Package No.:		PT0302	Туре:	P-Purchase Order
Titles	(long):	Supply of Steel Towers – 315 kV HVac	Revision No.:	01
	(short):	Supply of Towers- HVac	Date:	13-Apr-2012
Schedule a Milestones		EOI Date: RFP Date: Award Date: 1 <sup>st</sup> Vendor Data Required by: Construction Complete: Dates for milestones will be updated once the Proje	19-Dec-2011 To Be Determine To Be Determine To Be Determine	d d
Budget:		To Be Determined		
Applicable Project/SP			– Island Transmiss Churchill Project – (	
IBA Packag	je:	Yes 🗌 No 🖂		

	(long): short):		of Tower Hardware– 315 k í Hardware – HVac	V HVac	Type: Revision No.: Date:	P-Purchase Order 01 13-Apr-2012	
Discipline: Responsibilities:		mission Liı Vanager: QC:	nes Kumar Kandaswamy Kenneth Morrison	Package Engineer: Contract Admin. / Buyer:	Ananth Rao Hartfield Ste		
Scope of Work Summary:		nmary:	and warranty for hardw construction of approx	includes the design, fabrication, vare, accessories, fittings and gro imately 500 km of two parallel, si ch approximately 250 km in lengt	ounding materia ngle circuit, 3-p	ls for the hase, 315 kV HVac	
			approximately 0.6 km of Churchill Falls. Plus, for	act package includes two short 73 each, between the existing switch our short 315 kV interconnection I powerhouse and the proposed s	nyard and the pl lines, approxima	roposed substation a ately 0.5 km each,	
Work Included:			For the 315 kV HVac transmission lines, the conductor is 2-bundled 795 kcmil 26/7 aluminum conductor, steel reinforced (ACSR) Drake and overhead shield wire (OHSW) is 12.7 mm ( $\frac{1}{2}$ ") galvanized steel stranded wire, Grade 220. The steel towers have two shielding peaks; one for OHSW and one for optical ground wire (OPGW). For the 735 kV interconnection lines, the conductor is quad-bundled 954 kcmil 54/7 Strands Cardinal ACSR and OHSW is 14.3 mm (9/16") galvanized steel stranded wire, Grade 220.				
			The materials (exact types and sizes are shown in the Approximate Quantities Section) to be supplied under this contract package include, but not limited, to the following items:				
			Phase conduct	ctor spacer dampers;			
			OHSW dampe	ers;			
			Conductor and	d OHSW suspension assemblies	;		
			Conductor and	d OHSW dead-end assemblies;			
			Conductor and	d OHSW splices for compression	type;		
			Guy wire grips	s for different sizes from 12.7 mm	n (½") to 25.4 mi	m (1");	
			• Guy wire poly	vinyl chloride (PVC) covers;			
			• Tower danger	plates and tower number plates;			
			• Armor-rods;				
			Aerial marker	cones; and			
			Grounding ma	aterials and hardware.			
			Additionally, this contra				

Project Base Currency:	CAD

Titles (long): Su		lardware– 315 kV HVac	Гуре: Revision No.:	P-Purchase Order 01	
(short): Su	oply of Hardware	– HVac I	Date:	13-Apr-2012	
	which ir	cludes corona tests and radio interference voltage	(RIV) tests.		
	Grounding materials to be used on the 315 kV HVac transmission lines include, bu limited to the zinc-coated steel grounding rods and associated stainless steel ground clamps to be used at river crossings or any other obstacles. Ground clamps shall in hardware necessary for assembly. The applicable hardware fittings shall be low temperature performance rated (Cha Impact Rated) for minimum energy absorption of 20 J at -20°C. The materials shall be delivered in suitable crates to the marshalling yard.				
Approximate Quantitie	s [#am	Description	11:0:4	Quentitu	
(Major Items Only):		Description	Unit	Quantity	
	1	Twin Bundle 795 kcmill Drake Spacer Damper Counterweights for Suspension and Jumper Assembly, 45 kg	each each	25,688 2,448	
	3	Spiral Vibration Damper for 12.7 mm (½") Grade 220 OHSW	each	2,556	
	4	Twin Bundle 795 kcmil Drake Rigid Spacer for Jumper	each	2,952	
	5	Aerial Marker Cone, White, 45.7 cm (18")	each	350	
	6	Aerial Marker Cone, Orange, 45.7 cm (18")	each	350	
	7	Guy Wire Assembly	each	4,456	
	8	OHSW Tangent Suspension Assembly	each	1,114	
	9	OHSW Dead-End Assembly	each	314	
	10	Phase Conductor Tangent Suspension Assembly	each	3,342	
	11	Phase Conductor Jumper Suspension Assembly	each	492	
	12	Phase Conductor Dead-End Assembly	each	984	
	13	Tower Structure Number Tags	each	1,278	
	14	Tower Aerial Structure Number Boards	each	128	
	15	Tower Danger Signs	each	2,556	
	16	Tower Aerial Line Number Boards	each	12	
	17	Guy Wire Guard, Yellow 2.4 m (94.5") Per Guy	each	4,456	
	18	Corona Test	each	19	
	19	RIV Test	each	19	
	20	Downlead and Guide Clamp for 17.5 mm (11/16" 24 Fibre OPGW	) each	4,000	
	21	Spiral Vibration Damper for 17.5 mm (11/16") 24 Fibre OPGW	each	2,556	
	22	Splice Box, OPGW to OPGW for 17.5 mm (11/16) 24 Fibre	each	100	
	23	Two-Hole Compression Terminal Lug for 7.2 mm (9/32") mm Steel Bonding Conductor	each	1,278	

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#### PACKAGE DICTIONARY

Package No.:		PT0303		Туре:	P-Purchase Order
Titles	(long):		rdware– 315 kV HVac	Revision No.:	01
	(short):	Supply of Hardware –	HVac	Date:	13-Apr-2012
		24	Compression Connector for 7.2 mm (9/32") Stee Bonding Conductor	el each	n 1,278
		25	Ground Clamp for Ground Rod	each	n 200
		26	Grounding Rod	each	า 200
		27	795 kcmil Drake Conductor Compression Type Splices	each	n 1,028
			Bird Diverter, Firefly Bird Flapper for 12.7 mm () Grade 220 OHSW	<sup>/</sup> 2") each	n 5,112
		29	12.7 mm (½") Grade 220 OHSW Compression Type Splices	each	n 168
Contract B	asis:		utract basis is: Lump Sum 🔲 ation Lump Sum – Unit Rates 🔲 Cost	Unit Rat Reimbursat	
Work Exclu	ıded:	Counter Installati	DescriptionPackage ICounterpoise Conductor and Bonding WirePT0326Installation of SuppliesCT0319May Exclude Delivery Depending On Project Logistics PlanTo Be Determined		
Quality:			Determination of the Equipment Quality Rating: ation of Equipment Criticality based on GP-5600		🛛 No 🗌
			gh 🗌 Minor 🗌 ant 🗌 Negligible 🗍	-F K-02-L	
		Determina	ation of Quality Surveillance level based on GP-	5600-PR-03-	E is to be determined.
		3 R 2 L 1 F	continuous in process quality monitoring and veri egular in process quality monitoring and verificat imited in process quality monitoring and verificat inal quality verification lo quality surveillance, no quality verification	tion and fina	l quality verification

### PACKAGE DICTIONARY

Package No.:	PT0303	Type:	P-Purchase Order	
	Supply of Tower Hardware– 315 kV HVac	Revision No.:	01	
(short):	Supply of Hardware – HVac	Date:	13-Apr-2012	
Reference Section:	The following main document was used to define to DG3 Capital Cost Estimate – Basis of Estimate SLI Document Number: 505573-0000-33RA-I-001 Nalcor Reference Number: LCP-SN-CD-0000-EP-			
Interface with Other	Description		Package No.	
Packages:	Construction of 315 kV HVac Transmission Lines	(MF to CF)	CT0319	
Specific Site Condit	Any other packages that have to be started before	Not Applicable Any other packages that have to be started before the subject package can proceed:		
Conditions:	<ul> <li>Not Applicable</li> <li>Any other packages that cannot proceed before th</li> <li>CT0319 – Construction of 315 kV HVac T</li> </ul>			
Specific Environme Conditions:	t Not Applicable			
Specific Safety Conditions:	Not Applicable			
Special Requiremen	s: Not Applicable			
Free Issued Materia	B: Description Not Applicable		Package No.	
Major Equipment Lis	t: Not Applicable			

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### PACKAGE DICTIONARY

Package No.:		PT0303	Type:	P-Purchase Order
Titles	(long):	Supply of Tower Hardware– 315 kV HVac	Revision No.:	01
	(short):	Supply of Hardware – HVac	Date:	13-Apr-2012
Schedule a Milestones		1 <sup>st</sup> Vendor Data Required by Construction Complete	<ul> <li>To Be Determine</li> </ul>	ed ed ed
		Dates for milestones will be updated once the Pro	ject baseline schedu	ule is in place.
Budget:		To Be Determined		
Applicable Project/SP			r – Island Transmiss <sup>-</sup> Churchill Project –	
IBA Packaç	ge:	Yes 🗌 No 🖾	-	

	(long): (short):		of Optical Ground Wire (OPG\ f OPGW – HVac	W) – 315 kV HVac	Type: Revision No.: Date:	P-Purchase Order 01 13-Apr-2012
Discipline: Responsibilities:		mission Li Manager: QC:	nes Kumar Kandaswamy Kenneth Morrison	Package Engineer: Contract Admin. / Buyer:	Ananth Rao Hartfield Ste	vens
Scope of Work Summary:		nmary:	supervision, installation s the construction of approx	cludes the design, fabrication, support and warranty for optica ximately 500 km of two paralle (each approximately 250 km in	l ground wire ar I, single circuit,	nd accessories for 3-phase, 315 kV
			approximately 0.6 km eac Churchill Falls. Plus, four	package includes two short 73 ch, between the existing switch short 315 kV interconnection I werhouse and the proposed s	nyard and the pr lines, approxima	oposed substation a ately 0.5 km each,
Work Included:			The optical ground wire (OPGW) shall have 24 single mode fibres (SMF) and shall have mechanical properties equivalent to that of the corresponding overhead shield wire (OHSW), stranded galvanized steel wire, size Grade 220. This contract package includes:			
				n (½") galvanized (Class B) st ength (RTS) of 138.8 kN as pe on lines;		
				n (9/16") galvanized (Class B andard for the 735 kV intercon		
				n (½") galvanized (Class B) st as per CSA G12 Standard for		
				mps for the proposed OPG ete with grounding attachment	-	
			-	os for proposed OPGW for ments to the tower body;	dead-end struc	ctures complete wi
			Splicing boxes a	nd associated accessories for	splicing the pro	posed OPGW; and
			Aeolian vibration	dampers for the proposed OP	PGW.	
			Additionally, this contract Type Test.	package includes the electrica	al tests for the C	PGW which include
			-	includes the supervision durin alidate the warranty of the OP		

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Package No.: Titles	(long): (short):			Ground Wire (OPGW) – 315 kV HVac	Type: Revision No.: Date:	P-Purchase Order 01 13-Apr-2012
			The OP The stee	ing of proposed OPGW at the splice locations. GW shall be delivered on steel reels of the specifie el reels may be returnable but the collection from t ction will be the responsibility of the Supplier, or as	he marshal	o marshalling yard. ling yard following
Approximat			Item	Description	Unit	Quantity
(Major Item	s Only):	:	1	12.7 mm (½") Galvanized (Class B) Stranded Steel Wire, Grade 220	km	550.2
			2	14.3 mm (9/16") Galvanized (Class B) Stranded Steel Wire, Grade 220	km	1.2
			3	Downlead and Guide Clamp for 17.5 mm (11/16") 24 Fibre OPGW	each	4,200
			4	Spiral Vibration Damper for 17.5 mm (11/16") 24 Fibre OPGW	each	5,200
			5	Splice Box, OPGW to OPGW for 17.5 mm (11/16") 24 Fibre OPGW	each	110
			6	Suspension Assembly for 17.5 mm (11/16") 24 Fibre OPGW	each	1,150
			7	Dead-End Assembly for 17.5 mm (11/16") 24 Fibre OPGW	each	570
			8	Type Test		To Be Determined
Contract Ba	asis:			ontract basis is: Lump Sum	Unit Ra Reimbursa	
Work Exclu	ded:		Description			Package No.
				ition of Supplies cclude Delivery Depending On Project Logistics Pl	an	CT0319 To Be Determined
Quality:			Require	s Determination of the Equipment Quality Rating:	Yes [	⊠ No 🗌
			Determi	nation of Equipment Criticality based on GP-5600-	PR-02-E	
			ł Signifio Mode			

#### Lower Churchill Project

Project Base Currency: CAD			
Package No.: PT0304	Ту	ype: P	-Purchase Order
	of Optical Ground Wire (OPGW) – 315 kV HVac Re	evision No.: 0	1
(short): Supply o	of OPGW – HVac Di	ate: 13	3-Apr-2012
	Determination of Quality Surveillance level based on GP-56         4         Continuous in process quality monitoring and verific         3         Regular in process quality monitoring and verification         2         Limited in process quality monitoring and verification         1         Final quality verification         0         No quality surveillance, no quality verification	cation and final on and final qua	verification lity verification
Reference Section:	The following main document was used to define the scope DG3 Capital Cost Estimate – Basis of Estimate SLI Document Number: 505573-0000-33RA-I-001 Nalcor Reference Number: LCP-SN-CD-0000-EP-ES-0002-		
Interface with Other	Description		Package No.
Packages:	Construction of 315 kV HVac Transmission Lines (MF to C	CF)	CT0319
	Supply of HVac Insulators - 315 kV HVac	. ,	PT0301
Specific Site Conditions: Specific Schedule Conditions:	Not Applicable Any other packages that have to be started before the subje • Not Applicable Any other packages that cannot proceed before the subject • CT0319 – Construction of 315 kV HVac Transmission	package has s	tarted:
Specific Environment Conditions:	Not Applicable		
Specific Safety Conditions:	Not Applicable		
Special Requirements:	Not Applicable		
Free Issued Materials:	Description Not Applicable		Package No.

#### Lower Churchill Project

Project Base Currency: CAD

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Package No.: PT0304	4 Type: P-I	Purchase Order
Titles (long): Supply	y of Optical Ground Wire (OPGW) – 315 kV HVac Revision No.: 01	
(short): Supply	of OPGW – HVac Date: 13	-Apr-2012
Major Equipment List:	Not Applicable	
Schedule and	EOI Date: 24-Aug-2011	
Milestones:	RFP Date: To Be Determined	
	Award Date: To Be Determined	
	1 <sup>st</sup> Vendor Data Required by: To Be Determined	
	Construction Complete: To Be Determined	
	Dates for milestones will be updated once the Project baseline schedule is	s in place.
Budget:	To Be Determined	
-		
Applicable Sub- Project/SPV:	Muskrat Falls Generation  Labrador – Island Transmission	Link
	Labrador Transmission Assets 🛛 Lower Churchill Project – Gen	
	Labrador Transmission Assets 🖄 Lower Churchill Project – Gen	
IBA Package:	Yes 🗌 No 🖂	
-		

Project Base Currency: CAD					
	of Steel Tower Foundations – 315 k <sup>v</sup> f Steel Tower Foundations – HVac	/ HVac	Type: Revision No.: Date:	P-Purchase Order 01 13-Apr-2012	
Discipline: Transmission Li Responsibilities: Area Manager: QA / QC:	nes Kumar Kandaswamy Kenneth Morrison	Package Engineer: Contract Admin. / Buyer:	Ananth Rao Fabien Cuis		
Scope of Work Summary:	This contract package includes the detailing, fabrication, shop testing, delivery and warranty for galvanized steel foundations for the construction of approximately 500 km of two parallel, single circuit, 3-phase, 315 kV HVac transmission lines (each approximately 250 km in length) from Muskrat Falls to Churchill Falls.				
	Additionally, this contract packa approximately 0.6 km each, be Churchill Falls. Plus, four short between the proposed powerho	ween the existing switch 315 kV interconnection li	yard and the p nes, approxima	roposed substation at ately 0.5 km each,	
Work Included:	<ul> <li>For the 315 kV HVac transmission lines, this contract package will include four types of galvanized steel foundations (Types 4 and 5 are excluded):</li> <li>Type 1, steel grillage on 250 kPA granular soils;</li> </ul>				
	Type 2, steel grillage c	/pe 2, steel grillage on 100 kPa granular soils; and			
	Type 3, steel foundation	Type 3, steel foundation anchored to bedrock.			
	The types of foundation for the 735 kV interconnection lines and 315 kV interconnection lines are to be determined.				
	The design of the foundation (grillage) steel will be provided to the Supplier for preparation of shop drawings to facilitate the production of members. The Supplier will be responsible for the preparation of shop drawings and manufacturing o steel members shall be as per Foundation Design and Manufacturing Specifications, which will be provided to the Supplier at a later date. The galvanized foundation steel members shall be packed as per detailed packing instructions which will be provided to the Supplier at a later date and shall be delivered to the marshalling yard.				
				•	
Approximate Quantities	Item Description		Unit	Quantity	
(Major Items Only):	1 Type 1, 250 kPa Stee	l Grillage	each	320	
	2 Type 2: 100 kPa Stee		each	150	
	3 Type 3: Steel Founda	tion	each	680	
	4 735 kV Foundations			To Be Determined	
	5 315 kV Interconnection	on Foundations		To Be Determined	

Project Base Currency: CAD				
Package No.: PT0307 Titles (long): Supply of	Type: Steel Tower Foundations – 315 kV HVac Revisi	P-Purchase Order ion No.: 01		
	Steel Tower Foundations – HVac Date:	13-Apr-2012		
Contract Basis:	This contract basis is: Lump Sum  Lump Sum Lump	Jnit Rates ⊠ nbursable □		
Work Excluded:				
work Excluded:	Description	Package No.		
	Anchors for Rock Foundation	PT0335		
	Installation of Supplies	CT0319		
	Supply of Types 4 and 5 Foundations	CT0319		
	May Exclude Delivery Depending On Project Logistics Plan	To Be Determined		
Quality: Requires Determination of the Equipment Quality Rating: Yes 🛛 No 🗌				
	Determination of Equipment Criticality based on GP-5600-PR-02-E			
	High A Minor A Minor Significant A Negligible A Negligible A Negligible A Moderate A Negligible	-PR-03-F is to be determined		
	<ul> <li>Continuous in process quality monitoring and verification and final verification</li> <li>Regular in process quality monitoring and verification and final quality verification</li> <li>Limited in process quality monitoring and verification and final quality verification</li> <li>Final quality verification</li> <li>No quality surveillance, no quality verification</li> </ul>			
Reference Section:	The following main document was used to define the scope:			
	DG3 Capital Cost Estimate – Basis of Estimate			
	SLI Document Number: 505573-0000-33RA-I-001			
	Nalcor Reference Number: LCP-SN-CD-0000-EP-ES-0002-01			
Interface with Other	Description	Package No.		
Packages:	Construction of 315 kV HVac Transmission Lines (MF to CF)	CT0319		
	Supply of Steel Towers - 315 kV HVac	PT0302		
		I		
Specific Site Conditions:	Not Applicable			

### Lower Churchill Project

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Project Base Currency: C.	CAD	
Package No.: P	PT0307 Type: P-F	Purchase Order
	Supply of Steel Tower Foundations – 315 kV HVac Revision No.: 01	
(short): Si	Supply of Steel Tower Foundations – HVac Date: 13-	-Apr-2012
Specific Schedule Conditions:	Any other packages that have to be started before the subject package can • Not Applicable Any other packages that cannot proceed before the subject package has sta • CT0319 – Construction of 315 kV HVac Transmission Lines (MF to	arted:
Specific Environment Conditions:	t Not Applicable	
Specific Safety Conditions:	Not Applicable	
Special Requirements	Not Applicable	
Free Issued Materials	s: Description	Package No.
	Not Applicable	- denage nei
Major Equipment List	t: Not Applicable	
Schedule and	EOI Date: 24-Aug-2011	
Milestones:	RFP Date: To Be Determined	
	Award Date: To Be Determined	
	1 <sup>st</sup> Vendor Data Required by: To Be Determined Construction Complete: To Be Determined	
	Dates for milestones will be updated once the Project baseline schedule is	in place.
Budget:	To Be Determined	
Applicable Sub- Project/SPV:	Muskrat Falls Generation 🗌 Labrador – Island Transmission L	_ink
	Labrador Transmission Assets 🖾 Lower Churchill Project – Gene	eral

Project Base (	Currency:	CAD		
Package No.: Titles	(long): (short):	PT0307 Supply of Steel Tower Foundations – 315 kV HVac Supply of Steel Tower Foundations – HVac	Type: Revision No.: Date:	P-Purchase Order 01 13-Apr-2012
IBA Packag	<u> </u>	Yes No		

Project Base Currency: CA						
Package No.: PT			Туре:	P-Purchase Order		
	ply of Steel Tower Foundations – 3	350 kV HVdc	Revision No.:	01		
(short): Sup	bly of Steel Tower Foundations- HVdc		Date:	13-Apr-2012		
Discipline: Transmiss	on Lines					
Responsibilities: Area Mana	-	Package Engineer:	Ananth Rao			
QA / QC:	Kenneth Morrison	Contract Admin. / Buyer:	Fabien Cuis	inier Raynal		
Scope of Work Summa	for galvanized steel founda ±350 kV HVdc transmissio approximately 385 km of e Falls to approximately 20 Additionally, this contract p two 230 kV HVac transmis Converter Station. Plus, th	udes the detailing, fabrication ations for the construction of on line from Muskrat Falls to S electrode line carried on the ± km from the coast. backage includes foundation ssion lines (TL217 and TL218 he modification of an existing Hampden and Soldiers Pond.	approximately 1 Soldiers Pond in 350 kV HVdc to materials for the ) at the propose 230 kV HVac tra	,080 km of 900 MW, ocluding owers from Muskrat e re-termination of ed Soldiers Pond		
Vork Included:	galvanized steel foundatio	nsmission line, this contract p ns (Types 4 and 5 are excluc age on 250 kPA granular soils	led):	ude three types of		
	• Type 2, steel grillage on 100 kPa granular soils; and					
	Type 3, steel four	• Type 3, steel foundation anchored to bedrock.				
	The types of foundation fo	The types of foundation for the re-termination and modification lines are to be determined.				
	0	The design of the foundation (grillage) steel will be provided to the Supplier for preparation of shop drawings to facilitate the production of members.				
		nsible for the preparation of s per Foundation Design and oplier at a later date.				
		n steel members shall be pac provided to the Supplier at a l				
Approximate Quantitie	Item Description		Unit	Quantity		
Major Items Only):	1 Type 1, 250 kPa	Steel Grillage		To Be Determined		
	2 Type 2: 100 kPa			To Be Determined		
	3 Type 3: Steel Fo	undation		To Be Determined		
	4 Re-termination F	oundation		To Be Determined		
	5 Modification Fou	Indation		To Be Determined		

Project Base Currency: CAD		
	Type:         of Steel Tower Foundations – 350 kV HVdc       Revision No.:         f Steel Tower Foundations– HVdc       Date:	P-Purchase Order 01 13-Apr-2012
Contract Basis:	This contract basis is: Lump Sum	_
Work Excluded:	Description         Anchors for Rock Foundation         Installation of Supplies         May Exclude Delivery Depending On Project Logistics Plan	Package No.           PT0352           CT0327           CT0342           CT0346           To Be Determined
Quality:	Requires Determination of the Equipment Quality Rating:       Yes         Determination of Equipment Criticality based on GP-5600-PR-02-E         High       Minor         Significant       Negligible         Moderate       Negligible         Determination of Quality Surveillance level based on GP-5600-PR-03         4       Continuous in process quality monitoring and verification and Regular in process quality monitoring and verification and fina         2       Limited in process quality monitoring and verification and fina         1       Final quality verification         0       No quality surveillance, no quality verification	-E is to be determined. final verification al quality verification
Reference Section:	The following main document was used to define the scope: DG3 Capital Cost Estimate – Basis of Estimate SLI Document Number: 505573-0000-33RA-I-001 Nalcor Reference Number: LCP-SN-CD-0000-EP-ES-0002-01	
Interface with Other Packages:	DescriptionConstruction of 350 kV HVdc Transmission Line - Section 1Construction of ac Transmission Line - IslandConstruction of 350 kV HVdc Transmission Line - Section 2Supply of Steel Towers - 350 kV HVdc	Package No.           CT0327           CT0342           CT0346           PT0330
Specific Site Conditions:	Not Applicable	

Project Base Currency: CAD			
	of Steel Tower Foundations – 350 kV HVdc	Type: Revision No.:	P-Purchase Order 01
(short): Supply c	f Steel Tower Foundations- HVdc	Date:	13-Apr-2012
Specific Schedule Conditions:	<ul> <li>Any other packages that have to be started before the s</li> <li>Not Applicable</li> <li>Any other packages that cannot proceed before the sub</li> <li>CT0327 – Construction of 350 kV HVdc Transm</li> <li>CT0342 – Construction of ac Transmission Line</li> <li>CT0346 – Construction of 350 kV HVdc Transm</li> </ul>	oject package has nission Line - Sec e - Island	s started: ction 1
Specific Environment Conditions:	Not Applicable		
Specific Safety Conditions:	Not Applicable		
Special Requirements:	Not Applicable		
Free Issued Materials:	Description Not Applicable		Package No.
Major Equipment List:	Not Applicable		
Schedule and Milestones:	RFP Date: T Award Date: T 1 <sup>st</sup> Vendor Data Required by: T	o Be Determined o Be Determined o Be Determined o Be Determined o Be Determined baseline schedul	5 5 5
Budget:	To Be Determined		
Applicable Sub- Project/SPV:		sland Transmissi urchill Project – C	_
IBA Package:	Yes 🗌 No 🖂		

### Lower Churchill Project

Project Base Currency:		CAD		
Package No.:		PT0308	Type:	P-Purchase Order
Titles	(long):	Supply of Steel Tower Foundations – 350 kV HVdc	Revision No.:	01
	(short):	Supply of Steel Tower Foundations- HVdc	Date:	13-Apr-2012

Package No.: Titles	(long): (short):		of Steel Wires – 315 kV HVac f Steel Wires – HVac		Type: Revision No.: Date:	P-Purchase Order 01 13-Apr-2012
Discipline: Responsibilities:		mission Li Manager: QC:	nes Kumar Kandaswamy Kenneth Morrison	Package Engineer: Contract Admin. / Buyer:	Ananth Rao Fabien Cuis	inier Raynal
Scope of Wo	ork Sur	nmary:	and warranty for galvaniz km of two parallel, single	cludes the design, fabrication, s zed stranded steel wires for the circuit, 3-phase, 315 kV HVac t length) from Muskrat Falls to Cl	construction of transmission lin	approximately 500
			approximately 0.6 km ea Churchill Falls. Plus, four	package includes two short 73 ch, between the existing switchy short 315 kV interconnection lin owerhouse and the proposed sw	vard and the pi nes, approxima	roposed substation a ately 0.5 km each,
Work Included:			wire, Grade 220	cludes: I wire (OHSW): 12.7 mm (½") g , with a rated tensile strength ( 315 kV HVac transmission lines	RTS) of 138.8	,
				onductor: 7.2 mm (9/32") galva or superior, as per CSA G1 es;	•	
			• •	e: 19.1 mm (¾") galvanized (Cla 302 kN as per ASTM A586-04 es;		
				ire: 20.6 mm (13/16") galvaniz RTS of 356 kN as per ASTM on lines;		
				m (9/16") galvanized (Class B) andard for the 735 kV interconn		
				n (½") galvanized (Class B) stra I as per CSA G12 Standard for t		
			yard. The wooden reels r	delivered on wooden reels of spon may be returnable but the collec I be the responsibility of the Sup	tion from the n	narshalling yard

Project Base Currency:	CAD

				_	
8	PT0326		0451141114	Type:	P-Purchase Order
			res – 315 kV HVac	Revision No.:	01
(short):	Supply o	Steel Wire	s – Hvac	Date:	13-Apr-2012
Approximate Quant	ities	Item	Description	Unit	Quantity
(Major Items Only):		1	12.7 mm (1/2") Galvanized (Class B) Stranded Steel Wire, Grade 220	km	504
		2	14.3 mm (9/16") Galvanized (Class B) Stranded Steel Wire, Grade 220	km	1.2
		3	7.2 mm (9/32") Galvanized (Class B) Single- Strand Steel Wire, Grade 50 or Superior	km	517
		4	19.1 mm (¾") Galvanized (Class A) Stranded Steel Wire, Grade 1	km	168
		5	20.6 mm (13/16") Galvanized (Class A) Stranded Steel Wire, Grade 1	km	13
Contract Basis:			ontract basis is: Lump Sum	Unit Ra Reimbursa	—
Work Excluded:		Descri	ption		Package No.
		Guy Ar	nchors		PT0335
			are, Grounding Materials, Beside Counterpoise C	onductor	PT0303
			tion of Supplies		CT0319
		May Ex	cclude Delivery Depending On Project Logistics P	lan	To Be Determined
Quality:			s Determination of the Equipment Quality Rating: nation of Equipment Criticality based on GP-5600		No 🗌
		l Signifi	High ☐ Minor ☐ cant ☐ Negligible ☐ rate ⊠		
		Determi	nation of Quality Surveillance level based on GP-	5600-PR-03	-E is to be determined.
		3 2 1	Continuous in process quality monitoring and veri Regular in process quality monitoring and verifica Limited in process quality monitoring and verificat Final quality verification No quality surveillance, no quality verification	tion and fina	al quality verification

### PACKAGE DICTIONARY

Project Base Currency: CAD

Package No.: PT032		Type:	P-Purchase Order
	ly of Steel Wires – 315 kV HVac	Revision No.:	01
(short): Suppl	y of Steel Wires – HVac	Date:	13-Apr-2012
Reference Section:	The following main document was used to define t	he scope:	
	DG3 Capital Cost Estimate – Basis of Estimate SLI Document Number: 505573-0000-33RA-I-001		
	Nalcor Reference Number: LCP-SN-CD-0000-EP-	ES-0002-01	
Interface with Other	Description		Package No.
Packages:	Construction of 315 kV HVac Transmission Lines	(MF to CF)	CT0319
	Supply of Tower Hardware - 315 kV HVac		PT0303
Specific Site Conditions	Not Applicable		
Specific Schedule Conditions:	<ul><li>Any other packages that have to be started before</li><li>Not Applicable</li></ul>	the subject package	can proceed:
	Any other packages that cannot proceed before th • CT0319 – Construction of 315 kV HVac T		
Specific Environment Conditions:	Not Applicable		
Specific Safety Conditions:	Not Applicable		
Special Requirements:	Not Applicable		
Free Issued Materials:	Description		Package No.
	Not Applicable		
Major Equipment List:	Not Applicable		

#### Lower Churchill Project

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### PACKAGE DICTIONARY

Project Base Currency: CAD

Package No.:		PT0326	Type:	P-Purchase Order
Titles	(long):	Supply of Steel Wires – 315 kV HVac	Revision No.:	01
	(short):	Supply of Steel Wires – HVac	Date:	13-Apr-2012
Schedule a Milestones		EOI Date: RFP Date: Award Date: 1 <sup>st</sup> Vendor Data Required by: Construction Complete: Dates for milestones will be updated once the Proje	To Be Determine To Be Determine To Be Determine	d d d
Budget:		To Be Determined		
Applicable Project/SP\			– Island Transmiss Churchill Project –	
IBA Packaç	ge:	Yes 🗌 No 🖂		

Package No.: Titles	(long): (short):		f Transmission Line Conduct Conductors– HVdc	ors – 350 kV HVdc	Type: Revision No.: Date:	P-Purchase Order 01 13-Apr-2012
Discipline: Responsibilities		mission Line Manager: QC:	es Keenan Healey Kenneth Morrison	Package Engineer: Contract Admin. / Buyer:	Ananth Rao Fabien Cuisi	nier Raynal
Scope of W	′ork Sur		for conductors for the con transmission line from Mu electrode line carried on t km from the coast. Additionally, this contract	cludes the design, fabrication, s instruction of approximately 1,08 uskrat Falls to Soldiers Pond in the ±350 kV HVdc towers from package includes two sections 15 km each, near Lanse au Di pectively.	80 km of 900 M cluding approxi Muskrat Falls t of wood pole e	W, ±350 kV HVdc mately 385 km of o approximately 20 electrode lines,
Work Included:			This contract package inc • 3640 kcmil 91/0 a kV HVdc transmi	aluminum stranded conductors	(ASC) pole co	nductors for the $\pm 35$
				19 aluminum conductor, steel ı m ice load zone) for the ±350 k	•	
				ACSR Falcon electrode cond HVdc transmission line; and	uctor (135 mm	ice alpine load zone
			• 1192.5 kcmil 54/ pole electrode lin	19 ACSR grackle electrode con nes.	nductor for the	two sections of woo
			Additionally, this contrac includes Type Test.	t package includes the elect	rical tests for	the conductor which
			The steel reels may be	delivered on steel reels of spec returnable but the collection f sponsibility of the Supplier, or a	from the marsl	halling yard followin

Project Base Currency: C	AD		
Package No.: P	-0328	Type:	P-Purchase Order
•	upply of Transmission Line Conductors – 350 kV HVdc	Revision No.:	01
	ipply of Conductors– HVdc	Date:	13-Apr-2012
Approximate Quantiti		Unit	Quantity
(Major Items Only):	1 3640 kcmil 91/0 ASC Pole Conductors	m	2,244,320
	2 1192.5 kcmil 54/19 ACSR Grackle Electrode	m	614,702
	Conductor (50 mm Ice Load Zone)		014,702
	3 1590 kcmil 54/19 ACSR Falcon Electrode	m	183,521
	Conductor (135 mm Ice Alpine Load Zone)		,
	4 Conductor	m	70,000
	5 Type Test		To Be Determined
	<u> </u>		To be beteinined
Contract Basis:	This contract basis is: Lump Sum Combination Lump Sum – Unit Rates Cos	Unit Rat t Reimbursal	
Monte Fredericado			]
Work Excluded:	Description		Package No.
	Installation of Ourselies		CT0327
	Installation of Supplies		CT0342 CT0346
	May Exclude Delivery Depending On Project Logistics	Plan	To Be Determined
	May Exclude Delivery Depending On Project Logistics i	lan	To be Determined
Quality:	Requires Determination of the Equipment Quality Rating Determination of Equipment Criticality based on GP-560		No 🗌
	High D Minor Significant Negligible Moderate		
	Determination of Quality Surveillance level based on GP	·5600-PR-03·	E is to be determined.
	<ul> <li>4 Continuous in process quality monitoring and verification</li> <li>3 Regular in process quality monitoring and verification</li> <li>2 Limited in process quality monitoring and verification</li> <li>1 Final quality verification</li> <li>0 No quality surveillance, no quality verification</li> </ul>	ation and fina	I quality verification

Project Base Currency:	CAD

Package No.:	PT0328	Туре:	P-Purchase Order	
Titles (long):	Supply of Transmission Line Conductors – 350 kV HVdc	Revision No.:	01	
(short):	Supply of Conductors- HVdc	Date:	13-Apr-2012	
Reference Section:	The following main document was used to define the so	cope:		
	DG3 Capital Cost Estimate – Basis of Estimate			
	SLI Document Number: 505573-0000-33RA-I-001			
	Nalcor Reference Number: LCP-SN-CD-0000-EP-ES-0	002-01		
Interface with Othe	Description		Package No.	
Packages:	Construction of 350 kV HVdc Transmission Line - Sec	tion 1	CT0327	
	Construction of ac Transmission Line - Island		CT0342	
	Construction of 350 kV HVdc Transmission Line - Sec	tion 2	CT0346	
	Supply of Tower Hardware - 350 kV HVdc		PT0331	
Specific Site Cond	tions: Not Applicable			
Specific Schedule	Any other packages that have to be started before the s	Any other packages that have to be started before the subject package can proceed:		
Conditions:	Not Applicable			
	Any other packages that cannot proceed before the sub	piect package ha	is started:	
	CT0327 – Construction of 350 kV HVdc Transn			
	CT0342 – Construction of ac Transmission Line	e - Island		
	CT0346 – Construction of 350 kV HVdc Transm	nission Line - Se	ection 2	
Specific Environme Conditions:	nt Not Applicable			
Specific Safety	Not Applicable			
Conditions:				
Special Requireme	nts: Not Applicable			
Free Issued Materia	Ils: Description		Package No.	
	Not Applicable			
Major Equipment L	ist: Not Applicable			
walui Euuluilient L				

#### Lower Churchill Project

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### PACKAGE DICTIONARY

Project Base Currency: CAD

Package No.:		PT0328	Type:	P-Purchase Order
Titles	(long):	Supply of Transmission Line Conductors – 350 kV HVdc	Revision No.:	01
	(short):	Supply of Conductors- HVdc	Date:	13-Apr-2012
Schedule a Milestones		RFP Date: To Award Date: To 1 <sup>st</sup> Vendor Data Required by: To	Be Determined Be Determined Be Determined Be Determined Be Determined	
Budget:		To Be Determined		
Applicable Project/SP\			and Transmissic chill Project – G	
IBA Packag	je:	Yes 🗌 No 🖂		

Project Base Currency: CAD				
	of HVdc Insulators – 350 kV HVdc of Insulators – HVdc		Type: Revision No.: Date:	P-Purchase Order 01 13-Apr-2012
Discipline: Transmission Li Responsibilities: Area Manager: QA / QC:	ines Keenan Healey Kenneth Morrison	Package Engineer: Contract Admin. / Buyer:	Hamidreza Hartfield S	
Scope of Work Summary:	This contract package inclu- and warranty for ball and s approximately 1,080 km of 9 Soldiers Pond including app HVdc towers from Muskrat Fa Additionally, this contract pa approximately 20 km and 15 and Dowden's Point, respect	ocket type suspension insul 00 MW, ±350 kV HVdc trans proximately 385 km of electi alls to approximately 20 km fi ackage includes two section 5 km each, near Lanse au D	ator disks to mission line rode line ca rom the coa ns of wood	for the construction of from Muskrat Falls to arried on the ±350 kV st. pole electrode lines,
Work Included:	This contract package include 160 kN dc fog type in 220 kN dc fog type in 300 kN dc fog type in There are two acceptable typ	es: nsulators with 550 mm creep nsulators with 550 mm creep nsulators with 635 mm creep es of insulator disks; porcela	age and 171 age and 195 in and glass	mm spacing; and 5 mm spacing. 5.
	Additionally, this contract pactify tests for complete susp 361C-4ZES-0006 and type to Doc. No. 505573-361C-4ZES The insulators shall be delive	pension assembly as per cla ests for complete tension as 6-0006.	use 5.3 of ssembly as	SLI Doc. No. 505573- per clause 5.3 of SLI
Approximate Quantities (Major Items Only):	Item Description	N 550	Unit	Quantity
	1 dc Fog Type (160 k mm Spacing)	N, 550 mm Creepage, 171	disks	29,986
		N, 550 mm Creepage, 171	disks	217,104
		N, 635 mm Creepage, 195	disks	97,790
	4 Type Test Suspens	ion Assembly		To Be Determined
	5 Type Test Tension	Assembly		To Be Determined
Contract Basis:	This contract basis is: L Combination Lump Sum – I	ump Sum	Unit Ra Reimbursa	

Lower Churchill Project

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Project Base Currency:	CAD	
Package No.:	PT0329 Type:	P-Purchase Order
Titles (long):	Supply of HVdc Insulators – 350 kV HVdc Revision No.	: 01
(short):	Supply of Insulators – HVdc Date:	13-Apr-2012
Work Excluded:	Description	Package No.
		CT0327
	Installation of Supplies	CT0342 CT0346
	May Exclude Delivery Depending On Project Logistics Plan	To Be Determined
		TO De Determined
Quality:	Requires Determination of the Equipment Quality Rating: Yes	🛛 No 🗌
	Determination of Equipment Criticality based on GP-5600-PR-02-E	
	High 🗌 Minor 🖂	
	Significant 🗌 Negligible 🗌	
	Moderate	
	Determination of Quality Surveillance level based on GP-5600-PR-03	2 E is to be determined
	4 Continuous in process quality monitoring and verification and	d final verification
	3 Regular in process quality monitoring and verification and fin	
	2 Limited in process quality monitoring and verification and fina	
	1 Final quality verification	
	0 No quality surveillance, no quality verification	
<b>Reference Section:</b>	The following main document was used to define the scope:	
	DG3 Capital Cost Estimate – Basis of Estimate	
	SLI Document Number: 505573-0000-33RA-I-001	
	Nalcor Reference Number: LCP-SN-CD-0000-EP-ES-0002-01	
Interface with Othe	r Description	Package No.
Packages:	Construction of 350 kV HVdc Transmission Line - Section 1	CT0327
	Construction of ac Transmission Line - Island	CT0342
	Construction of 350 kV HVdc Transmission Line - Section 2	CT0346
	Supply of Tower Hardware - 350 kV HVdc	PT0331
Specific Site Condi	tions: Not Applicable	

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Project Base Currency: CAD			
Package No.: PT0329		Type:	P-Purchase Order
	of HVdc Insulators – 350 kV HVdc	Revision No.:	01
(short): Supply c	f Insulators – HVdc	Date:	13-Apr-2012
Specific Schedule Conditions:	<ul> <li>Any other packages that have to be started before the</li> <li>Not Applicable</li> <li>Any other packages that cannot proceed before the su</li> <li>CT0327 – Construction of 350 kV HVdc Transi</li> <li>CT0342 – Construction of ac Transmission Lin</li> <li>CT0346 – Construction of 350 kV HVdc Transi</li> </ul>	bject package ha mission Line - Se e - Island	s started: ction 1
Specific Environment Conditions:	Not Applicable		
Specific Safety Conditions:	Not Applicable		
Special Requirements:	Not Applicable		
Free Issued Materials:	Description Not Applicable		Package No.
Major Equipment List:	Not Applicable		
Schedule and Milestones:	RFP Date: Award Date:		d d d
Budget:	To Be Determined		
Applicable Sub- Project/SPV:		sland Transmiss hurchill Project – (	_
IBA Package:	Yes 🗌 No 🖂		

Package No.: Titles (long): (short):	PT0330 Supply of Ste Supply of Towe	el Towers – 350 kV HVd ers – HVdc	с	Type: Revision No.: Date:	P-Purchase Order 01 13-Apr-2012
1	•	enan Healey nneth Morrison	Package Engineer: Contract Admin. / Buyer:	Ananth Rao Fabien Cuisi	inier Raynal
Scope of Work Summary:		load testing of selected el for the construction d smission line from Mu	ludes the detailing, fabrication, d tower types, delivery and wa of approximately 1,080 km of 9 skrat Falls to Soldiers Pond in he ±350 kV HVdc towers from	rranty of galvar 000 MW, ±350 I cluding approxi	hized lattice tower kV HVdc imately 385 km of
	tran Plus	smission lines (TL217	package includes the re-termir and TL218) at the proposed S he existing 230 kV HVac transi oldiers Pond.	Soldiers Pond C	Converter Station.
Work Included:		paration of shop drawing igned for horizontal po ductors (ASC), with or th tower will have two ductor, steel reinforced	will be completed by SLI and wings to facilitate the production ole configuration, using 3640 kone shielding peak carrying a 24 electrode conductors made of d (ACSR) Grackle for the 50 mile a 135 mm ice Alpine load zone	of tower memb cmil 91/0 alumi l fibre optical gi 1192.5 kcmil 5 im ice load zon	bers. Towers will be num stranded round wire (OPGW) 4/19 aluminum
			nsmission line, this contract pa n family will have the following	-	
	•	Type A, Tangent	Tower (0° to 1°), Guyed-Y Des	sign;	
	•	Type B, Light Ang	gle Tower (0° to 8°), Guyed-Y I	Design;	
	•		ead-End - Strain (0° to 30°), Se	<b>U</b>	
	•		ead-End - Strain (0° to 45°), Se		and
	•		ead-End - Strain (45° to 90°), S		
			d modification of 230 kV transr wing Nalcor's existing tower fa		nis contract package
	•	Guyed tangent de	ead-end structures (NDD Towe	er + 10');	
	•	Guyed tangent st	ructures (A Tower + 30');		
	•	Self-supported de	ead-end structures (DDM Tow	er + 5');	
	•	Self-supported de	ead-end structures (NDD Towe	er + 10');	
		Single CCT dead	-end structures (DDM Tower +	E'), and	

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### PACKAGE DICTIONARY

Project Base Currency: CAD

Package No.: Titles	(long): (short):	PT0330 Supply of Steel Supply of Towers	Towers – 350 kV HVdc R	ype: evision No.: ate:	P-Purchase Order 01 13-Apr-2012
		•	Single CCT dead-end structures (NDD Tower + 5').		
		The s	pans are approximately:		
		•	200 m for tower families 2 and 6;		
		•	230 m for tower family 13;		
		•	250 m for tower family 11;		
		•	270 m for tower family 12;		
		•	320 m for tower families 7 and 8;		
		•	360 m for tower families 1, 3 and 9; and		
		•	400 m for tower families 4, 5 and 10.		
		Manu	acturing Specifications, which will be provided to the	Supplier at a	a later date.
		The g packi	acturing Specifications, which will be provided to the a alvanized tower steel members and accessories shall ag instructions which will be provided to the Supplier a red to the marshalling yard.	be packed	as per detailed
		tities	alvanized tower steel members and accessories shall ng instructions which will be provided to the Supplier a red to the marshalling yard.	be packed	as per detailed te and shall be
		tities	alvanized tower steel members and accessories shall ng instructions which will be provided to the Supplier a red to the marshalling yard.	be packed at a later dat	as per detailed
		tities	alvanized tower steel members and accessories shall ng instructions which will be provided to the Supplier a red to the marshalling yard. Description	be packed at a later dat	as per detailed te and shall be Quantity
		tities	alvanized tower steel members and accessories shall or instructions which will be provided to the Supplier a red to the marshalling yard. <b>Description</b> Type A Towers Type B Towers Type C Towers	be packed at a later dat Unit each	as per detailed te and shall be Quantity 3,172
		tities	alvanized tower steel members and accessories shall ng instructions which will be provided to the Supplier a red to the marshalling yard. <b>Description</b> Type A Towers Type B Towers Type C Towers Type D Towers	be packed at a later dat Unit each each	as per detailed te and shall be Quantity 3,172 83
		tities Iten 2 3	alvanized tower steel members and accessories shall ng instructions which will be provided to the Supplier a red to the marshalling yard. <b>Description</b> Type A Towers Type B Towers Type C Towers Type D Towers Type E Towers	be packed at a later dat Unit each each each	as per detailed te and shall be Quantity 3,172 83 190
		tities Iten 3 4	alvanized tower steel members and accessories shall og instructions which will be provided to the Supplier a red to the marshalling yard. <b>Description</b> Type A Towers Type B Towers Type C Towers Type D Towers Type E Towers Guyed Tangent Dead-End Structures (NDD	be packed at a later dat Unit each each each each each	as per detailed te and shall be Quantity 3,172 83 190 140
		tities Iten 3 4 5	alvanized tower steel members and accessories shall ng instructions which will be provided to the Supplier a red to the marshalling yard. <b>Description</b> Type A Towers Type B Towers Type C Towers Type D Towers Type E Towers	be packed at a later dat Unit each each each each each each	as per detailed te and shall be Quantity 3,172 83 190 140 48
Approximat Major Item		tities Iten 3 4 5 6	alvanized tower steel members and accessories shall ng instructions which will be provided to the Supplier a red to the marshalling yard. <b>Description</b> Type A Towers Type B Towers Type C Towers Type D Towers Type E Towers Guyed Tangent Dead-End Structures (NDD Tower + 10') Guyed Tangent Structures (A Tower + 30') Self-Supported Dead-End Structures (DDM Tower + 5')	be packed at a later dat Unit each each each each each each each	as per detailed te and shall be Quantity 3,172 83 190 140 48 2
		tities Iten 1 2 3 4 5 6 7	alvanized tower steel members and accessories shall ng instructions which will be provided to the Supplier a red to the marshalling yard. <b>Description</b> Type A Towers Type B Towers Type C Towers Type D Towers Type E Towers Guyed Tangent Dead-End Structures (NDD Tower + 10') Guyed Tangent Structures (A Tower + 30') Self-Supported Dead-End Structures (DDM Tower + 5') Self-Supported Dead-End Structures (NDD Tower + 10')	be packed at a later dat Unit each each each each each each each each	as per detailed te and shall be Quantity 3,172 83 190 140 48 2 5
		tities Iten 1 2 3 4 5 6 7 8	alvanized tower steel members and accessories shall ng instructions which will be provided to the Supplier a red to the marshalling yard. <b>Description</b> Type A Towers Type B Towers Type C Towers Type D Towers Type E Towers Guyed Tangent Dead-End Structures (NDD Tower + 10') Guyed Tangent Structures (A Tower + 30') Self-Supported Dead-End Structures (DDM Tower + 5') Self-Supported Dead-End Structures (NDD	be packed at a later dat Unit each each each each each each each each	as per detailed te and shall be Quantity 3,172 83 190 140 48 2 5 3

**Contract Basis:** 

This contract basis is:

### Lower Churchill Project

Project Base Currency: CAD		
Package No.: PT0330	Туре:	P-Purchase Order
-	of Steel Towers – 350 kV HVdc Revision No.:	01
	of Towers – HVdc Date:	13-Apr-2012
	Lump Sum I Unit Ra Combination Lump Sum – Unit Rates Cost Reimbursa	
Work Excluded:	Description	Package No.
	Installation of Supplies Design of the Towers	CT0327 CT0342 CT0346 Not Applicable
	May Exclude Delivery Depending On Project Logistics Plan	To Be Determined
	I way Exclude Delivery Depending On Project Edgistics Plan	TO De Determined
Quality:	Requires Determination of the Equipment Quality Rating: Yes	No 🗌
	Determination of Equipment Criticality based on GP-5600-PR-02-E	
	High Alinor Significant Negligible Alignment Minor High Alignment Significant Alignment Negligible High Alignment Significant Alignm	
	Determination of Quality Surveillance level based on GP-5600-PR-03	B-E is to be determined.
	<ul> <li>4 Continuous in process quality monitoring and verification and</li> <li>3 Regular in process quality monitoring and verification and fin</li> <li>2 Limited in process quality monitoring and verification and final</li> <li>1 Final quality verification</li> <li>0 No quality surveillance, no quality verification</li> </ul>	al quality verification
Reference Section:	The following main document was used to define the scope:	
	DG3 Capital Cost Estimate – Basis of Estimate SLI Document Number: 505573-0000-33RA-I-001	
	Nalcor Reference Number: LCP-SN-CD-0000-EP-ES-0002-01	
Interface with Other		
Packages:	Description	Package No.
i avrages.	Construction of 350 kV HVdc Transmission Line - Section 1 Construction of ac Transmission Lines - Island	CT0327
		CT0342
	Construction of 350 kV HVdc Transmission Line - Section 2	CT0346 PT0308
	Supply of Steel Tower Foundation - 350 kV HVdc	F10300

#### Lower Churchill Project

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### PACKAGE DICTIONARY

Project Base Currency: CAD

Package No.:	PT0330		Туре:	P-Purchase Order
Titles (long):		of Steel Towers – 350 kV HVdc	Revision No.:	01
(short):	Supply of	of Towers – HVdc	Date:	13-Apr-2012
Specific Site Cone	ditions:	Not Applicable		
Specific Schedule Conditions:	<b>)</b>	Any other packages that have to be started before the Not Applicable	he subject package	e can proceed:
		<ul> <li>Any other packages that cannot proceed before the</li> <li>CT0327 – Construction of 350 kV HVdc Tra</li> <li>CT0342 – Construction of ac Transmission</li> <li>CT0346 – Construction of 350 kV HVdc Tra</li> </ul>	nsmission Line - So Lines - Island	ection 1
Specific Environn Conditions:	nent	Not Applicable		
Specific Safety Conditions:		Not Applicable		
Special Requirements:		For prototype tower testing please see the following	document:	
		350 kV HVdc Line Full Scale Tower Load Testing Te SLI Document #: 505573-4622-43ES-0003 NE-LCP Document #: To Be Determined	echnical Specificati	on
Free Issued Mater	ials:	Description           Not Applicable		Package No.
Major Equipment	List:	Not Applicable		
Schedule and Milestones:		EOI Date: RFP Date: Award Date:	To Be Determine To Be Determine	ed ed
		1 <sup>st</sup> Vendor Data Required by: Construction Complete:		
		Dates for milestones will be updated once the Proj	ect baseline sched	ule is in place.
Budget:		To Be Determined		

### Lower Churchill Project

Project Base (	Currency:	CAD			
Package No.:		PT0330		Туре:	P-Purchase Order
Titles	(long):	Supply	of Steel Towers – 350 kV HVdc	Revision No.:	01
	(short):	Supply o	Towers – HVdc	Date:	13-Apr-2012
Applicable Project/SP\				sland Transmiss urchill Project –	_
IBA Packaç	je:		Yes 🗌 No 🖂		

	of Tower Hardware – 350 kV HVdc f Hardware – HVdc		Type: Revision No.: Date:	P-Purchase Order 01 13-Apr-2012		
Discipline: Transmission Li Responsibilities: Area Manager: QA / QC:	nes Keenan Healey Kenneth Morrison	Package Engineer: Contract Admin. / Buyer:	Ananth Rao Hartfield Ste	vens		
Scope of Work Summary:	This contract package includes the design, fabrication, shop testing, packaging, delivery and warranty for hardware, accessories, fittings and grounding materials for the construction of approximately 1,080 km of 900 MW, ±350 kV HVdc transmission line from Muskrat Falls to Soldiers Pond including approximately 385 km of electrode line carried on the ±350 kV HVdc towers from Muskrat Falls to approximately 20 km from the coast.					
	Additionally, this contract package includes two sections of wood pole electrode lines, approximately 20 km and 15 km each, near Lanse au Diable and between Soldiers Pond and Dowden's Point, respectively.					
Work Included:	For the ±350 kV HVdc transmission line, the conductors are 3640 kcmil 91/0 aluminum stranded conductor (ASC), 1192.5 kcmil aluminum conductor, steel reinforced (ACSR) Grackle and 1590 kcmil 54/19 ACSR Falcon.					
	The materials (exact types and sizes are shown in the Approximate Quantities Section) to be supplied under this contract package include, but not limited, to the following items:					
	Pole conductor space	r dampers;				
	Conductor suspension	n assemblies;				
	Conductor dead-end assemblies;					
	Conductor jumper assemblies;					
	Conductor splices for compression type;					
	• Guy wire grips for different sizes from 12.7 mm (1/2") to 25.4 mm (1");					
	Guy wire polyvinyl chloride (PVC) covers;					
	• Tower danger plates and tower number plates;					
	• Armor-rods;					
	Aerial marker cones; and					
	Grounding materials and hardware.					
	Additionally, this contract package includes the electrical tests for the conductor assemblies which includes corona tests and radio interference voltage (RIV) tests.					
	Grounding materials to be used on the electrode lines include, but not limited zinc-coated steel grounding rods and associated stainless steel ground clamps to be used at river crossings or any other obstacles. Ground clamps shall include all hardware necessary for assembly.					

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		lardware – 350 kV HVdc – HVdc	Type: Revision No.: Date:	P-Purchase Order 01 13-Apr-2012
	Impact I	licable hardware fittings shall be low temperature Rated) for a minimum energy absorption of 20 J a terials shall be delivered in suitable crates to the n	t -20°C.	
Approximate Quantities	Item	Description	Unit	Quantity
Major Items Only):	1	ASC Conductor Tangent Suspension Assembly		6,510
	2	ASC Conductor Dead-End Assembly	each	1,512
	3	ASC Conductor Jumper Suspension Assembly	each	756
	4	Grackle Conductor Tangent Suspension Assembly	each	1,504
	5	Grackle Conductor Dead-End Assembly	each	284
	6	Falcon Conductor Tangent Suspension Assembly	each	892
	7	Falcon Conductor Dead-End Assembly	each	116
	8	#2 6/1 ACSR "Sparrow" Bonding Conductor	m	6,301.5
	9	Counterweights for Suspension and Jumper Assembly, 45 kg	each	5,000
	10	ASC Conductor Compression Type Splices	each	1,247
	11	ASC Conductor Stockbridge Dampers	each	7,266
	12	Aerial Marker Cone White	each	24
	13	Aerial Marker Cone Orange	each	48
	14	Grackle Conductor Compression Type Splices	each	342
	15	Grackle Conductor Stockbridge Dampers	each	1,646
	16	Parrot Conductor Compression Type Splices	each	102
	17	Parrot Conductor Stockbridge Dampers	each	950
	18	Tower Structure Number Tags	each	3,633
	19	Tower Aerial Structure Number Boards	each	363
	20	Tower Danger Signs	each	7,266
	21	Tower Aerial Line Number Boards	each	10
	22	Guy Wire Assembly	each	6,510
	25	Guy Wire Guard, Yellow 2.4 m (94.5") Per Guy	each	6,510
	26	Two-Hole Compression Terminal Lug for 7.2 (9/32") mm Steel Bonding Conductor	each	3,633
	27	Compression Connector for 7.2 mm (9/32") Steel Bonding Conductor	each	3,633
	28	Ground Clamp for Ground Rod	each	400
	29	Grounding Rod	each	400
	30	Corona Test		To Be Determined
	31	RIV Test		To Be Determined

### Lower Churchill Project

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Project Base Currency:	CAD	
Package No.:	PT0331 Type:	P-Purchase Order
-	Supply of Tower Hardware – 350 kV HVdc Revision No.:	01
	Supply of Hardware – HVdc Date:	13-Apr-2012
Contract Basis:	This contract basis is: Lump Sum  Unit Ra Combination Lump Sum – Unit Rates  Cost Reimbursa	
Work Excluded:		
work Excluded:	Description	Package No.
	Counterpoise Conductor and Bonding Wire	PT0334
	Installation of Supplies	CT0327 CT0342 CT0346
	May Exclude Delivery Depending On Project Logistics Plan	To Be Determined
Quality:	Requires Determination of the Equipment Quality Rating:       Yes         Determination of Equipment Criticality based on GP-5600-PR-02-E         High       Minor         Significant       Negligible         Moderate       Negligible         Determination of Quality Surveillance level based on GP-5600-PR-03         4       Continuous in process quality monitoring and verification and final         2       Limited in process quality monitoring and verification and final         1       Final quality verification         0       No quality surveillance, no quality verification	-E is to be determined. final verification al quality verification
Reference Section:	The following main document was used to define the scope: DG3 Capital Cost Estimate – Basis of Estimate SLI Document Number: 505573-0000-33RA-I-001 Nalcor Reference Number: LCP-SN-CD-0000-EP-ES-0002-01	
Interface with Other	Description	Package No.
Packages:	Construction of 350 kV HVdc Transmission Line - Section 1	CT0327
i aonagos.	Construction of ac Transmission Line - Island	CT0342
	Construction of 350 kV HVdc Transmission Line - Section 2	CT0346

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### PACKAGE DICTIONARY

Project Base Currency: CAD

Package No.: PT0331		71 -	P-Purchase Order			
	of Tower Hardware – 350 kV HVdc of Hardware – HVdc		01 13-Apr-2012			
			•			
Specific Site Conditions:	Not Applicable					
Specific Schedule Conditions:	Any other packages that have to be started before the subject package can proceed: • Not Applicable					
	<ul> <li>Any other packages that cannot proceed before the subject package has started:</li> <li>CT0327 – Construction of 350 kV HVdc Transmission Line - Section 1</li> <li>CT0342 – Construction of ac Transmission Line - Island</li> <li>CT0346 – Construction of 350 kV HVdc Transmission Line - Section 2</li> </ul>					
Specific Environment Conditions:	Not Applicable					
Specific Safety Conditions:	Not Applicable					
Special Requirements:	Not Applicable					
Free Issued Materials:	Description Not Applicable		Package No.			
Major Equipment List:	Not Applicable					
Schedule and Milestones:	EOI Date: To RFP Date: To Award Date: To 1 <sup>st</sup> Vendor Data Required by: To Construction Complete: To	Be Determined Be Determined Be Determined				
	Dates for milestones will be updated once the Project ba	seline schedule	is in place.			
Budget:	To Be Determined					
Applicable Sub- Project/SPV:		nd Transmissio chill Project – Ge	_			

	PT0331	Туре:	P-Purchase Order
(long):	Supply of Tower Hardware – 350 kV HVdc	Revision No.:	01
(short):	Supply of Hardware – HVdc	Date:	13-Apr-2012
		(long): Supply of Tower Hardware – 350 kV HVdc	(long): Supply of Tower Hardware – 350 kV HVdc Revision No.:

Project Base Currer	ncy: CAD						
Package No.:	PT033					Туре:	P-Purchase Order
			res – 350 kV HVdc			Revision No.:	01
(sho	ort): Supply	of Wires – H	/dc			Date:	13-Apr-2012
Discipline: 1	Fransmission	Lines					
•	Area Manager		•	-	e Engineer:	Ananth Rac	
(	QA / QC:	Kenneth	Morrison	Contrac	t Admin. / Buyer:	Hartfield St	evens
Scope of Work	<b>Scope of Work Summary:</b> This contract package includes the design, fabrication, shop testing, packaging, delivered and warranty for galvanized stranded steel wires for the construction of approximately km of 900 MW, ±350 kV HVdc transmission line from Muskrat Falls to Soldiers Pond including approximately 385 km of electrode line carried on the ±350 kV HVdc towers Muskrat Falls to approximately 20 km from the coast.					of approximately 1,080 Soldiers Pond V HVdc towers from	
		Additionally, this contract package includes two sections of wood pole electrode lines, approximately 20 km and 15 km each, near Lanse au Diable and between Soldiers Pond and Dowden's Point, respectively.					
Work Included:		<ul> <li>For the ±350 kV HVdc transmission line, this contract package includes:</li> <li>7.2 mm galvanized (Class B) single-strand steel counterpoise wire, Grade 50 superior, as per CSA G12 Standard; and</li> <li>Galvanized (Class A) stranded steel wires, Grade 1 as per ASTM A586-04 Standard. The diameter of guy wires will vary between 16 mm and 32 m according to the type of tower and the loading zone. The different diameters will the specified later.</li> </ul>					se wire, Grade 50 or per ASTM A586-04a 16 mm and 32 mm
		A) stran wires wi	For the wood pole electrode lines, this contract package will only include galvanized (Class A) stranded steel wires, Grade 1 as per ASTM A586-04a Standard. The diameter of guy wires will vary between 16 mm and 32 mm according to the wood pole and the loading zone. The different diameters will be specified later.				
		The steel wires shall be delivered on wooden reels of specified lengths to the marshalling yard. The wooden reels may be returnable but the collection from the marshalling yard following construction will be the responsibility of the Supplier, or as per negotiated with the Supplier.					
Approximate Q	uantities	Item	Description			Unit	Quantity
(Major Items Or	nly):	1	7.2 mm Galvanize Steel Wire Grade			m	1,136,910
		2Galvanized (Class A) Stranded Steel Wires, Grade 1m520,800					520,800
Contract Basis:	:	This contract basis is: Lump Sum  Unit Rates  Combination Lump Sum – Unit Rates Cost Reimbursable					

Project Base Currency: CA	D				
Package No.: PT	0334 Type:	P-Purchase Order			
Titles (long): Su	pply of Steel Wires – 350 kV HVdc Revision No.:	01			
(short): Su	pply of Wires – HVdc Date:	13-Apr-2012			
Work Excluded:	Description	Package No.			
	Guy Anchors	PT0352			
	Hardware, Grounding Materials, Beside Counterpoise Conductor	PT0331			
		CT0327			
	Installation of Supplies	CT0342			
	May Evolude Delivery Depending On Project Legistics Plan	CT0346			
	May Exclude Delivery Depending On Project Logistics Plan	To Be Determined			
Quality:	Requires Determination of the Equipment Quality Rating: Yes	🛛 No 🗌			
	Determination of Equipment Criticality based on GP-5600-PR-02-E				
	High 🗌 Minor 🗌				
	High Minor Significant Negligible				
	Moderate				
Determination of Quality Surveillance level based on GP-5600-PR-03-E is to be determ					
	4 Continuous in process quality monitoring and verification and	final verification			
	3 Regular in process quality monitoring and verification and final				
	2 Limited in process quality monitoring and verification and fina	I quality verification			
	1 Final quality verification				
	0 No quality surveillance, no quality verification				
Reference Section:	The following main document was used to define the scope:				
	DG3 Capital Cost Estimate – Basis of Estimate				
	SLI Document Number: 505573-0000-33RA-I-001				
	Nalcor Reference Number: LCP-SN-CD-0000-EP-ES-0002-01				
Interface with Other	Description	Package No.			
Packages:	Construction of 350 kV HVdc Transmission Line - Section 1	CT0327			
U	Construction of ac Transmission Lines - Island	CT0342			
	Construction of 350 kV HVdc Transmission Line - Section 2	CT0346			
	Supply of Tower Hardware - 350 kV HVdc	PT0331			
Specific Site Condition	ns: Not Applicable				

### PACKAGE DICTIONARY

Project Base Currency: CAD

	of Steel Wires – 350 kV HVdc f Wires – HVdc	Type: Revision No.: Date:	P-Purchase Order 01 13-Apr-2012
Specific Schedule Conditions:	Any other packages that have to be started before the su Not Applicable Any other packages that cannot proceed before the subj CT0327 – Construction of 350 kV HVdc Transm CT0342 – Construction of ac Transmission Lines CT0346 – Construction of 350 kV HVdc Transm	ubject package ect package ha ission Line - Se s - Island	s started: ction 1
Specific Environment Conditions:	Not Applicable		
Specific Safety Conditions:	Not Applicable		
Special Requirements:	Not Applicable		
Free Issued Materials:	Description Not Applicable		Package No.
Major Equipment List:	Not Applicable		
Schedule and Milestones:	RFP Date: To Award Date: To 1 <sup>st</sup> Vendor Data Required by: To	b Be Determined b Be Determined b Be Determined b Be Determined b Be Determined b Be Determined baseline schedu	
Budget:	To Be Determined		
Applicable Sub- Project/SPV:		land Transmissi rchill Project – (	
IBA Package:	Yes 🗌 No 🖾		

Package No.:	PT03				Туре:	P-Purchase Order	
		ly of Anch y of Anchor	or Materials – 315 kV H s – HVac	Vac	Revision No.: Date:	01 13-Apr-2012	
Responsibilities:	Transmissior Area Manage QA / QC:	er: Kum	ar Kandaswamy neth Morrison	Package Engineer: Contract Admin. / Buyer:	Michel Bela Hartfield Ste	•	
Scope of Work	Summary	threa appro	ded bars (Dywidag or oximately 500 km of tw	udes the fabrication, shop tes equivalent) for rock and soil wo parallel, single circuit, 3-p 250 km in length) from Musk	anchors for the hase, 315 kV H	construction of Vac transmission	
Work Included	:	This	This contract package will include:				
		•	• Mechanical anchors (Dywidag, Williams or equivalent all thread bars Grade 75 ASTM A615, $F_y$ = 520 MPa): 25M rock anchor, length and rock depth is to be determined for Tower Type A;				
		•	<ul> <li>Grouted anchors (Williams Grade 75 ASTM A615 all thread bars R61 or equivalent): 45M soil anchor, length and soil depth is to be determined for Tower Type A;</li> </ul>				
		•		(Williams Grade 75 AST rock anchor, length and soil ck);			
		•		ors (Dywidag, Williams or e 520 MPa): 25M rock anche	•		
		•		(Williams Grade 75 AST soil anchor, length and soil			
		•		(Williams Grade 75 AST rock anchor, length and soil ck);			
		•	ASTM A615, F <sub>y</sub> =	ors (Dywidag, Williams or e 520 MPa): 35M rock anch wer Type C (sound rock);			
		•	ASTM A615, F <sub>y</sub> =	ors (Dywidag, Williams or e 520 MPa): 45M rock anch wer Type D (sound rock); an	nor, length and		
		•	ASTM A615, F <sub>y</sub> =	ors (Dywidag, Williams or e 520 MPa): 45M rock anch wer Type E (sound rock).	-		

#### Lower Churchill Project

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Project Base Currency: CAD				
	of Anchor Materials – 315 kV HVac of Anchors – HVac	Type: Revision No.: Date:	P-Purchase Order 01 13-Apr-2012	
	The anchor materials shall be packed as per detailed provided to the Supplier at a later date and shall be d			
Approximate Quantities	Item Description	Unit	Quantity	
(Major Items Only):	1 25M Rock Anchor – Mechanical	each	2,520	
	2 35M Rock Anchor – Mechanical	each	352	
	3 45M Rock Anchor – Mechanical	each	800	
	4 45M Soil Anchor – Grouted	each	560	
	5 45M Rock Anchor – Grouted	each	3,648	
Work Excluded:	Lump Sum Dunit Rates Combination Lump Sum Dunit Rates Cost Reimbursable			
work Excluded:	Description		Package No. CT0319	
	Installation of Supplies May Exclude Delivery Depending On Project Logisti	cs Plan	To Be Determined	
Quality:       Requires Determination of the Equipment Quality Rating:       Yes       Yes         Determination of Equipment Criticality based on GP-5600-PR-02-E       High       Minor       Significant       Negligible       Minor       Minor			No 🗌	
	Determination of Quality Surveillance level based on	GP-5600-PR-03	E is to be determined.	
4Continuous in process quality monitoring and verification and final verification3Regular in process quality monitoring and verification and final quality v2Limited in process quality monitoring and verification and final quality v1Final quality verification0No quality surveillance, no quality verification				

### PACKAGE DICTIONARY

Project Base Currency: CAD

	5 Туре:	P-Purchase Order
Titles (long): Supply	/ of Anchor Materials – 315 kV HVac Revision No.	.: 01
(short): Supply	of Anchors – HVac Date:	13-Apr-2012
Reference Section:	The following main document was used to define the scope:	
	DG3 Capital Cost Estimate – Basis of Estimate	
	SLI Document Number: 505573-0000-33RA-I-001	
	Nalcor Reference Number: LCP-SN-CD-0000-EP-ES-0002-01	
Interface with Other	Description	Package No.
Packages:	Construction of 315 kV HVac Transmission Lines (MF to CF)	CT0319
	Supply of Steel Wires - 315 kV HVac	PT0326
Specific Site Conditions:	Not Applicable	
-		
Ou saifia Oak sakula		
Specific Schedule Conditions:	<ul> <li>Any other packages that have to be started before the subject package.</li> <li>Not Applicable</li> </ul>	ige can proceed:
conditions.	Not Applicable	
	Any other packages that cannot proceed before the subject package	
		e has started:
	CT0319 – Construction of 315 kV HVac Transmission Lines	
Specific Environment	CT0319 – Construction of 315 kV HVac Transmission Lines Not Applicable	
Specific Environment Conditions:		
Conditions:	Not Applicable	
-		
Conditions: Specific Safety Conditions:	Not Applicable Not Applicable	
Conditions: Specific Safety	Not Applicable	
Conditions: Specific Safety Conditions:	Not Applicable Not Applicable Not Applicable	(MF to CF)
Conditions: Specific Safety Conditions: Special Requirements:	Not Applicable Not Applicable Not Applicable Description	
Conditions: Specific Safety Conditions: Special Requirements:	Not Applicable Not Applicable Not Applicable	(MF to CF)
Conditions: Specific Safety Conditions: Special Requirements:	Not Applicable Not Applicable Not Applicable Description	(MF to CF)

#### Lower Churchill Project

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### PACKAGE DICTIONARY

Project Base Currency: CAD

Package No.:		PT0335	Type:	P-Purchase Order
Titles	(long):	Supply of Anchor Materials – 315 kV HVac	Revision No.:	01
	(short):	Supply of Anchors – HVac	Date:	13-Apr-2012
Schedule a	nd	EOI Date:	24-Aug-2011	
Milestones	:	RFP Date:	•	d
		Award Date:	To Be Determine	d
		1 <sup>st</sup> Vendor Data Required by:	To Be Determine	d
		Construction Complete:	To Be Determine	d
		Dates for milestones will be updated once the Proje	ect baseline schedu	le is in place
Budget:		To Be Determined		
Applicable Project/SP		Muskrat Falls Generation   Labrador	- Island Transmiss	ion Link
-		Labrador Transmission Assets 🛛 Lower	Churchill Project –	General
IBA Packaç	je:	Yes 🗌 No 🖂		

Project Base Currency: CAD					
	of 25 kV Distribution Line Hardware of 25 kV Hardware	Type: Revision No.: Date:	P-Purchase Order 01 13-Apr-2012		
Discipline: Transmission L Responsibilities: Area Manager: QA / QC:	ines Kumar Kandaswamy Package Engineer: Kenneth Morrison Contract Admin. / Buyer:	Ananth Rac Hartfield Ste			
Scope of Work Summary:	<b>mary:</b> This contract package includes the purchase for hardware for the construction of approximately 31 km of 25 kV HVac overhead distribution line between the proposed construction power tap substation and the proposed accommodation complex at Muskrat Falls.				
Work Included:	This contract package includes the purchase for hardware for the 25 kV HVac overhead distribution line and the full details on the types and quantities of hardware can be found in the RFI. The materials shall be delivered in suitable crates to the marshalling yard.				
Approximate Quantities (Major Items Only):	Item         Description           1         See RFI Information PT0336-03           PM+ RFI Report: PT0336	Unit	Quantity Not Applicable		
Contract Basis:	This contract basis is: Lump Sum  Unit Rates  Unit Rates  Combination Lump Sum – Unit Rates  Cost Reimbursable  U				
Work Excluded:	Description Installation of Supplies May Exclude Delivery Depending On Project Logistics	Plan	Package No. CD0512 Not Applicable		

#### Lower Churchill Project

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Project Base Currency: CAD			
Package No.: PT0336		Туре:	P-Purchase Order
	of 25 kV Distribution Line Hardware	Revision No.: Date:	01 13-Apr-2012
		Dale.	13-Api-2012
Quality:	Requires Determination of the Equipment Quality Rating	: Yes 🖂	No 🗌
	Determination of Equipment Criticality based on GP-5600-PR-02-E		
	High Annor Minor Significant Negligible Moderate		
	Determination of Quality Surveillance level based on GP	-5600-PR-03-E	is to be determined.
	<ul> <li>4 Continuous in process quality monitoring and ve</li> <li>3 Regular in process quality monitoring and verific</li> <li>2 Limited in process quality monitoring and verification</li> <li>1 Final quality verification</li> <li>0 No quality surveillance, no quality verification</li> </ul>	ation and final q	uality verification
Reference Section:	The following main document was used to define the scope: DG3 Capital Cost Estimate – Basis of Estimate SLI Document Number: 505573-0000-33RA-I-001 Nalcor Reference Number: LCP-SN-CD-0000-EP-ES-0002-01		
Interface with Other	Description		Package No.
Packages:	Construction of Construction Power Facilities		CD0512
Specific Site Conditions:	Not Applicable		
Specific Schedule Conditions:	<ul><li>Any other packages that have to be started before the subject package can proceed:</li><li>Not Applicable</li></ul>		
	<ul> <li>Any other packages that cannot proceed before the subject package has started:</li> <li>CD0512 – Construction of Construction Power Facilities</li> </ul>		
Specific Environment Conditions:	Not Applicable		
Specific Safety Conditions:	Not Applicable		

#### Lower Churchill Project

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Project Base Currency: CAD						
	Type:P-Purchase Orderof 25 kV Distribution Line HardwareRevision No.:01f 25 kV HardwareDate:13-Apr-2012					
Special Requirements:	Not Applicable					
Free Issued Materials:	Description         Package No.           Not Applicable					
Major Equipment List:	Not Applicable					
Schedule and Milestones:	EOI Date: 03-Oct-2011 RFP Date: 02-Feb-2012 Award Date: To Be Determined 1 <sup>st</sup> Vendor Data Required by: To Be Determined Construction Complete: To Be Determined Dates for milestones will be updated once the Project baseline schedule is in place.					
Budget:	To Be Determined					
Applicable Sub- Project/SPV:	Muskrat Falls Generation 🛛 Labrador – Island Transmission Link 🗌 Labrador Transmission Assets 🔲 Lower Churchill Project – General 🗌					
IBA Package:	Yes 🗌 No 🖾					

Project Base Currency: CAD					
	25 kV Distribution Line ADSS Fibre Optic CableType25 kV ADSSDate:				P-Purchase Order 01 13-Apr-2012
Discipline: Transmission Li Responsibilities: Area Manager: QA / QC:	es Kumar Kandaswar Kenneth Morrison	ny Package Engineer: Contract Admin. / Bu		anth Rao rtfield Steve	ins
Scope of Work Summary: This contract package includes the design, fabrication, shop testing, delivery, consupervision, installation support and warranty for two all-dielectric self-supporting fill cable and accessories for the construction of approximately 31 km of 25 kV HVac of distribution line between the proposed construction power tap substation and the process at Muskrat Falls.				kV HVac overhead	
Work Included:	This contract pa	ckage includes but not be limited to	o the followin	g:	
	• Fibre ca size is 5	ble, single mode, 48 strand all-die 500 m;	electric self-su	upporting	(ADSS) cable (reel
		ion clamps for the proposed as complete with grounding attachr			
	• Dead-end clamps for proposed ADSS for dead-end structures complete grounding attachments to the pole body;				ires complete with
	• Splicing boxes and associated accessories for splicing the proposed <i>i</i>				sed ADSS; and
	Aeolian vibration dampers for the proposed ADSS.				
	Construction supervision includes the supervision during stringing and sagging operation of the ADSS by Others to validate the warranty of the ADSS. Installation support includes the splicing of proposed ADSS at the splice locations.				
	steel reels may	be delivered on steel reels of spec be returnable but the collection be the responsibility of the Supplie	on from the	marshal	ling yard following
Approximate Quantities	Item Descri	ption		Unit	Quantity
(Major Items Only):	1 ADSS	Hardware Assembly For Tangent		each	239
	2 ADSS	Hardware Assembly For Light and Suspension Wood Pole Structures		each	50
	2	Hardware Assembly For Dead-End tructures	d Wood	each	277
	4 Fibre C	able, Single Mode, 48-Strand AD	SS Cable	km	22
	5 Splice	Enclosure of ADSS		each	20
Contract Basis:	This contract basis is: Lump Sum Dunit Rates Combination Lump Sum – Unit Rates Cost Reimbursable				

Lower Churchill Project

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Project Base Currency:	CAD				
Package No.:	PT0337 Type: P-Purchase Order				
Titles (long):	Supply of 25 kV Distribution Line ADSS Fibre Optic Cable Revision No.: 01				
(short):	Supply of 25 kV ADSS Date: 13-Apr-2012				
Work Excluded:	DescriptionPackage No.Installation of SuppliesCD0512May Exclude Delivery Depending On Project Logistics PlanNot Applicable				
Quality:       Requires Determination of the Equipment Quality Rating:       Yes       No         Determination of Equipment Criticality based on GP-5600-PR-02-E       High       Minor       Significant         High       Minor       Negligible       Negligible       Negligible					
	<ul> <li>Determination of Quality Surveillance level based on GP-5600-PR-03-E is to be determined.</li> <li>Continuous in process quality monitoring and verification and final verification</li> <li>Regular in process quality monitoring and verification and final quality verification</li> <li>Limited in process quality monitoring and verification and final quality verification</li> <li>Final quality verification</li> <li>No quality surveillance, no quality verification</li> </ul>				
Reference Section:	The following main document was used to define the scope: DG3 Capital Cost Estimate – Basis of Estimate SLI Document Number: 505573-0000-33RA-I-001 Nalcor Reference Number: LCP-SN-CD-0000-EP-ES-0002-01				
Interface with Other Packages:         Description         Package           Construction of Construction Power Facilities         CD051					
Specific Site Conditions: Not Applicable					
Specific Schedule Conditions:       Any other packages that have to be started before the subject package can proceed: <ul> <li>Not Applicable</li> <li>Any other packages that cannot proceed before the subject package has started:             <ul> <li>CD0512 – Construction of Construction Power Facilities</li> </ul> </li> </ul>					
Specific Environment Not Applicable					

### Lower Churchill Project

# Page 364

Project Base Currency: CAD			
	Type:P-Purchase Orderv of 25 kV Distribution Line ADSS Fibre Optic CableRevision No.:01of 25 kV ADSSDate:13-Apr-2012		
Specific Safety Conditions:	Not Applicable		
Special Requirements:	Not Applicable		
Free Issued Materials:	DescriptionPackage No.Not Applicable		
Major Equipment List: Not Applicable			
Schedule and Milestones:	EOI Date: 13-Sept-2011 RFP Date: To Be Determined Award Date: To Be Determined 1 <sup>st</sup> Vendor Data Required by: To Be Determined Construction Complete: To Be Determined Dates for milestones will be updated once the Project baseline schedule is in place.		
Budget:	To Be Determined		
Applicable Sub- Project/SPV:	Muskrat Falls Generation       Image: Labrador – Island Transmission Link         Labrador Transmission Assets       Image: Lower Churchill Project – General		
IBA Package:	Yes 🗌 No 🖂		

	of 25 kV Distribution Line Conduc f 25 kV Conductors	tors	Type: Revision No.: Date:	P-Purchase Order 01 13-Apr-2012
Discipline: Transmission Lin Responsibilities: Area Manager: QA / QC:	nes Kumar Kandaswamy Kenneth Morrison	Package Engineer: Contract Admin. / Buyer:	Ananth Rao Hartfield Ste	vens
Scope of Work Summary:	This contract package inc approximately 31 km of 28 construction power tap sub- Falls.	5 kV HVac overhead distr	ibution line be	tween the proposed
Work Included:	This contract package includ • 3/8" Grade 160-7 gu	ıy wire;		
	No. 2 SD aluminum			
		y stranded conductor (AAS	C) aluminum ba	are wire;
	<ul> <li>1/0 AASC aluminum</li> </ul>	n bare wire;		
	4/0 AASC aluminum	n bare wire;		
	477 aluminum stran	ded conductor (ASC) alumir	num bare wire;	
2/0 SD stranded copper bare wire; and				
No. 4 SD solid copper bare wire.				
	The conductors shall be del yard. The steel reels may be following construction will be Supplier.	e returnable but the collectio	n from the mar	shalling yard
Approximate Quantities	Item Description		Unit	Quantity
(Major Items Only):	1 3/8" Grade 160-7		m	7,500
	2 No. 2 SD		m	2,294
	3 No. 2 AASC		m	925
	4 1/0 AASC		m	254
	5 4/0 AASC		m	21,090
	6 No. 4 SD Solid		m	3,660
	7 2/0 SD Stranded		m	135
	8 477 ASC		m	62,000
Contract Basis:	This contract basis is: Combination Lump Sum –	Lump Sum 🔲 Unit Rates 🔲 Co	Unit Rate st Reimbursabl	

Lower Churchill Project

Project Base Currency: CAD				
Package No.: PT0338		Type:	P-Purchase Order	
	of 25 kV Distribution Line Conductors of 25 kV Conductors	Revision No.: Date:	01 13-Apr-2012	
Work Excluded:	Description Installation of Supplies May Exclude Delivery Depending On Project Logistics	Plan	Package No. CD0512 Not Applicable	
Quality:	Requires Determination of the Equipment Quality Rating	-	No 🗌	
	Determination of Equipment Criticality based on GP-560 High Align Minor Significant Negligible Alignment Moderate	00-PR-02-E		
<ul> <li>Determination of Quality Surveillance level based on GP-5600-PR-03-E is to be det</li> <li>4 Continuous in process quality monitoring and verification and final verification</li> <li>3 Regular in process quality monitoring and verification and final quality verific</li> <li>2 Limited in process quality monitoring and verification and final quality verific</li> <li>1 Final quality verification</li> <li>0 No quality surveillance, no quality verification</li> </ul>				
Reference Section:       The following main document was used to define the scope:         DG3 Capital Cost Estimate – Basis of Estimate         SLI Document Number: 505573-0000-33RA-I-001         Nalcor Reference Number: LCP-SN-CD-0000-EP-ES-0002-01				
Interface with Other	Description		Deekere No	
Packages:	Construction of Construction Power Facilities		CD0512	
Specific Site Conditions:     Not Applicable				
Specific Schedule Conditions:	subject package	can proceed:		
	<ul> <li>Any other packages that cannot proceed before the sub</li> <li>CD0512 – Construction of Construction Power</li> </ul>		as started:	
Specific Environment         Not Applicable           Conditions:				

#### Lower Churchill Project

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Project Base Currency: CAD		
	Type:P-Purchase Orderof 25 kV Distribution Line ConductorsRevision No.:01of 25 kV ConductorsDate:13-Apr-2012	
Specific Safety Conditions:	Not Applicable	
Special Requirements:	Not Applicable	
Free Issued Materials:	Description         Package No.           Not Applicable	
Major Equipment List:	Not Applicable	
Schedule and Milestones:	EOI Date: 24-Aug-2011 RFP Date: 03-Feb-2012 Award Date: To Be Determined 1 <sup>st</sup> Vendor Data Required by: To Be Determined Construction Complete: To Be Determined Dates for milestones will be updated once the Project baseline schedule is in place.	
Pudaotu	To Be Determined	
Budget:		
Applicable Sub- Project/SPV:       Muskrat Falls Generation       Labrador – Island Transmission Link         Labrador Transmission Assets       Lower Churchill Project – General		
IBA Package:	Yes 🗌 No 🖾	

#### PACKAGE DICTIONARY

Project Base Currency: CAD			
	of 25 kV Distribution Line Insulators f 25 kV Insulators	Revision No.: (	P-Purchase Order 01 13-Apr-2012
Discipline: Transmission Lii Responsibilities: Area Manager: QA / QC:	nes Kumar Kandaswamy Kenneth Morrison Contract Admin. / Bu	Ananth Rao uyer: Hartfield Steven	IS
Scope of Work Summary:	This contract package includes the purchase approximately 31 km of 25 kV HVac overhead construction power tap substation and the propo Falls.	distribution line between	een the proposed
Work Included:	<ul> <li>This contract package includes:</li> <li>35 kV pin Type 42 insulator: 1 3/8" thread</li> <li>34.5 kV Line Post Insulator: 3/4" Thread, V</li> </ul>	• • •	
	• 25 kV Suspension Insulator: Polymer. The insulators shall be delivered in suitable crates	to the marshalling yard	
Approximate Quantities (Major Items Only):	ItemDescription11 3/8" Thread, Vise Top, PE23/4" Thread, Vertical, Porcelain3Polymer	Unit each each each	Quantity 831 342 783
Contract Basis:	This contract basis is: Lump Sum	Unit Rates Cost Reimbursable	
Work Excluded:	<b>Description</b> Installation of Supplies May Exclude Delivery Depending On Project Log	istics Plan	Package No. CD0512 Not Applicable
Quality:	Requires Determination of the Equipment Quality F Determination of Equipment Criticality based on G	<b>·</b> _	No 🗌
	High I Minor Significant Negligible I Moderate		

1

#### PACKAGE DICTIONARY

Project Base Currency: CAD

Dookogo No i	PT0339	Turner	P-Purchase Order			
0	Supply of 25 kV Distribution Line Insulators	Type: Revision No.:	01			
	Supply of 25 kV Insulators	Date:	13-Apr-2012			
		Date.	10 Apr 2012			
		Determination of Quality Surveillance level based on GP-5600-PR-03-E is to be determined 4 Continuous in process quality monitoring and verification and final verification				
		2       Limited in process quality monitoring and verification and final quality verification         1       Final quality verification				
Reference Section:	The following main document was used to define the so	cope:				
	DG3 Capital Cost Estimate – Basis of Estimate					
	SLI Document Number: 505573-0000-33RA-I-001					
	Nalcor Reference Number: LCP-SN-CD-0000-EP-ES-0	002-01				
Interface with Other						
Packages:	Description		Package No. CD0512			
r uonageo.	Construction of Construction Power Facilities	Construction of Construction Power Facilities CD0				
Specific Site Condition	ons: Not Applicable					
Specific Schedule Conditions:	<ul><li>Any other packages that have to be started before the s</li><li>Not Applicable</li></ul>	subject package	can proceed:			
	<ul> <li>Any other packages that cannot proceed before the sub</li> <li>CD0512 – Construction of Construction Power</li> </ul>		s started:			
Specific Environmen Conditions:	t Not Applicable					
Specific Safety     Not Applicable       Conditions:						
Special Requirement	al Requirements: Not Applicable					
Free Issued Materials	s: Description		Package No.			
	Not Applicable		1 acrage 110.			

#### Lower Churchill Project

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Project Base Currency:	CAD

Package No.:		PT0339		Type:	P-Purchase Order		
Titles	(long):	Supply	of 25 kV Distribution Line Insulators	Revision No.:	01		
1	(short):	Supply of	f 25 kV Insulators	Date:	13-Apr-2012		
Major Equipment List:			Not Applicable				
Schedule a	Ind		EOI Date:	09-Sept-2011			
Milestones	:		RFP Date:	02-Feb-2012			
	Award Date: To Be Determined						
			1 <sup>st</sup> Vendor Data Required by: To Be Determined				
			Construction Complete: To Be Determined				
Dates for milestones will be updated once the Project baseline schedule is in place				ile is in place.			
Budget:			To Be Determined				
Applicable Sub- Project/SPV:			Muskrat Falls Generation 🛛 Labrador -	- Island Transmiss	ion Link		
•			Labrador Transmission Assets   Lower C	sion Assets   Lower Churchill Project – General			
IBA Packaç	ge:	Yes 🗌 No 🖾					

		of Wood Poles for 138/25 KV Distribution Line f Poles for 138/25 KV			P-Purchase Order 01 13-Apr-2012
Discipline: Transmission Responsibilities: Area Manage QA / QC:		,	ge Engineer: ct Admin. / Buyer:	Ananth Rao Hartfield Ste	vens
Scope of Work Summary: This contract package includes the purchase for wood poles for the construction approximately 31 km of 25 kV HVac overhead distribution line between the construction power tap substation and the proposed accommodation complex at Falls. Additionally, this contract package includes a small section of 138 kV tap line.					etween the proposed complex at Muskrat
<ul> <li>Work Included:</li> <li>This contract package includes: <ul> <li>Wood Pole Penta-Treated Class 3 from 12.2 m (40') to 21.3 m (70');</li> <li>Wood Pole Penta-Treated Class 2 from 10.7 m (35') to 16.8 m (55'); an</li> <li>Wood Pole Penta-Treated Class 1 22.9 m (75').</li> </ul> </li> <li>Suppliers will be responsible for manufacturing pole as per pole and n specifications, which will be provided to the Supplier later at a later date.</li> </ul>				(55'); and e and manufacturing	
The wood poles and accessories shall be packed as per detailed packing instruction will be provided to the Supplier at a later date. The wood poles and accessories sha delivered to the marshalling yard.					
Approximate Quantities	Item Desc	ription		Unit	Quantity
(Major Items Only):		Pole Penta-Treated 12	.2 m (40'), Class 3		226
	2 Wood	Pole Penta-Treated 13	.7 m (45'), Class 3		104
		Pole Penta-Treated 15	.2 m (50'), Class 3		39
	4 Wood	Pole Penta-Treated 16	.8 m (55'), Class 2		11
		Pole Penta-Treated 21	.3 m (70'), Class 3		1
	6 Wood	Pole Penta-Treated 22	.9 m (75'), Class 1	each	4
		Pole Penta-Treated 10	.7 m (35'), Class 2		2
	8 Wood	Pole Penta-Treated 12	.2 m (40'), Class 2		2
	9 Wood	Pole Penta-Treated 15	.2 m (50'), Class 2		2
Contract Basis: This contract basis is:					
Lump Sum Unit Rates Unit Rates Combination Lump Sum – Unit Rates Cost Reimbursable					

Lower Churchill Project

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Project Base Currency: C.	AD					
Package No.: P	Γ0340	Type:	P-Purchase Order			
Titles (long): S	upply of Wood Poles for 138/25 KV Distribution Line	Revision No.:	01			
(short): Si	upply of Poles for 138/25 KV	Date:	13-Apr-2012			
Work Excluded:	Description		Package No.			
	Installation of Supplies		CD0512			
	May Exclude Delivery Depending On Project Logistics F	Plan	Not Applicable			
Quality:	Requires Determination of the Equipment Quality Rating:	Yes 🛛	No 🗌			
	Determination of Equipment Criticality based on GP-5600	)-PR-02-E				
	High I Minor X Significant Negligible I					
	Moderate					
	Determination of Quality Surveillance level based on GP-	5600-PR-03-E	is to be determined.			
	4 Continuous in process quality monitoring and ver	ification and fir	al verification			
	3 Regular in process quality monitoring and verifica					
	2 Limited in process quality monitoring and verifica					
	1 Final quality verification		, , , , , , , , , , , , , , , , , , ,			
	0 No quality surveillance, no quality verification					
Reference Section:	The following main document was used to define the sco	no:				
Reference Dection.	The following main document was used to define the sco	pe.				
	DG3 Capital Cost Estimate – Basis of Estimate					
	SLI Document Number: 505573-0000-33RA-I-001					
	Nalcor Reference Number: LCP-SN-CD-0000-EP-ES-000	J2-01				
Interface with Other	Description		Package No.			
Packages:	Construction of Construction Power Facilities		CD0512			
Spacific Site Conditio	no. Not Applicable					
Specific Site Conditio	ns: Not Applicable					
Specific Schedule						
Conditions:	Any other packages that have to be started before the su	bject package	can proceed:			
	Not Applicable					
	Any other packages that cannot proceed before the subje	ect package ha	s started:			
	CD0512 – Construction of Construction Power Fa					
Specific Environment Conditions:	Not Applicable					

#### Lower Churchill Project

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Project Base Currency: CAD					
	of Wood Poles for 138/25 KV Distribution Line Revision No.: 0	P-Purchase Order )1 13-Apr-2012			
Specific Safety Conditions:	Not Applicable				
Special Requirements:	Not Applicable				
Free Issued Materials:	Description Not Applicable	Package No.			
Major Equipment List:	Not Applicable				
Schedule and Milestones:	EOI Date: 15-Sept-2011 RFP Date: 09-Dec-2011 Award Date: To Be Determined 1 <sup>st</sup> Vendor Data Required by: To Be Determined Construction Complete: To Be Determined				
	Dates for milestones will be updated once the Project baseline schedule	is in place.			
Budget:	To Be Determined				
Applicable Sub- Project/SPV:	Muskrat Falls Generation       Image: Labrador – Island Transmission Link         Labrador Transmission Assets       Image: Lower Churchill Project – General				
IBA Package:	Yes 🗌 No 🖾				

Package No.: Titles (long) (short)		of Re-Termination Materials of RT Materials		Type: Revision No.: Date:	P-Purchase Order 01 13-Apr-2012	
Responsibilities: Are	nsmission L a Manager: / QC:	ines Kumar Kandaswamy Kenneth Morrison	Package Engineer: Contract Admin. / Buyer:	Ananth Rao Hartfield Ste		
Scope of Work St	ımmary:	and warranty for hardware conductors and ball and so re-termination of four 230 the proposed Soldiers Por		zed stranded s or disks for the L201, TL217,	teel wires, phase construction of the TL218 and TL242) at	
Additionally, this contract package includes the modification of three existing transmission lines (TL201, TL204 and TL 232), two existing 138 kV transmission and L302) and one existing 69 kV transmission line (TL251) located between Soldiers Pond.					nsmission lines (L30	
Work Included:		For the re-termination and modification of the lines, Counterpoise conductor 7.2 mm (9/32") galvanized (Class B) single-strand steel wire, Grade 50 or superior, as per CSA G12 Standard, overhead shield wire (OHSW) is 12.7 mm (½") galvanized (Class B) steel stranded wire, Grade 220 with a rated tensile strength (RTS) of 138.8 kN as per CSA G12 Standard and guy wires galvanized (Class A) stranded steel wires, Grade 1 as per ASTM A586-04a Standard. The diameter of the guy wires will vary according to the type of tower and the loading zone.				
			s and sizes are shown in the tract package include, but not			
		804 kcmil AACSR	/TW phase conductor;			
		• 266 kcmil ACSR p	partridge phase conductor;			
		• 1192.5 kcmil grac	kle phase conductor;			
		• 397 kcmil ACSR I	bis phase conductor;			
		Phase conductor	spacer dampers;			
		Counterpoise conductor;				
		Insulators				
		• OHSW;				
		• OHSW dampers;				
		Conductor and OF	HSW suspension assemblies;			
		Conductor and OF	HSW dead-end assemblies;			
		Conductor and OF	HSW splices for compression t	ype;		
		Guy wires;				

#### Lower Churchill Project

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### PACKAGE DICTIONARY

Project Base Currency: CAD

Package No.:PT0347Titles(long):Supply				ype: Revision No.:	P-Purchase Order 01
	(short):	Supply of RT Mate	rials D	Date:	13-Apr-2012
		•	Guy wire grips suitable for different sizes from 12.7	′ mm (½") †	to 25.4 mm (1");
		•	Guy wire polyurethane chloride (PVC) covers;		
		•	Tower danger plates and tower number plates;		
		•	Assembly hardware for poles;		
			Armor-rods; and		
		Aerial	marker cones. The quantities and types will be specif	ied at a lat	er date
			are two acceptable types of insulator disks; porcelair		
				•	
			uantities and types of structural materials for foundat er date.	lions and t	owers will be specifie
			oplicable hardware fittings shall be low temperature p t Rated) for a minimum energy absorption of 20 J at -		e rated (Charpy
		marsh			
		the may yard for with th	arshalling yard. The reels may be returnable but the construction will be the responsibility of the Second struction will be the responsibility of the Second structure of the	collection fr Supplier, or	as per negotiated
Approxima	ite Quan	the ma yard fo with th The ot	Ilowing construction will be the responsibility of the S e Supplier. her materials shall be delivered in suitable crates to t	collection fr Supplier, or	as per negotiated
Approxima (Major Item		the ma yard fo with th The ot	blowing construction will be the responsibility of the S e Supplier. her materials shall be delivered in suitable crates to t Description 12.7 mm (½") Galvanized (Class B) Stranded	collection fr Supplier, or he marsha	as per negotiated
		the ma yard fo with th The ot	Ilowing construction will be the responsibility of the S e Supplier. her materials shall be delivered in suitable crates to t Description	ollection fr Supplier, or he marsha	as per negotiated
		the ma yard fo with th The ot tities	Description         12.7 mm (½") Galvanized (Class B) Stranded         Steel Wire, Grade 220         7.2 mm (9/32") Galvanized (Class B) Single-	ollection fr Supplier, or he marsha Unit m	as per negotiated alling yard. Quantity 20,700
		the ma yard fo with th The ot tities	Description         12.7 mm (½") Galvanized (Class B) Stranded         Steel Wire, Grade 220         7.2 mm (9/32") Galvanized (Class B) Single-         Strand Steel Wire, Grade 50 or Superior         Guy Wires Galvanized (Class A) Stranded Steel	ollection fr Supplier, or he marsha Unit m	as per negotiated Illing yard. Quantity 20,700 5,000
		the ma yard fo with th The ot tities Item 1 2 3	Iolowing construction will be the responsibility of the Se Supplier.         her materials shall be delivered in suitable crates to the section of the section	ollection fr Supplier, or he marsha Unit m m	as per negotiated Illing yard. Quantity 20,700 5,000 To Be Determined
		the ma yard fo with th The ot tities Item 1 2 3 4	billowing construction will be the responsibility of the S         e Supplier.         her materials shall be delivered in suitable crates to t         Description         12.7 mm (½") Galvanized (Class B) Stranded         Steel Wire, Grade 220         7.2 mm (9/32") Galvanized (Class B) Single-         Strand Steel Wire, Grade 50 or Superior         Guy Wires Galvanized (Class A) Stranded Steel         Wires, Grade 1         804 kcmil AACSR/TW         266 kcmil ACSR Partridge         1192.5 kcmil Grackle	ollection fr Supplier, or he marsha Unit m m m	as per negotiated Illing yard. Quantity 20,700 5,000 To Be Determined 30,000
		the mayard for with the The of tities Item 1 2 3 4 5	billowing construction will be the responsibility of the Se Supplier.         her materials shall be delivered in suitable crates to the steel Wire, Grade 220         7.2 mm (1/2") Galvanized (Class B) Single-Strand Steel Wire, Grade 50 or Superior         Guy Wires Galvanized (Class A) Stranded Steel Wires, Grade 1         804 kcmil AACSR/TW         266 kcmil ACSR Partridge         1192.5 kcmil Grackle         397 kcmil ACSR Ibis	ollection fr Supplier, or he marsha Unit m m m m	as per negotiated Illing yard. Quantity 20,700 5,000 To Be Determined 30,000 900
		the ma yard fo with th The ot tities Item 1 2 3 4 5 6	billowing construction will be the responsibility of the S         e Supplier.         her materials shall be delivered in suitable crates to t         Description         12.7 mm (½") Galvanized (Class B) Stranded         Steel Wire, Grade 220         7.2 mm (9/32") Galvanized (Class B) Single-         Strand Steel Wire, Grade 50 or Superior         Guy Wires Galvanized (Class A) Stranded Steel         Wires, Grade 1         804 kcmil AACSR/TW         266 kcmil ACSR Partridge         1192.5 kcmil Grackle	ollection fr Supplier, or he marsha Unit m m m m m	as per negotiated alling yard. Quantity 20,700 5,000 To Be Determined 30,000 900 4,800
	ns Only):	the mayard for with the The of tities Item 1 2 3 4 5 6 7 8	billowing construction will be the responsibility of the Se Supplier.         her materials shall be delivered in suitable crates to the steel Wire, Grade 220         7.2 mm (1/2") Galvanized (Class B) Single-Strand Steel Wire, Grade 50 or Superior         Guy Wires Galvanized (Class A) Stranded Steel Wires, Grade 1         804 kcmil AACSR/TW         266 kcmil ACSR Partridge         1192.5 kcmil Grackle         397 kcmil ACSR Ibis	ollection fr Supplier, or he marsha Unit m m m m m	as per negotiated Illing yard. Quantity 20,700 5,000 To Be Determined 30,000 900 4,800 2,100 To Be Determined

### Lower Churchill Project

Project Base Currency: CAD			
	of Re-Termination Materials	Type: Revision No.:	P-Purchase Order 01
(short): Supply o	of RT Materials	Date:	13-Apr-2012
Work Excluded:	Description		Package No.
	Installation of Supplies May Exclude Delivery Depending On Project Logistics I	Plan	CT0342 Not Applicable
	Way Exclude Delivery Depending On Project Logistics	lan	Not Applicable
Quality:	Requires Determination of the Equipment Quality Rating	: Yes 🛛	No 🗌
	Determination of Equipment Criticality based on GP-560	0-PR-02-E	
	High I Minor I Significant I Negligible I Moderate I		
	Determination of Quality Surveillance level based on GP	-5600-PR-03-E	is to be determined.
	4Continuous in process quality monitoring and ve3Regular in process quality monitoring and verific2Limited in process quality monitoring and verification1Final quality verification0No quality surveillance, no quality verification	ation and final of	quality verification
Reference Section:	The following main document was used to define the sco	ope:	
	DG3 Capital Cost Estimate – Basis of Estimate SLI Document Number: 505573-0000-33RA-I-001 Nalcor Reference Number: LCP-SN-CD-0000-EP-ES-00	02-01	
Interface with Other	Description		Deekege Ne
Packages:	Description Construction of ac Transmission Lines - Island		Package No. CT0342
			010012
Specific Site Conditions:	Not Applicable		
Specific Schedule Conditions:	Any other packages that have to be started before the su • Not Applicable	ubject package	can proceed:
	<ul> <li>Any other packages that cannot proceed before the subj</li> <li>CT0342 – Construction of ac Transmission Line</li> </ul>		s started:

#### Lower Churchill Project

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Project Base Currency: CAD		
	of Re-Termination Materials Revision No.: 0	-Purchase Order 1 3-Apr-2012
Specific Environment Conditions:	Not Applicable	
Specific Safety Conditions:	Not Applicable	
Special Requirements:	Not Applicable	
Free Issued Materials:	Description           Not Applicable	Package No.
Major Equipment List:	Not Applicable	
Schedule and Milestones:	EOI Date: To Be Determined RFP Date: To Be Determined Award Date: To Be Determined 1 <sup>st</sup> Vendor Data Required by: To Be Determined Construction Complete: To Be Determined Dates for milestones will be updated once the Project baseline schedule i	is in place.
Budget:	To Be Determined	
Applicable Sub- Project/SPV:	Muskrat Falls Generation  Labrador – Island Transmission Labrador Transmission Assets  Lower Churchill Project – Gen	_
IBA Package:	Yes 🗌 No 🖾	

Deekoge No.	DTO	251			Turnet	D Durchago Order	
Package No.: Titles (	PT0 (long): Sup	oply of Wood P	Polos		Type: Revision No.:	P-Purchase Order 01	
		ply of Poles	OIES		Date:	13-Apr-2012	
(3	onony. Oup				Date.	10 / 01 2012	
Discipline:	Transmissi						
Responsibilities:	Area Mana	-	Kandaswamy	Package Engineer:	Ananth Rao		
	QA / QC:	Kenneti	h Morrison	Contract Admin. / Buyer:	Hartfield Ste	evens	
Scope of Wor	k Summa	poles for Lanse a Addition transmi Plus, th two exis	or two sections of w au Diable and betw hally, this contract ssion lines (TL201 e modification of t sting 138 kV transi	ludes the fabrication, packing, vood pole electrode lines, app veen Soldiers Pond and Dowd package includes the re-termin and TL242) at the proposed S wo existing 230 kV HVac trans mission lines (L301 and L302) located between Hampden ar	roximately 20 k en's Point, resp nation of two 23 Soldiers Pond 0 smission lines and one existin	m and 15 km, near bectively. 30 kV HVac Converter Station. (TL201 and TL 232), ng 69 kV	
Work Included	d:	• • •	<ul> <li>3-Pole dead-end wood poles for the re-termination of the 230 kV HVac transmission lines and the modification of the 230 kV HVac transmission lines and 138 kV transmission lines;</li> </ul>				
		ruling s	The H1 class wood poles will have a height range of 12.2 m (40') to 18.3 m (60') and a ruling span of approximately 100 m. Suppliers will be responsible for manufacturing pole as per pole and manufacturing				
			specifications, which will be provided to the Supplier at a later date.				
		will be p	The wood poles and accessories shall be packed as per detailed packing instructions which will be provided to the Supplier at a later date. The wood poles and accessories shall be delivered to the marshalling yard.				
	Quantities	item	Description		Unit	Quantity	
Approximate		1	3-Pole Dead-En	d	each	24	
					each	17	
	- ,,	2	H-Frame Lange		50011		
	- ,,	2	H-Frame Tange Single Pole Dea		each		
	,	3	Single Pole Dea	d-End	each each	2	
Approximate ( (Major Items (	- ,,		-	d-End gent	each each each		

### Lower Churchill Project

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Project Base Currency: CAD						
Package No.: PT0351		Туре:	P-Purchase Order			
	of Wood Poles	Revision No.:	01			
(short): Supply	of Poles	Date:	13-Apr-2012			
Contract Basis:	This contract basis is: Lump Sum Combination Lump Sum – Unit Rates Cost	Unit Rates t Reimbursable	—			
Work Excluded:	Description		Package No.			
			CT0327			
	Installation of Supplies		CT0342			
	May Exclude Delivery Depending On Project Logistics P	Plan	Not Applicable			
Quality:	Requires Determination of the Equipment Quality Rating:	Yes 🛛	No 🗌			
	Determination of Equipment Criticality based on GP-5600	)-PR-02-E				
	High       Minor       Minor         Significant       Negligible       Moderate         Moderate       Determination of Quality Surveillance level based on GP-         4       Continuous in process quality monitoring and verification         2       Limited in process quality monitoring and verification         1       Final quality verification         0       No quality surveillance, no quality verification	ification and fir	nal verification quality verification			
Reference Section:	The following main document was used to define the sco	pe:				
	DG3 Capital Cost Estimate – Basis of Estimate SLI Document Number: 505573-0000-33RA-I-001 Nalcor Reference Number: LCP-SN-CD-0000-EP-ES-000					
Interface with Other	Description		Package No.			
Packages:	Construction of 350 kV HVdc Transmission Line - Section	on 1	CT0327			
-	Construction of ac Transmission Line - Island	/// /	CT0342			
Specific Site Conditions: Not Applicable						

#### Lower Churchill Project

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### PACKAGE DICTIONARY

Project Base Currency: CAD

Package No.:PT0351Titles(long):Supply(short):Supply c	of Wood Poles of Poles	Type: Revision No.: Date:	P-Purchase Order 01 13-Apr-2012
Specific Schedule Conditions:	Any other packages that have to be started before the su • ST0312 – Provision of Survey Services - 350 kV		can proceed:
	<ul> <li>Any other packages that cannot proceed before the subject of CT0327 – Construction of 350 kV HVdc Transmi</li> <li>CT0342 – Construction of ac Transmission Lines</li> </ul>	ission Line - Se	
Specific Environment Conditions:	Not Applicable		
Specific Safety Conditions:	Not Applicable		
Special Requirements:	Will use existing Nalcor long-term supply agreement whe	ere possible.	
Free Issued Materials:	Description           Not Applicable		Package No.
Major Equipment List:	Not Applicable		
Schedule and Milestones:	RFP Date: To Award Date: To	Be Determined Be Determined	1 1 1
Budget:	To Be Determined		
Applicable Sub- Project/SPV:		and Transmissi rchill Project – C	_
IBA Package:	Yes 🗌 No 🖾		

### Lower Churchill Project

Project Base	Currency:	CAD		
Package No.:		PT0351	Туре:	P-Purchase Order
Titles	(long):	Supply of Wood Poles	Revision No.:	01
	(short):	Supply of Poles	Date:	13-Apr-2012

Project Base Currer	ncy: CAD					
Package No.: Titles (lor (sho		of Anchor Materia of Anchors – HVdc	ls – 350 kV HVd	c	Type: Revision No.: Date:	P-Purchase Order 01 13-Apr-2012
Discipline: T Responsibilities: A C	ines Keenan Healey Kenneth Morriso	on	Package Engineer: Contract Admin. / Buy	Michel Be rer: Hartfield S	•	
Scope of Work	Summary:	threaded bars approximately Soldiers Pond HVdc towers f Additionally, th	(Dywidag or 1,080 km of 9 including app rom Muskrat Fa his contract pac	equivalent) for rock a 00 MW, ±350 kV HVdo roximately 385 km of alls to approximately 20 kage includes two sect	nd soil anchors c transmission lin electrode line c c km from the coa tions of wood pole	e electrode lines,
Work Included:	approximately 20 km and 15 km each, near Lanse au Diable and between Soldiers Po and Dowden's Point, respectively. The types and quantities of threaded bars are to be determined. The anchor materials shall be packed as per detailed packing instructions which will b provided to the Supplier at a later date and shall be delivered to the marshalling yard.					tions which will be
Approximate Q (Major Items Or			c <b>ription</b> aded Bars (Dy	widag or Equivalent)	Unit each	Quantity To Be Determined
Contract Basis:		This contract Combination		ump Sum 🔲 Jnit Rates 🔲	Unit Ra Cost Reimbursa	
Work Excluded	:	Description         Installation of Supplies         May Exclude Delivery Depending On Project Logistics Plan		tics Plan	Package No. CT0327 CT0342 CT0346 To Be Determined	
Quality:		Determination High [ Significant ]	of Equipment	e Equipment Quality Ra Criticality based on GP Minor 🔲 igible 🔲	0	No 🗌

#### PACKAGE DICTIONARY

Project Base Currency: CAD

9	PT0352	Type:	P-Purchase Order
	Supply of Anchor Materials – 350 kV HVdc	Revision No.:	01
(short):	Supply of Anchors – HVdc	Date:	13-Apr-2012
	Determination of Quality Surveillance level based on GF4Continuous in process quality monitoring and verifice3Regular in process quality monitoring and verifice2Limited in process quality monitoring and verifice1Final quality verification0No quality surveillance, no quality verification	erification and fin cation and final q	al verification uality verification
Reference Section:	The following main document was used to define the sci DG3 Capital Cost Estimate – Basis of Estimate SLI Document Number: 505573-0000-33RA-I-001 Nalcor Reference Number: LCP-SN-CD-0000-EP-ES-00		
Interface with Other	Description		Package No.
Packages:	Construction of 350 kV HVdc Transmission Line - Sect	ion 1	CT0327
	Construction of ac Transmission Lines - Island		CT0342
		ion 2	CT0346
	Construction of 350 kV HVdc Transmission Line - Sect	ION Z	
	Supply of Steel Tower Foundations - 350 kV HVdc		PT0308
Specific Site Conditi	ons: Not Applicable		
Specific Schedule	Any other packages that have to be started before the s	ubiect package (	can proceed.
Conditions:	Not Applicable	abjeet paokage (	an proceed.
	Any other packages that cannot proceed before the sub	iaat naakaga har	atortod
	CT0327 – Construction of 350 kV HVdc Transm		ction 1
	CT0342 – Construction of ac Transmission Line		
	CT0346 – Construction of 350 kV HVdc Transm	ission Line - Sec	ction 2
Specific Environmer Conditions:	Not Applicable		
Specific Safety Conditions:	Not Applicable		
Special Requiremen	ts: Not Applicable		

#### Lower Churchill Project

#### PACKAGE DICTIONARY

Project Base Currency: CAD	
	Type:P-Purchase Orderof Anchor Materials – 350 kV HVdcRevision No.:01of Anchors – HVdcDate:13-Apr-2012
Free Issued Materials:	Description         Package No.           Not Applicable
Major Equipment List:	Not Applicable
Schedule and Milestones:	EOI Date: To Be Determined RFP Date: To Be Determined Award Date: To Be Determined 1 <sup>st</sup> Vendor Data Required by: To Be Determined Construction Complete: To Be Determined
	Dates for milestones will be updated once the Project baseline schedule is in place.
Budget:	To Be Determined
Applicable Sub- Project/SPV:	Muskrat Falls Generation  Labrador – Island Transmission Link  Labrador Transmission Assets  Lower Churchill Project – General
IBA Package:	Yes 🗌 No 🖾

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Package No.:		PT0353					Туре:	P-Purchase Order
Titles (Ic	ong):	Supply	of Optical Grour	d Wire (OPGW	') – 350 kV HVdo	;	Revision No.:	01
(sh	nort):	Supply o	f OPGW – HVdc				Date:	13-Apr-2012
Discipline:	Transm	ission Li	nes					
	Area Ma	anager:	Keenan Heale	у	Package	Engineer:	Hamidreza E	Bakhshi
	QA / Q0	C:	Kenneth Morri	son	Contract	Admin. / Buyer:	Hartfield Ste	vens
Scope of Work Summary:		mary:	supervision, the construct from Muskrat	installation su ion of approxi t Falls to Soldi	pport and warra mately 1,080 k iers Pond inclu	anty for optical m of 900 MW, ding approxima	ground wire ar ±350 kV HVdc ately 385 km of	elivery, construction ad accessories for transmission line electrode line ely 20 km from the
			Additionally, this contract package includes all-dielectric self-supporting fibre optic cable and accessories for the construction of two sections of wood pole electrode lines, approximately 20 km and 15 km each, near Lanse au Diable and between Soldiers Pond and Dowden's Point, respectively.					
Work Included:			HVdc transm	•	,	ve 24 single m	ode fibres (SM	F) for the ±350 kV
			• 140	kN – 14.5 mm	a 24 Fibre OPG	W for 50 mm i	ce zone;	
			• 177	kN – 15.5 mm	1 24 Fibre OPG	W for 75 mm i	ce zone;	
			• 277	kN – 20.6 mm	1 24 Fibre OPG	W for 135 mm	ice zone;	
			•				sed OPGW for	tangent and runnir ower body;
					blies for each unding attachm			dead-end structure
			• Splic	ing boxes and	d associated ad	ccessories for s	splicing the pro	posed OPGW; and
			• Aeol	ian vibration c	ampers for ea	ch of the propo	sed OPGW.	
			(SMF) and m	echanical pro		IEEE Standard	d 1222. The AD	24 single mode fibre DSS will be employe
			This contract package will include ADSS and accessories for the two sections of wood pol electrode lines:					
							6 for tangent to the pole bo	and running ang dy;
					for proposed ients to the pol		lead-end struc	ctures complete wit
			• Splic	ing hoves and	l associated ac	cossorios for s	nlicing the prov	oosed ADSS; and

#### PACKAGE DICTIONARY

Project Base Currency: CAD

Package No.:		PT0353	Type:	P-Purchase Order
Titles	(long):	Supply of Optical Ground Wire (OPGW) – 350 kV HVdc	Revision No.:	01
	(short):	Supply of OPGW – HVdc	Date:	13-Apr-2012
		Aeolian vibration dampers for the propose	d ADSS.	
		Additionally, this contract package includes the ele Type Test.	ectrical tests for the C	PGW which include
		Construction supervision includes the supervision the OPGW and ADSS by Others to validate the wa Installation support includes the splicing of propos locations.	arranty of the OPGW	and ADSS.
		The OPGW and ADSS shall be delivered on marshalling yard. The steel reels may be returnal yard following construction will be the responsib with the Supplier.	ole but the collection	from the marshallin

### PACKAGE DICTIONARY

Project Base Currency: CAD

Package No.:		PT0353	Туре:	P-Purchase Order
Titles	(long):	Supply of Optical Ground Wire (OPGW) – 350 kV HVdc	Revision No.:	01
	(short):	Supply of OPGW – HVdc	Date:	13-Apr-2012

# Approximate Quantities (Major Items Only):

**Contract Basis:** 

ltem	Description	Unit	Quantity
1	140 kN – 14.5 mm 24 Fibre OPGW	m	737,520
2	177 kN – 15.5 mm 24 Fibre OPGW	m	186,480
3	277 kN – 20.6 mm 24 Fibre OPGW	m	208,950
4	24 Fibre ADSS: To Be Determined	m	35,000
5	Suspension Assembly for 14.5 mm 24 Fibre OPGW	each	1,618
6	Dead-End Assembly for 14.5 mm 24 Fibre OPGW	each	604
7	Suspension Assembly for 15.5 mm 24 Fibre OPGW	each	493
8	Dead-End Assembly for 15.5 mm 24 Fibre OPGW	each	194
9	Suspension Assembly for 20.6 mm 24 Fibre OPGW	each	954
10	Dead-End Assembly for 20.6 mm 24 Fibre OPGW	each	338
11	Downlead and Guide Clamp for 14.5 mm 24 Fibre OPGW	each	4,920
12	Spiral Vibration Damper for 14.5 mm 24 Fibre OPGW	each	3,840
13	Splice Box, OPGW to OPGW for 14.5 mm 24 Fibre OPGW	each	123
14	Downlead and Guide Clamp for 15.5 mm 24 Fibre OPGW	each	1,280
15	Spiral Vibration Damper for 15.5 mm 24 Fibre OPGW	each	730
16	Splice Box, OPGW to OPGW for 15.5 mm 24 Fibre OPGW	each	32
17	Downlead and Guide Clamp for 20.6 mm 24 Fibre OPGW	each	1,400
18	Spiral Vibration Damper for 20.6 mm 24 Fibre OPGW	each	2,246
19	Splice Box, OPGW to OPGW for 20.6 mm 24 Fibre OPGW	each	35
	Type Test		To Be Determined

Lower Churchill Project

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Project Base Currency: CAD		
	of Optical Ground Wire (OPGW) – 350 kV HVdc Revision N of OPGW – HVdc Date:	P-Purchase Order o.: 01 13-Apr-2012
Work Excluded:	Description         Installation of Supplies         May Exclude Delivery Depending On Project Logistics Plan	Package No.CT0327CT0346CT0342To Be Determined
Quality:	Requires Determination of the Equipment Quality Rating: Yes Determination of Equipment Criticality based on GP-5600-PR-02-E HighMinor SignificantNegligible Moderate X	5 🛛 No 🗌
	Determination of Quality Surveillance level based on GP-5600-PR-4Continuous in process quality monitoring and verification and Regular in process quality monitoring and verification and f2Limited in process quality monitoring and verification and fill Final quality verification0No quality surveillance, no quality verification	nd final verification inal quality verification
Reference Section:	The following main document was used to define the scope: DG3 Capital Cost Estimate – Basis of Estimate SLI Document Number: 505573-0000-33RA-I-001 Nalcor Reference Number: LCP-SN-CD-0000-EP-ES-0002-01	
Interface with Other Packages:	DescriptionConstruction of 350 kV HVdc Transmission Line - Section 1Construction of ac Transmission Line - IslandConstruction of 350 kV HVdc Transmission Line - Section 2Supply of Tower Hardware - 350 kV HVdc	Package No.           CT0327           CT0342           CT0346           PT0331
Specific Site Conditions:	Not Applicable	

Project Base Currency: CAD	
	of Optical Ground Wire (OPGW) – 350 kV HVdcType:P-Purchase Orderof OPGW – HVdcRevision No.:01Date:13-Apr-2012
Specific Schedule Conditions:	<ul> <li>Any other packages that have to be started before the subject package can proceed:</li> <li>Not Applicable</li> <li>Any other packages that cannot proceed before the subject package has started:</li> <li>CT0327 – Construction of 350 kV HVdc Transmission Line - Section 1</li> <li>CT0342 – Construction of ac Transmission Line - Island</li> <li>CT0346 – Construction of 350 kV HVdc Transmission Line - Section 2</li> </ul>
Specific Environment Conditions:	Not Applicable
Specific Safety Conditions:	Not Applicable
Special Requirements:	Not Applicable
Free Issued Materials:	Description         Package No.           Not Applicable
Major Equipment List:	Not Applicable
Schedule and Milestones:	EOI Date: To Be Determined RFP Date: To Be Determined Award Date: To Be Determined 1 <sup>st</sup> Vendor Data Required by: To Be Determined Construction Complete: To Be Determined Dates for milestones will be updated once the Project baseline schedule is in place.
Budget:	To Be Determined
Applicable Sub- Project/SPV:	Muskrat Falls Generation  Labrador – Island Transmission Link  Labrador Transmission Assets  Lower Churchill Project – General
IBA Package:	Yes 🗌 No 🖾

Project Base Currency: CAD						
	) on of Geotechnical Investigation Services – 315 kV HVac on of Geotech – HVac	Type: Revision No.: Date:	Service Contract 01 13-Apr-2012			
Discipline: Transmission Responsibilities: Area Manager QA / QC:		Ananth Ra To Be Dete				
Scope of Work Summary:	This contract package includes geotechnical investigation parameters and the selection of appropriate foundation approximately 500 km of two parallel, single circuit, 3-p lines (each approximately 250 km in length) from Musk	s for the consti hase, 315 kV I	ruction of HVac transmission			
Work Included:	<ul> <li>This contract package includes:</li> <li>Analysis of available geotechnical information;</li> <li>Geotechnical investigation program to character of ground by using the following techniques: <ul> <li>Geologist site visit;</li> <li>Dynamic cone or vane test;</li> <li>Percussion penetrometers or test pit; a</li> <li>Borehole (piezometer).</li> </ul> </li> </ul>	ind	homogeneous portion			
Approximate Quantities (Major Items Only):	Report and recommendation for every foundat     Item Description     1 Work In Progress	Unit	Quantity Work In Progress			
Contract Basis:	This contract basis is: Lump Sum Unit Rates Combination Lump Sum – Unit Rates Cost Reimbursable					
Work Excluded:	Description Camps and Marshalling Sites		Package No. Not Applicable			
Quality:	Contractor shall comply with Quality Requirement Specification Number 50557 38RA-0003.					

Project Base Currency: CAD				
	9 ion of Geotechnical Investigation Services – 315 kV HVac on of Geotech – HVac	Type: Revision No.: Date:	Service Contract 01 13-Apr-2012	
Reference Section:	The following main document was used to define the s	cope:		
	Lower Churchill Phase 1 Development – Construction SLI Document Number: 505573-0000-30PL-I-0003 Nalcor Reference Number: LCP-SN-CD-0000-CS-PL-0	-	an	
Interface with Other	Description		Package No.	
Packages:	Construction of 315 kV HVac Transmission Lines (MI	F to CF)	CT0319	
	Supply of Steel Tower Foundations - 315 kV HVac	,	PT0307	
	Supply of Anchor Materials - 315 kV HVac		PT0335	
Specific Site Conditions: Specific Schedule Conditions:	Not Applicable Any other packages that have to be started before the • Not Applicable Any other packages that cannot proceed before the su	ibject package h	as started:	
	<ul> <li>CT0319 – Construction of 315 kV HVac Trans</li> <li>PT0307 – Supply of Steel Tower Foundations</li> <li>PT0335 – Supply of Anchor Materials - 315 kV</li> </ul>	- 315 kV HVac	/IF to CF)	
Specific Environment Conditions:	The environmental requirements for the Lower Ch following documents: a) Project-Wide Environmental Protection Plan - II (SLI Document #: 505573-0000-68RA-I-00 0000-EV-PL-0002-01)	- Component 1 a	and 4b, Volume I and	
	b) Project-Wide Rehabilitation Plan (SLI Document # 505573-0000-68RA-I-0007 Nalcor Document # LCP-SN-CD-0000-EV-PL-0004-01);			
	c) Regulatory Compliance Plan (SLI Document # 505573-0000-68RA-I-0003, Nalco Document # LCP-SN-CD-0000-RT-PL-0001-01);			
	d) Waste Management Plan – Component 1 an 68RA-I-0008, Nalcor Document # LCP-SN-000	,		
	e) Emergency Response Plan (SLI Document Document # LCP-SN-CD-0000-HS-PL-0004-0		68RA-I-0012, Nalco	
	f) Contract-Specific Environmental Protection Document # 505573-0000-68RA-I-0011, Nalco		. , ,	

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Project Base Cu	urrency:	CAD					
Package No.: Titles	(long): (short):	ST0309 Provision of ( Provision of Ge	Seotechnical Investigation Services – 315 kV HVac otech – HVac	Type: Revision No.: Date:	Service Contract 01 13-Apr-2012		
			PL-0006-01)				
		g)	Technical Specification - General Environme 505573-0000-68RA-I-0015, Nalcor Docume 01).	-			
		h)	Exhibit 6 – Environmental and Regulatory Co	Exhibit 6 – Environmental and Regulatory Compliance Requirements			
		i)	-	Design Criteria – Erosion and Sedimentation Control (SLI Document # 5 315A-4EEC-0001, Nalcor Document # MFA-SN-CD-2000-EV-DC-0001-01).			
		j)	-	Environmental Design Criteria – Site Water Control (SLI Document # 505573-3 4EEC-0002, Nalcor Document # MFA-SN-CD-2000-EV-DC-0002-01).			
		k)	Recommendation on Biodegradable Fluids for the Lower Churchill Proj Document #. 505573-0000-4EER-0002, Nalcor Document # LCP-SN-CD-0 RP-0002-01)				
		I)	<ul> <li>Recommendation on Wood Preservation Options for the Lower Chu (SLI Document # 505573-0000-4EER-0001, Nalcor Document # LCP-5 EV-RP-0001-01)</li> </ul>				
		Not	e: Permit requirements are noted in Exhibit 6 (item	h above)			
Specific Safe Conditions:	ety		e health and safety and security requirements cribed in the following documents: SNC-Lavalin Health and Safety Management				
		•	SNC-Lavalin Site Security and Access Contro	l Plan (505573-0	000-68RA-I-0002-00)		
		•	SNC-Lavalin Global Power Health and Safety 68-AG-0001)	avalin Global Power Health and Safety Management System (503011-0000- 0001)			
		•	SNC-Lavalin Critical Risk Control Protocols (6	845.2.1.1-EN-Re	ev.4 03/11)		
Special Requ	uireme	nts: No	Applicable				
Free Issued	Materia	als:	scription		Package No.		
			t Applicable		Not Applicable		
Major Equip	ment L	ist: Not	Applicable				

#### Lower Churchill Project

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### PACKAGE DICTIONARY

Project Base Currency: CAD

Package No.:		ST0309 T	ype: Service Contrac	t	
Titles	(long):	Provision of Geotechnical Investigation Services – 315 kV HVac R	evision No.: 01		
	(short):	Provision of Geotech – HVac D	ate: 13-Apr-2012		
			- Determined		
Schedule a			e Determined		
Milestones	:		e Determined		
			e Determined		
			e Determined		
		Construction Complete: To B	e Determined		
		Dates for milestones will be updated once the Project base	s for milestones will be updated once the Project baseline schedule is in place.		
Budget:		To Be Determined			
Applicable Project/SP		Muskrat Falls Generation 🗌 Labrador – Island	Labrador – Island Transmission Link		
		Labrador Transmission Assets 🛛 Lower Church	ill Project – General 🛛		
IBA Packaç	ge:	Yes 🗌 No 🖂			

Project Base Currency: CAD					
Package No.: ST0310		Туре:	Service Contract		
Titles (long): Provisio	on of Geotechnical Investigation Services – 350 kV HVdc	Revision No.:	01		
(short): Provision	n of Geotech – HVdc	Date:	13-Apr-2012		
Discipline: Transmission Li	nes				
Responsibilities: Area Manager:	Keenan Healey Package Engineer:	Ananth Rac			
QA / QC:	Kenneth Morrison Contract Admin. / Buyer:	To Be Dete	rmined		
<b>Scope of Work Summary:</b> This contract package includes geotechnical investigation work required for the sparameters and the selection of appropriate foundations for the construction of approximately 1,080 km of 900 MW, ±350 kV HVdc transmission line from Muska Soldiers Pond including approximately 385 km of electrode line carried on the ±3 HVdc towers from Muskrat Falls to approximately 20 km from the coast.					
Work Included:	This contract package includes:				
	<ul> <li>Analysis of available geotechnical information;</li> </ul>				
	Geotechnical investigation program to character	erize the soil in	homogeneous portion		
	of ground by using the following techniques:				
	Geologist site visit;				
	Dynamic cone or vane test;				
	Percussion penetrometers or test pit; a	Percussion penetrometers or test pit; and			
	Borehole (piezometer).				
	Report and recommendation for every foundation	ion.			
Approximate Quantities (Major Items Only):	Item Description	Unit	Quantity		
(major nems emy).	1 Work In Progress		Work In Progress		
Contract Basis:	This contract basis is: Lump Sum Combination Lump Sum – Unit Rates C	Unit Rat ost Reimbursat			
Work Excluded:	Description		Package No.		
	Description Camps and Marshalling Sites		Not Applicable		
			i tot i ppiloabio		
Quality:	Contractor shall comply with Quality Requirement 38RA-0003.	Specification N	lumber 505573-0000-		

Project Base Currency: CAD					
	on of Geotechnical Investigation Services – 350 kV HVdc n of Geotech – HVdc	Type: Revision No.: Date:	Service Contract 01 13-Apr-2012		
Reference Section:	The following main document was used to define the scope: Lower Churchill Phase 1 Development – Construction Management Plan SLI Document Number: 505573-0000-30PL-I-0003 Nalcor Reference Number: LCP-SN-CD-0000-CS-PL-0002-01				
Interface with Other	Description		Package No.		
Packages:	Construction of 350 kV HVdc Transmission Line - Se	ction 1	CT0327		
	Construction of 350 kV HVdc Transmission Line - Se	CT0346			
	Supply of Steel Tower Foundations - 350 kV HVdc		PT0308		
	Supply of Anchor Materials - 350 kV HVdc		PT0352		
Specific Schedule Conditions:	<ul> <li>Any other packages that have to be started before the subject package can proceed:</li> <li>Not Applicable</li> <li>Any other packages that cannot proceed before the subject package has started:</li> <li>CT0327 – Construction of 350 kV HVdc Transmission Line - Section 1</li> <li>CT0346 – Construction of 350 kV HVdc Transmission Line - Section 2</li> <li>PT0308 – Supply of Steel Tower Foundations - 350 kV HVdc</li> <li>PT0352 – Supply of Anchor Materials - 350 kV HVdc</li> </ul>				
Specific Environment Conditions:	<ul> <li>The environmental requirements for the Lower Churchill Project are described in the following documents:</li> <li>a) Project-Wide Environmental Protection Plan – Component 1 and 4b, Volume I and II (SLI Document #: 505573-0000-68RA-I-0005; Nalcor Document #:LCP-SN-CD-0000-EV-PL-0002-01)</li> </ul>				
	b) Project-Wide Rehabilitation Plan (SLI Document # 505573-0000-68RA-I-0007, Nalcor Document # LCP-SN-CD-0000-EV-PL-0004-01);				
	c) Regulatory Compliance Plan (SLI Document # 505573-0000-68RA-I-0003, Nalcor Document # LCP-SN-CD-0000-RT-PL-0001-01);				
	d) Waste Management Plan – Component 1 and 4b (SLI Document # 505573-0000- 68RA-I-0008, Nalcor Document # LCP-SN-0000-EV-PL-0005-01);				
	e) Emergency Response Plan (SLI Document # 505573-0000-68RA-I-0012, Nalcon Document # LCP-SN-CD-0000-HS-PL-0004-01).				

### Lower Churchill Project

### PACKAGE DICTIONARY

Project Base Curren	icy: CAD						
Package No.: Titles (lor (shc	ng): Provis	ST0310Type:Service ContractProvision of Geotechnical Investigation Services – 350 kV HVdcRevision No.:01Provision of Geotech – HVdcDate:13-Apr-2012					
		f)	Contract-Specific Environmental Protection Document # 505573-0000-68RA-I-0011, Nalco PL-0006-01)	•	. , .		
		g)	Technical Specification - General Environmer 505573-0000-68RA-I-0015, Nalcor Document 01).	•	•		
		h)	Exhibit 6 – Environmental and Regulatory Com	pliance Require	ements		
		i)	Design Criteria – Erosion and Sedimentation Control (SLI Document # 505573 315A-4EEC-0001, Nalcor Document # MFA-SN-CD-2000-EV-DC-0001-01).				
		j)	Environmental Design Criteria – Site Water Control (SLI Document # 505573-315A 4EEC-0002, Nalcor Document # MFA-SN-CD-2000-EV-DC-0002-01).				
		k)	<ul> <li>k) Recommendation on Biodegradable Fluids for the Lower Churchill Project (S Document #. 505573-0000-4EER-0002, Nalcor Document # LCP-SN-CD-0000-E RP-0002-01)</li> </ul>				
		I)	Recommendation on Wood Preservation Opt (SLI Document # 505573-0000-4EER-0001, Na EV-RP-0001-01)				
		Note: Permit requirements are noted in Exhibit 6 (item h above)					
Specific Safety Conditions:		The health and safety and security requirements for the Lower Churchill Project are described in the following documents: • SNC-Lavalin Health and Safety Management Plan (505573-0000-68RA-1-0001-00)					
		•	SNC-Lavalin Site Security and Access Control Plan (505573-0000-68RA-I-0002-00)				
		• SNC-Lavalin Global Power Health and Safety Management System (503011-0000- 68-AG-0001)					
		SNC-Lavalin Critical Risk Control Protocols (6845.2.1.1-EN-Rev.4 03/11)					
Special Require	ements:	Not Ap	oplicable				
Free Issued Ma	terials:		cription Applicable		Package No. Not Applicable		
Major Equipme	nt List:	Not Applicable					
			3				

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#### Lower Churchill Project

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#### PACKAGE DICTIONARY

	(long): short):	ST0310 Provision of Geotechnical Investigation Services – 350 kV HVdc	Type:	Service Contract
		Provision of Geotechnical Investigation Services – 350 kV HVdc	Devictory March	
(5	short):		Revision No.:	01
	00	Provision of Geotech – HVdc	Date:	13-Apr-2012
Schedule and	1	EOI Date:	To Be Determined	1
Milestones:		RFP Date:	To Be Determined	ł
		Award Date:	To Be Determined	1
		1 <sup>st</sup> Vendor Data Required by:	To Be Determined	1
		Construction Complete:	To Be Determined	ł
		Dates for milestones will be updated once the Proje	ect baseline schedul	e is in place.
Budget:		To Be Determined		
Applicable Sub- Project/SPV:		Muskrat Falls Generation  Labrador	– Island Transmissi	on Link 🛛
		Labrador Transmission Assets  Lower	Churchill Project – C	General
IBA Package:	:	Yes 🗌 No 🖂		

Project Base Currency: CAD			
	on of Survey Services – 315 kV HVac n of Survey – HVac	Type: Revision No.: Date:	Service Contract 01 13-Apr-2012
Discipline: Transmission Li Responsibilities: Area Manager: QA / QC:	nes Kumar Kandaswamy Package Engineer: Kenneth Morrison Contract Admin. / Buyer:	Ananth Ra To Be Dete	
Scope of Work Summary:	This contract package includes the centerline, ground ar construction of approximately 500 km of two parallel, sin transmission lines (each approximately 250 km in length Falls. Additionally, this contract package includes two short 73 approximately 0.6 km each, between the existing switch Churchill Falls. Plus, four short 315 kV interconnection li between the proposed powerhouse and the proposed sw	ngle circuit, 3-p a) from Muskra 5 kV intercom yard and the p nes, approxim	bhase, 315 kV HVac at Falls to Churchill nection lines, proposed substation at nately 0.5 km each,
Work Included:	<ul> <li>For the 315 kV HVac transmission lines, 735 kV intercor interconnection line, this contract package includes:</li> <li>Legal surveys;</li> <li>Individual ownership plans;</li> <li>Quality control of the Contractor's surveys;</li> <li>Route changes; and</li> <li>Line crossings.</li> </ul>	nnection and t	he 315 kV
Approximate Quantities (Major Items Only):	Item         Description           1         Work In Progress	Unit	Quantity Work In Progress
Contract Basis:	This contract basis is: Lump Sum Combination Lump Sum – Unit Rates Cos	Unit Rat st Reimbursal	
Work Excluded:	Description Not Applicable		Package No. Not Applicable
Quality:	Contractor shall comply with Quality Requirement S 38RA-0003.	pecification N	lumber 505573-0000-

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#### PACKAGE DICTIONARY

	Type: on of Survey Services – 315 kV HVac Revision No. n of Survey – HVac Date:	Service Contract : 01 13-Apr-2012
Reference Section:	The following main document was used to define the scope:	
	Lower Churchill Phase 1 Development – Construction Management SLI Document Number: 505573-0000-30PL-I-0003 Nalcor Reference Number: LCP-SN-CD-0000-CS-PL-0002-01	Plan
Interface with Other	Description	Package No.
Packages:	Construction of 315 kV HVac Transmission Lines (MF to CF) Clearing of Right-of-Way for 315 kV HVac Transmission Lines (MF	CT0319 to CT0341
	CF)	
Specific Site Conditions:	Not Applicable	
Specific Schedule Conditions:	Any other packages that have to be started before the subject packa • Not Applicable	ge can proceed:
	<ul> <li>Any other packages that cannot proceed before the subject package</li> <li>CT0319 – Construction of 315 kV HVac Transmission Lines</li> <li>CT0341 – Clearing of Right-of-Way for 315 kV HVac Transm CF)</li> </ul>	(MF to CF)
Specific Environment Conditions:	The environmental requirements for the Lower Churchill Project following documents: a) Project-Wide Environmental Protection Plan – Component II (SLI Document #: 505573-0000-68RA-I-0005; Nalcor Do 0000-EV-PL-0002-01)	1 and 4b, Volume I ar
	b) Project-Wide Rehabilitation Plan (SLI Document # 505 Nalcor Document # LCP-SN-CD-0000-EV-PL-0004-01);	573-0000-68RA-I-000
	c) Regulatory Compliance Plan (SLI Document # 505573-000 Document # LCP-SN-CD-0000-RT-PL-0001-01);	00-68RA-I-0003, Nalc
	d) Waste Management Plan – Component 1 and 4b (SLI Doc 68RA-I-0008, Nalcor Document # LCP-SN-0000-EV-PL-0009	
	e) Emergency Response Plan (SLI Document # 505573-000 Document # LCP-SN-CD-0000-HS-PL-0004-01).	, -
	f) Contract-Specific Environmental Protection Plan Tem	plate (C-SEPP) (S

	Currency:	CAD			
Package No.: Titles	(long): (short):	ST0311 Provision of Su Provision of Sur	irvey Services – 315 kV HVac /ey – HVac	Type: Revision No.: Date:	Service Contract 01 13-Apr-2012
			Document # 505573-0000-68RA-I-0011, N PL-0006-01)	Valcor Document # L	-CP-SN-CD-0000-EV
		g)	Technical Specification - General Enviror 505573-0000-68RA-I-0015, Nalcor Docu 01).	•	•
		h)	Exhibit 6 – Environmental and Regulatory	Compliance Require	ements
		i)	Design Criteria – Erosion and Sedimentation Control (SLI Document # 505573- 315A-4EEC-0001, Nalcor Document # MFA-SN-CD-2000-EV-DC-0001-01).		
		j)	Environmental Design Criteria – Site Wate 4EEC-0002, Nalcor Document # MFA-SN-	•	
k) Recommendation on Biodegradable Fluids for the Document #. 505573-0000-4EER-0002, Nalcor Doc RP-0002-01)					•
		l)	Recommendation on Wood Preservation (SLI Document # 505573-0000-4EER-000 EV-RP-0001-01)	•	•
		Note	: Permit requirements are noted in Exhibit 6 (it	tem h above)	
Specific Sa Conditions	-		health and safety and security requirement bed in the following documents: SNC-Lavalin Health and Safety Manageme		
		•	SNC-Lavalin Site Security and Access Cor	ntrol Plan (505573-0	0000-68RA-I-0002-00
		•	SNC-Lavalin Global Power Health and Sa 68-AG-0001)	afety Management S	System (503011-0000
		•	SNC-Lavalin Critical Risk Control Protocols	s (6845.2.1.1-EN-Re	ev.4 03/11)
Special Re	quireme	nts: Not /	Applicable		
Free Issued	d Materia	ls: Des	scription		Package No.

#### Lower Churchill Project

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#### PACKAGE DICTIONARY

Package No.:		ST0311	Type:	Service Contract
Titles	(long):	Provision of Survey Services – 315 kV HVac	Revision No.:	01
	(short):	Provision of Survey – HVac	Date:	13-Apr-2012
Schedule a Milestones		EOI Date RFP Date Award Date 1 <sup>st</sup> Vendor Data Required by	<ul> <li>To Be Determine</li> <li>To Be Determine</li> <li>To Be Determine</li> </ul>	d d
		Construction Complete	To Be Determine	d
		Dates for milestones will be updated once the Pro	ect baseline schedu	ıle is in place.
Budget:		To Be Determined		
Applicable Sub- Project/SPV:		Muskrat Falls Generation  Labrado	- Island Transmiss	ion Link
Labrador Transmission Assets 🛛 Lower Churchill Project – G		General		
IBA Packag	je:	Yes 🗌 No 🖾		

Project Base Currency: CAD					
Package No.: ST0312 Titles (long): Provisio			Type: Revision No.:	Service Contract	
	on of Survey Services – 350 kV HVdc on of Survey – HVdc		Date:	01 13-Apr-2012	
Discipline: Transmission Li	ines				
Responsibilities: Area Manager:	Keenan Healey	Package Engineer:	Ananth Rac		
QA / QC:	Kenneth Morrison	Contract Admin. / Buyer:	To Be Dete	rmined	
Scope of Work Summary:	This contract package includes to construction of approximately 1, Muskrat Falls to Soldiers Pond in the ±350 kV HVdc towers from N two sections of wood pole electr Diable and between Soldiers Po	080 km of 900 MW, ±350 l ncluding approximately 38 /luskrat Falls to approxima ode lines, approximately 2	kV HVdc tra 5 km of elec ately 20 km f 20 km and 15	nsmission line from trode line carried on rom the coast. Plus,	
	Additionally, this contract package transmission lines (TL201, TL21 Converter Station. Plus, the mod (TL201, TL204 and TL 232), two one existing 69 kV transmission	7, TL218 and TL242) at th dification of three existing 2 existing 138 kV transmiss	e proposed 230 kV HVad sion lines (L3	Soldiers Pond c transmission lines 301 and L302) and	
Work Included:	For the $\pm 350$ kV HVdc transmission line, the electrode line, the wood pole electrode lines, the re-termination and modification of 230 kV HVac, the modification of 138 kV transmission lines and 69 kV transmission line, this contract package includes:				
	Legal surveys;				
	Individual ownership plans;				
	Quality control of the Contractor's surveys;				
	Route changes; and				
	Line crossings.				
Anna vinata Overtitian			1 1		
Approximate Quantities (Major Items Only):	Item         Description           1         Work In Progress		Unit	Quantity Work In Progress	
				Work in Progress	
Contract Basis:	This contract basis is:				
	Lum Combination Lump Sum – Uni	p Sum	Unit Rate Reimbursab		
Work Excluded:	Description Not Applicable			Package No.Not Applicable	

#### Lower Churchill Project

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Project Base Currency:	CAD

Package No.: ST0312 Titles (long): Provisi	2 on of Survey Services – 350 kV HVdc	Type: Revision No.:	Service Contract 01
	on of Survey – HVdc	Date:	13-Apr-2012
Quality:	Contractor shall comply with Quality Requirement S 38RA-0003.	Specification Nu	umber 505573-0000
Reference Section:	The following main document was used to define the sc	ope:	
	Lower Churchill Phase 1 Development – Construction M SLI Document Number: 505573-0000-30PL-I-0003 Nalcor Reference Number: LCP-SN-CD-0000-CS-PL-00	-	an
Interface with Other	Description		Package No.
Packages:	Construction of 350 kV HVdc Transmission Line - Sect	tion 1	CT0327
	Construction of ac Transmission Lines - Island		CT0342
	Clearing of Right-of-Way for HVdc Transmission Line -	- Section 1	CT0343
	Clearing of Right-of-Way for HVdc Transmission Line		CT0345
	Construction of 350 kV HVdc Transmission Line - Sect		CT0346
Specific Site Conditions: Specific Schedule	Not Applicable           Any other packages that have to be started before the started before before the started before the started bef	subject package	can proceed:
Conditions:	Not Applicable		-
	<ul> <li>Any other packages that cannot proceed before the sub</li> <li>CT0327 – Construction of 350 kV HVdc Transm</li> <li>CT0342 – Construction of ac Transmission Line</li> <li>CT0343 – Clearing of Right-of-Way for HVdc Transm</li> <li>CT0345 – Clearing of Right-of-Way for HVdc Transm</li> <li>CT0346 – Construction of 350 kV HVdc Transm</li> </ul>	nission Line - Se e – Island ransmission Lin ransmission Lin	ection 1 e - Section 1 e - Section 2
Specific Environment Conditions:	The environmental requirements for the Lower Chu following documents: a) Project-Wide Environmental Protection Plan – II (SLI Document #: 505573-0000-68RA-I-000 0000-EV-PL-0002-01)	Component 1 a	ind 4b, Volume I an
	b) Project-Wide Rehabilitation Plan (SLI Docur Nalcor Document # LCP-SN-CD-0000-EV-PL-0		3-0000-68RA-I-0007

#### Lower Churchill Project

Package No.:		ST0312		Type:	Service Contract
Titles (long): (short):			rvey Services – 350 kV HVdc	Revision No.:	01
		Provision of Su	rvey – HVdc	Date:	13-Apr-2012
		c)	Regulatory Compliance Plan (SLI Document Document # LCP-SN-CD-0000-RT-PL-0001-0		-68RA-I-0003, Nalco
		d)	Waste Management Plan – Component 1 an 68RA-I-0008, Nalcor Document # LCP-SN-000	,	
		e)	Emergency Response Plan (SLI Document Document # LCP-SN-CD-0000-HS-PL-0004-0		-68RA-I-0012, Nalco
		f)	Contract-Specific Environmental Protection Document # 505573-0000-68RA-I-0011, Nalco PL-0006-01)		. , ,
		g)	Technical Specification - General Environme 505573-0000-68RA-I-0015, Nalcor Documer 01).	•	•
		h)	Exhibit 6 – Environmental and Regulatory Con	npliance Require	ements
		i)	Design Criteria – Erosion and Sedimentation 315A-4EEC-0001, Nalcor Document # MFA-S	,	
		j)	Environmental Design Criteria – Site Water Co 4EEC-0002, Nalcor Document # MFA-SN-CD-	•	
		k)	Recommendation on Biodegradable Fluids Document #. 505573-0000-4EER-0002, Nalco RP-0002-01)		•
		I)	Recommendation on Wood Preservation Op (SLI Document # 505573-0000-4EER-0001, N EV-RP-0001-01)		•
		Note:	Permit requirements are noted in Exhibit 6 (item	h above)	
Specific Safety Conditions:			health and safety and security requirements ribed in the following documents: SNC-Lavalin Health and Safety Management		
		•	SNC-Lavalin Site Security and Access Control Plan (505573-0000-68RA-I-0002-0		
		•	SNC-Lavalin Global Power Health and Safety 68-AG-0001)		
		•	SNC-Lavalin Critical Risk Control Protocols (6	845.2.1.1-EN-Re	ev.4 03/11)

#### Lower Churchill Project

#### PACKAGE DICTIONARY

Project Base Currency: CAD	
Package No.: ST03	12 Type: Service Contract
Titles (long): Prov	sion of Survey Services – 350 kV HVdc Revision No.: 01
(short): Prov	sion of Survey – HVdc Date: 13-Apr-2012
Free Issued Materials:	Description Package No.
	Not Applicable         Not Applicable
Major Equipment List:	Not Applicable
Schedule and	EOI Date: To Be Determined
Milestones:	RFP Date: To Be Determined
	Award Date: To Be Determined
	1 <sup>st</sup> Vendor Data Required by: To Be Determined Construction Complete: To Be Determined
	Construction Complete: To Be Determined
	Dates for milestones will be updated once the Project baseline schedule is in place.
Budget:	To Be Determined
Zagon	
Annliachla Sub	
Applicable Sub- Project/SPV:	Muskrat Falls Generation 🔲 Labrador – Island Transmission Link 🛛
	Labrador Transmission Assets  Lower Churchill Project – General
IBA Package:	Yes 🗌 No 🖾

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# LCP PACKAGES DICTIONARIES – (Across the Project – SM)

#### PACKAGE DICTIONARY

Package No.:	SM0700	Туре:	S-Service Contract
Titles (long):	Provision of General Freight Forwarding Services	Revision No.:	01
(short):	Freight Forwarding Services	Date:	13-Apr-2012
Discipline: Archite	ectural		
•	Manager: Ed Over Package Engineer:		
 QA / Q		Steve Mullen	
Scope of work Summary:	General Freight Forwarding Services, excluding customs cleara working in the international marketplace. Includes the delivery of delivery means such as barge, ships, trucks, railroads, and airp Newfoundland and Labrador, which may be impacted by seaso rendered from offices in Newfoundland and Labrador including marshalling yards.	of goods using a lanes to remote nal limitations. S	variety of different parts of services to be
Work Included:	This package includes:		
	<ul> <li>Total shipping responsibility and transportation co-ordir</li> <li>Contacting suppliers for shipping information to prepare goods</li> <li>Planning and coordinating the shipment of the goods in recognizing the local transport constraints</li> <li>Arranging and contracting transportation services - (for Ocean Freight) Arrange, obtain and dispatch all shipping documentation</li> <li>Identifying and implementing freight consolidation opportions of the shipments for loss or damage</li> <li>Support insurance claims</li> <li>Track and expedite shipments –( using Web based soft Arrange marine cargo surveys as may be required to charange marine surveyor is normally employed by the proje</li> <li>Operation and management of material marshalling yat</li> <li>Provide services not specifically referenced above but may include obtaining proper road permits, guidance with goods and storage and warehouse facilities.</li> </ul>	e and plan for the the most effect Airfreight, Lanc on rtunities ware for real tim omply with insur- ct owner or own rds could be reasona	e shipping of the ve means transportation and ie information) ance requirements er's representative) ably inferred which
Approximate Quantities (major items only):	(Not Applicable)		
Contract Basis:	Lump Sum Combination Lump Sum – Unit Rates <u>Remarks</u> :	Unit F Cost Reimburg	

#### Lower Churchill Project

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Project Base Currency:	CAD		
Package No.:		Туре:	S-Service Contract
Titles (long): (short):	5 G	Revision No.: Date:	01 13-Apr-2012
Work Excluded:	Customs Clearance		
Quality:	(Not Applicable)		
Reference Section:	(Not Applicable)		
Interface with other Packages:	(Not Applicable)		
Specific Site	(Not Applicable)		
Conditions:			
Specific Schedule Conditions:	(Not Applicable)		
Specific Environment	(Not Applicable)		
Conditions:			
Specific Safety Conditions:	(Not Applicable)		
Conditions:			
Special Requirements:	<ol> <li>Be CIFFA member</li> <li>Be ISO 9001 Certified</li> </ol>		
	<ol> <li>Worldwide network of exclusive agents or owned and operat</li> <li>Experience handling oversize, heavy lift and other special car</li> </ol>		
Free Issued	Not Applicable		
Materials:			

#### Lower Churchill Project

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Project Base C	urrency:	CAD	
Package No.:		SM0700	Type: S-Service Contract
Titles	(long):	Provision of General Freight Forwarding Services	Revision No.: 01
	(short):	Freight Forwarding Services	Date: 13-Apr-2012
Major Equip List:	oment	Not Applicable	
Schedule ar		EOI Date: TE	3D
Milestones:			3D
			3D
		U U U U U U U U U U U U U U U U U U U	3D
			3D
		•	3D
			ates for milestones will be updated once the
Dudant			roject baseline schedule is in place.
Budget		TBD	
Applicable Sub- Project/SPV		Muskrat Falls Generation Labrador – Isla	and Transmission Link
		Labrador Transmission Assets 🗌 Lower Churchill Project – General	
IBA Packag	е	YES NO	

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Project Base Currency: CAD				
	1 on of Third Party Quality Surveillance and Inspectio Party Quality Surveillance and Inspection	Type: Services on Services Revision No.: 01 Date: 13-Apr-2012		
Discipline: Hydro/Transm Responsibilities: Area Manage QA / QC:		ngineer: Inspection Manager Imin. / Buyer: Steve Mullen		
Scope of Work Summary	which includes, but is not limited to, t meetings, in-process inspections, prog procedures, quality audits, document re and testing, coating inspection, non-d	Quality Surveillance and Inspection Services the following: plant surveys, pre-production gress meetings, preparation of surveillance eviews, interface verification, final inspection destructive examination, laboratory testing rveys, factory acceptance testing and site		
	Provide support for the development of project surveillance plans and inspection strategies, procedures and review of project inspection and test plans.			
	Provide procedures, surveillance and ins	nspection reports for review.		
	Provide suitably qualified inspection personnel for the above services.			
	Provide all non-destructive inspection and testing equipment			
Work Included:	Provide Third Party Quality Surveillance and Inspection Services encompassing all the works associated with the manufacture, fabrication and installation of equipment and materials for the Lower Churchill Project. The Works shall include but not be limited to civil works, electrical works, fabrication works, and mechanical works.			
	Provide services at supplier's, manufacturer's and contractor's facilities in the Province of Newfoundland and Labrador, other Canadian locations and internationally.			
	Contractor shall work under the direct Manager.	ction of the SNC-Lavalin Project Inspectio		
Approximate Quantities (Major Items Only):	Item Description	Unit Quantity		
Contract Basis:				

Titles (long): F	M0701       Type:         ovision of Third Party Quality Surveillance and Inspection Services       Revis         nird Party Quality Surveillance and Inspection       Date:	sion No.: 01
	Lump Sum  Lump Sum Sum Lump Su	Jnit Rates 🛛 nbursable 🗌
Work Excluded:	Description Provision of Laboratory Services	Package No. SM 0705
Quality:	Third Party Surveillance and Inspection personnel sha national and international certifications. Contractor shall implement and maintain a Quality Mana the requirements of ISO 9001:2008.	
Reference Section:		
Interface with Other Packages:	Description	Package No.

#### Lower Churchill Project

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Project Base Currency: CAD			
Package No.: SM0701 Titles (long): Provisio	on of Third Party Quality Surveillance and Inspection Services	Type: Revision No.:	Services 01
	arty Quality Surveillance and Inspection	Date:	13-Apr-2012
Specific Site Conditions:	•		
Specific Schedule Conditions:			
Specific Environment Conditions:			
Specific Safety Conditions:	•		
Special Requirements:			
Free Issued Materials:	Description		Package No.
	Not Applicable		Not Applicable
Major Equipment List:	•		
Major Equipment List:	Not Applicable		
Schedule and Milestones:	RFP Date: TE Award Date: TE 1 <sup>st</sup> Vendor Data Required by: TE	3D 3D 3D 3D	
	Construction Complete: TE Dates for milestones will be updated once the Project b	BD baseline schedu	le is in place.

#### Lower Churchill Project

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Project Base Currency: CAD		CAD		
Package No.:		SM0701	Type:	Services
Titles	(long):	Provision of Third Party Quality Surveillance and Inspection Services	Revision No.:	01
	(short):	Third Party Quality Surveillance and Inspection	Date:	13-Apr-2012
Budget:		TBD		
Applicable Sub- Project/SPV:			Island Transmiss nurchill Project –	
IBA Package:		Yes 🗌 No 🖂		

#### Lower Churchill Project

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#### PACKAGE DICTIONARY

Package No.: Titles (long): (short):	SM0703 Provision of Happy Valley-Goose Bay Project Office Sp Happy Valley-Goose Bay Project Office Space	Type ace Revis Date:	sion No.: 01		
Discipline: Const	ruction Aanager: Wallace Piercey Pa	ckage Engineer: A	l Edmunds		
Scope of work Summary:	Rental of approximately 250m <sup>2</sup> of office space for a period of 9 to 12 months.				
Work Included:	<ul> <li>20 Offices, approx 3m x 4m i communications hookup (data/te</li> <li>20 Workstations of typical ope including all furniture and comm</li> <li>(1) Male and (1) Female washrownia (1) Space; 4m x 4m and shownia (1) Space for Receptionist; approximations hookup (data/te</li> <li>Space for Receptionist; approximations hookup (data/te</li> <li>(1) Meeting Room; approx. 8m communications hookup (data/te</li> <li>Parking Lot suitable for 40 vehice</li> <li>Building should have all municipation (1) Space (1) Services</li> <li>Building should also include; A Clearing when required.</li> </ul>	elephone/fax jacks). n 2.4m x 2.4m office ty unications hookup (data/ om x 6m; including all applia ould include furniture ontrol Room; approx. 4 3m x 3m which is to inc elephone/fax jacks). n x 4m which is to inc elephone/fax jacks). les al utilities including powe	ype portable partitions /telephone/fax jacks) ances and furniture. Am x 4m and include aclude all furniture and clude all furniture and er, water and sewer		
Approximate Quantities (major items only):	ITEMDESCRIPTION12	UN	NIT QUANTITY		

#### Lower Churchill Project

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Project Base Currency: CAD				
Package No.: Titles (long):	SM0703 Type: Provision of Happy Valley-Goose Bay Project Office Space Revisi	Lease ion No.: 01		
(short):	Happy Valley-Goose Bay Project Office Space Date:	13-Apr-2012		
Contract Basis:	Lump Sum Combination Lump Sum – Unit Rates <u>Remarks</u> :	Unit Rates 🛛 Reimbursable 🗌		
Work Excluded:				
	Description	Package No.		
	Supply and Install Accommodations Complex Buildings	CH0002		
	Supply and install of Administrative Buildings	CH0003		
	Construction of Southside Access Road	CH0004		
Quality:	Not Applicable			
Reference Section:	Not Applicable			
Interface with other Packages:	Description	Package No.		
	Not Applicable			
Specific Site Conditions:				
Specific Schedule Conditions:				
Specific     Not Applicable       Environment     Conditions:				
Specific Safety Conditions:				

#### Lower Churchill Project

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#### PACKAGE DICTIONARY

Package No.:		SM0703		Type:	Lease
Titles	(long):	Provision of Happy Valley-Goose Bay Project Office S	Space	Revision No.:	01
	(short):	Happy Valley-Goose Bay Project Office Space		Date:	13-Apr-2012
Special Requireme	nts:				
Free Issued Materials:	b	Not Applicable			
Major Equi∣ List:	pment				
Schedule a Milestones		EOI Date: TBD RFP Date: TBD Award Date: TBD Receive Initial Vendor Drawings: TBD Forecast at Site: TBD Construction Complete: Dates for milestones will be updated onc Project baseline schedule is in place.			
Budget:		TBD			
Applicable Project/SP\		Muskrat Falls Generation 🛛 Labra	dor – Island Transmissio	n Link	
TOJECUSE	v	Labrador Transmission Assets  Lower	r Churchill Project – Gene	eral	
IBA Packag	ge	YES 🗌 NO 🖾			

#### PACKAGE DICTIONARY

		4 on of Surveying Services ring Services		Type: Revision No.: Date:	Services 01 13-Apr-2012
Discipline: Responsibilities:	Hydro/Transm Area Manager QA / QC:		Package Engineer: Contract Admin. / Buyer:	Wallace Pie Steve Muller	
Scope of Worl	k Summary:	Supply of personnel, equip the construction of the Mu	oment and material required to skrat Falls Project	o perform surv	eying services during
Work Included	1:	technicians, cleric	nnel required to execute Surv al support and supervision;		
		Supply all equip	ment and material needed t	to perform su	rveying on the sites
		Supply their own	surveying software		
		Supply vehicles;			
		Supply offices at ready.	Goose Bay – Happy Valley	until those exp	pected at the site are
		Developing, main calibration of equi	taining and updating of worl pment.	king procedure	es for surveying and
		Maintaining Surve	ey Records for its own activities	s including cali	bration records.
			Construction Contractor's wor n the construction Inspection a tite surveying.		
			control points and benchmar tractors to establish detailed li work.		
		compliance with s could result in	urveys done by other Co specified requirements and pro delays or non-acceptance . Report all non-conformances	ocedures, iden of works, or	tify any problems tha jeopardize anothe
		Providing surveys	of all investigation works.		
			arrying out and verifying out and verifying out and verifying out and tractor's progress payments.	quantity/measu	irement surveys fo
			ess of work, completing dail f work. Prepare site daily re		
		Compiling survey	records.		
		Contractor's surv	npany's Representative in rev ey procedures, electronic d survey mark-ups on drawings	ata, survey re	eports, field logboo

#### Lower Churchill Project

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Project Base Currency: CAD				
Package No.: SM070	4	Туре:		
Titles (long): Provisi	ion of Surveying Services	01		
(short): Survey	<i>v</i> ing Services	13-Apr-2012		
Approximate Quantities	Item Description	Unit	Quantity	
(Major Items Only):	Chief Surveyor	Man	1	
	Surveyor	Man	32	
	Vehicle	Truck	10	
	Survey equipment for each surveyor team		8	
Contract Basis:		Linit Dotoo		
	Lump Sum	Unit Rates		
	Combination Lump Sum – Unit Rates X	ost Reimbursable		
	Remarks:			
Work Excluded:	Description		Package No.	
	Contractors will make the implementation of all works			
	SLI to supply telecommunication & IT Equipment			
	Accommodation Complex Buildings			
	Provision of Survey Services – 315 kV HVac		ST0311	
	Provision of Survey Services – 350 kV HVdc		ST0312	
	Administrative Buildings		0110000	
			CH0003	
Quality:	Review of survey and calibration procedures develope	ed by other Contra	actors to cover all of	
	the Civil, Mechanical and Electrical works related to su	rveying.		
	Maintain and periodically check primary control points.			
	Must be suitably register to Newfoundland Surveyor As	sociation.		
<b>Reference Section:</b>	Not Applicable			

#### Lower Churchill Project

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#### PACKAGE DICTIONARY

De che se Ne	21/0704		<b>.</b>	0	
Package No.: Titles (long):	5M0704 Provision of Surveying Servi		Type: Revision No.:	Services 01	
(short):	Surveying Services		Date:	13-Apr-2012	
(0.1011)1					
Interface with Other		Description		Package No.	
Packages:		•			
		ave to coordinate their audit work in accor			
		ivities that will be completed concurrently.			
	Will have to coo Work Excluded	rdinate with contractors doing the job defi	ne in section		
	WOIK EXCluded				
Specific Site Condi	ons:				
		The audit work of survey must follow the progress of construction contractors. So it			
Specific Schedule Conditions:		will be necessary to have enough surveyors not to cause any delay in the execution			
Conditiono.		of work.			
	Must be provide	Must be provided as may be required survey crews on night shift.			
On a sifi a Environment		The environmental requirements for the Lower Churchill Project are described int the			
Specific Environme Conditions:		vironmental Protection Plan – Componen	t 1 and 4b, V	/olume I and II (SLI	
Conditions.	Document: 5055	73-0000-68RA-I-0005).			
	The health and	The health and safety and security requirements for the Lower Churchill Project are			
Specific Safety	describe	described in the following documents:			
Conditions:	- SNC-Lav	- SNC-Lavalin Health and Safety Management Plan (505573-0000-68RA-1-0001-00)			
	- SNC-Lav	alin Site Security and Access Control Plan	n (505573-000	00-68RA-I-0002-00)	
	SNC-Lavalin Glo	bal Power Health and Safety Manageme	ent System (5	05573-0000-68-AG-	
	0001)	, ,	, (		
	Prior to starting	any task, surveyors shall complete a	field level h	azard assessment.	
	Included	in this is the following:			
	- Location	of work			
	- Commun	ication mechanisms			

#### Lower Churchill Project

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Project Base Currency: CAD						
Package No.: SM0704		Type: Services				
		Revision No.: 01				
(short): Surveyi	ng Services	Date: 13-Apr-2012				
	- Notification process to other contractors working in	n the same area				
Special Requirements:						
Free Issued Materials:	Description	Package No.				
	Standard IT equipment provide by owner.					
	GIS software provide by owner					
	Consumables will be provided by owner.					
Major Equipment List:	Vehicles					
	Surveying equipment for 8 teams.					
Schedule and	EOI Date: TBD					
Milestones:	RFP Date: TBD					
	Award Date: TBD 1 <sup>st</sup> Vendor Data Required by: TBD					
	1 <sup>st</sup> Vendor Data Required by: TBD Construction Complete: TBD					
	Dates for milestones will be updated once the Project baseline schedule is in place.					
Budget:	TBD					
Applicable Sub-	Muskrat Falls Generation 🛛 🛛 Labrador – Islar	nd Transmission Link				
Project/SPV:	Labrador Transmission Assets					
	Labrador Transmission Assets Lower Church	hill Project – General 🛛				
IBA Package:	Yes 🗌 No 🖾					

#### PACKAGE DICTIONARY

Package No.:		SM0705				Type:	Services
Titles (	(long):	Provisio	n of Labo	atory Services		Revision No.:	01
(5	short):	Laborat	ory Servic	es		Date:	13-Apr-2012
Discipline:	Hydro	/Transmis	sion Lines				
Responsibilities:	-	Manager:	Keenan	Healey	Package Engineer:	To Be Deter	mined
	QA / (	QC:	Kenneth	n Morrison	Contract Admin. / Buyer:	Steve Muller	ı
Scope of Wor	k Sun	nmary:	works a Falls an	nd tests in Labora	st, measurement and sampl atory at site and in the field a Muskrat Falls to Churchill Fa	t various locatio	ns on site of Muskra
Work Include	d:			e all equipment re ce furniture.	quired to operate a Soil and	Concrete Labor	atory except buildin
			Provide	all vehicles neede	ed for the operation on sites o	of works	
			Provide	all necessary ins carry out the follow	spection, sampling and test owing:	equipment, inclu	ding consumables t
			-	Soil/Aggregate/Co	oncrete Aggregate – Samplin	g and Testing	
			-	Field Compaction	Testing		
			-	Sampling, curing, and/or placement	, testing – plastic concrete of formwork	<ul> <li>all areas at t</li> </ul>	ruck tail gate, chut
			-	Verification of pro Plant at Site	pperties through trial batching	on commissioni	ng of Concrete Batc
			-	Testing for uniform	mity of mixed concrete after	calibration of Ba	atch Plant equipmer
			-	Early strength tes	it		
			-	Concrete-mix des	sign adjustments and testing		
			-	Grout - compress	sive strength and flow, viscos	ity, bleeding and	expansion
			-	Concrete coring a	and testing of hardened conci	ete	-
			-	-	on, calibration, proper operati		ance of all inspection
			-	Provide laboratory test or operate eq	y equipment spares, consum juipment.	ables and testing	g supplies to sample
			-	Disposal of Concr	rete Waste		
			-	All other testing re	equested by SLI		

#### Lower Churchill Project

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Project Base (	Jurrency:	CAD				
Package No.:		SM0705			Туре:	Services
Titles	(long):	Provisio	on of Labora	tory Services	Revision No.:	01
	(short):	Laborat	ory Service	S	Date:	13-Apr-2012
Approxima			Item	Description	Unit	Quantity
(Major Item	is Only):			•		
				All laboratory equipments for 1 laboratory		1
				Provide mobile Laboratory with equipment		6
				Provide engineer, staff, clerical and technician		77
				Office and Laboratory at Happy Valley - Goose		1
				Вау		I
Contract Ba	asis:				Unit Data	
				Lump Sum	Unit Rates	s X
			Combir	nation Lump Sum – Unit Rates 🔲 Cos	t Reimbursable	e 🗌
			Remark	•		
Work Exclu	uded:			Description		Package No.
				-		_
			Admini	strative Buildings		CH0003
Quality				n, maintain and implement proper and suita	able procedur	es and systems in
Quality:			accordai	nce with CSA A283		
				boratory suitably qualified and supervision mu	st meet the re	equirements of CSA
			A283			
			A283			
Reference	Section		A283 Not appli	cable		
Reference	Section			cable		
Reference	Section			cable		
Reference	Section			cable		

#### Lower Churchill Project

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#### PACKAGE DICTIONARY

Package No.: Titles (long) (short)		vision No.: 01
Interface with Oth Packages:	er Description	Package No.
l denages.	Accommodation Complex site Utilities	CH0005
	South Side Access Road	CH0004
	Bulk Excavation Works	CH0006
	Intake, Powerhouse, Spillway and transition dams	CH0007
	North Spur Stabilization	CH0008
	RCC Dams – North and South Construction	CH0009
	Construction of 315 KV HVAC Transmission line	CT0319
	Construction of 350 KV HVDC Transmission line	CT0327
	Construction Telecommunication Services – Phase 2	CD0509
Specific Site Con	<b>Litions:</b> The execution of the project will require the installation and and concrete laboratory installed at Muskrat Falls and severa Labrador and Newfoundland.	
Specific Schedule	Iitions:       and concrete laboratory installed at Muskrat Falls and severa Labrador and Newfoundland.         The Soil and Concrete Laboratory shall be in operation day a	al mobile laboratories locatec
Specific Schedule Conditions: Specific Environn	litions:       and concrete laboratory installed at Muskrat Falls and severa Labrador and Newfoundland.         The Soil and Concrete Laboratory shall be in operation day a at Muskrat Falls         The environmental requirements for the Lower Churchill Project-Wide Environmental Protection Plan – Component Document: 505573-0000-68RA-I-0005).	nd night seven days per wee Project are described int t I and 4b, Volume I and II (S
Specific Site Con Specific Schedule Conditions: Specific Environn Conditions: Specific Safety Conditions:	litions:       and concrete laboratory installed at Muskrat Falls and severa Labrador and Newfoundland.         The Soil and Concrete Laboratory shall be in operation day a at Muskrat Falls         The environmental requirements for the Lower Churchill Project-Wide Environmental Protection Plan – Component	nd night seven days per wee Project are described int t I and 4b, Volume I and II (S
Specific Schedule Conditions: Specific Environn Conditions: Specific Safety	litions:       and concrete laboratory installed at Muskrat Falls and several Labrador and Newfoundland.         The Soil and Concrete Laboratory shall be in operation day a at Muskrat Falls         The environmental requirements for the Lower Churchill         Project-Wide Environmental Protection Plan – Component Document: 505573-0000-68RA-I-0005).         The health and safety and security requirements for the	nd night seven days per wee Project are described int t I and 4b, Volume I and II (S e Lower Churchill Project a
Specific Schedule Conditions: Specific Environn Conditions: Specific Safety	litions:       and concrete laboratory installed at Muskrat Falls and severa Labrador and Newfoundland.         The Soil and Concrete Laboratory shall be in operation day a at Muskrat Falls         The environmental requirements for the Lower Churchill Project-Wide Environmental Protection Plan – Component Document: 505573-0000-68RA-I-0005).         The health and safety and security requirements for the described in the following documents:	al mobile laboratories located nd night seven days per wee Project are described int t I and 4b, Volume I and II (S e Lower Churchill Project a 05573-0000-68RA-1-0001-0
Specific Schedule Conditions: Specific Environn Conditions: Specific Safety	litions:       and concrete laboratory installed at Muskrat Falls and severa Labrador and Newfoundland.         The Soil and Concrete Laboratory shall be in operation day a at Muskrat Falls         The environmental requirements for the Lower Churchill Project-Wide Environmental Protection Plan – Component Document: 505573-0000-68RA-I-0005).         The health and safety and security requirements for the described in the following documents:         -       SNC-Lavalin Health and Safety Management Plan (5)	al mobile laboratories located nd night seven days per wee Project are described int t I and 4b, Volume I and II ( E Lower Churchill Project a 05573-0000-68RA-1-0001-0 505573-0000-68RA-I-0002-0
Specific Schedule Conditions: Specific Environn Conditions: Specific Safety	litions:       and concrete laboratory installed at Muskrat Falls and several Labrador and Newfoundland.         The Soil and Concrete Laboratory shall be in operation day a at Muskrat Falls         The environmental requirements for the Lower Churchill Project-Wide Environmental Protection Plan – Component Document: 505573-0000-68RA-I-0005).         The health and safety and security requirements for the described in the following documents:         SNC-Lavalin Health and Safety Management Plan (5 - SNC-Lavalin Site Security and Access Control Plan - SNC-Lavalin Global Power Health and Safety Mana 68-AG-0001)         Not Applicable	al mobile laboratories located nd night seven days per wee Project are described int f I and 4b, Volume I and II ( E Lower Churchill Project a 05573-0000-68RA-1-0001-0 505573-0000-68RA-I-0002-0

#### Lower Churchill Project

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#### PACKAGE DICTIONARY

Package No.: SM070	5	Type: Services			
0	ion of Laboratory Services	Revision No.: 01			
	atory Services	Date: 13-Apr-2012			
Free Issued Materials:	Description	Package No.			
	Laboratory building at Muskrat Falls				
	Offices at Muskrat Falls	Not Applicable			
	IT equipment				
Major Equipment List:	Compression Machine				
	Mixer (100 L)				
	Nucleodensimeter				
	Gilson Testing Screen				
	Ovens				
	Vehicles				
	Mobile Laboratory for transmission line				
Schedule and	EOI Date: TB	D			
Milestones:	RFP Date: TB				
	Award Date: TB 1 <sup>st</sup> Vendor Data Required by: TB				
	Construction Complete: TB				
	Dates for milestones will be updated once the Project baseline schedule is in place.				
Budgot:	ТВD				
Budget:					
Applicable Sub-	Muskrat Falls Generation 🛛 Labrador – Isla	and Transmission Link			
Project/SPV:		_			
	Labrador Transmission Assets 🛛 Lower Churchil	l Project – General 🛛			
IBA Package:	Yes 🗌 No 🖂				

#### Lower Churchill Project

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#### PACKAGE DICTIONARY

Package No.: SM0706 Titles (long): Supply (short): Supply c	nd Maintenance of Project Vehicles vehicles	Type: Revision No.: Date:	C- Contract 01 13-Apr-2012		
Discipline: <u>Responsibilities:</u> QA / QC:	Wallace Piercey Package Engineer: Contract Admin. / B	uyer:: Steve Mullen			
Scope of work Summary	<ul><li>Package SM-0706 includes:</li><li>Supply various types of vehicles for EPCN</li><li>Maintain and repair vehicles.</li></ul>	personnel			
Work Included:	<ul> <li>Supply and delivery to the project sites fisize, truck <sup>1</sup>/<sub>2</sub> and <sup>3</sup>/<sub>4</sub> ton and passenger values.</li> </ul>	n;	ele: SUV mid and ful		
	Install safety devices as back-up alarm, high visibility flag				
	Maintenance of vehicle at HVGBfor the vehicles in Labrador;				
	Giving towing service on every sites of the project				
	Give a maintenance and warranty repair program				
	Provision of ATVs and Snowmobiles				
	Provision of a safety boat				
Approximate Quantities (only major items are	ITEM DESCRIPTION	UNI	T QUANTITY		
included)	1 100 vehicles	Lo			
	Lump Sum Combination Lump Sum – Unit Rates <u>Remarks</u> :	Cost	Unit Rates 🗌 Reimbursable 🗍		
Work Excluded:	The following works or activities are excluded from	package SM-0706:			
	Description	F	Package No.		
	Fuel supply	SH-00	-		

#### PACKAGE DICTIONARY

	D6     Type:       y and Maintenance of Project Vehicles     Revision No.:       y of vehicles     Date:	C- Contract 01 13-Apr-2012
Quality	All controls specified by Applicable Laws, Codes and Regulations and prescribed by the Contractor for a reliable and safe operation of the end by the Contractor. The Contractor shall do its own Quality Control. The permits required obtained by the Contractor.	quipment will be dor
Reference Section	Not applicable	
Interface with Other Packages	Description	Package No.
	Provision of Road Maintenance and Snow clearing Services (MF)	SH0021
	Construction of Reservoir Clearing South Bank	CH0023
	Construction of Reservoir Clearing North Bank	CH0024
	Construction Telecommunication Services – Phase 2	CD0509
Specific Site Conditions Specific Schedule Conditions	All construction roads are dirt road. When working inside the project limits, the Contractor will have to res Safety Management Program of Muskrat Falls	spect the Health &
Specific Environment Conditions	When working inside the project limits, the Contractor has to respect Environmental Plan of Muskrat Falls	the Project -Wide
Specific Safety Conditions	While towing vehicle on site's roads, the contractor has to follow Heal Management Program of Muskrat Falls project	th and Safety
Special Requirements (All)		
()		

#### PACKAGE DICTIONARY

Package No.:		SM0706		Туре:	C- Contract
Titles	(long):	Supply and Maintenance of Project	/ehicles	Revision No.:	01
	(short):	Supply of vehicles		Date:	13-Apr-2012
Schedule a	and Mile:	Receive Init	EOI Date: TBD RFP Date: TBD Award Date: TBD Receive Initial Vendor Drawings: TBD Forecast at Site: TBD Construction Complete: TBD Dates for milestone		
Budget		TBD		the Project baseline sch	nedule is in place.
Applicable Project/SP		Muskrat Falls Generation	_	- Island Transmission Link nurchill Project – General	
IBA Packa	ge	YES NO	$\boxtimes$		

#### PACKAGE DICTIONARY

Project Base Currency: CAD

	on of Helicopte er Services	r Services		Type: Revision No.: Date:	Services 01 13-Apr-2012	
Discipline: Hydro/Transmis Responsibilities: Area Manager: QA / QC:				To Be Determined Steve Mullen		
Scope of Work Summary:	necessary clearing an	for Component 1 d Component 4 (	(Hydro) for supervis	ion and inspectio or geotechnical in	ndland and Labrado n during the reservoi westigation, inspectior	
Work Included:	This packad	ge includes the fo	lowina items:			
		-	operation and mainter	nance of aircraft:		
	• Su		nd operation of a jet fu		tem for remote sites ir	
	• Ae	rial lifts of equipm	ent for geotechnical in	vestigation;		
	<ul> <li>Medical evacuations from construction sites;</li> </ul>					
	Fire suppression activities; and					
	<ul> <li>Demobilization of all aircraft, associated equipment and fuel distribution systems.</li> </ul>					
	This package also requires the following equipment:					
	• Co		tem with the capab		frequencies used b	
	• GP	S system capable	e of inputting locations;			
	• Ca	pability for medica	al evacuations; and			
		uipment for fire su				
			PP.000.0			
Approximate Quantities	Item	C	escription	Unit	Quantity	
(Major Items Only):		chedule for Flight	-	hours	1000	
	2 S	chedule for Flight	Services: 2013	hours	1800	
	3 S	chedule for Flight	Services: 2014	hours	1900	
	4 Se	chedule for Flight	Services: 2015	hours	1800	
	5 S	chedule for Flight	Services: 2016	hours	800	
	6 S	chedule for Flight	Services: 2017	hours	100	
Contract Basis:		L	ump Sum	Unit Rat	tes 🛛	
	Combinat	ion Lump Sum – I	Jnit Rates	Cost Reimbursal	ble	

1

#### Lower Churchill Project

#### PACKAGE DICTIONARY

Package No.:		SM0707	Туре:	Services
Titles	(long):		n of Helicopter Services Revision No.:	01
	(short):	Helicopte	r Services Date:	13-Apr-2012
		-		
Work Exclu	ded:		Description	Package No.
			Helicopter services for contractors' scope of work	Not Applicable
			Supply of room and board for pilots and engineers. This will be supplied by the Project at no additional cost.	Not Applicable
			Supply of helipads at the camp will be supplied and maintained by the project at no additional cost.	Not Applicable
Quality:		-	Contractor shall comply with Quality Requirement Specification Nu 38RA-0003.	mber 505573-00
Reference Section:				
Reference	Section:		The following main documents were used to define the scope:	
Reference \$	Section:		The following main documents were used to define the scope: Lower Churchill Phase 1 Development – Construction Management Pla SLI Document Number: 505573-0000-30PL-I-0003 Nalcor Reference Number: LCP-SN-CD-0000-CS-PL-0002-01	n
Reference \$	Section:		Lower Churchill Phase 1 Development – Construction Management Pla SLI Document Number: 505573-0000-30PL-I-0003	n
Interface w		-	Lower Churchill Phase 1 Development – Construction Management Pla SLI Document Number: 505573-0000-30PL-I-0003 Nalcor Reference Number: LCP-SN-CD-0000-CS-PL-0002-01	n Package No.
Interface w		-	Lower Churchill Phase 1 Development – Construction Management Pla SLI Document Number: 505573-0000-30PL-I-0003 Nalcor Reference Number: LCP-SN-CD-0000-CS-PL-0002-01 Transport Canada Regulations	
Interface w		-	Lower Churchill Phase 1 Development – Construction Management Pla SLI Document Number: 505573-0000-30PL-I-0003 Nalcor Reference Number: LCP-SN-CD-0000-CS-PL-0002-01 Transport Canada Regulations           Description	Package No.
Interface w		-	Lower Churchill Phase 1 Development – Construction Management Pla SLI Document Number: 505573-0000-30PL-I-0003 Nalcor Reference Number: LCP-SN-CD-0000-CS-PL-0002-01 Transport Canada Regulations Description Construction of 350 kV HVdc Transmission Line - Section 1	Package No. CT0327
Interface w		-	Lower Churchill Phase 1 Development – Construction Management Pla SLI Document Number: 505573-0000-30PL-I-0003 Nalcor Reference Number: LCP-SN-CD-0000-CS-PL-0002-01 Transport Canada Regulations Description           Construction of 350 kV HVdc Transmission Line - Section 1           Clearing of Right of Way for HVdc Transmission Line - Section 1	Package No.           CT0327           CT0343
Reference S Interface w Packages:		-	Lower Churchill Phase 1 Development – Construction Management Pla SLI Document Number: 505573-0000-30PL-I-0003 Nalcor Reference Number: LCP-SN-CD-0000-CS-PL-0002-01 Transport Canada Regulations Description           Construction of 350 kV HVdc Transmission Line - Section 1           Clearing of Right of Way for HVdc Transmission Line - Section 1           Clearing of Right of Way for HVdc Transmission Line - Section 2	Package No.           CT0327           CT0343           CT0345

#### Lower Churchill Project

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#### PACKAGE DICTIONARY

Package No.:	(long):	SM0707		inenter Services	Type: Revision No.:	Services 01			
Titles	(long): (short):	Helicopte		licopter Services es	Date:	13-Apr-2012			
Creatine Cit		4:							
Specific Sit	e Conal	tions:	•	······································					
			•	Frequent flights over remote areas of Lab					
			•	Environmental constraints will be implem later date.	nented and supplied	to the provider at			
Specific Sc Conditions:			Any o	<ul> <li>Any other packages that have to be started before the subject package can proceed:</li> <li>CT0343 – Clearing of Right of Way for HVdc Transmission Line - Section 1</li> <li>CT0345 – Clearing of Right of Way for HVdc Transmission Line - Section 2</li> </ul>					
			Any o	ther packages that cannot proceed before th	e subject package h	as started:			
			•	CT0327 – Construction of 350 kV HVdc T CT0346 – Construction of 350 kV HVdc T					
Specific En Conditions:		ent		environmental requirements for the Lower ing documents:	Churchill Project a	are described in th			
			a)	Project-Wide Environmental Protection Pla II (SLI Document #: 505573-0000-68RA- 0000-EV-PL-0002-01)	•				
			b)	Project-Wide Rehabilitation Plan (SLI I Nalcor Document # LCP-SN-CD-0000-EV		3-0000-68RA-I-0007			
				Regulatory Compliance Plan (SLI Docum Document # LCP-SN-CD-0000-RT-PL-000		-68RA-I-0003, Nalco			
			d)	Waste Management Plan – Component 1 68RA-I-0008, Nalcor Document # LCP-SN	•				
			e)	Emergency Response Plan (SLI Docum Document # LCP-SN-CD-0000-HS-PL-000		68RA-I-0012, Nalco			
			f)	Contract-Specific Environmental Protec Document # 505573-0000-68RA-I-0011, N PL-0006-01)		, , ,			
			g)	Technical Specification - General Enviro 505573-0000-68RA-I-0015, Nalcor Docu 01).	•	•			
		h) Exhibit 6 – Environmental and Regulatory Compliance Requirements							
			i)	Design Criteria – Erosion and Sediment 315A-4EEC-0001, Nalcor Document # MF	,				
			j)	Environmental Design Criteria – Site Wate	er Control (SLI Docu	ment # 505573-315/			

#### PACKAGE DICTIONARY

Package No.: Titles	(long): (short):		n of Helicopter Services r Services	Type: Revision No.: Date:	Services 01 13-Apr-2012		
	(311011).				- -		
			<ul> <li>4EEC-0002, Nalcor Document # MFA-SN-C</li> <li>k) Recommendation on Biodegradable Fluids Document #. 505573-0000-4EER-0002, Nal RP-0002-01)</li> </ul>	s for the Lower C	Churchill Project (S		
			<ul> <li>Recommendation on Wood Preservation C (SLI Document # 505573-0000-4EER-0001, EV-RP-0001-01)</li> </ul>	•	•		
			Note: Permit requirements are noted in Exhibit 6 (ite	m h above)			
			Standard specifications for refuelling and fuel storage	e are also applicat	le.		
Specific Sa Conditions			The health and safety and security requirements described in the following documents:	s for the Lower	Churchill Project a		
			SNC-Lavalin Health and Safety Managemer	nt Plan (505573-00	00-68RA-1-0001-00		
			SNC-Lavalin Site Security and Access Contra	rol Plan (505573-0	000-68RA-I-0002-0		
			• SNC-Lavalin Global Power Health and Safe 68-AG-0001)	ety Management S	ystem (503011-000		
			SNC-Lavalin Critical Risk Control Protocols	(6845.2.1.1-EN-Re	ev.4 03/11)		
Special Re	quireme	nts:	Pilots need to be experienced with flying in remote a experience.	reas and preferabl	y have local		
Free Issued	d Materia	als:	Description		Package No.		
			Not Applicable		Not Applicable		
Major Equi	pment L	ist:	The following is a major equipment list for package	SM0707:			
			<ul> <li>Communication system with the capability of inputting frequencies used by contractors and SLI / Nalcor;</li> </ul>				
			• GPS system capable of inputting locations;				
			Capability for medical evacuations;				
			• Equipment for fire suppression.				
Maior Foui	nment l	ist <sup>.</sup>	Not Applicable				
Major Equi	pment L	ist:	Not Applicable				

#### Lower Churchill Project

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#### PACKAGE DICTIONARY

Package No.:		SM0707	Type:	Services
Titles	(long):	Provision of Helicopter Services	Revision No.:	01
	(short):	Helicopter Services	Date:	13-Apr-2012
Schedule a Milestones		EOI Date: RFP Date:	TBD TBD	
		Award Date:	TBD	
		1 <sup>st</sup> Vendor Data Required by:	TBD	
		Construction Complete:	TBD	
		Dates for milestones will be updated once the Proje	ct baseline schedu	lle is in place.
Budget:		TBD		
Applicable Project/SP\		Muskrat Falls Generation 🗌 Labrador -	- Island Transmiss	ion Link 🛛
FIOJECU/SF	v.	Labrador Transmission Assets  Lower C	Churchill Project –	General
IBA Packag	je:	Yes 🗌 No 🗌		

### Lower Churchill Project

### PACKAGE DICTIONARY

Project Base Currency: CAD

Deskare No.	SM0709	Turner	P- Purchase			
Package No.: Titles (long):	Provision of Air Transportation Services	Type: Revision No.:				
(short):	Air Transportation Services	Date:	13-Apr-2012			
Discipline: Gene	ral Manager: Administration Manager Package Engineer:					
Scope of work Summary:	Supply and operate chartered airplane for personel trans designated towns to Happy Valley/Goose Bay.	portation bac	k and forth from			
Work Included:	Operate and maintain Airplane, Ticket Reservation Services, FBO Services, Ca Boarding, Onboard Services, and Luggage Services.					
Approximate						
Quantities (major	ITEM DESCRIPTION	UNIT				
items only):	1 Mileage Terrestrial	Mileage	TBD			
	2 Fuel	Mileage	TBD			
Contract Basis:	Lump Sum Combination Lump Sum – Unit Rates <u>Remarks</u> :	Un Cost Reimb	it Rates 🛛 oursable 🖾			
Work Excluded:	Description	Pac	kage No.			
	Route Scheduling	TBD				
Quality:	Respect of Schedule.					
Reference Section:						

#### Lower Churchill Project

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Project Base Currency:	CAD

Package No.:	:	SM0709	Ту	pe: P- Purchase
Titles	(long):	Provision of Air Transportation Services	Re	evision No.: 01
	(short):	Air Transportation Services	Da	ate: 13-Apr-2012
Interface w	with			
other Pack		Description		Package No.
		None		
Specific Si Conditions				
Specific So Conditions				
Specific				
Environme Conditions				
Specific Sa Conditions		Nalcor and SLI safety requirements. A	II Laws and Federal, Pro	ovincial Regulations.
Special Requireme	ents:			
Free Issue Materials:	ed			
∕lajor Equi ₋ist:	ipment	None		
Schedule a	and	EOI Date:	TBD	
lilestones	s:	RFP Date:	TBD	
		Award Date:	TBD	
		Receive Initial Vendor Drawings:	TBD	
		Forecast at Site: Construction Complete:	TBD Dates for milestones w	ill be undated once the
		Construction Complete.	Project baseline sched	vill be updated once the lule is in place.
Budget:		TBD		
Applicable Project/SP		Muskrat Falls Generation 🛛 Labra	dor – Island Transmission Lir	nk 🗌

Project Base Currer	ncy:	CAD								
Package No.:		SM0709					Тур	e:	P- Purchase	
Titles (lor	ng):	Provision of	Air Trans	portation \$	Services		Rev	ision No.:	01	
(sho	ort):	Air Transpo	rtation Se	rvices			Dat	e:	13-Apr-2012	
		Labrado	r Transm	ission As	sets 🔀	Lower Churchill Pro	ject – General			
IBA Package		YES	$\boxtimes$	NO						

## Lower Churchill Project

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## PACKAGE DICTIONARY

Project Base Currency: CAD						
Package No.: SM0710 Titles (long): Supply (short): IT Equip	and Mainte	enance of various IT Equipment	Type: Revisior Date:	n No.:	Services 01 13-Apr-2012	
Discipline: Information Tec Responsibilities: Area Manager: QA / QC:	Ricardo	vices Cumming Package Engineer: Morrison Contract Admin. / Bu		se Detern e Muller		
Scope of Work Summary:	Supply	network infrastructure to project sites f	or all compor	nents.		
Work Included:	•	Server infrastructure: servers, power licensing and racking.	distribution,	backı	up equipment, CAL	
	•	WAN acceleration, firewalls, core an points.	d distribution	n swite	ching. WIFI access	
	•	Dell computers: Desktops, Notebooks	and Cadd/G	IS Wo	rkstations.	
	•	Web Conferencing equipment.				
	•	Printers, plotters and Multifunction dev	/ices.			
	Deliver all equipment to all specified site locations FOB.					
	Installation and configuration of equipment.					
	•	Training in the use of plotters.				
	•	Maintain plotters as required.				
	•	Training in the use of MDFs.				
	•	Maintain MDFs as required.				
Approximate Quantities				•		
(Major Items Only):	ltem	Description Servers	U	nit	Quantity TBD	
	2	Telecommunications equipment			TBD	
	3	Printing equipment			TBD	
	4	Computers			TBD	
Contract Basis:	Comb Remai	Lump Sum	Un Cost Reimb	it Rate oursabl		

1

## Lower Churchill Project

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Project Base Currency:				
Package No.: Titles (long):	SM0710		Type: Revision No.:	Services 01
Titles (long): (short):	Supply a IT Equip	nd Maintenance of various IT Equipment	Date:	13-Apr-2012
Work Excluded:		Description		Package No.
		Telephony		
		External Telecommunication		
Quality:	-			
	ļ			
Reference Section:				
Reference Section: Interface with Othe Packages:	-	Description		Package No.
	-			Package No.
Interface with Othe	-	Description Site Telecommunication		Package No.
Interface with Othe	-			Package No.
Interface with Othe	-			Package No.
Interface with Othe	-			Package No.
Interface with Othe	-			Package No.
Interface with Othe	-			Package No.
Interface with Othe	-			Package No.
Interface with Othe	-			Package No.
Interface with Othe	-			Package No.
Interface with Othe	r			Package No.

## Lower Churchill Project

# Page 438

Project Base Curre	ency: CAD			
Package No.:	SM071	0	Туре:	Services
	ong): Supply	and Maintenance of various IT Equipment	Revision No.:	01
(sł		ipment	Date:	13-Apr-2012
Specific Scheo Conditions:	dule			
Specific Envire Conditions:	onment			
Specific Safety Conditions:	/	•		
Special Requir	rements:			
Free Issued Ma	aterials:	Description		Package No.
		Not Applicable		Not Applicable
Major Equipmo	ent List:	•		
Major Equipmo	ent List:	Not Applicable		
Schedule and Milestones:		RFP Date: 1 Award Date: 1 1 <sup>st</sup> Vendor Data Required by: 1	FBD FBD FBD FBD FBD	le is in place
Budget:		TBD		יס וו וימטפ.
Applicable Sul	b-	3		
		3		

Project Base	Currency:	CAD			
Package No.: Titles	(long):	SM0710 Supply	and Maintenance of various IT Equipment	Type: Revision No.:	Services 01
	(short):	IT Equip	oment	Date:	13-Apr-2012
Project/SPV:			Muskrat Falls Generation 🛛 Labrador	Labrador – Island Transmission Link	
			Labrador Transmission Assets 🛛 Lower (	Churchill Project –	General 🖂
IBA Packa	ge:		Yes 🗌 No 🖾		

Package No.:		SM07	13		Type:	Services		
Titles	(long):	Provi	sion of Geotechnical Inv	vestigation Services	Revision No.:	01		
	(short):	2012	Field Geotechnical Investig	gations	Date:	13-Apr-2012		
Discipline:	Hydro	o/Transr	nission Lines					
Responsibilities:	Area	Manage		Package Engineer:	Raynald Len	nieux		
	QA /	QC:	Kenneth Morrison	Contract Admin. / Buyer:	Steve Muller	า		
Scope of Wo	ork		This package consis	sts of the 2012 field Investigations whic	ch include:			
Summary:			1. <b>NORTH SPUR:</b> Sonic and conventional boreholes, in situ and laboratory testing, installation of instrumentation and survey					
			refraction survey an	- STRUCTURE AREA: Boreholes ad ground penetration radar across th d topographic survey		-		
			3. MACKENZIE BRIDGE - Boreholes					
Work Includ	ed:			includes the supply of all labour, equi hnical Investigation works at locations				
				and demobilization of all drilling eque		aterials necessary		
			<ul> <li>Topographic works;</li> </ul>	c surveys of boreholes, seismic lines	and in genera	al of all investigation		
			Clearing of t	the work areas;				
			Temporary a	access roads to investigation sites;				
			Supply of he	elicopter for moves on the 5 conventior	nal boreholes ir	the North Spur;		
			<ul> <li>Supply of he investigation</li> </ul>	elicopter to move all equipment, materi າ sites.	ials and person	nel at the South bar		
			Execution of	f diamond drill holes from the barge on	h Churchill Rive	r;		
			Execution of	f sonic and conventional geotechnical	boreholes in th	ne North Spur;		
			Execution of	f seismic refraction surveys on land;		-		
				f ground penetration radar and reverse	e seismic refrac	tion surveys on wat		
			Execution or	f water pressure tests in diamond drill	holes;			
			Execution c	of in situ tests including Standard Pe Permeability Tests;		s, Field Vane She		
			Sampling with the second	ith thin-walled tube;				
				f winkie drill boreholes;				
				installation of piezometers;				
			<ul> <li>Supply and</li> </ul>	installation of water level loggers;				

#### Lower Churchill Project

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	ong): hort):		eotechnical Investigation Services echnical Investigations	Type: Revision No.: Date:	Services 01 13-Apr-2012
		•	Cleaning of disturbed access and sites at the end of	of the work.	
		•	Recovery and preparation of test samples;		
				ified laborato	n ()
		•	Laboratory Testing (Consultant to employ CSA cert		iy)
		•	Submittal of field daily and weekly reports;		
		•	Preparation and submittal of investigation results a copy and electronic copy)	and laboratory	<sup>,</sup> testing results (p
Approximate Quantities (Ma	ajor	Item	Description	Unit	Quantity
tems Only):		1	Mobilization/Demobilization	Lump	1
		2	Drilling Conventional Boreholes (Soil and Rock)	m	290
		3	Drilling Sonic Drill	m	720
		4	Helicopter Transport	Day	30
		5	Seismic Refraction on Land	m	560
		6	GPR and Reverse Seismic Refraction on Water	m	1040
		7	Misc Expenses	Lump	1
			Travel Accommodation	Lump	1
		9	Helicopter transport equipment and personnel	Lump	1
		10	Laboratory Testing	Lump	1
		11	Topographic Survey	Lump	1
		12	Report Preparation	Lump	1
Contract Basis	S:	Comb <u>Remar</u>		Unit Rates Reimbursable	
Work Exclude	d:		Description		Package No.
		N/A			

#### Lower Churchill Project

## PACKAGE DICTIONARY

Project Base Currency:	CAD
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Package No.:		SM0713	Туре:	Services
Titles	(long):	Provision of Geotechnical Investigation Services	Revision No.:	01
	(short):	2012 Field Geotechnical Investigations	Date:	13-Apr-2012

#### Quality:

As specified in the relevant contract documents

#### **Reference Section:**

Year	Company	Reference	Data
1965	ACRES CANADIAN BECHTEL	Lower Churchill River Muskrat Falls and Gull Island Sites Exploration Data February 1966 H.G. Acres & Co. Ltd for British Newfoundland Corporation Limited	Boreholes: 2 Test Pits or Trenches: 20 (location only) Seismic Lines: 3 (location only)
1979	SNC-LAVALIN Newfoundland Ltd	Muskrat Falls Power Development & 345 KV Transmission Intertie to Churchill Falls Vol. III – 1979 Field Investigation Program Soils Investigation Borehole Logs and Lab. Results March 1980 for Lower Churchill Development Corporation Limited	Boreholes: 54 Test Pits or Trenches: 86 Seismic Lines: 18
1998	SNC-AGRA	Muskrat Falls Hydroelectric Development Final Feasibility Study Volume 2 – 1998 Geotechnical Investigations January 1999 for Newfoundland and Labrador Hydro	Boreholes: 8 Test Pits or Trenches: 61 Seismic Lines: 8
2007	SNC-LAVALIN Inc.	Lower Churchill Project MF1020 – Muskrat Falls Site Investigation Technical Report to	Test Pits or Trenches: 11

#### Lower Churchill Project

#### PACKAGE DICTIONARY

Project Base Currency:	CAD					
Package No.: Titles (long): (short):		D713Type:Servicesvision of Geotechnical Investigation ServicesRevision No.:012 Field Geotechnical InvestigationsDate:13-Apr-2012			ion No.: 01	
					Newfoundland and Labrade Hydro April, 2008	or
			2010	SNC-LAVALIN BAE-Newplan	Lower Churchill Project MF1300 – Muskrat Falls 20 Site Investigations – Geotechnical Report to Nalcor Energy January 2011 Preliminary	010 Boreholes: 51 Test Pits or Trenches: 188
Interface with Othe Packages:	r	Description			Package No.	
rackayes.		None at this stage				
Specific Site Conditions:		In addition to the specified geotechnical field work, seismic survey and ground penetration radar, the following support services are required:				
		•		nvironmental and othe ts for the seismic work		ring, use water and blasting
		•	Provi	sion of clearing or re		y access tracks, clearing of s.
		•	Clear	ing of disturbed acces	s and sites	
		•	Surve	ey of all investigations		
		•	Analy	sis and reporting		

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#### Lower Churchill Project

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### PACKAGE DICTIONARY

Project Base Currency: CAD

Package No.:	QN/	0713 Type:	Services			
Titles		ovision of Geotechnical Investigation Services Revision No.				
Thice		12 Field Geotechnical Investigations Date:	13-Apr-2012			
	(0.001). 20					
Specific S Conditions		тво				
Specific E Conditions	nvironment S:	Bidders to follow the "Environmental Protection Plan for Geotechnical Investigation and Resistivity Testing" and "Environmental and Regulatory Compliance requirements)" These documents will be supplied to the bidders.				
Specific S Conditions		Safety is a concern when executing work close or in the water. The sit in this package will partly have to be done in the river between the ups falls and will require special measures to ensure the safety of the drillin	stream and downstream			
Special Re	equirements	None				
Free Issue	d Materials:	Description	Package No.			
		Not Applicable	Not Applicable			
		Not Applicable				
Major Equ	ipment List:					
Minor Fau	ipment List:	Water level logger				
	ipinent List.					
		Piezometers				
Schedule a	and	EOI Date: TBD				
Milestones	S:	RFP Date: TBD				
		Award Date: TBD				
		1 <sup>st</sup> Vendor Data Required by: TBD				
		Construction Complete: TBD				
		Dates for milestones will be updated once the Project baseline sched	lule is in place.			

## Lower Churchill Project

Project Base Currency:		CAD			
Package No.:		SM07	713	Туре:	Services
Titles	(long):	Prov	ision of Geotechnical Investigation Services	Revision No.:	01
	(short):	2012	Field Geotechnical Investigations	Date:	13-Apr-2012
Budget:			To be provided by Estimation		
Applicable Sub- Project/SPV:			Muskrat Falls Generation	Labrador – Island Transmissi Lower Churchill Project – C	
IBA Package:			Yes No 🗌		

## Lower Churchill Project

### PACKAGE DICTIONARY

Project Base Currency: CAD

Deskana Na i	CN0745			Turner	C Convine Contract
Package No.: Titles (long):	SM0715 Brovision of	Expediting Services		Type: Revision I	S-Service Contract
(short):	Expediting Se	Expediting Services		Date:	13-Apr-2012
(Short).				Date.	13-Api-2012
	irement:				
	-	Project Procurement Manager	Package Engineer:	TBD	
QA / 0		Cen Morrison	Contract Admin. / Buyer:		Mullen
Scope of work Summary:	progress a	r, track and report on all ma against the required on-site ule obligations with the sup	project dates. Conduct reg		
Work Included:	This package includes:				
		onducting regular reviews upplier	of the purchase order a	and sched	ule obligations with the
	• M	onitoring and reporting on t	he status of the Purchase	Order deli	verables
	• K	eeping records of all contac	ts and shop visits to suppl	liers.	
	• C	ommunicating information in	n a manner that it can be r	ecorded in	PM+
		0			
Approximate	ITEM	DESCR	PTION	UNIT	QUANTITY
Quantities (major	1	Expediting Services		Hours	
items only):	2	Expediting Services		Hours	
	3	Expediting Services		Hours	
	4	Expediting Services		Hours	
Contract Decis					
Contract Basis:					Unit Rates
		ے Combination Lump Sum – L	ump Sum 🔲 Jnit Rates 🛛		mbursable
	Remarks	•		00001100	
		to be provided on an as rec		ent will be	made to any
	minimum	or maximum amount of ho	urs		
Work Excluded:					
			_		
		Descrip	tion		Package No.
	Expediti	ng in local area.			
	Expeditin	g which can be effectively	performed by in-house		
		s or delegated to the inspec			
		- '			
<b>• •</b>					
Quality: (Not Applicable)					
			1		

#### Lower Churchill Project

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Project Base Currency:	CAD

Package No.:		SM0715	Туре:	S-Service Contract
Titles	(long):	Provision of Expediting Services	Revision No.:	
	(short):	Expediting Services	Date:	13-Apr-2012
Reference Section:		(Not Applicable)		
Interface w other Pack		Description Provision of Third Party Quality Surveillance	& Inspection Services	Package No. SM0701
Specific Si Conditions		<ul> <li>Visit supplier facilities as directed by \$</li> <li>Flights to supplier facilities in various Germany, France, Mexico)</li> </ul>		China, Turkey, India,
Specific So Conditions		(Not Applicable)		
Specific Environme Conditions		(Not Applicable)		
Specific Sa Conditions		(Not Applicable)		
Special Requireme	ents:	(Not Applicable)		
Free Issue Materials:	d	(Not Applicable)		
Major Equi List:	pment	(Not Applicable)		
Schedule a Milestones		EOI Date: RFP Date: Award Date: Receive Initial Vendor Drawings: Forecast at Site: Construction Complete:	TBD TBD TBD TBD TBD TBD Dates for milestones will be Project baseline schedule i	

#### Lower Churchill Project

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Project Base Currency:		CAD
Package No.:		SM0715 Type: S-Service Contract
Titles	(long):	Provision of Expediting Services Revision No.: 01
	(short):	Expediting Services Date: 13-Apr-2012
Budget Applicable Project/SP		TBD         Muskrat Falls Generation <ul> <li>Labrador – Island Transmission Link</li> <li>Lower Churchill Project – General</li> <li> </li></ul>
IBA Packaç	je	YES NO