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# **Nova Scotia Utility and Review Board**

**IN THE MATTER OF**

*The Maritime Link Act, S.N.S 2012 c.9  
and the  
Maritime Link Cost Recovery Process Regulation, N.S. Reg. 189/2012*

## **NSPML Quarterly Report Q2 2016**

**June 15, 2016**

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1 **1.0 INTRODUCTION**

2

3 This is the Q2 2016 Quarterly Report for the Maritime Link as directed by the Utility  
4 and Review Board (UARB) where the UARB ordered in its Supplemental Decision:

5

6 [115]....detailed reports must be filed by NSPML on a semi-  
7 annual basis, on June 15 and December 15 each year. The reports  
8 shall commence December 15, 2013. Updated status reports must  
9 be filed quarterly.

1 **2.0 UPDATE OF PROJECT SCHEDULE WITH VARIANCE EXPLANATION**

2  
3 As per Enerco U-31, sections 1.1, 1.2, and 1.3, this section provides an update on the  
4 project schedule, along with a variance explanation and general status updates.  
5

6 Please refer to Attachment 1 for the Detailed Project Schedule and Attachment 2 for  
7 the Level 1 Project Schedule.  
8

9 **2.1 Gates and Milestones**

10  
11 The Project remains on schedule for commissioning and commencement of  
12 operations scheduled by the end of Q4 2017.  
13

14 **2.2 Safety**

15  
16 As previously reported, the project safety procedure review for new upcoming field  
17 activities by contractors is continuing to be followed. In this quarter, safety reviews  
18 included review of tasks such as stringing of conductors, helicopter related work,  
19 grouted anchor installation, and HVdc building construction. These reviews are in  
20 addition to the other safety activities outlined in the Safety Plans for each site. As  
21 well, tool box safety with each crew and Field Level Risk Assessments (FLRAs) are  
22 standard activities each morning at the various construction sites by the contractors.  
23

24 **2.3 Abengoa Update**

25  
26 In February 2015 NSPML entered into a contract with Abengoa S.A., a Spanish  
27 energy company, for the transmission line construction on the Maritime Link Project.  
28 On November 25, 2015 Abengoa S.A. filed a notice under Spanish law, which  
29 provides for pre-insolvency protection in Spain, giving the company up to 4 months  
30 to reach an agreement with creditors to avoid a full insolvency process. NSPML has  
31 retained external experts to provide advice with respect to this development to protect  
32 customers' interests in ensuring the Project will continue to be completed on schedule

1 and within budget. In February 2016 NSPML reached agreement on a Term Sheet  
 2 and Project Account Agreement involving Abengoa, its key subcontractor, PowerTel  
 3 Utilities Contracting, and the performance bond sureties. These agreements are  
 4 designed to maintain stability for the Project despite this period of financial  
 5 uncertainty for Abengoa. The agreements established monthly productivity targets for  
 6 Abengoa. The productivity target for March was not achieved, thereby requiring  
 7 Abengoa to provide a recovery plan for review by NSPML. On April 22, 2016,  
 8 NSPML rejected Abengoa’s Recovery Plan, issued a Notice of Default to Abengoa  
 9 and issued a Notice of Claim on the Performance Bond. The productivity targets for  
 10 April and May were not achieved. Discussions with Abengoa and the Performance  
 11 Bond Sureties are ongoing. While transmission line construction of the HVdc lines is  
 12 behind schedule due to Abengoa performance, timely completion is achievable.  
 13 PowerTel continues to progress three of the five lines under construction.

14

15 **2.4 Commercial Activities**

16

17 The key major procurement activities are presented in Table 1 with an update of the  
 18 status for each initiative.

19

20 **Table 1**

21

<b>Commercial Activity</b>	<b>Status in April 2016</b>	<b>Initiative Number</b>	<b>Status in June 2016</b>
HVdc Submarine Cable Supply and Installation	The Contract was awarded to Nexans in January 2014.	E11-18	No Change
Converter stations, switchyards and related structures (“converters and structures”)	The Contract was awarded to ABB Inc. in June 2014.	E12-74	No Change

<b>Commercial Activity</b>	<b>Status in April 2016</b>	<b>Initiative Number</b>	<b>Status in June 2016</b>
Right of Way Clearing along Transmission Lines	Contracts were awarded to Majors Logging Limited in NL, and R. MacLean Forestry in NS in February 2014.	E13-88	No Change
Transmission Structures and Grillages	The Contract was awarded to Kalpataru Power Transmission Ltd in September 2014 for design and delivery of Structures and Grillages.	E13-85	No Change
Site Preparation Services (Includes construction of access road upgrades)	The Contract was awarded to Joneljim Concrete Construction (1994) Ltd. for NS Site Preparation Services in September 2014.  The Contracts were awarded to Marine Contractors Inc., MCI Limited Partnership for NL Site Preparation Services in September 2014.	E13-92	No Change
Transmission Line Construction	The Contract was awarded to Abengoa S.A. in February 2015.	E13-95	No Change
Transmission Line Conductors	The Contract for the supply of conductors was awarded to Midal Cables in March 2015.  The contract for the supply of OPGW was awarded to Composite Power Group Inc. in June 2015.  This is also within the scope of the E13-87 initiative.	E13-87	No Change  No Change

Commercial Activity	Status in April 2016	Initiative Number	Status in June 2016
Horizontal Directional Drill (HDD) Construction Program	Contract awarded to Directional Horizontal Drilling (DHD) in January 2016	E13-156	No Change
	E13-157 was divided into two contracts.	E13-157	No Change
	E13-157 A was award to Schlumberger in March 2016 for the supply of HDD fluids. E13-157B was awarded to Baker Hughes in April 2016 for the Supply of directional drilling services, drill bits and other materials.	E13-158	E13-158 for marine intervention services was awarded in April 2016 to DOF Marine.
	E13-158 is scheduled to be awarded in Q1 2016.  The supply of the HDD casing (E15-238) was awarded to East Coast Tubulars Limited in October 2015.	E15-238	No Change
Accommodations Operations	The contract for the accommodations operations services was awarded to East Coast Catering in April 2015.	E13-89	Entering contract close-out phase.

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**2.4.1 Land Access Agreements**

NSPML has continued to progress the applications before the UARB pursuant to the Expropriation Act to determine the appropriate compensation for the remaining

1 parcels. Three applications in Nova Scotia remain outstanding and are scheduled for  
2 hearing. Applications will be made in Newfoundland and Labrador with respect to the  
3 remaining parcels in that province once the arbitration panel processes have been  
4 established. Rights associated with access trails, as well as additional easements  
5 relating to guying anchors, are continuing in 2016, as necessary in both provinces.  
6

#### 7 **2.4.2 Funding**

8  
9 As in prior months, Funding and Drawdown Requests containing comprehensive  
10 details of costs for the upcoming month were submitted to the Collateral Agent and  
11 Government of Canada as necessary, and all requested funds were received on  
12 schedule. Please refer to Attachment 3 for the IE Draw Confirmation Certificates for  
13 the period. These draws permit payments to Material Project Participants to be paid  
14 with the proceeds of the ML Construction Loan under the payment terms of the  
15 Material Project Documents and the ML Credit Agreement.  
16

17 For the first time since the project debt financing was received in April 2014, the  
18 November 20, 2015 Funding Request included both a draw for debt and also a draw  
19 for equity from NSPML's shareholder, Emera. At this juncture, NSPML has reached  
20 its targeted Debt:Equity ratio of 70:30. This is consistent with the terms of the Federal  
21 Loan Guarantee and with the UARB approval of the Project. Future draws during  
22 construction will be from a combination of debt and equity with the goal of  
23 maintaining the 70:30 Debt:Equity ratio as approved by the UARB.  
24

#### 25 **2.4.3 Joint Development Agreements**

26  
27 NSPML continues to work with Nalcor and NS Power to finalize the remaining  
28 operational agreements arising from the Formal Agreements with Nalcor.



1 **2.5 Engineering Activities**

2  
3 Commissioning of the Maritime Link continues to align with the in-service target date  
4 of Q4 2017. Engineering is captured in three main categories across several Work  
5 Breakdown Structures (“WBS’s”):  
6

- 7 • HVdc Submarine Cable Supply and Installation – cable design and manufacturing  
8 is being engineered by the supplier of the cable, Nexans, which will include  
9 performance criteria consistent with service life and reliability targets subject to  
10 approval by NSPML. In this period, Nexans engineering activities continued on  
11 schedule. The marine route at Cape Ray was finalized which resulted in the need to  
12 increase the cable length by approximately three percent to allow for acceptable  
13 burial and cable protection.  
14
- 15 • The HDD bore trajectories were designed under a separate engineering initiative  
16 (E12-51). Drilling in NL was successfully completed on schedule and within  
17 budget. Borehole drilling is scheduled to begin in NS in mid-June.  
18
- 19 • HVdc Converters and Substations - engineering is included in the contract awarded  
20 to ABB for the supply and installation of these assets. There were advances in the  
21 HVdc design of the Control and Protection system, civil designs, and the plant  
22 electrical mechanical designs. Structural, electrical and station designs advanced  
23 for the HVac systems for the Woodbine, Granite Canal and Bottom Brook  
24 locations. More than 2000 engineering drawings are in final stages of approval to  
25 sustain manufacturing and construction schedules.  
26
- 27 • Overland Transmission and Switchyard/Grounding Sites – Designs for the  
28 transmission and grounding lines are complete and in-field modifications resulting  
29 from the field construction activities are ongoing. Similarly, designs for the  
30 Grounding Sites at Big Lorraine in NS and Indian Head in NL are complete.  
31

1 **2.6 Submarine Cables (Marine)**

2

3 Manufacturing of the marine cable 1 began at the Futtsu manufacturing facility in July  
4 2015 and progressed ahead of schedule until a manufacturing issue was encountered  
5 on cable 1 during the lead sheath protection extrusion process, resulting in a stop in  
6 manufacturing. Following a root cause analysis, which included expert advisors with  
7 decades of lead extrusion experience, modifications to the process and final quality  
8 review, approval was issued to re-start manufacturing in April which has continued  
9 since the changes were implemented. There is minimal change to the schedule.

10

11 The second submarine cable began manufacturing in Halden Norway in late May as  
12 planned. Progress is advancing on schedule.

13

14 The manufacturing of the Land Cables for the Transition Sites were completed and are  
15 ready for shipment from Halden, Norway.

16

17 **2.7 Horizontal Directional Drilling (HDD) Boreholes**

18

19 The contracts were previously awarded for the construction of the HDD boreholes in  
20 Cape Ray NL and Point Aconi in NS. Following approval of all planning deliverables,  
21 mobilization to Cape Ray was completed and drilling in NL started in early May. Both  
22 HDD boreholes have been successfully completed with no issues and mobilization to  
23 Point Aconi in NS is in progress. Drilling is scheduled to start in mid-June with  
24 completion expected in Q3 2016.

25

26 **2.8 Converters and Substations**

27

28 ABB worked throughout the winter and continued construction activities at Bottom  
29 Brook where all AC switchyard foundations were completed in May. Preparations for  
30 the construction of the HVdc converter building have progressed and the building  
31 construction is expected to begin in early Q3 2016. ABB returned to the Woodbine site  
32 in April following the winter season. Footings and foundations for the HVdc converter

1 building and the AC substation continue to progress and preparations for the building  
2 construction have commenced. The preparation at the Granite Canal substation site  
3 was completed and turned over to ABB in May on schedule. Planning for mobilization  
4 to that site is in progress. Construction of the AC substation is scheduled to begin in  
5 Q3 2016.

6  
7 Manufacturing and fabrication, Factory Acceptance Tests (FAT), and transportation  
8 planning of many of the electrical components and subsystems for both the substations  
9 and converter stations from the overseas suppliers advanced in this period. These  
10 systems are scheduled for delivery to start in Q3 2016.

11  
12 **2.9 Right of Way Clearing Contractor(s) – Transmission Lines**

13  
14 Final completion of all right of way tree clearing in NL was achieved in May. Final  
15 completion in NS was achieved in Q4 of 2015.

16  
17 **2.10 Construction Contractor(s) – Transmission Lines**

18  
19 Marshalling yards in NS and NL continued operations. Conductors for the grounding  
20 lines have been received into inventory and are being used for installation activities.  
21 All conductor performance tests were successfully completed.

22  
23 Repairs to non-compliant steel components covered by the tower steel supplier  
24 continued, and are expected to be completed in Q2 2016.

25  
26 As noted above, NSPML is working with the contractor and Sureties in response to  
27 NSPML's Notice of Claim on the Performance Bond.

1  
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**Table 2**

<b>Transmission Line</b>	<b>Completion Target</b>	<b>Status</b>
NL Grounding Line	September 2016	Framing and erection of poles and stringing of conductor advanced, with approximately 90% complete structures erected.
NL DC Transmission Line	April 2017	Installation of foundations continued.
NL AC Transmission Line	March 2017	Work continued with the foundations and erection of structures/poles
NS Grounding Line	September 2016	Framing and erection of poles and stringing of conductor advanced with approximately 85% of structures erected.
NS DC transmission Line	December 2016	Installation of foundations continued. Three towers have been erected.

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**2.11 Construction Contractor(s) – Site Preparation**

In NL, all site preparation work was completed with the completion of work at Cape Ray in April 2016. In NS, all site preparation work was completed in Q4 2015.

1 **2.12 Granite Canal Accommodations Operations**

2

3 The contract for the operations of the Granite Canal accommodations facility (E13-  
4 89A) was awarded to East Coast Catering in April 2015. The camp has been in full  
5 operation since July 2015.

6

7 **2.13 Grounding Sites**

8

9 The construction of the grounding site at Indian Head re-started in April following the  
10 winter season. Currently, all in-water work including breakwater and the 40 grounding  
11 wells have been completed. Remaining construction of the site is ongoing and  
12 scheduled to be completed in Q3 2016.

13

14 The contract has been awarded for the construction of the grounding site at Big  
15 Lorraine in NS. All planning documents are complete. Mobilization to the site and  
16 construction began in early June and is scheduled to be completed in late Q3 2016.

17

18 The construction scopes of work will be followed by the installation of the electrical  
19 equipment at both Grounding Sites (E13-103 A/B). These contracts are expected to be  
20 awarded in Q3. The work is forecasted to be completed in Q4 of 2016.

21

22 **2.14 Independent Engineer**

23

24 The Independent Engineer (IE) conducted a factory visit to ABB in April. Please see  
25 Attachment 4 for a copy of the IE's site visit report. Other visits to construction in NS  
26 and NL are planned in June, August and October. Another site visit to the Nexan's  
27 manufacturing facility at Halden is planned in Q3. All of these visits are aligned with  
28 the increase in construction and manufacturing activities this year. Site visit reports are  
29 filed with the Quarterly reports in 2016.

### 3.0 UPDATED COST SUMMARY

As per Enerco U-31, section 2.1, the detail below outlines the DG3 forecasted costs.

Table 3 below provides an updated cost summary for the Maritime Link, which includes actual costs incurred as of March 30, 2016 and forecasted costs for the remainder of the Project's construction phase.

NSPML continues to track and report all costs, actual and forecast (2011-2017), consistent with the methodologies used in the costs forecast represented in the ML Project Application. Project costs include fully allocated costs for the entire Project Management Team, including contractors, employees, executives dedicated to the project, and NS Power seconded employees at affiliate mark-up rates according to the Code of Conduct for Affiliate Transactions. All costs provided are in Canadian dollars.

Actual AFUDC is being tracked and recorded monthly. AFUDC remains within the \$230 million amount estimated at the time of filing of NSPML's Application.

The project remains on target for completion in 2017 and within the approved budget of \$1.577B.

**Table 3**

(000's of Canadian Dollars)	Actual Costs					Forecast				Total Project Estimate at Completion
	Description	2011-2013	2014	2015	Q1 2016	Total Project to Date	Q2 2016	Q3 2016	Q4 2016	
Emera NL Project Management Costs	44,379	42,315	24,599	6,818	118,111	7,185	7,600	7,036	28,712	168,644
Nalcor Project Support Costs	-	15,232	425	(20)	15,638	91	63	63	250	16,104
Construction and Engineering Initiatives	14,975	167,980	259,750	83,891	526,596	120,667	195,596	125,751	251,051	1,219,662
Environmental Approval	2,651	4,378	1,082	81	8,192	2,468	1,157	1,531	9,090	22,437
Submarine and related	3,359	83,797	74,439	9,946	171,542	24,836	15,654	5,747	107,524	325,302
Converters, structures, and other ancillary equipment	1,517	48,747	106,195	40,317	196,776	62,452	121,084	75,209	87,072	542,594
AC and DC Transmission	7,448	31,057	78,035	33,547	150,087	30,912	57,701	43,264	47,364	329,329
<b>Total</b>	<b>59,354</b>	<b>225,527</b>	<b>284,774</b>	<b>90,689</b>	<b>660,344</b>	<b>127,943</b>	<b>203,259</b>	<b>132,849</b>	<b>280,013</b>	<b>1,404,410</b>
Escalation	-	-	-	-	-	470	705	705	33,474	35,354
Contingency	-	-	-	-	-	-	10,460	11,010	116,120	137,590
<b>Grand Total</b>	<b>59,354</b>	<b>225,527</b>	<b>284,774</b>	<b>90,689</b>	<b>660,344</b>	<b>128,413</b>	<b>214,424</b>	<b>144,564</b>	<b>429,607</b>	<b>1,577,354</b>

1 **Total Actual Project Costs at end of Q1, 2016 Compared to Previous Forecast**

2

3 The total actual project costs for Q1 2016 were \$0.5 million less than the costs for the  
4 same period forecasted in the NSPML Quarterly Report of April 15, 2016. The  
5 explanations of the variances are as follows:

6

7 • ENL Project Management and Nalcor Project Support: \$1.4 million lower cost  
8 incurrence due to lower spending on general and administration expenses, labour,  
9 regulatory and consulting.

10

11 • Environmental Approval: \$0.1 million lower cost incurrence due to permitting and  
12 stakeholder engagement costs.

13

14 • Submarine and related: \$1.8 million lower cost incurrence due to rescheduled site  
15 preparation activities at the Horizontal Directional Drilling (HDD) site at Cape  
16 Ray, NL.

17

18 • Converters, structures and other ancillary equipment: \$2.0 million higher cost  
19 incurrence due to rescheduling of the engineering and procurement activities for  
20 the Converter / Substations supply contract.

21

22 • AC and DC Transmission: \$0.8 million higher cost incurrence attributable to the  
23 progress of the materials and construction for the transmission lines.

24

25 The variances do not change the forecasted in-service date of Q4 2017 and project  
26 remains within budget. Progress to date on the DC components of Transmission Line  
27 Construction remains a key focus; recovery plans are in progress and the completion  
28 of this scope of work to enable Project completion by the end of 2017 remains  
29 achievable.

1 **4.0 COST FLOW**

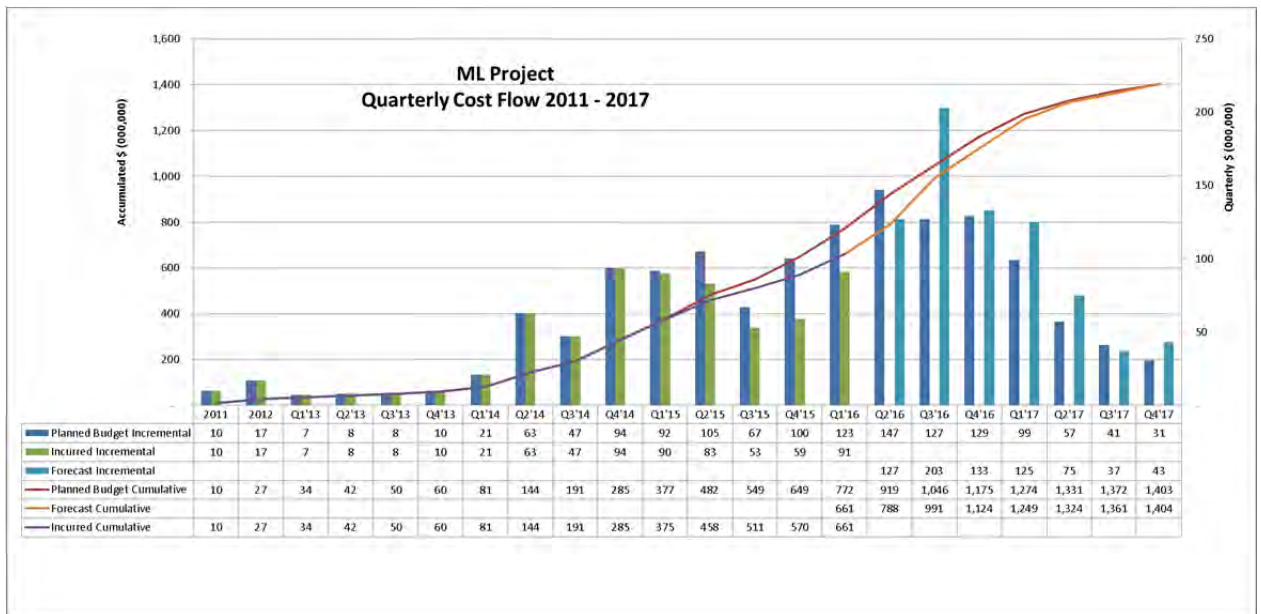
2

3 As per Enerco U-31, section 2.2, please refer to Table 4 below for the cost flow until  
 4 the Maritime Link is commissioned. This cost flow provides a base capital spending  
 5 forecast of \$1.404 billion. The total of the base capital spending, escalation, and  
 6 contingency amounts remains at \$1.577 billion.

7

8 **Table 4**

9



10



Activity Name	Start	Finish	2014				2015				2016				2017			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
<b>MLP - Schedule ( DD-MAY-01-16 )</b>	01-Mar-11 A	13-Nov-17	[Gantt bars for MLP - Schedule ( DD-MAY-01-16 )]															
<b>GATES AND MILESTONES</b>	01-Mar-11 A	02-Oct-17	[Gantt bars for GATES AND MILESTONES]															
<b>Gates &amp; Milestones.</b>	24-Dec-12 A	29-Sep-17	[Gantt bars for Gates & Milestones]															
DG2 Concept Selection		24-Dec-12 A	[Gantt bar for DG2 Concept Selection]															
DG3 Approval to Construct		12-May-14 A	[Gantt bar for DG3 Approval to Construct]															
DG4 Approval to Operate	29-Sep-17*		[Gantt bar for DG4 Approval to Operate]															
Project Completion (Handover)		29-Sep-17	[Gantt bar for Project Completion (Handover)]															
<b>Milestones</b>	01-Mar-11 A	02-Oct-17	[Gantt bars for Milestones]															
Start MLP	01-Mar-11 A		[Gantt bar for Start MLP]															
Submit EA Report		10-Jan-13 A	[Gantt bar for Submit EA Report]															
Submit UARB Application		28-Jan-13 A	[Gantt bar for Submit UARB Application]															
Environmental Assessment Approval		21-Jun-13 A	[Gantt bar for Environmental Assessment Approval]															
UARB Approval		29-Nov-13 A	[Gantt bar for UARB Approval]															
Marine Cable Contract Award (EPC1)		30-Jan-14 A	[Gantt bar for Marine Cable Contract Award (EPC1)]															
Transmission Line Tree Clearing Start 12000 BB to CR	17-Feb-14 A		[Gantt bar for Transmission Line Tree Clearing Start 12000 BB to CR]															
Converter Station Contract Signoff (EPC2) ( E12-74 )		30-Jun-14 A	[Gantt bar for Converter Station Contract Signoff (EPC2) ( E12-74 )]															
Marine Cable Install Substantial Complete		22-Sep-17*	[Gantt bar for Marine Cable Install Substantial Complete]															
Commission Complete		29-Sep-17	[Gantt bar for Commission Complete]															
First Commercial Power		02-Oct-17	[Gantt bar for First Commercial Power]															
<b>Milestones For E12-74</b>	02-Jul-14 A	29-Sep-17	[Gantt bars for Milestones For E12-74]															
<b>OVERHEAD TRANSMISSION LINE</b>	02-Oct-12 A	15-Aug-17	[Gantt bars for OVERHEAD TRANSMISSION LINE]															
<b>11000 (T23001) Overhead AC Transmission Line from Granite Canal</b>	05-Nov-12 A	01-May-17	[Gantt bars for 11000 (T23001) Overhead AC Transmission Line from Granite Canal]															
ENGINEERING	05-Nov-12 A	01-May-17	[Gantt bar for ENGINEERING]															
PROCUREMENT ( MATERIALS & FABRICATION).	02-Feb-15 A	26-Jul-16	[Gantt bar for PROCUREMENT ( MATERIALS & FABRICATION).]															
CONSTRUCTION	02-Jul-14 A	30-Mar-17	[Gantt bar for CONSTRUCTION]															
COMMISSIONING	02-Aug-16	30-Mar-17	[Gantt bar for COMMISSIONING]															
<b>12000 (X20005/6) Overhead HVDC Transmission Line from Bottom I</b>	05-Nov-12 A	28-Apr-17	[Gantt bars for 12000 (X20005/6) Overhead HVDC Transmission Line from Bottom I]															
ENGINEERING	05-Nov-12 A	28-Apr-17	[Gantt bar for ENGINEERING]															
PROCUREMENT ( MATERIALS & FABRICATION )	01-Oct-14 A	25-Jul-16	[Gantt bar for PROCUREMENT ( MATERIALS & FABRICATION )]															
CONSTRUCTION	24-Feb-14 A	28-Apr-17	[Gantt bar for CONSTRUCTION]															
COMMISSIONING	02-Dec-16	28-Apr-17	[Gantt bar for COMMISSIONING]															

Primary Baseline   
  Remaining Work  
 Actual Work   
 ◆ Baseline Milestone

Activity Name	Start	Finish	2014				2015				2016				2017			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
			Gantt Chart															
<b>13000 (X20001/2) Overhead HVDC Transmission Line from Point Ac</b>	02-Oct-12 A	30-Dec-16	30-Dec-16, 13000 (X20001/2) Overhead HVDC Transmission Line from Point Ac															
ENGINEERING	02-Oct-12 A	30-Dec-16	30-Dec-16, EN															
PROCUREMENT ( MATERIALS & FABRICATION )	02-Feb-15 A	25-Jul-16	25-Jul-16, PROCUREM															
CONSTRUCTION	17-Feb-14 A	20-Dec-16	20-Dec-16, CO															
COMMISSIONING	25-Nov-16	30-Dec-16	30-Dec-16, CC															
<b>14100 (E00502) Grounding line from Bottom Brook to Indian Head ( I</b>	05-Nov-12 A	30-May-16	30-May-16, 14100 (E00502) Grounding line from Bottom Brook to Indian Head ( I															
ENGINEERING	05-Nov-12 A	02-May-16	02-May-16, ENGINEERING															
PROCUREMENT ( MATERIALS & FABRICATION )	02-Mar-15 A	25-Nov-15 A	25-Nov-15 A, PROCUREMENT ( MA															
CONSTRUCTION	17-Mar-14 A	30-May-16	30-May-16, CONSTRUCT															
COMMISSIONING	02-May-16	28-May-16	28-May-16, COMMISSION															
<b>14200 (E00501) Grounding line - Woodbine to Big Lorraine ( NS )</b>	02-Oct-12 A	30-Sep-16	30-Sep-16, 14200 (E00501) Grounding line - Woodbine to Big Lorraine ( NS )															
ENGINEERING	02-Oct-12 A	30-Sep-16	30-Sep-16, ENGINE															
PROCUREMENT ( MATERIALS & FABRICATION )	18-Mar-15 A	22-May-15 A	22-May-15 A, PROCUREMENT ( MATERIALS															
CONSTRUCTION	23-Feb-15 A	30-Sep-16	30-Sep-16, CONST															
COMMISSIONING	01-Sep-16	30-Sep-16	30-Sep-16, COMMI															
<b>15000 Accommodations</b>	23-Aug-13 A	15-Aug-17	15-															
ENGINEERING	23-Aug-13 A	31-Oct-14 A	31-Oct-14 A, ENGINEERING															
PROCUREMENT ( MATERIALS & FABRICATION )	15-Sep-14 A	10-Nov-14 A	10-Nov-14 A, PROCUREMENT ( MATERIALS & FABRIC															
CONSTRUCTION	01-Sep-14 A	15-Aug-17	15-															
<b>AC INTERCONNECTION STATIONS.</b>	03-Dec-12 A	26-Sep-17	2															
<b>21100 (103NL) Switchyard at Granite Canal ( NL )</b>	03-Dec-12 A	07-Jul-17	07-Jul-															
ENGINEERING	03-Dec-12 A	28-Oct-16	28-Oct-16, ENGIN															
PROCUREMENT ( MATERIALS & FABRICATION )	29-Sep-14 A	25-Jan-17	25-Jan-17, PF															
CONSTRUCTION	01-Oct-15 A	13-Mar-17	13-Mar-17,															
COMMISSIONING	13-Mar-17	07-Jul-17	07-Jul-															
<b>21200 (102NL) Modifications for P&amp;C Communications, Ductbanks I</b>	29-Sep-14 A	26-Sep-17	2															
ENGINEERING	29-Sep-14 A	30-Nov-16	30-Nov-16, ENG															
PROCUREMENT ( MATERIALS & FABRICATION )	02-May-16	31-May-17	31-May															
EPC2 CONSTRUCTION	30-Jun-16	02-Aug-17	02-															
COMMISSIONING	26-Jul-17	26-Sep-17	2															
<b>22000 (101NL) Switchyard at Bottom Brook</b>	03-Dec-12 A	25-Jul-17	25-J															
ENGINEERING	03-Dec-12 A	28-Oct-16	28-Oct-16, ENGIN															

Primary Baseline   
  Remaining Work  
 Actual Work   
 ◆ Baseline Milestone

Activity Name	Start	Finish	2014				2015				2016				2017			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
<b>PROCUREMENT ( MATERIALS &amp; FABRICATION )</b>	29-Sep-14 A	25-Jan-17	▼															
<b>CONSTRUCTION</b>	29-Sep-14 A	27-Jan-17	▼															
<b>COMMISSIONING</b>	31-Mar-17	25-Jul-17	▼															
<b>22100 Generator Fuel Supply</b>	22-Jun-17	25-Jul-17	▼															
<b>23100 (301NS) Connect 345 kV Substation at Woodbine to Convert</b>	06-May-13 A	29-Aug-14 A	▼ 29-Aug-14 A, 23100 (301NS) Connect 345 kV Substation at															
<b>23200 (301NS) Extension of Substation at Woodbine ( NS )</b>	17-Feb-14 A	14-Jul-17	▼															
<b>ENGINEERING</b>	01-Aug-14 A	28-Oct-16	▼ 28-Oct-16, ENGIN															
<b>PROCUREMENT ( MATERIALS &amp; FABRICATION )</b>	02-Sep-14 A	25-Jan-17	▼ 25-Jan-17, PF															
<b>CONSTRUCTION</b>	17-Feb-14 A	14-Jul-17	▼															
<b>COMMISSIONING</b>	04-Apr-17	14-Jul-17	▼															
<b>23300 (301NS) NSPI Control Centre Modifications ( NS )</b>	03-Jan-17	29-Jun-17	▼															
<b>CONSTRUCTION</b>	03-Jan-17	15-Jun-17	▼															
<b>COMMISSIONING</b>	15-Jun-17	29-Jun-17	▼															
<b>23400 (301NL) NLH Control Centre Modifications ( NL )</b>	03-Jan-17	30-Aug-17	▼															
<b>CONSTRUCTION</b>	03-Jan-17	15-Jun-17	▼															
<b>COMMISSIONING</b>	15-Jun-17	30-Aug-17	▼															
<b>GROUNDING SITES ASSOCIATED WITH CONVERTER S</b>	06-May-13 A	28-Oct-16	▼ 28-Oct-16, GROU															
<b>31000 (901NL) Grounding Site NL - Indian Head ( NL )</b>	06-May-13 A	16-Sep-16	▼ 16-Sep-16, 31000 (9															
<b>ENGINEERING</b>	06-May-13 A	11-Feb-15 A	▼ 11-Feb-15 A, ENGINEERING															
<b>PROCUREMENT ( MATERIALS &amp; FABRICATION )</b>	02-Aug-16	25-Aug-16	▼ 25-Aug-16, PROCUR															
<b>CONSTRUCTION</b>	06-Oct-14 A	09-Sep-16	▼ 09-Sep-16, CONST															
<b>COMMISSIONING</b>	06-Sep-16	16-Sep-16	▼ 16-Sep-16, COMMIS															
<b>32000 Grounding Site NS - Big Lorraine ( NS )</b>	06-May-13 A	28-Oct-16	▼ 28-Oct-16, 32000															
<b>ENGINEERING</b>	06-May-13 A	02-May-16	▼ 02-May-16, ENGINEERING															
<b>PROCUREMENT ( MATERIALS &amp; FABRICATION )</b>	01-Sep-16	13-Sep-16	▼ 13-Sep-16, PROCUR															
<b>CONSTRUCTION</b>	01-Dec-14 A	20-Oct-16	▼ 20-Oct-16, CONST															
<b>COMMISSIONING</b>	20-Oct-16	28-Oct-16	▼ 28-Oct-16, COMM															
<b>CONVERTER STATIONS.</b>	01-Oct-12 A	28-Jul-17	▼ 28-J															
<b>41000 (301NL) Bottom Brook Converter Station ( NL )</b>	01-Oct-12 A	28-Jul-17	▼ 28-J															
<b>ENGINEERING</b>	01-Oct-12 A	26-Oct-16	▼ 26-Oct-16, ENGIN															
<b>PROCUREMENT ( MATERIALS &amp; FABRICATION )</b>	03-Nov-14 A	08-Jun-17	▼ 08-Jun															
<b>CONSTRUCTION</b>	29-Sep-14 A	21-Apr-17	▼ 21-Apr-1															

Primary Baseline   
  Remaining Work  
 Actual Work   
 ◆ Baseline Milestone

Activity Name	Start	Finish	2014				2015				2016				2017			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
<b>COMMISSIONING</b>	10-Jan-17	28-Jul-17																28-Jul-17
<b>42000 (301NS) Woodbine Converter Station ( NS )</b>	01-Oct-12 A	21-Jul-17																21-Jul-17
<b>ENGINEERING</b>	01-Oct-12 A	26-Oct-16																26-Oct-16, ENGINEERING
<b>PROCUREMENT ( MATERIALS &amp; FABRICATION )</b>	08-Jul-15 A	08-Jun-17																08-Jun-17, PROCUREMENT
<b>CONSTRUCTION</b>	11-Sep-14 A	01-Jun-17																01-Jun-17, CONSTRUCTION
<b>COMMISSIONING</b>	08-Dec-16	21-Jul-17																21-Jul-17, COMMISSIONING
<b>OVERHEAD TO UNDERGROUND TRANSITION SITES.</b>	08-Oct-12 A	30-Aug-17																30-Aug-17
<b>51000 (701NL) Overhead to Underground Transition Compound at C</b>	28-Jan-13 A	30-Aug-17																30-Aug-17
<b>ENGINEERING</b>	28-Jan-13 A	30-Jun-16																30-Jun-16, ENGINEERING
<b>PROCUREMENT ( MATERIALS &amp; FABRICATION )</b>	08-Feb-16 A	18-Nov-16																18-Nov-16, PROCUREMENT
<b>CONSTRUCTION</b>	10-Nov-15 A	30-Aug-17																30-Aug-17, CONSTRUCTION
<b>COMMISSIONING</b>	27-Jun-17	20-Jul-17																20-Jul-17, COMMISSIONING
<b>52000 (701NS) Overhead to Underground Transition Compound at P</b>	08-Oct-12 A	30-Aug-17																30-Aug-17
<b>ENGINEERING</b>	08-Oct-12 A	30-Jun-16																30-Jun-16, ENGINEERING
<b>PROCUREMENT ( MATERIALS &amp; FABRICATION )</b>	08-Feb-16 A	14-Nov-16																14-Nov-16, PROCUREMENT
<b>CONSTRUCTION</b>	04-Feb-14 A	30-Aug-17																30-Aug-17, CONSTRUCTION
<b>COMMISSIONING</b>	04-Jul-17	26-Jul-17																26-Jul-17, COMMISSIONING
<b>53000 (702NS) Woodbine Transition Compound ( NS )</b>	10-Mar-14 A	14-Jul-17																14-Jul-17
<b>ENGINEERING</b>	10-Mar-14 A	16-Sep-16																16-Sep-16, ENGINEERING
<b>PROCUREMENT ( MATERIALS &amp; FABRICATION )</b>	02-May-16	08-Sep-16																08-Sep-16, PROCUREMENT
<b>CONSTRUCTION</b>	09-Sep-14 A	01-Jun-17																01-Jun-17, CONSTRUCTION
<b>COMMISSIONING</b>	02-Nov-16	14-Jul-17																14-Jul-17, COMMISSIONING
<b>55000 Telecommunication Links</b>	01-Jan-13 A	28-Aug-17																28-Aug-17
<b>ENGINEERING</b>	01-Jan-13 A	31-Oct-14 A																31-Oct-14 A, ENGINEERING
<b>PROCUREMENT ( MATERIALS &amp; FABRICATION )</b>	02-May-16	29-Mar-17																29-Mar-17, PROCUREMENT
<b>CONSTRUCTION</b>	02-May-16	07-Aug-17																07-Aug-17, CONSTRUCTION
<b>COMMISSIONING</b>	08-Aug-17	28-Aug-17																28-Aug-17, COMMISSIONING
<b>56000 Control Center Data Link</b>	29-Nov-13 A	28-Apr-17																28-Apr-17
<b>ENGINEERING</b>	29-Nov-13 A	31-May-16																31-May-16, ENGINEERING
<b>PROCUREMENT ( MATERIALS &amp; FABRICATION )</b>	19-Jan-16 A	31-May-16																31-May-16, PROCUREMENT
<b>CONSTRUCTION</b>	19-Jan-16 A	13-Apr-17																13-Apr-17, CONSTRUCTION
<b>COMMISSIONING</b>	17-Apr-17	28-Apr-17																28-Apr-17, COMMISSIONING

Primary Baseline   
  Remaining Work  
 Actual Work   
 ◆ Baseline Milestone

Activity Name	Start	Finish	2014				2015				2016				2017			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
			Gantt Chart															
<b>58000 Improvement of Access Road Infrastructure.</b>	02-May-13 A	04-Oct-16	04-Oct-16, 58000 Improvement of Access Road Infrastructure															
ENGINEERING	02-May-13 A	15-Oct-13 A	02-May-13 A, 15-Oct-13 A, ENGINEERING															
CONSTRUCTION	14-Oct-14 A	26-Jan-16 A	14-Oct-14 A, 26-Jan-16 A, CONSTRUCTION															
COMMISSIONING	23-Sep-16	04-Oct-16	23-Sep-16, 04-Oct-16, COMMISSIONING															
<b>SUBMARINE CABLE AND TERMINATIONS.</b>	03-Sep-12 A	13-Nov-17	03-Sep-12 A, 13-Nov-17															
<b>61000 Submarine Cable, Land Cable, and Terminations</b>	30-Jan-14 A	13-Nov-17	30-Jan-14 A, 13-Nov-17															
MILESTONES	30-Jan-14 A	13-Nov-17	30-Jan-14 A, 13-Nov-17															
ADMINISTRATION & QHSER	30-Jan-14 A	20-Oct-17	30-Jan-14 A, 20-Oct-17															
ENGINEERING	30-Jan-14 A	24-Oct-17	30-Jan-14 A, 24-Oct-17															
PROCUREMENT	11-Aug-14 A	18-Apr-17	11-Aug-14 A, 18-Apr-17															
MANUFACTURING	17-Jun-15 A	10-Mar-17	17-Jun-15 A, 10-Mar-17															
TRANSPORT	27-Sep-15 A	31-May-17	27-Sep-15 A, 31-May-17															
CONSTRUCTION INSTALLATION & PROTECTION	29-Jun-15 A	08-Sep-17	29-Jun-15 A, 08-Sep-17															
PRECOMMISSIONING	04-May-17	14-Sep-17	04-May-17, 14-Sep-17															
<b>62000 Landfall HDD</b>	03-Sep-12 A	31-Aug-16	03-Sep-12 A, 31-Aug-16															
HDD ENGINEERING	03-Sep-12 A	10-May-16	03-Sep-12 A, 10-May-16															
62200 Landfall HDD Cape Ray, NL	10-Nov-15 A	16-Jun-16	10-Nov-15 A, 16-Jun-16															
62100 Landfall HDD Point Aconi, NS	04-Feb-14 A	31-Aug-16	04-Feb-14 A, 31-Aug-16															
<b>63000 Marine Consultancy Services</b>	22-Mar-13 A	29-Sep-17	22-Mar-13 A, 29-Sep-17															
63100 Marine Warranty Survey Services	02-May-16	29-Sep-17	02-May-16, 29-Sep-17															
63200 Marine 3rd Party Engineering Verification Services	02-May-16	29-Sep-17	02-May-16, 29-Sep-17															
63300 Engineering Studies (finalize cable protection studies, design rc	22-Mar-13 A	04-Apr-14 A	22-Mar-13 A, 04-Apr-14 A															
<b>20000 NSPI</b>	07-Feb-14 A	31-Aug-17	07-Feb-14 A, 31-Aug-17															
<b>20100 NSPI - L6513 - Onslow to Springhill Rebuild</b>	07-Feb-14 A	28-Apr-17	07-Feb-14 A, 28-Apr-17															
ENGINEERING	07-Feb-14 A	30-Jun-16	07-Feb-14 A, 30-Jun-16															
PROCUREMENT ( MATERIALS & FABRICATIONS )	04-Jul-16	30-Dec-16	04-Jul-16, 30-Dec-16															
CONSTRUCTION	03-Jan-17	30-Mar-17	03-Jan-17, 30-Mar-17															
COMMISSIONING	15-Mar-17	28-Apr-17	15-Mar-17, 28-Apr-17															
<b>20200 NSPI - Strait of Canso Crossing/Separate L-8004/L-7005</b>	17-Mar-14 A	31-Aug-17	17-Mar-14 A, 31-Aug-17															
ENGINEERING	17-Mar-14 A	03-Nov-16	17-Mar-14 A, 03-Nov-16															
PPROCUREMENT ( MATERIALS & FABRICATIONS )	02-May-16	28-Feb-17	02-May-16, 28-Feb-17															
CONSTRUCTION	03-Jan-17	31-Jul-17	03-Jan-17, 31-Jul-17															

Primary Baseline   
  Remaining Work  
 Actual Work   
 ◆ Baseline Milestone

Activity Name	Start	Finish	2014				2015				2016				2017			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
			Gantt Chart															
<b>COMMISSIONING</b>	04-Jul-17	31-Aug-17	▼ 31															
<b>20300 NSPI - L-6511/L-7019</b>	01-Oct-14 A	01-Oct-15 A	▼ 01-Oct-15 A, 20300 NSPI - L-6511/L-7019															
<b>ENGINEERING</b>	01-Oct-14 A	30-Apr-15 A	▼ 30-Apr-15 A, ENGINEERING															
<b>PROCUREMENT ( MATERIALS &amp; FABRICATIONS )</b>	01-Apr-15 A	31-Aug-15 A	▼ 31-Aug-15 A, PROCUREMENT ( MATER															
<b>CONSTRUCTION</b>	01-Oct-15 A	01-Oct-15 A	▼ 01-Oct-15 A, CONSTRUCTION															
<b>COMMISSIONING</b>	01-Oct-15 A	01-Oct-15 A	▼ 01-Oct-15 A, COMMISSIONING															
<b>20400 NSPI - L-8001 &amp; L-8002 Node Swap at 67N-Onslow (Onslow tr</b>	10-Feb-14 A	18-Dec-15 A	▼ 18-Dec-15 A, 20400 NSPI - L-8001															
<b>ENGINEERING</b>	10-Feb-14 A	31-Mar-15 A	▼ 31-Mar-15 A, ENGINEERING															
<b>PROCUREMENT 9 MATERIALS &amp; FABRICATIONS )</b>	05-Jan-15 A	24-Apr-15 A	▼ 24-Apr-15 A, PROCUREMENT 9 MATERIALS &															
<b>CONSTRUCTION</b>	01-Dec-14 A	16-Dec-15 A	▼ 16-Dec-15 A, CONSTRUCTION															
<b>COMMISSIONING</b>	18-Dec-15 A	18-Dec-15 A	▼ 18-Dec-15 A, COMMISSIONING															
<b>20600 NSPI - Transmission Line (7015 pinch Points)(E12-50)(overlaj</b>	11-Mar-14 A	30-Jan-15 A	▼ 30-Jan-15 A, 20600 NSPI - Transmission Line (7015															
<b>ENGINEERING</b>	11-Mar-14 A	30-Sep-14 A	▼ 30-Sep-14 A, ENGINEERING															
<b>PROCUREMENT ( MATERIALS &amp; FABRICATIONS )</b>	14-Apr-14 A	31-Oct-14 A	▼ 31-Oct-14 A, PROCUREMENT ( MATERIALS & FABRIC															
<b>CONSTRUCTION</b>	16-Sep-14 A	30-Jan-15 A	▼ 30-Jan-15 A, CONSTRUCTION															
<b>COMMISSIONING</b>	29-Jan-15 A	30-Jan-15 A	▼ 30-Jan-15 A, COMMISSIONING															
<b>20700 NSPI - SPS Modification</b>	19-Jan-16 A	30-Jun-17	▼ 30-Jun-17															
<b>ENGINEERING</b>	19-Jan-16 A	29-Jul-16	▼ 29-Jul-16, ENGINEERI															
<b>PROCUREMENT ( MATERIALS &amp; FABRICATIONS )</b>	03-Jan-17	03-Jan-17	▼ 03-Jan-17, PR															
<b>CONSTRUCTION</b>	02-May-16	31-May-17	▼ 31-May-17															
<b>COMMISSIONING</b>	30-Jun-17	30-Jun-17	▼ 30-Jun-17															
<b>OWNER'S SCHEDULE.</b>	01-Mar-11 A	29-Sep-17	▼ 29-Sep-17															
<b>90100 Project Management</b>	01-Mar-11 A	29-Sep-17	▼ 29-Sep-17															
<b>ENL Finance</b>	02-Jan-14 A	30-Apr-14 A	▼ 30-Apr-14 A, ENL Finance															
<b>DG3 Deliverables</b>	21-Jan-13 A	26-May-14 A	▼ 26-May-14 A, DG3 Deliverables															
<b>Project Controls</b>	01-Mar-11 A	18-Aug-17	▼ 18-Aug-17															
<b>Integrated Commission Planning</b>	22-May-13 A	21-May-14 A	▼ 21-May-14 A, Integrated Commission Planning															
<b>HS and S Program</b>	04-Jun-12 A	27-Sep-13 A	▼ 27-Sep-13 A, HS and S Program															
<b>Quality Management Program</b>	23-Sep-13 A	29-Sep-17	▼ 29-Sep-17															
<b>Purchasing (Contracts)</b>	15-Mar-11 A	08-Aug-16	▼ 08-Aug-16, Purchasing															
<b>Marine EPC 1 (E11-18)</b>	15-Mar-11 A	30-Jan-14 A	▼ 30-Jan-14 A, Marine EPC 1 (E11-18)															
<b>Marine</b>	15-Jun-12 A	27-Apr-16 A	▼ 27-Apr-16 A, Marine															

Primary Baseline   
  Remaining Work  
 Actual Work   
 ◆ Baseline Milestone

Activity Name	Start	Finish	2014				2015				2016				2017			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
<b>Marine 3rd Party Engineering Verification Services E13-155</b>	04-Nov-13 A	21-Mar-15 A	21-Mar-15 A, Marine 3rd Party Engineering Verifi															
<b>Marine Warranty Services E12-75</b>	05-Nov-12 A	21-Dec-15 A	21-Dec-15 A, Marine Warranty Ser															
<b>HDD Geotech and Detail Design Program E12-51</b>	15-Jun-12 A	14-Feb-14 A	14-Feb-14 A, HDD Geotech and Detail Design Program E12-51															
<b>HDD Directional Drilling and Casing Installation E13-156</b>	06-Jan-14 A	18-Dec-15 A	18-Dec-15 A, HDD Directional Drill															
<b>HDD Services E13-157</b>	06-Jan-14 A	04-Apr-16 A	04-Apr-16 A, HDD Services E															
<b>HDD Marine Intervention Services E13- 158</b>	06-Jan-14 A	27-Apr-16 A	27-Apr-16 A, HDD Marine In															
<b>Cable Study E13-159</b>	13-Jan-14 A	03-Feb-14 A	03-Feb-14 A, Cable Study E13-159															
<b>Converter Stations (EPC2) E12-74</b>	09-Oct-12 A	30-Jun-14 A	30-Jun-14 A, Converter Stations (EPC2) E12-74															
<b>Land Assets</b>	18-Jun-12 A	08-Aug-16	08-Aug-16, Land Asset															
<b>Environment</b>	22-Jun-11 A	17-Jun-16	17-Jun-16, Environment															
<b>Project Control Office</b>	09-Jul-12 A	16-Jul-14 A	16-Jul-14 A, Project Control Office															
<b>Land Acquisition Services</b>	29-Oct-12 A	22-Feb-13 A	and Acquisition Services															
<b>Risk Assessments</b>	09-Sep-13 A	23-Jan-17	23-Jan-17, Ri															
<b>90200 External Services</b>	04-Jan-12 A	30-Jun-16	30-Jun-16, 90200 Extern															
<b>Legal Services</b>	25-Jun-12 A	28-Jun-16	28-Jun-16, Legal Servic															
<b>Insurance Services</b>	03-Jul-12 A	10-Dec-14 A	10-Dec-14 A, Insurance Services															
<b>Regulatory (UARB) Affairs</b>	02-Jan-13 A	24-Jun-14 A	24-Jun-14 A, Regulatory (UARB) Affairs															
<b>Independent Project Reviews</b>	08-Jul-13 A	30-Jun-16	30-Jun-16, Independent															
<b>Human Resources, Diversity and Gender Equity and Benefits Strategy</b>	01-Aug-12 A	30-Sep-14 A	30-Sep-14 A, Human Resources, Diversity and Gender Ec															
<b>CBoD/FBoD Hatch</b>	04-Jan-12 A	22-Jan-13 A	oD/FBoD Hatch															
<b>93000 Environmental</b>	02-Apr-12 A	18-Aug-17	18															
<b>EA Approval</b>	11-Jan-13 A	09-Sep-13 A	Sep-13 A, EA Approval															
<b>Environmental Studies</b>	02-Apr-12 A	27-Jun-17	27-Ju															
<b>Permits</b>	14-Jan-13 A	30-Dec-16	30-Dec-16, Per															
<b>Environmental Protocol Documents</b>	01-Aug-13 A	02-May-16	02-May-16, Environmental i															
<b>Aboriginal Relations</b>	11-Jun-12 A	02-May-16	02-May-16, Aboriginal Relati															
<b>Other Stakeholder Relations</b>	28-Jan-13 A	30-Dec-16	30-Dec-16, Ott															
<b>Post EA Environmental Monitoring Program</b>	01-Jun-13 A	18-Aug-17	18															
<b>Environmental Program 14001</b>	31-Jan-13 A	02-May-16	02-May-16, Environmental i															
<b>94000 Land Acquisition</b>	15-Jul-12 A	31-Dec-15 A	31-Dec-15 A, 94000 Land Acquisit															
<b>90500 Other NLH System Upgrades</b>	31-Aug-12 A	31-Mar-17	31-Mar-17															
<b>Engineering (TL201, Bay D'Espoir, Upper Salmon)</b>	31-Aug-12 A	14-Aug-13 A	g-13 A, Engineering (TL201, Bay D'Espoir, Upper Salmon)															

Primary Baseline   
  Remaining Work  
 Actual Work   
 ◆ Baseline Milestone

MLP - Schedule ( DD-MAY-01-16 )	UARB Q2 2016	10-Jun-16 14:25
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Activity Name	Start	Finish	2014				2015				2016				2017				
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
Procurement (Materials & Fabrication)	02-May-16	02-May-16									02-May-16, Procurement (M								
Construction	03-May-16	30-Mar-17																	
Commissioning	30-Nov-16	31-Mar-17																	
<b>Dynamic Commissioning (90100)</b>	28-Jul-17	29-Sep-17																	

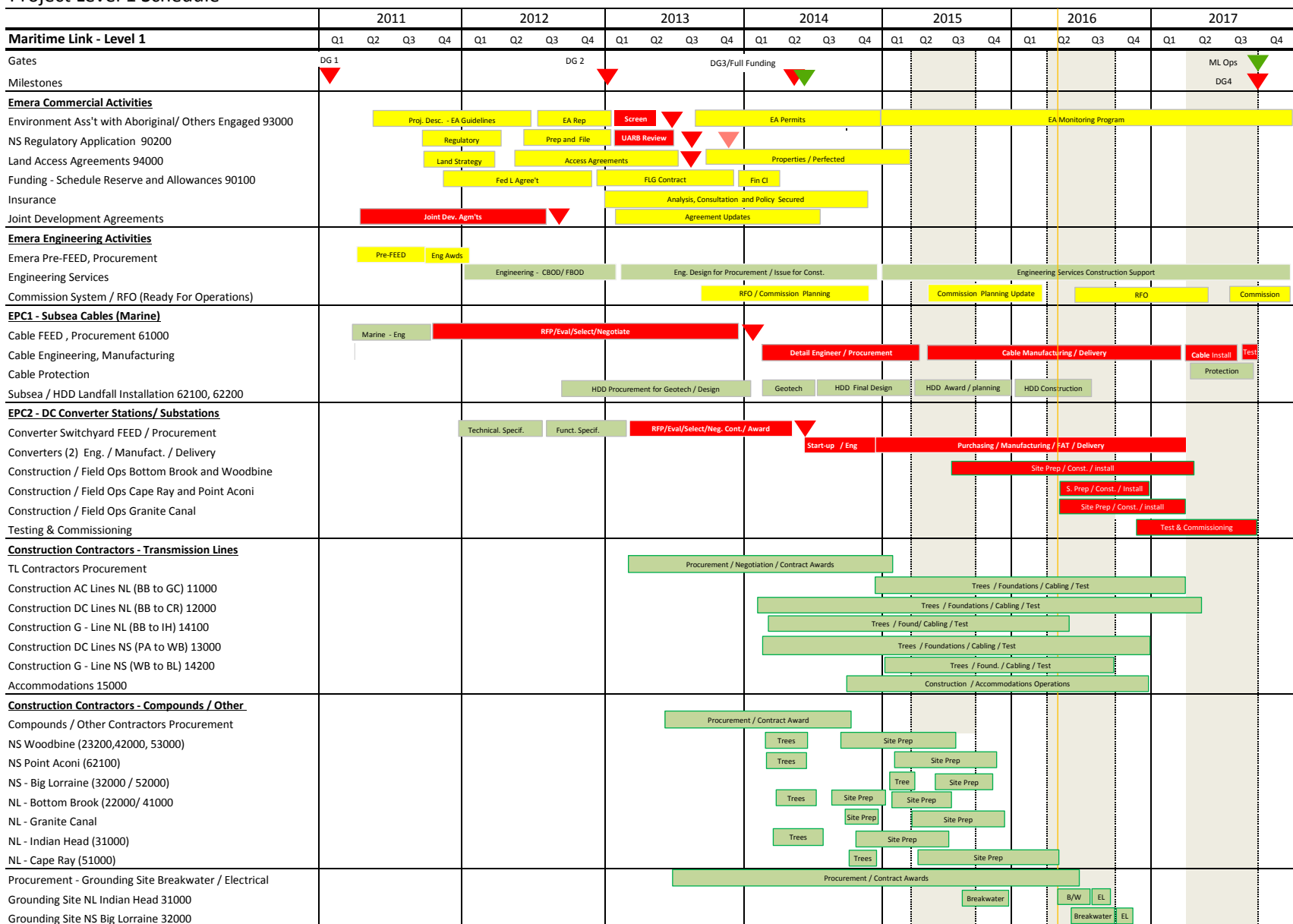
Primary Baseline  
  Remaining Work  
 Actual Work  
 ◆ Baseline Milestone



# Maritime Link Project Level 1 Project Schedule

## Project Level 1 Schedule

May 1



## SCHEDULE "Q"

## DRAW CONFIRMATION CERTIFICATE BY INDEPENDENT ENGINEER

## ML PROJECT FINANCING

This Draw Confirmation Certificate is provided by MWH Canada, Inc. (the "Independent Engineer") to The Toronto-Dominion Bank (the "Collateral Agent") in connection with the credit agreement dated February 24, 2014, between NSP Maritime Link Incorporated (the "Borrower"), Maritime Link Financing Trust (the "Lender") and the Collateral Agent (said agreement, as same may be amended, supplemented or restated from time to time, is hereinafter referred to as the "ML Credit Agreement"). Capitalized terms used in this Draw Confirmation Certificate not defined herein shall have the meanings assigned to them in Exhibit A of the ML Credit Agreement.

The Independent Engineer has (i) discussed matters believed pertinent to this Draw Confirmation Certificate with the Borrower and any relevant Material Project Participants, (ii) made such other inquiries as we have determined appropriate and (iii) reviewed:

- (a) the Construction Report dated April 20, 2016 (the "Construction Report"); and
- (b) the Borrower's funding request dated April 25, 2016 (the "Funding Request").

On the basis of the foregoing limited review procedures and on the understanding and assumption that the factual information contained in the Construction Report and Funding Request is true, correct and complete in all material respects, the Independent Engineer makes the following statements in favour of the Collateral Agent and to the best of its knowledge, information and belief, as of the date hereof that:

1. Construction of the Project is progressing in a satisfactory manner and in accordance with the terms of the applicable Material Project Documents with the following exceptions:

NO EXCEPTIONS NOTED

2. All payments to the Material Project Participants to be paid with the proceeds of the ML Construction Loan (including any payments using advances from the Working Capital Reserve Account during the period from the last Draw Confirmation Certificate to this Draw Confirmation Certificate) requested to be made pursuant to the Funding Request are allowed under the payment terms of the applicable Material Project Documents and the ML Credit Agreement as to the advance requirements of Section 7.3, with the following exceptions:

NO EXCEPTIONS NOTED

3. Assuming the Borrower exercises proper engineering and construction management throughout the remainder of the Project, we have no reason to believe that the

Commissioning Date will not occur prior to the Date Certain, or that the total Project Costs will exceed [\$1,577,354,028] with the following exceptions:

NO EXCEPTIONS NOTED

This Draw Confirmation Certificate is solely for the information and assistance of the Collateral Agent, the Lender and Canada in connection with the Funding Request and shall not be used, circulated or relied upon for any other purpose or by any other party.

Dated: April 27, 2016

**MWH CANADA, INC.**



By: \_\_\_\_\_

Title: IE Team Leader

## SCHEDULE "Q"

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The Independent Engineer has (i) discussed matters believed pertinent to this Draw Confirmation Certificate with the Borrower and any relevant Material Project Participants, (ii) made such other inquiries as we have determined appropriate and (iii) reviewed:

- (a) the Construction Report dated May 20, 2016 (the "Construction Report"); and
- (b) the Borrower's funding request dated May 20, 2016 (the "Funding Request").

On the basis of the foregoing limited review procedures and on the understanding and assumption that the factual information contained in the Construction Report and Funding Request is true, correct and complete in all material respects, the Independent Engineer makes the following statements in favour of the Collateral Agent and to the best of its knowledge, information and belief, as of the date hereof that:

1. Construction of the Project is progressing in a satisfactory manner and in accordance with the terms of the applicable Material Project Documents with the following exceptions:

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This Draw Confirmation Certificate is solely for the information and assistance of the Collateral Agent, the Lender and Canada in connection with the Funding Request and shall not be used, circulated or relied upon for any other purpose or by any other party.

Dated: May 25, 2016

**MWH CANADA, INC.**

By:  \_\_\_\_\_

Title: IE Team Leader

PLANT VISIT AND MANUFACTURING INSPECTION  
ABB FABRICATION FACILITY IN  
LUDVIKA, SWEDEN  
APRIL 26, 2016

Prepared for: Natural Resources Canada and Emera

Project Lead: Nik Argirov

Date: June 08, 2016

**Quality Assurance Statement**

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Prepared by	Vladimir Kahle and Nik Argirov
Reviewed by	Nik Argirov and Howard Lee
Approved for Issue by	Howard Lee

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# 1. ABB LUDVIKA - High Voltage Products Facility

## 1.1. General

On April 26, 2016, the Independent Engineer (IE), MWH, represented by Nik Argirov and Vladimir Kahle, together with two senior management representatives from Emera met with members of ABB's senior and Ludvika plant management. A tour was conducted for the inspection of the ABB's production facilities in Ludvika, Sweden.

ABB has been contracted (Contract E12-74) to carry out the HVDC converter facilities turnkey project for the Maritime Link. The bulk of the HVDC equipment is being manufactured in ABB's High Voltage Products facility.

The purpose of the plant visit / inspection was to verify the status of ABB's work and to review the consistency of their QA/QC process relative to the manufacturing of the equipment supplied under this Contract.

## 1.2. Orientation meeting

Meeting started with a thorough safety briefing followed by a presentation which overviewed the equipment produced at ABB Ludvika for Maritime Link and a description of the High Voltage Products plant. Emphasis on the safety procedures indicates sound management of the facility and care for its staff.

- a) The scope of the HVDC converter stations supply includes engineering/ design, production, installation, commissioning and integration into the utilities grids. Status of the manufacturing was presented as follows:
- Reactive equipment such as the AC transformers, converter transformers, reactors and instrument transformers are produced in Ludvika. Transformer windings are currently being manufactured. Reactors have not been started as yet.
  - Transformer windings for Woodbine are complete.
  - 100% of the IGBT modules are complete and ready waiting in Ludvika plant for shipment to the site.
  - Valve structures are being produced in Vasteros plant. 50% have been produced to date.
  - Light guide manufacturing takes place in Ludvika plant. 50% of the fibers have been completed to date.
  - Valve cooling equipment is being manufactured in Ludvika. 1st pump assembly has been completed.
  - Control and Protection panels pre-delivery testing is currently taking place in the Ludvika plant. Once completed, there will be a test report for each panel.
  - FST 1 phase has been completed, FST 2a (software de-bugging) is in progress.
  - Next steps will be completing the software verification and preparation of the software test reports.
  - Since the factory testing is very thorough and it is witnessed by the Owner's representative, it is anticipated that the FST 3 (Customer tests) will be relatively brief.

The project management of the Maritime Link contract was not covered in detail but it was indicated that Ludvika High Voltage Products plant can meet the ML project schedules.

### 1.3. Factory tour

Plant tour consisted of visits to valve assembly section, fiber optic shop, control and protection panel assembly and testing lab and reactive equipment manufacturing shop. Photography was not permitted. General observations include:

#### Valve Shop Tour

- a) Since the modules have been completed, the tour was relatively brief and dealt with technical questions and post-delivery support.
  - ABB experts indicated that the heat transfer compound does age and it should not be a maintenance item.
  - Coolant connections are made with molded plastic tubing that is not expected to deteriorate with age.
  - Long term spares and installed 'spares' (redundancy) were specified by the HVDC consultant.
- b) Fiber Optic Cable Inspection.
  - Cable runs are pre-tested, tagged to the power component and certified after the termination ends are polished.
  - Individual packaging is appropriate for transport and damage prevention.
  - Quality control and problem resolutions are formally tracked.

#### Control and Protection Test Facility Tour

The tour consisted of facility and panel inspections and technical enquiries.

- Cyber security integration has been addressed by installing a private DNP3 communication link.
- ABB's communication protocol is not proprietary and it will permit interconnection of other devices.
- Controls have a hot-standby system with auto-transfer capability. When the HVDC link is in service both fully redundant systems will be active.
- Power supply redundancy has been achieved by installing two external 'voltage' supplies.
- Printed circuit boards are manufactured in Norway to ABB's specifications.
- Type testing of the systems is used to verify that controls and protections are impervious to RFI (radio frequency interference).
- To control the electrostatic discharge during assembly and testing the panels are equipped with regulation wrist straps.
- Panels are shipped fully assembled further reducing risk of damage due to electrostatic discharges.

#### Transformer Workshop Tour

The tour consisted of inspection and technical enquiries.

- Woodbine windings were viewed on the assembly line.
- Transformer workshop appears to be very clean and efficient facility. Safety measures are in place.
- QA sheets are available for each component.
- New shipping facility has been built in the plant to separate the assembly and shipping processes.
- ABB reports that high quality components are being used for the ML project.

- Target date for transformers shipping is November 2016.

## 1.4. Comments and Conclusions

The formal presentation and factory tours indicate that ABB's staff key competencies, organization and management are appropriate for carrying out the EPC contract to supply and install the ML's HVDC facilities. Continuous quality monitoring appears to be in place throughout the plant. Hardcopy documentation is kept at the work stations, log entries are hand written, signed and date stamped. Appropriate signage and cleanliness of the workplace are evident. Clean environment is maintained by housekeeping and personal protection equipment worn by the workers. Discussions with the managers indicated there is a well-established coordination between the engineering and production sections. Production and maintenance tools are kept at the workstations on well laid- out boards or in dedicated tool holders. Testing lab appears adequately equipped to perform all of the required type and pre- delivery testing

While the project timelines were not discussed in detail, it was indicated that the ML Project schedule will be fully met. Since the converter equipment manufacturing project schedule was not presented at this meeting, the IE is unable to assess any potential risk to delivery timelines.