
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 Q1 2018

April 16, 2018

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1 **1.0 INTRODUCTION**

2

3 This is the Q1 2018 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.

10

11 As per the UARB's order in its Decision regarding the Maritime Link Interim Cost
12 Assessment (M07718), this Report now includes detail regarding the status of the
13 construction of Nalcor's assets.

14

15 This Decision also requested that the quarterly reports include an accounting of all
16 transactions related to this project, cash flow analysis, and a reporting of the financial
17 and other benefits realized for ratepayers from the Maritime Link prior to delivery of
18 the Nova Scotia Block and Nalcor market-priced energy. Given that the benefits to
19 ratepayers prior to the Nova Scotia Block and Nalcor market-priced energy are secured
20 by Nova Scotia Power through the Maritime Link, Nova Scotia Power will report on
21 these in its Quarterly Fuel Adjustment Mechanism Report, which will be filed by May
22 10.

1 **2.0 UPDATE OF PROJECT SCHEDULE**

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. As
5 illustrated in the detailed project schedule provided in Attachment 1, the construction
6 of the Maritime Link is now complete.

7
8 Nalcor's schedule for the transmission assets remains mid-2018 and the completion of
9 Muskrat Falls is forecast for Q3 2020. The Nova Scotia Block is forecast by Q2 2020.
10 NSPML will provide future updates as Nalcor advances towards completion of the
11 Muskrat Falls project.

12

13 **2.1 Gates and Milestones**

14
15 On the Maritime Link Project, key assets were energized in Q3 of 2017 for subsystem
16 testing and the Maritime Link was placed in-service January 15, 2018.

17

18 **2.2 Safety**

19
20 The project review of high-risk activities for any remaining field activities by
21 contractors continues to be followed, which include right of way remediation and
22 punch list items.

23
24 During the final stages of the installation of the equipment for the substations,
25 converter buildings and yards, and other sites in Q3 and Q4, specific focus was on the
26 Lock-Out, Tag-Out and Permit-to-Work procedures; similar reviews and focus were
27 followed for the equipment and system tests as well as final testing which were
28 completed prior to the Maritime Link being placed in-service.

29
30 Safety planning and preparations for the operations of the Maritime Link were
31 developed and implemented prior to the commissioning and continues to be a focus
32 during the early phase of the commercial operations.

NSPML

- 1 The safety of the public and the workers continues to be the first priority, and
- 2 NSPML remains committed to a culture on the work sites that promotes world class
- 3 safety behaviours.

2.3 Commercial Activities

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

Table 1 Key Major Procurement Activities

Commercial Activity	Status in December 2017	Initiative Number	Status in April 2018
HVdc Submarine Cable Supply and Installation	The Contract was awarded to Nexans in January 2014. Substantial Completion occurred in September, 2017. Final Completion expected before year end.	E11-18	Contract Final Completion Certificate signed February 5, 2018 and Contract Closeout is in progress.
Converter stations, switchyards and related structures (“converters and structures”)	The Contract was awarded to ABB Inc. in June 2014.	E12-74	Final System Test Completed January 15, 2018. Substantial Completion achieved on January 15, 2018.
Right of Way Clearing along Transmission Lines	Contracts were awarded to Majors Logging Limited in NL and to R. MacLean Forestry in NS in February 2014. E13-88 is closed.	E13-88	Closed
Transmission Structures and	The Contract was awarded to Kalpataru Power Transmission Ltd. in September 2014 for design	E13-85	Contract closeout is in progress.

Commercial Activity	Status in December 2017	Initiative Number	Status in April 2018
Grillages	and delivery of Structures and Grillages.		
Site Preparation Services (Includes construction of access road upgrades)	<p>The Contract was awarded to Joneljim Concrete Construction (1994) Ltd. for NS Site Preparation Services in September 2014.</p> <p>Contracts awarded to Marine Contractors Inc., MCI Limited Partnership for NL Site Preparation Services in September 2014.</p> <p>Contract closeouts in progress.</p>	E13-92	<p>Closed</p> <p>Closed</p>
Transmission Line Construction	<p>E13-95 contract has been terminated.</p> <p>Contract replaced with E16-284 and E16-269 as reported in the previous report.</p>	E13-95	No Change
Transmission Line Construction – NL AC Line	<p>The contract with PowerTel was re-assigned to NSPML for the completion of the two Grounding Lines and the HVac Line.</p> <p>Substantial Completion achieved.</p>	E16-284	Final completion is in progress.
Transmission Line Construction - NL and NS HVdc Lines	The contract for the construction of the HVdc Transmission Lines was awarded to a joint venture of Emera Utility Services and Rokstad Power Corporation	E16-269	<p>ERJV Contract is complete.</p> <p>Final remediation in progress by NSPML.</p>

Commercial Activity	Status in December 2017	Initiative Number	Status in April 2018
	(ERJV).		
Transmission Line Conductors	<p>The Contract for the supply of conductors was awarded to Midal Cables in March 2015. Contract close-out in progress.</p> <p>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. Contract close-out in progress.</p>	E13-87	<p>Contract close-out remains in progress.</p> <p>Closed</p>
Horizontal Directional Drill (HDD) Construction Program	<p>Contract awarded to Directional Horizontal Drilling (DHD) in January 2016.</p> <p>E13-157 was divided into two contracts.</p> <p>E13-157 A was awarded 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. Contract closed.</p> <p>E13-158 for marine intervention services was awarded in April</p>	<p>E13-156</p> <p>E13-157</p> <p>E13-158</p>	<p>Closed</p> <p>Closed</p> <p>Closed</p>

Commercial Activity	Status in December 2017	Initiative Number	Status in April 2018
	<p>2016 to DOF Marine. Contract closed.</p> <p>The supply of the HDD casing (E15-238) was awarded to East Coast Tubulars Limited in October 2015. Contract closed.</p> <p>The closeout of all HDD construction contracts were in progress. Contract closed.</p>	E15-238	Closed
Accommodations Operations	<p>The contract for the accommodations operations services was awarded to East Coast Catering in April 2015.</p> <p>The Contract was extended to the end of August 2017 with the completion of camp operations.</p> <p>The camp was dismantled and removed, followed by greenfielding of the site.</p>	E13-89	Contract closed in February, 2018.

1 **2.3.1 Land Access Agreements**

2

3 Title was acquired to the key Project sites by December 31, 2017, as required under
4 the Federal Loan Guarantee.

5

6 As final land surveys are completed, it is expected that there will be some new
7 easements required as well as amendments to easements which have been obtained,
8 particularly along the Transmission and Grounding lines, which will take place in
9 2018 as anticipated under the Credit Agreement. These easements do not impact the
10 ability of the project to complete contract closeouts or to operate according to plan.

11

12 **2.3.2 Funding**

13

14 As in prior months, Funding and Drawdown Requests containing comprehensive
15 details of costs for the upcoming month were submitted to the Collateral Agent and
16 Government of Canada as necessary, and all requested funds were received on
17 schedule. Please refer to Attachment 2 for the Independent Engineer (IE) Draw
18 Confirmation Certificates for the period. The IE Certificates allow for Project costs to
19 be paid from the proceeds of the Maritime Link Construction Loan under the payment
20 terms of the Material Project Documents and the Maritime Link Credit Agreement.

21

22 **2.3.3 Joint Development Agreements**

23

24 NSPML continues to work with Nalcor and NS Power to finalize the remaining
25 operational agreements arising from the Formal Agreements with Nalcor. Please refer
26 to Attachment 3 for details on the status of these Agreements.

1 **2.4 Engineering Activities**

2

3 Engineering is captured in three main categories across several Work Breakdown
4 Structures (“WBSs”):

5

6 • HVdc Submarine Cable Supply and Installation -Engineers were focused on the
7 completion of all documentation which was achieved in January 2018. Engineers
8 were also available for final transmission line tests in December and January. Final
9 documentation from as-built cable installation and burial has been received and is
10 now complete.

11

12 • HVdc Converters and Substations - Engineering is included in the contract
13 awarded to ABB for the supply and installation of these assets. With construction
14 and installation activities completed in Q4, engineers have been actively engaged
15 in the HVdc equipment testing and documentation reviews. They worked with the
16 utilities on the commissioning activities including the energization of the HVdc
17 assets and final testing in December and January. The remaining engineering
18 priorities include the completion of punch list work and some studies, the review
19 and acceptance of the final engineering drawings, supporting the operations of the
20 Maritime Link, and closeout of punch list items.

21

22 • Overland Transmission - Designs for the transmission and grounding lines are
23 complete and in-field modifications resulting from the contractor related
24 geotechnical conditions at each structure were completed in Q4, 2017. Engineers
25 were also engaged in the final energization and testing of the NL DC transmission
26 line which was completed in December 2017. Currently, final engineering
27 drawings are under review, and are expected to be completed by Q3 in 2018.

1 **2.5 Submarine Cables**

2

3 Installation and testing is complete on the submarine cables.

4

5 Technical documentation and survey data was prepared by Nexans and submitted for
6 final review which was approved in January. This was the last outstanding activity and
7 the Final Completion certificate was signed in February. The contract closeout is in
8 progress.

9

10 The insurance claim for the repair of the submarine cable was settled with the insurers.
11 All costs associated with the repair in 2017 were fully accepted and agreement was
12 reached to compensate for use of spare cable that was used during the repair. The
13 matter concluded with the Project having the requisite amount of spare cable as was
14 planned for any potential future repairs.

15

16 **2.6 Converters and Substations**

17

18 The Construction of the Converters and Substations was completed with the
19 conclusion of system testing and the Maritime Link placed in-service on January 15,
20 2018. During commissioning in late December, a repeat event of a single module
21 prompted ABB to replace components which were successfully tested in January.

22

23 Work continues on final punch list items with more than 90% of the items closed. The
24 preparation and transfer of final documentation is in progress and completion is
25 scheduled for Q2, 2018. One component in the AC switchyard supplied by a third
26 party to ABB requires an outage to repair and replace the item, in order to avoid longer
27 term maintenance issues.

1 **2.7 Construction Contractors – Transmission Lines**

2
3 All five transmission lines are now complete. The remaining work includes minor
4 punch list activities, access trail rehabilitation, and final documentation, which are
5 expected to be completed in 2018.

6
7 ENL has taken over the access rehabilitation scope of work as part of the NL DC line
8 completion work plan.

9
10 **2.8 Independent Engineer**

11
12 The Independent Engineer (IE) team has completed several site visits and project
13 inspections, at various stages in each province. As well, IE team members have
14 witnessed the progress at each major manufacturing facility for cables, converters and
15 transformers on multiple occasions at key stages of manufacturing. The IE reports to
16 Canada and provides a briefing to NSPML for each inspection.

17
18 In September 2017, the IE completed site visits to Point Aconi and Woodbine in Nova
19 Scotia and to Bottom Brook and the HVdc Transmission line in Newfoundland and
20 Labrador. Please see Attachment 4 for a copy of the report. In November 2017, the IE
21 visited Bottom Brook, Point Aconi and Woodbine with a representative from Canada,
22 and in December 2017 the IE travelled to Woodbine to review testing plans and
23 observe first hand the adequacy of test programs, resources and ongoing activities. The
24 remaining site visit reports from the IE will be provided in a future Quarterly Report.

25
26 Following the final system commissioning tests NSPML submitted its
27 Commissioning Certificate dated January 15 pursuant to the Federal Loan Guarantee.
28 The Independent Engineer, representing the Government of Canada, reviewed project
29 completions documentation and then issued its Commissioning Certificate for the
30 Project during the period. Please refer to Attachment 5 for a copy of the
31 Commissioning Certificate. This certificate is the culmination of the IE's
32 engagement and oversight throughout the construction phase of the Maritime Link

1 Project. It provides the IE's confirmation that Project commissioning and
2 interconnection tests have been achieved in accordance with the requirements of the
3 Federal Loan Guarantee.

4
5 The IE met with NSPML in Halifax on February 1, 2018 to review the scope of the IE
6 engagement during the Operations phase of the Maritime Link, as per the Federal
7 Loan Guarantee requirements. Site visits will continue to occur periodically and the
8 IE will provide annual confirmation to Canada and the Collateral Agent that the assets
9 are being operated and maintained appropriately.

11 **2.9 Status of Nalcor Project and Muskrat Falls**

12
13 The projected in-service date for the Labrador-Island Link (LIL) in monopole mode
14 continues to be Q2 2018. The projected date for first power for Muskrat Falls
15 Generation continues to be Q4 2019, with full power projected for Q3 2020. The Nova
16 Scotia Block of energy from Muskrat Falls is projected for Q2 2020, when the third of
17 four generation units is projected to be commissioned.

18
19 The latest report from Nalcor, published on March 19, 2018 indicates the following
20 progress as of January 2018:

21
22 Overall construction progress of all components of the Muskrat Falls Project at
23 the end of January 2018 reached just over 89 percent complete. The Muskrat
24 Falls Generating Facility reached 79 percent complete, with the Labrador-
25 Island Transmission Link progress at just over 98 percent complete, and the
26 transmission line connecting Churchill Falls to Muskrat Falls at just over 99
27 percent complete.

1 For the Muskrat Falls Generating Facility, key recent activities include:

2

- 3 • Completion of primary concrete scope in the Powerhouse.
- 4 • Units 1-4 in the Powerhouse transferred to Andritz.
- 5 • Installation of pit line in unit 1 nearing completion.
- 6 • Concreting work by Astaldi ongoing for circular passage liner in unit 2.
- 7 • Assembly of stay ring for unit 2 and assembly of circular passage liner for unit 3
- 8 ongoing in the South Service Bay.
- 9 • Completion of installation of draft tube liner in unit 3; commencement of concrete
- 10 work by Astaldi.
- 11 • Continuation of work on intakes 1-4 in preparation for transfer from Astaldi to
- 12 Andritz.

13

14 A recent senior management update from Nalcor indicates the powerhouse is

15 completely enclosed and contractor progress is encouraging.

16

17 **2.10 Status of Benefits to NS Power Customers**

18

19 Customer benefits received to date will be reported by NS Power with its Quarterly

20 Fuel Adjustment Mechanism Report, which will be filed by May 10.

3.0 UPDATED COST SUMMARY

As per Enerco U-31, section 6, the details below outline the DG3 forecasted costs.

Table 2 below provides an updated cost summary for the Maritime Link, which includes actual costs incurred as of December 31, 2017 and forecasted costs for the remainder of the Project's construction activities.

NSPML continues to track and report all costs, actual and forecast (2011-2018), consistent with the methodologies used in the cost forecast represented in the Maritime Link 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 Affiliate Code of Conduct. All costs provided are in Canadian dollars.

Actual AFUDC has been tracked and recorded monthly up to December 31, 2017 and totals approximately \$209 million as of that date, which is below the \$230 million amount estimated at the time of filing of NSPML's Application.

Table 2 Updated Cost Summary for the Maritime Link Project

Description	Actual Costs								Total Project to Date	Estimate to Completion	Total Project Estimate at Completion
	2011-2013	2014	2015	2016	Q1 2017	Q2 2017	Q3 2017	Q4 2017			
Emera NL Project Management Costs	44,379	42,315	24,599	25,639	8,446	8,222	8,618	7,435	169,653	15,374	185,027
Nalcor Project Support Costs	-	15,232	425	438	15	128	70	44	16,352	150	16,502
Construction and Engineering Initiatives	14,975	167,980	259,750	403,871	128,726	150,318	75,123	124,048	1,324,791	11,231	1,336,022
Environmental Approval	2,651	4,378	1,082	1,623	450	3,335	3,093	212	16,823	1,730	18,552
Submarine and related	3,359	83,797	74,439	54,213	31,643	47,554	16,801	19,513	331,319	(1,745)	329,574
Converters, structures, and other ancillary equipment	1,517	48,747	106,195	227,643	49,566	31,725	34,839	41,484	541,716	8,327	550,043
AC and DC Transmission	7,448	31,057	78,035	120,392	47,067	67,704	20,390	62,840	434,933	2,919	437,852
Total	59,354	225,527	284,774	429,948	137,187	158,667	83,811	131,527	1,510,795	26,755	1,537,551
Escalation										32,454	32,454
Contingency										7,349	7,349
Grand Total	59,354	225,527	284,774	429,948	137,187	158,667	83,811	131,527	1,510,795	66,559	1,577,354

1 **Total Actual Project Costs at end of Q4 2017 Compared to Previous Forecast**

2

3 The total actual project costs for Q4 2017 were \$61.7 million more than the pre-
4 contingency and escalation costs for the same period forecasted in the NSPML
5 Quarterly Report of December 15, 2017. The explanations of the variances are as
6 follows:

7

8 • ENL Project Management, Nalcor Project Support and Environmental Approval:
9 \$1.4 million higher cost incurrence due to resourcing, administration and timing of
10 activities.

11

12 • Submarine and related: \$3.1 million lower cost in the subsea program and timing
13 of other completion activities.

14

15 • Converters, structures and other ancillary equipment: \$4.9 million higher cost
16 incurrence due to the timing of activities for civil construction, installation and
17 follow-on testing activities for the converter buildings and HVdc yards.

18

19 • AC and DC Transmission: \$58.5 million higher than forecasted. This was
20 attributed to timing of activities for the remaining scopes of work to complete all
21 transmission lines, including the NL DC transmission line anchor investigation,
22 repair and replacement program.

23

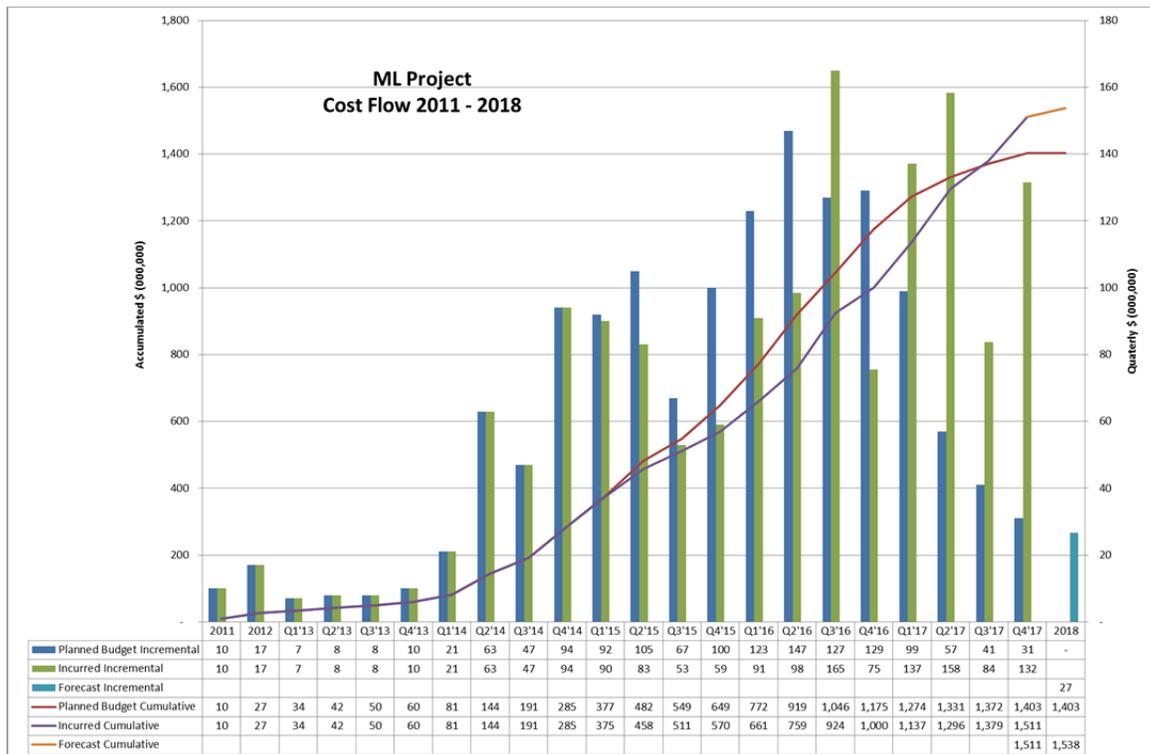
24 The Project remains within budget.

4.0 COST FLOW

As per Enerco U-31, section 2.2, please refer to Table 3 below for the cost flow of the Maritime Link. This cost flow for the base capital spending has increased by \$69 million in this period to \$1.538 billion compared to \$1.469 billion as reported in the previous quarter, with a corresponding decrease in available contingency and escalation forecasted for the remainder of the project. The total of the base capital spending, escalation, and contingency amounts remains at or below \$1.577 billion.

Certain costs such as final major contract payments, release of statutory withholdings, and payment of punch list items are expected to occur in 2018.

Table 3 Maritime Link Cost Flow



1 **5.0 INTERIM ASSESSMENT FINANCIAL UPDATE 2018**

2

3 With the Maritime Link placed in-service on January 15, 2018, NSPML has begun to
4 receive monthly revenues from NS Power pursuant to the Board's November 2, 2017
5 Order. NSPML continues to forecast its 2018 operating and maintenance, debt and
6 equity financing costs to be within the amounts budgeted for the year.

MLP - Schedule (DD-FEB-01-18) Final	UARB Q1 2018	01-Feb-18 11:25
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Activity Name	Start	Finish	2014		2015				2016				2017				2018				2019				2020	
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
MLP - Schedule (DD-FEB-01-18) Final	01-Mar-11 A	22-Jan-18 A	[Gantt bars for 2014-2018]																							
GATES AND MILESTONES	01-Mar-11 A	15-Jan-18 A	[Gantt bars for 2014-2018]																							
Gates & Milestones.	24-Dec-12 A	15-Jan-18 A	[Gantt bars for 2014-2018]																							
DG2 Concept Selection		24-Dec-12 A	[Gantt bar for 2014-2018]																							
DG3 Approval to Construct		12-May-14 A	[Gantt bar for 2014-2018]																							
Project Completion (Handover)		15-Jan-18 A	[Gantt bar for 2014-2018]																							
DG4 Approval to Operate	15-Jan-18 A		[Gantt bar for 2014-2018]																							
Milestones	01-Mar-11 A	15-Jan-18 A	[Gantt bars for 2014-2018]																							
Start MLP	01-Mar-11 A		[Gantt bar for 2014-2018]																							
Submit EA Report		10-Jan-13 A	[Gantt bar for 2014-2018]																							
Submit UARB Application		28-Jan-13 A	[Gantt bar for 2014-2018]																							
Environmental Assessment Approval		21-Jun-13 A	[Gantt bar for 2014-2018]																							
UARB Approval		29-Nov-13 A	[Gantt bar for 2014-2018]																							
Marine Cable Contract Award (EPC1)		30-Jan-14 A	[Gantt bar for 2014-2018]																							
Transmission Line Tree Clearing Start 12000 BB to CR	17-Feb-14 A		[Gantt bar for 2014-2018]																							
Converter Station Contract Signoff (EPC2) (E12-74)		30-Jun-14 A	[Gantt bar for 2014-2018]																							
Marine Cable Install Substantial Complete		30-Aug-17 A	[Gantt bar for 2014-2018]																							
Commission Complete		15-Jan-18 A	[Gantt bar for 2014-2018]																							
First Commercial Power		15-Jan-18 A	[Gantt bar for 2014-2018]																							
Milestones For E12-74	26-Jan-14 A	15-Jan-18 A	[Gantt bars for 2014-2018]																							
OVERHEAD TRANSMISSION LINE	02-Oct-12 A	03-Dec-17 A	[Gantt bars for 2014-2018]																							
11000 (T23001) Overhead AC Transmission Line from Granite Canal to Bottom Brook (NL)	05-Nov-12 A	08-Aug-17 A	[Gantt bars for 2014-2018]																							
ENGINEERING	05-Nov-12 A	30-Mar-17 A	[Gantt bar for 2014-2018]																							
PROCUREMENT (MATERIALS & FABRICATION).	02-Feb-15 A	30-Nov-16 A	[Gantt bar for 2014-2018]																							
CONSTRUCTION	02-Jul-14 A	09-Jun-17 A	[Gantt bar for 2014-2018]																							
COMMISSIONING	09-Jun-17 A	08-Aug-17 A	[Gantt bar for 2014-2018]																							
12000 (X20005/6) Overhead HVDC Transmission Line from Bottom Brook to Cape Ray (NL)	05-Nov-12 A	03-Dec-17 A	[Gantt bars for 2014-2018]																							
ENGINEERING	05-Nov-12 A	30-Mar-17 A	[Gantt bar for 2014-2018]																							
PROCUREMENT (MATERIALS & FABRICATION)	01-Oct-14 A	30-Nov-16 A	[Gantt bar for 2014-2018]																							
CONSTRUCTION	24-Feb-14 A	03-Dec-17 A	[Gantt bar for 2014-2018]																							
COMMISSIONING	20-Nov-17 A	03-Dec-17 A	[Gantt bar for 2014-2018]																							

Primary Baseline
 Remaining Work
 ◆ Milestone
 ◆ Baseline Milestone
 Summary

Activity Name	Start	Finish	2014		2015				2016				2017				2018				2019				2020				
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	
13000 (X20001/2) Overhead HVDC Transmission Line from Point Aconi to Woodbine (NS)	02-Oct-12 A	31-May-17 A	31-May-17 A																										
ENGINEERING	02-Oct-12 A	30-Mar-17 A	30-Mar-17 A																										
PROCUREMENT (MATERIALS & FABRICATION)	02-Feb-15 A	30-Nov-16 A	30-Nov-16 A																										
CONSTRUCTION	17-Feb-14 A	25-May-17 A	25-May-17 A																										
COMMISSIONING	25-May-17 A	31-May-17 A	31-May-17 A																										
14100 (E00502) Grounding line from Bottom Brook to Indian Head (NL)	05-Nov-12 A	30-Sep-16 A	30-Sep-16 A																										
ENGINEERING	05-Nov-12 A	30-Sep-16 A	30-Sep-16 A																										
PROCUREMENT (MATERIALS & FABRICATION)	02-Mar-15 A	25-Nov-15 A	25-Nov-15 A																										
CONSTRUCTION	17-Mar-14 A	30-Sep-16 A	30-Sep-16 A																										
COMMISSIONING	19-Sep-16 A	30-Sep-16 A	30-Sep-16 A																										
14200 (E00501) Grounding line - Woodbine to Big Lorraine (NS)	02-Oct-12 A	30-Sep-16 A	30-Sep-16 A																										
ENGINEERING	02-Oct-12 A	30-Sep-16 A	30-Sep-16 A																										
PROCUREMENT (MATERIALS & FABRICATION)	18-Mar-15 A	22-May-15 A	22-May-15 A																										
CONSTRUCTION	23-Feb-15 A	29-Sep-16 A	29-Sep-16 A																										
COMMISSIONING	06-Sep-16 A	30-Sep-16 A	30-Sep-16 A																										
15000 Accommodations	23-Aug-13 A	30-Aug-17 A	30-Aug-17 A																										
ENGINEERING	23-Aug-13 A	31-Oct-14 A	31-Oct-14 A																										
PROCUREMENT (MATERIALS & FABRICATION)	15-Sep-14 A	10-Nov-14 A	10-Nov-14 A																										
CONSTRUCTION	01-Sep-14 A	06-Jul-15 A	06-Jul-15 A																										
OPERATIONS	30-Jul-15 A	30-Aug-17 A	30-Aug-17 A																										
AC INTERCONNECTION STATIONS.	03-Dec-12 A	13-Nov-17 A	13-Nov-17 A																										
21100 (103NL) Switchyard at Granite Canal (NL)	03-Dec-12 A	21-Oct-17 A	21-Oct-17 A																										
ENGINEERING	03-Dec-12 A	31-Mar-17 A	31-Mar-17 A																										
PROCUREMENT (MATERIALS & FABRICATION)	29-Sep-14 A	05-Jun-17 A	05-Jun-17 A																										
CONSTRUCTION	01-Oct-15 A	04-Aug-17 A	04-Aug-17 A																										
COMMISSIONING	11-May-17 A	21-Oct-17 A	21-Oct-17 A																										
21200 (102NL) Modifications for P&C Communications, Ductbanks to Existing 230 kV Substa	12-May-14 A	30-Aug-17 A	30-Aug-17 A																										
ENGINEERING	12-May-14 A	30-Sep-15 A	30-Sep-15 A																										
PROCUREMENT (MATERIALS & FABRICATION)	28-Apr-15 A	31-Jan-17 A	31-Jan-17 A																										
EPC2 CONSTRUCTION	16-Aug-16 A	30-Aug-17 A	30-Aug-17 A																										
COMMISSIONING	01-Aug-17 A	21-Aug-17 A	21-Aug-17 A																										
22000 (101NL) Switchyard at Bottom Brook	03-Dec-12 A	13-Nov-17 A	13-Nov-17 A																										

— Primary Baseline
 Remaining Work
 ◆ Milestone
 ◆ Baseline Milestone
 Summary

Activity Name	Start	Finish	2014		2015				2016				2017				2018				2019				2020					
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2		
ENGINEERING	03-Dec-12 A	31-Mar-17 A	▶ 31-Mar-17 A																											
PROCUREMENT (MATERIALS & FABRICATION)	29-Sep-14 A	24-Jul-17 A	▶ 24-Jul-17 A																											
CONSTRUCTION	29-Sep-14 A	03-Nov-17 A	▶ 03-Nov-17 A																											
COMMISSIONING	01-Feb-17 A	13-Nov-17 A	▶ 13-Nov-17 A																											
22100 Generator Fuel Supply																														
23100 (301NS) Connect 345 kV Substation at Woodbine to Converter Station, (NS)	06-May-13 A	29-Aug-14 A	▶ 29-Aug-14 A																											
23200 (301NS) Extension of Substation at Woodbine (NS)	17-Feb-14 A	16-Oct-17 A	▶ 16-Oct-17 A																											
ENGINEERING	01-Aug-14 A	31-Mar-17 A	▶ 31-Mar-17 A																											
PROCUREMENT (MATERIALS & FABRICATION)	02-Sep-14 A	15-Jun-17 A	▶ 15-Jun-17 A																											
CONSTRUCTION	17-Feb-14 A	12-Oct-17 A	▶ 12-Oct-17 A																											
COMMISSIONING	25-Nov-16 A	16-Oct-17 A	▶ 16-Oct-17 A																											
23300 (301NS) NSPI Control Centre Modifications (NS)	04-Jul-17 A	30-Aug-17 A	▶ 30-Aug-17 A																											
CONSTRUCTION	04-Jul-17 A	26-Jul-17 A	▶ 26-Jul-17 A																											
COMMISSIONING	01-Aug-17 A	30-Aug-17 A	▶ 30-Aug-17 A																											
23400 (301NL) NLH Control Centre Modifications (NL)	03-Jul-17 A	30-Aug-17 A	▶ 30-Aug-17 A																											
CONSTRUCTION	03-Jul-17 A	11-Aug-17 A	▶ 11-Aug-17 A																											
COMMISSIONING	14-Aug-17 A	30-Aug-17 A	▶ 30-Aug-17 A																											
GROUNDING SITES ASSOCIATED WITH CONVERTER STATIONS.	06-May-13 A	13-Feb-17 A	▶ 13-Feb-17 A																											
31000 (901NL) Grounding Site NL - Indian Head (NL)	06-May-13 A	30-Jan-17 A	▶ 30-Jan-17 A																											
ENGINEERING	06-May-13 A	11-Feb-15 A	▶ 11-Feb-15 A																											
PROCUREMENT (MATERIALS & FABRICATION)	17-Aug-16 A	04-Nov-16 A	▶ 04-Nov-16 A																											
CONSTRUCTION	06-Oct-14 A	25-Nov-16 A	▶ 25-Nov-16 A																											
COMMISSIONING	10-Jan-17 A	30-Jan-17 A	▶ 30-Jan-17 A																											
32000 Grounding Site NS - Big Lorraine (NS)	06-May-13 A	13-Feb-17 A	▶ 13-Feb-17 A																											
ENGINEERING	06-May-13 A	31-Mar-16 A	▶ 31-Mar-16 A																											
PROCUREMENT (MATERIALS & FABRICATION)	17-Aug-16 A	08-Dec-16 A	▶ 08-Dec-16 A																											
CONSTRUCTION	01-Dec-14 A	29-Nov-16 A	▶ 29-Nov-16 A																											
COMMISSIONING	13-Feb-17 A	13-Feb-17 A	▶ 13-Feb-17 A																											
CONVERTER STATIONS.	01-Oct-12 A	28-Dec-17 A	▶ 28-Dec-17 A																											
41000 (301NL) Bottom Brook Converter Station (NL)	01-Oct-12 A	28-Dec-17 A	▶ 28-Dec-17 A																											
ENGINEERING	01-Oct-12 A	12-May-17 A	▶ 12-May-17 A																											
PROCUREMENT (MATERIALS & FABRICATION)	03-Nov-14 A	28-Sep-17 A	▶ 28-Sep-17 A																											

Primary Baseline
 Remaining Work
 Actual Work
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 Summary

MLP - Schedule (DD-FEB-01-18) Final	UARB Q1 2018				01-Feb-18 11:25																							
Activity Name	Start	Finish	2014				2015				2016				2017				2018				2019				2020	
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
CONSTRUCTION	29-Sep-14 A	15-Dec-17 A																										
COMMISSIONING	09-Oct-17 A	28-Dec-17 A																										
42000 (301NS) Woodbine Converter Station (NS)	01-Oct-12 A	06-Dec-17 A																										
ENGINEERING	01-Oct-12 A	12-May-17 A																										
PROCUREMENT (MATERIALS & FABRICATION)	08-Jul-15 A	06-Oct-17 A																										
CONSTRUCTION	11-Sep-14 A	06-Dec-17 A																										
COMMISSIONING	02-Oct-17 A	28-Nov-17 A																										
OVERHEAD TO UNDERGROUND TRANSITION SITES.	08-Oct-12 A	08-Dec-17 A																										
51000 (701NL) Overhead to Underground Transition Compound at Cape Ray (NL)	28-Jan-13 A	07-Dec-17 A																										
ENGINEERING	28-Jan-13 A	03-Apr-17 A																										
PROCUREMENT (MATERIALS & FABRICATION)	08-Feb-16 A	05-Nov-17 A																										
CONSTRUCTION	10-Nov-15 A	18-Nov-17 A																										
COMMISSIONING	06-Nov-17 A	07-Dec-17 A																										
52000 (701NS) Overhead to Underground Transition Compound at Point Aconi (NS)	08-Oct-12 A	29-Nov-17 A																										
ENGINEERING	08-Oct-12 A	30-Mar-17 A																										
PROCUREMENT (MATERIALS & FABRICATION)	08-Feb-16 A	05-Nov-17 A																										
CONSTRUCTION	04-Feb-14 A	29-Nov-17 A																										
COMMISSIONING.	01-Nov-17 A	17-Nov-17 A																										
53000 (702NS) Woodbine Transition Compound (NS)	10-Mar-14 A	08-Dec-17 A																										
ENGINEERING	10-Mar-14 A	31-Mar-17 A																										
PROCUREMENT (MATERIALS & FABRICATION)	01-Nov-16 A	22-Aug-17 A																										
CONSTRUCTION	09-Sep-14 A	08-Dec-17 A																										
COMMISSIONING	09-Oct-17 A	08-Dec-17 A																										
55000 Telecommunication Links	01-Jan-13 A	20-Nov-17 A																										
ENGINEERING	01-Jan-13 A	31-Oct-14 A																										
PROCUREMENT (MATERIALS & FABRICATION)	01-Apr-16 A	30-Oct-17 A																										
CONSTRUCTION	05-Jun-17 A	10-Nov-17 A																										
COMMISSIONING	13-Nov-17 A	20-Nov-17 A																										
56000 Control Center Data Link	29-Nov-13 A	30-Nov-17 A																										
ENGINEERING	29-Nov-13 A	31-May-16 A																										
PROCUREMENT (MATERIALS & FABRICATION)	19-Jan-16 A	31-May-16 A																										
CONSTRUCTION	19-Jan-16 A	23-Nov-17 A																										

Primary Baseline
 Remaining Work
 ◆ Milestone
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Activity Name	Start	Finish	2014		2015				2016				2017				2018				2019				2020					
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2		
COMMISSIONING	22-Nov-17 A	30-Nov-17 A	▼ 30-Nov-17 A																											
58000 Improvement of Access Road Infrastructure.	02-May-13 A	30-Aug-17 A	▶ 30-Aug-17 A																											
ENGINEERING	02-May-13 A	15-Oct-13 A	▶ 5-Oct-13 A																											
CONSTRUCTION	14-Oct-14 A	26-Jan-16 A	▶ 26-Jan-16 A																											
COMMISSIONING	27-Jan-16 A	02-Feb-16 A	▼ 02-Feb-16 A																											
OPERATIONS	08-Feb-16 A	30-Aug-17 A	▶ 30-Aug-17 A																											
SUBMARINE CABLE AND TERMINATIONS.	03-Sep-12 A	05-Dec-17 A	▶ 05-Dec-17 A																											
61000 Submarine Cable, Land Cable, and Terminations	30-Jan-14 A	05-Dec-17 A	▶ 05-Dec-17 A																											
MILESTONES	30-Jan-14 A	30-Oct-17 A	▶ 30-Oct-17 A																											
ADMINISTRATION & QHSER	30-Jan-14 A	05-Dec-17 A	▶ 05-Dec-17 A																											
ENGINEERING	30-Jan-14 A	09-Oct-17 A	▶ 09-Oct-17 A																											
PROCUREMENT	11-Aug-14 A	30-Jun-17 A	▶ 30-Jun-17 A																											
MANUFACTURING	17-Jun-15 A	02-Mar-17 A	▶ 02-Mar-17 A																											
TRANSPORT	27-Sep-15 A	13-May-17 A	▶ 13-May-17 A																											
CONSTRUCTION INSTALLATION & PROTECTION	29-Jun-15 A	30-Sep-17 A	▶ 30-Sep-17 A																											
PRECOMMISSIONING	28-May-17 A	30-Aug-17 A	▶ 30-Aug-17 A																											
62000 Landfall HDD	03-Sep-12 A	27-Aug-16 A	▶ 27-Aug-16 A																											
HDD ENGINEERING	03-Sep-12 A	10-Sep-15 A	▶ 10-Sep-15 A																											
62200 Landfall HDD Cape Ray, NL	15-Apr-14 A	06-Jun-16 A	▶ 06-Jun-16 A																											
62100 Landfall HDD Point Aconi, NS	04-Feb-14 A	27-Aug-16 A	▶ 27-Aug-16 A																											
63000 Marine Consultancy Services	22-Mar-13 A	29-Nov-17 A	▶ 29-Nov-17 A																											
Storage Table Reel Foundation	05-Dec-16 A	30-Mar-17 A	▶ 30-Mar-17 A																											
63100 Marine Warranty Survey Services	30-Dec-16 A	30-Dec-16 A	▼ 30-Dec-16 A																											
63200 Marine 3rd Party Engineering Verification Services	02-Jan-17 A	29-Nov-17 A	▶ 29-Nov-17 A																											
63300 Engineering Studies (finalize cable protection studies, design rock berm, etc.)	22-Mar-13 A	04-Apr-14 A	▶ 04-Apr-14 A																											
20000 NSPI	07-Feb-14 A	31-Aug-17 A	▶ 31-Aug-17 A																											
20100 NSPI - L6513 - Onslow to Springhill Rebuild	07-Feb-14 A	23-Jun-17 A	▶ 23-Jun-17 A																											
ENGINEERING	07-Feb-14 A	31-Aug-16 A	▶ 31-Aug-16 A																											
PROCUREMENT (MATERIALS & FABRICATIONS)	01-May-16 A	01-May-16 A	▼ 01-May-16 A																											
CONSTRUCTION	10-Jun-14 A	30-Mar-17 A	▶ 30-Mar-17 A																											
COMMISSIONING	01-Apr-17 A	23-Jun-17 A	▶ 23-Jun-17 A																											
20200 NSPI - Strait of Canso Crossing/Separate L-8004/L-7005	17-Mar-14 A	31-Aug-17 A	▶ 31-Aug-17 A																											

Primary Baseline
 Remaining Work
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 Summary

Activity Name	Start	Finish	2014		2015				2016				2017				2018				2019				2020					
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2		
Risk Assessments	09-Sep-13 A	30-Jun-17 A	▼ 30-Jun-17 A																											
Purchasing (Contracts)	15-Mar-11 A	26-Sep-16 A	▼ 26-Sep-16 A																											
90200 External Services	04-Jan-12 A	31-Dec-15 A	▼ 31-Dec-15 A																											
Legal Services	25-Jun-12 A	31-Dec-15 A	▼ 31-Dec-15 A																											
Insurance Services	03-Jul-12 A	10-Dec-14 A	▼ 10-Dec-14 A																											
Regulatory (UARB) Affairs	02-Jan-13 A	24-Jun-14 A	▼ 24-Jun-14 A																											
Independent Project Reviews	08-Jul-13 A	31-Dec-15 A	▼ 31-Dec-15 A																											
Human Resources, Diversity and Gender Equity and Benefits Strategy	01-Aug-12 A	30-Sep-14 A	▼ 30-Sep-14 A																											
CBoD/FBoD Hatch	04-Jan-12 A	22-Jan-13 A																												
93000 Environmental	02-Apr-12 A	29-Sep-16 A	▼ 29-Sep-16 A																											
EA Approval	11-Jan-13 A	09-Sep-13 A	Sep-13 A																											
Environmental Studies	02-Apr-12 A	30-Jun-16 A	▼ 30-Jun-16 A																											
Permits	01-Apr-13 A	29-Sep-16 A	▼ 29-Sep-16 A																											
Environmental Protocol Documents	01-Aug-13 A	31-Dec-15 A	▼ 31-Dec-15 A																											
Aboriginal Relations	11-Jun-12 A	31-Dec-15 A	▼ 31-Dec-15 A																											
Other Stakeholder Relations	28-Jan-13 A	31-Dec-15 A	▼ 31-Dec-15 A																											
Post EA Environmental Monitoring Program	01-Jun-13 A	31-Dec-15 A	▼ 31-Dec-15 A																											
Environmental Program 14001	31-Jan-13 A	31-Dec-15 A	▼ 31-Dec-15 A																											
94000 Land Acquisition	15-Jul-12 A	31-Dec-15 A	▼ 31-Dec-15 A																											
90500 Other NLH System Upgrades	31-Aug-12 A	14-Jan-18 A	▼ 14-Jan-18 A																											
Engineering (TL201, Bay D'Espoir, Upper Salmon)	31-Aug-12 A	14-Aug-13 A	Aug-13 A																											
Procurement (Materials & Fabrication)	03-Apr-17 A	29-Jun-17 A	▼ 29-Jun-17 A																											
Construction	28-Dec-16 A	01-Jan-18 A	▼ 01-Jan-18 A																											
Commissioning	30-Dec-16 A	14-Jan-18 A	▼ 14-Jan-18 A																											
Dynamic Commissioning (90100)	13-Nov-17 A	15-Jan-18 A	▼ 15-Jan-18 A																											
System Test Preparation Activities	13-Nov-17 A	24-Nov-17 A	▼ 24-Nov-17 A																											
HV Energization.	24-Nov-17 A	04-Dec-17 A	▼ 04-Dec-17 A																											
Pole - 2	24-Nov-17 A	26-Nov-17 A	▼ 26-Nov-17 A																											
Pole - 1	29-Nov-17 A	04-Dec-17 A	▼ 04-Dec-17 A																											
Terminal Operation	28-Nov-17 A	06-Dec-17 A	▼ 06-Dec-17 A																											
Pole - 2	28-Nov-17 A	28-Nov-17 A	▼ 28-Nov-17 A																											
Pole - 1	05-Dec-17 A	06-Dec-17 A	▼ 06-Dec-17 A																											

Primary Baseline
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MLP - Schedule (DD-FEB-01-18) Final	UARB Q1 2018	01-Feb-18 11:25
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Activity Name	Start	Finish	2014				2015				2016				2017				2018				2019				2020			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2														
Transmission Tests	08-Dec-17 A	11-Dec-17 A																	▼	11-Dec-17 A										
Open Line / DC Switchyard Tests	08-Dec-17 A	11-Dec-17 A																	▼	11-Dec-17 A										
Monopolar Operations.	08-Dec-17 A	11-Dec-17 A																	▼	11-Dec-17 A										
Bipolar Operation	12-Dec-17 A	15-Jan-18 A																	▼	15-Jan-18 A										
Performance Testing	14-Jan-18 A	15-Jan-18 A																	▼	15-Jan-18 A										

Primary Baseline
 Remaining Work
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 Actual Work
 ◆ Baseline Milestone
 Summary

SCHEDULE "Q"

DRAW CONFIRMATION CERTIFICATE BY INDEPENDENT ENGINEER

ML PROJECT FINANCING

This Draw Confirmation Certificate is provided by Argirov Engineering 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 December 20, 2017 (the "Construction Report"); and
- (b) the Borrower's funding request dated December 21, 2017 (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: January 02, 2018

Argirov Engineering Inc.

By:  _____

Title: IE Team Leader

SCHEDULE "Q"

DRAW CONFIRMATION CERTIFICATE BY INDEPENDENT ENGINEER

ML PROJECT FINANCING

This Draw Confirmation Certificate is provided by Argirov Engineering 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 February 15, 2018 (the "Construction Report"); and
- (b) the Borrower's funding request dated February 15, 2018 (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:

- Commissioning was completed on February 9, 2018.

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: February 20, 2018

Argirov Engineering Inc.

By:  _____

Title: IE Team Leader

Operating Agreement Requirements Arising from the Formal Agreements

	Agreement	Parties	Description	Formal Agreement Source	Status
1.	Asset Interconnection Agreement (NL)	Emera, NLH	Interconnection of ML with the Island Interconnected System	ML-JDA, s. 2.1 (c)	Completed
2.	Multi-Party Pooling Agreement	Emera, NLH	NLH (SO) to have operational control of ML NLH AC Upgrades	ML-JDA, s. 2.1 (d)	Completed
3.	Transmission Operating Agreement (NL)	Emera, NLH	NLH (SO) to have operational control of ML NL HVdc Facilities	ML-JDA, s. 2.1 (e)	Completed
4.	Asset Interconnection Agreement (NS)	Emera, NSPI	Interconnection of ML with NS bulk electric transmission system	ML-JDA, s. 2.1 (f)(i)	Completed
5.	Transmission Operating Agreement (NS)	Emera, NSPI	NS SO to have general operational control of the ML	ML-JDA, s. 2.1 (f)(ii)	Completed
6.	ECA – Metering and Measuring Standards – Transmission Losses	NSPML, Nalcor	Metering and measuring standards used in the calculation of Transmission Losses	ECA, Schedule 3, s. 5	Completed
7.	Regulation Service Agreement	NS Power NLH	Nalcor’s provision of the Regulation Service with respect to the Nova Scotia Block for the Initial Term	ECA, Schedule 5	Expect completion in 2018
8.	Metering and Measuring Standards – NS NTQ transmission losses	NSPML, Nalcor	Metering and measuring standards used in calculation of NS –NTQ Path Peak and Off-Peak Hour transmission losses	NSTUA, Schedule 3, s. 6	Completed
9.	NB Back-up Capacity Agreement	Bayside Power L.P, Nalcor	Emera’s provision of backup Capacity to NB to Nalcor until March 31, 2021	NBTUA, s. 2.1(d)	Expect completion in 2018
10.	IOA – ML Transmission Procedures	NSPI, NLH	Rules and practices applicable to administration of transmission service over the ML	IOA, Schedule D	Completed
11.	IOA – Reserve Sharing	NSPI, NLH	Sharing of energy and reserves between the Parties to improve Reliability	IOA, Schedule A	Completed
12.	IOA – Description of Interconnection Facilities	NSPI, NLH	Description of Interconnection Facilities for which each Party is responsible	IOA, Schedule B	Completed
13.	IOA – Functional Operating Relationship	NSPI, NLH	Various matters relating to operating relationship	IOA, Schedule C	Completed
14.	IOA – Operating Procedures	NSPI, NLH	IOC to develop “operating procedures”	IOA s.7.2 and s. 7.4(a)	Completed

15.	IOA – Schedule A1.0	NSPI, NLH	Parties to prepare a plan for NLH participation in Reliability Assessment Program (“RAP”)	IOA Schedule A1.0	Completed
16.	ML TSA – ML Scheduling Process	Emera and Nalcor	Scheduling process applicable to the provision of Firm Point-to-Point Transmission Service	MLTSAs, Schedule 2	Completed
17.	Amendments to Formal Agreements	Emera, Nalcor	Amendments to Formal Agreements required by Sanction Agreement	Sanction Agreement	Completed
18.	Energy Access Agreement	Emera, Nalcor	Commitments regarding access to market priced energy	Compliance Filing, Appendix A	Completed
19.	Balancing Service Agreement	Emera, Nalcor	Nalcor commitment to provide balancing services from generation sources in NL for 25 years.	Energy Access Agreement Term Sheet, s. 7(g) and Appendix 1	Completed
20.	Assignment of Transmission Rights under ML(E)TSA	Emera, Nalcor	Assignment of Transmission Rights	ML(E)TSA, s. 3.3 (h)	Expect completion in 2018
21.	Assignment of Energy Access Agreement	Emera, Nalcor, NSPI and Nalcor Energy Marketing (NEM)	Assignment/assumption of Nalcor’s rights and obligations to/by NEM	EAA s. 15.1 (a)	Expect completion in 2019
22.	Assignment of Nalcor Master Agreement (EAA Schedule 2)	Nalcor, NSPI and NEM	Assignment/assumption of Nalcor’s rights and obligations to/by NEM	Nalcor Master Agreement s. 10.5 (a)	Expect completion in 2019
23.	JOA-Joint Operating Committee (“JOC”)	Nalcor and NSPML	Establish/Operationalize JOC	JOA s.s. 3.1, 3.5	Completed
24.	NS Transmission Utilization Agreement	Nalcor and Emera	Status of Emera firm Point to Point Transmission Service	NSTUA s.s.2.2 (a)-(c)	Completed

LCP - ML PROJECT

SITE VISIT REPORT SEPT 24 TO 26, 2017

Prepared for: Natural Resources Canada and Emera

IE Point of Contact: Nik Argirov

Date: November 5, 2017

Quality Assurance Statement

Office Address	803-633 Kinghorne Mews, Vancouver BC, V6Z 3H3
Prepared by	Nik Argirov, Vlad Kahle and Hamdy Khalil
Reviewed by	Nik Argirov
Approved for Issue by	Nik Argirov

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1. GENERAL

Independent Engineer (IE) team participated in the site visit for the Maritime Link (ML) project. The site visit took place in the provinces of Newfoundland and Nova Scotia on Sept. 25th and 26th, 2017. EMERA senior management representatives Gerry Brennan, Senior Project Manager, Phil Zinck, Converter and Stations Contract Lead, Anne-Marie Curtis, Completions and Integration Director, Ken Meade, Assistant Project Manager and Rory McNeill, Sr. Engineer-HVDC Systems accompanied the IE team listed below.

IE team:

- Nik Argirov (IE Team Lead)
- Vlad Kahle (IE Electrical SME)
- Hamdy Khalil (IE Transmission Lines SME)

The trip itinerary was as follows:

Sept. 24:

- Arrive and overnight in Deer Lake, NL

Sept. 25:

- Start from Deer Lake
- Bottom Brook Converter Station visit
- Travel to and overnight in Halifax, NS

Sept 26:

- Fly to Sidney, NS
- Travel to Point Aconi and visit to the Transition Station
- Cape Breton HVdc transmission line construction site visit
- Woodbine Converter Station visit and meeting
- Depart Sydney for Halifax and Toronto

Sept 27:

- Depart for home bases

2. NEWFOUNDLAND PROJECT SITE – SEPTEMBER 25, 2017

The Newfoundland portion of the project includes: (a) approximately 142 km of steel tower 200 kV HVdc transmission line from the existing Bottom Brook substation to Cape Ray, (b) approximately 20 kilometers of grounding line from Bottom Brook to Indian Head and (c) approximately 160 km of Wood H-Pole 230 kV HVac transmission line from Bottom Brook to Nalcor's existing Granite Canal Hydroelectric Generating Station. The associated infrastructure includes: (i) a new HVdc converter station and AC substation expansion at Bottom Brook, (ii) a switchyard at Granite Canal, (iii) a transition compound, (iv) 2 km of underground cable and an onshore cable anchor at Cape Ray and (v) a marine ground at Indian Head.

Transportation to Bottom Brook site was by road.

Bottom Brook AC Substation and Converter Station

The AC substation installation is essentially complete, no site visit was required or conducted at this time.

Focus of the site visit was the HVdc yard and Converter building where the IE inspected the valve hall, control room, P&C panels and battery room installations. All equipment has been shipped, cabling and wire termination are in progress. No apparent impediments to meeting the Project schedules were identified at this time.

The HVdc equipment electro-mechanical installation in the DC yard and Converter building is nearing completion. The main HVAC equipment installation at the mezzanine floor was close to completion. The switchyard appears largely complete with final grading and gravel placement in progress.



Photo 1: AC circuit breaker controller.



Photo 2: 230kV AC Line Protection Relay.



Photo 3: 125Vdc Station Battery termination.

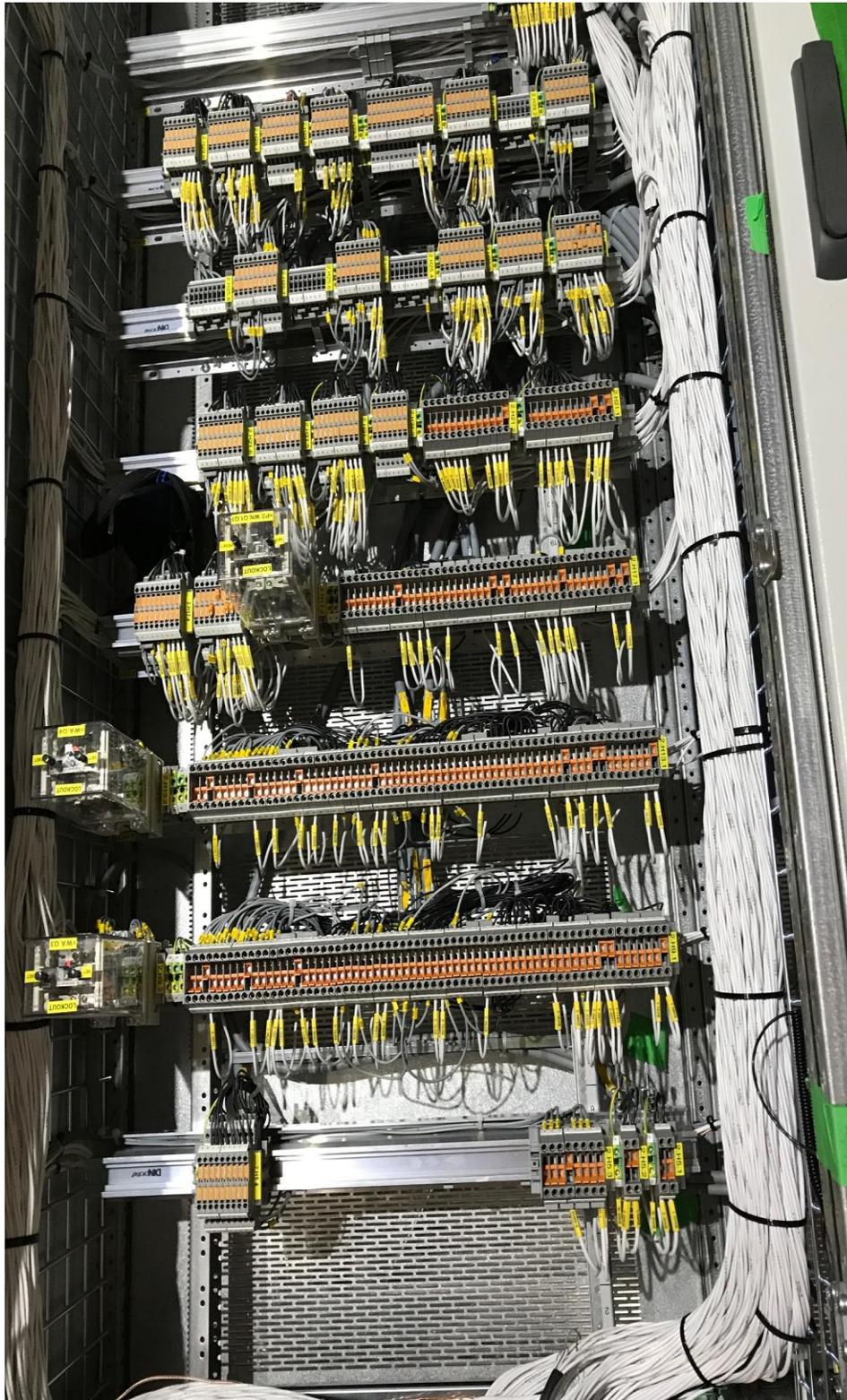


Photo 4: HVdc Control cubicle cable terminations.



Photo 5: DC Neutral grounding switch detail.



Photo 6: Converter Station – HVdc valves with cooling piping installed.



Photo 7: Converter Station – DC reactors shielding installation.

HVdc transmission line construction site visit

The IE team observed anchor installation/drilling activities at several locations along the transmission line. The IE team also visited locations for anchor testing. The anchor testing procedure is mainly to confirm the location of the grout, the location of anchor rod coupler in relation to the grout and to confirm the actual length of the grout versus the grout design length. The pile Driving Analyzer System (PDA) is used for this test and it reads and processes electronic signals collected by Accelerometers and Strain Transducers. The PDA also offers multiple universal channels for data collection.

There were some tower structures fully assembled and waiting for installation. Others were placed back on the ground to allow for anchor testing. Remedial work (repair or replacement of anchors) where the inspection program has identified non-conformance issues was ongoing. Towers re-erection will follow.



Photo 8: HVDC – Anchor drilling.



Photo 9: HVDC – Holding the tower while the crew is working on the 4 anchors.



Photo 10: HVDC – This attachment was developed to hold one guy connection at the tower while working on the 4 anchors.

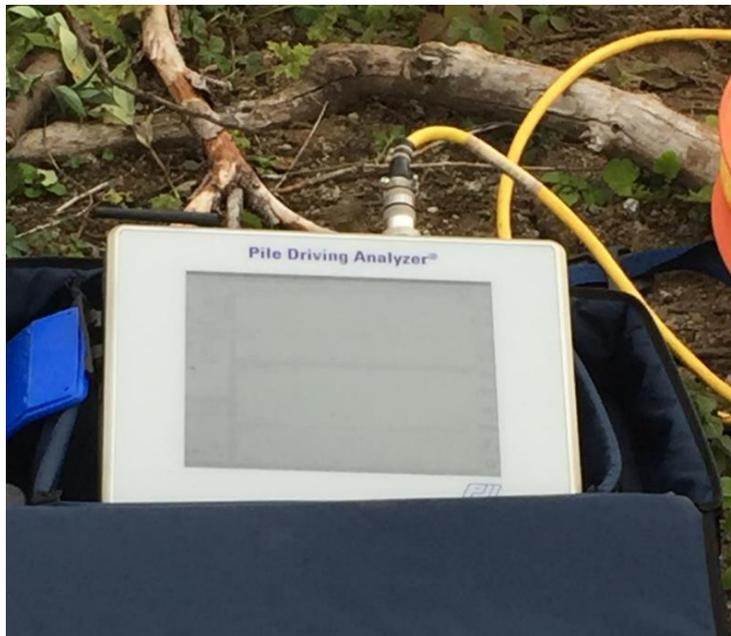


Photo 11: HVDC – PDA (Pile Driving Analyzer).



Photo 12: HVDC – Fully assembled structure on the ground.

Commissioning Meeting in Bottom Brook Construction Office

Commissioning meeting was conducted with the commissioning team managers and specialists. The discussions focused on the EMERA's System Completion Plan, verification of the equipment performance and warranty administration. Discussions continued with Woodbine staff on Sept. 26th.

IE were updated on installation inspection test report (ITR) tracking and ABB's intended mechanical completion reporting..

3. NOVA SCOTIA PROJECT SITES – SEPTEMBER 26, 2017

In Nova Scotia (NS) the subsea cables come ashore just west of the existing Point Aconi thermal generating station. The NS portion of the project includes approximately 46 km of 200 kV HVDC transmission line from Point Aconi to the Woodbine converter station site, and 41.4 km of grounding line from Woodbine to the Big Lorraine grounding site. Associated infrastructure includes an onshore cable anchor and cable transition compound at Point Aconi, a transition compound, converter station and substation expansion at Woodbine, a marine ground at Big Lorraine and two sections of underground (land) cable each of about 1 km length at Point Aconi and Woodbine. Most of the NS rights of way (ROW) for the new lines either parallel or are close to existing access roads or existing transmission rights of way.

The team started from Sydney in the morning, stopped at the local Maritime Link project office to pick up PPE and then proceeded in sequence to the following sites:

Point Aconi Landfall and Transition Compound Sites

The marine works scope for subsea cables installation have been completed and the cables jointed with the land cables. The backfill and grading of the land cable trenches have been completed as well.

The transition compound civil works were completed and equipment installation was nearing completion. Installation of tele-com equipment along with pulling and terminating cables for the HVdc control system was ongoing. The completion of installation is scheduled for late October.



Photo 13: Point Aconi Transition Compound – land cables terminations with control room, gantry and HVdc tower on the background.



Photo 14: Point Aconi Transition Compound – P&C cabinets installed in the control room.

Woodbine Converter Station

The AC Substation installation is essentially complete, no site visit was required or conducted at this time.

Focus of site visit was the HVdc yard and Converter building. The IE inspected the valve hall, main control room, P&C panels, MCC room and valves control rooms installations. All equipment has been shipped, cabling and wire termination were in progress. The main HVAC equipment installation at the mezzanine floor was close to completion.

The HVdc equipment electro-mechanical installation in the DC yard and Converter building was nearing completion. The switchyard appeared largely complete with final grading and gravel placement in progress. No apparent impediments to meeting the Project schedules were identified at this time. Completion level at Woodbine was similar to the Bottom Brook. This allowed the IE to conduct an abbreviated site inspection and focus on meeting with the site staff instead.



Photo 15: Converter Station – HVdc valves with shields and cooling piping installed.



Photo 16: Converter Station – Reactor hall (DC reactors). Shielding is yet to be installed.



Photo 16: Converter Station AC Yard – converter transformer with resistor(left) and reactor (right).

Commissioning Meeting in Woodbine Construction Office

Commissioning meeting was conducted with the commissioning team managers and specialists. The discussions focused on the EMERA's System Completion Plan, verification of the equipment performance and warranty administration.

1. IE were provided with copies of Subsystem Test Tracker. The Tracker is a spreadsheet based record of the test progress; the entries are : started, completed, and percent complete. Mechanical Completion Report lists the ITR's and has a provision for EMERA sign off. For the future, IE requested copies of the completed Subsystem Test Tracker sheets.
2. System Completion Plan tasks were discussed, and a number of questions were answered. Company Field Acceptance Tests are covered by a separate inspection and test plan (ITP). As for the timing, the Field Acceptance Tests will follow ABB's Integrated Systems Commissioning. IE suggested additional due diligence checks. Meeting findings were summarized by the IE in the separate document entitled 'System Completion Plan dated September 30, 2017.
3. Maritime Link performance and warranty discussion focused on equipment availability, determination of no- load and full-load losses, and ML overload capability.

4. COMMENTS

- It was evident that the work on site is proceeding with good quality and safety awareness, within the baseline schedule (with the exception of the NL portion of the HVDC transmission line).
- Emera was working with the HVDC transmission line Contractor to mitigate any delays and to align the completion of this work with the overall project completion. Contingency plans were in place to complete the anchor inspections which would then permit installation of the remaining towers and stringing of conductor.

INDEPENDENT ENGINEER'S COMMISSIONING CERTIFICATE

Date: **February 6, 2018**

TO: THE TORONTO-DOMINION BANK, as Collateral Agent

This certificate is provided by Argirov Engineering Inc. (the "**Independent Engineer**") to The Toronto-Dominion Bank, as collateral agent (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**").

This certificate is being issued to you in accordance with the provisions of subsection 7.6.2 of the ML Credit Agreement.

Unless otherwise defined herein or unless there be something in the subject or the context inconsistent therewith, all capitalized terms and expressions used herein shall have the same meaning as that ascribed to them from time to time in the ML Credit Agreement.

I refer you to the Commissioning Certificate issued pursuant to the provisions of subsection 7.6.1 of the ML Credit Agreement.

I, Nik Argirov, hereby solemnly declare and certify in my capacity as Independent Engineer and without personal liability, that in its opinion all information, opinions and calculations given and made in the Commissioning Certificate are reasonable and accurate in all material respects and have been verified by the Independent Engineer and that:

1. the Commissioning Certificate is reasonable and accurate;
2. the Commissioning Tests have been achieved and it has no reason to believe that the Project has not been constructed in all material respects in accordance with the Project Plans and Good Utility Practice; and
3. the commissioning and interconnection tests have been performed and met in accordance with the Material Project Documents.

I hereby represent and warrant that all of the information set forth herein and in all supporting documentation and information attached hereto is complete, correct and accurate in all material respects and I have no knowledge of any undisclosed fact which has or could materially affect the information set forth herein or in the supporting documentation and information attached hereto.

The declarations set out in this Certificate by me are based on my capacity as Independent Engineer as set out in the terms of engagement for the role which involves site visits by me to the Project, review of the Project Plans, systems inspection and test reports and the test results

reported by the Borrower. These checks and reviews do not constitute full engineering peer review of the Commissioning work carried out with respect to the Project.

AND I MAKE THIS CERTIFICATE, conscientiously believing it to be true.

IN WITNESS WHEREOF, I have signed this certificate in Vancouver, Province of British Columbia on this 6th day of February 2018.

Argirov Engineering Inc.



By: _____

Name: Nik Argirov

Title: IE Team Leader