
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 2024

**REDACTED
(Attachment Only)**

April 15, 2024

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1 **1.0 INTRODUCTION**

2

3 This is the Q1 2024 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 NSPML's Application for final
12 approval of Maritime Link Project Costs and approval of the 2022 cost assessment
13 (M10206), NSPML continues its quarterly reporting to the UARB by way of this Report.

14

15 Given that the benefits to ratepayers of the Nova Scotia Block and Newfoundland &
16 Labrador (Nalcor) market-priced energy are secured by Nova Scotia Power through the
17 Maritime Link, Nova Scotia Power continues to report on these in its Quarterly Maritime
18 Link Benefits Report.

1 **2.0 UPDATE OF THE MARITIME LINK**

2

3 **2.1 Safety**

4

5 Safety is a fundamental core value and integral part of every aspect of NSPML’s
6 business. NSPML continues to be risk-focused on the assessment of all work activities.
7 There have been no recordable incidents to date in 2024.

8

9 **2.2 Land Access Agreements**

10

11 The majority of land rights are now in place. In NS, NSPML continues to await final
12 review and determination from the Nova Scotia Government regarding expropriations
13 for 54 parcels of land, many of them being small anchor easements where the anchor
14 for the transmission line towers is underground. These easements do not affect the
15 ability of the Project to operate according to plan. The Newfoundland & Labrador
16 Government has formalized the expropriation panel, and related land matters in NL are
17 currently with the panel. All lands have been expropriated; however, there are some
18 lands where owners could not be found where funds will be paid into trust, as well as a
19 claim regarding mineral rights.

20

21 **2.3 Joint Development Agreements**

22

23 The Regulation Service Agreement between NS Power and Nalcor (NLH) has
24 progressed pending establishment of protocols for usage by NS Power. NLH has
25 completed their filing with the NL PUB and there is now a tariff for regulation service
26 in Newfoundland & Labrador. It is noted that presently operations are not constrained
27 by this and there is no formal commercial need for the agreement.

1 **2.4 Submarine Cables**

2
3 NSPML undertook a nearshore subsea investigation of rock berms at HDD (Horizontal
4 Directional Drilling) exit locations in Point Aconi (October) and Cape Ray (December);
5 there were no cable exposures noted. Reporting is currently being finalized; however,
6 current indications are of minimal change since the last survey conducted after storm
7 Fiona in November 2022.

8
9 As previously discussed in the Maritime Link Quarterly Reports and NSPML’s 2024
10 Assessment Application, additional cable protection continues to be considered for a
11 number of areas that NSPML has been monitoring. Given current market availability
12 for vessels, NSPML continues its procurement solicitation process to determine the
13 market capabilities and options to complete the cable protection. NSPML will update
14 the UARB regarding the status of this assessment and work as it progresses in
15 subsequent reporting.

16
17 NSPML is also advancing its procurement solicitation process for a marine inspection
18 survey of the submarine cables later this year.

19
20 **2.5 Converters and Substations**

21
22 The Converters and Substations have been in service since January 2018 and continue
23 to perform well.

24
25 For 2023, at least one pole (at 250MW) of the Maritime Link was available 99.9% of
26 the time to deliver energy, with both poles (at 500MW) available 97.4% of the time to
27 deliver energy.

1 **2.6 Transmission Lines**

2
3 The overhead transmission system continued to perform well with no significant
4 reliability or availability issues experienced. All of the winter readiness and critical
5 maintenance activities planned for the transmission lines in 2023 were completed on
6 time.

7
8 **2.7 Independent Engineer**

9
10 NSPML remains engaged with the Independent Engineer (IE) related to the Operations
11 phase of the Maritime Link, as per the Federal Loan Guarantee requirements.

12
13 The IE completed site visits of NSPML’s assets in Cape Breton, NS, in November 2023.
14 The IE’s site visit report is provided in Attachment 1.

15
16 **2.8 Status of Nalcor Project and Muskrat Falls**

17
18 **Muskrat Falls Assets**

19
20 All four units continue to operate as required (subject to planned maintenance activities)
21 under control of the Newfoundland and Labrador System Operator (“NLSO”).

22
23 **Synchronous Condensers at Soldiers Pond**

24
25 As requested previously by the UARB, NSPML will file the GE root cause analysis
26 report for the SC1 outage once it becomes available. All three units are available to
27 operate as required and are dispatched accordingly by the NLSO.

1 **Labrador Island Link**

2
3 Since the testing and subsequent commissioning of the Labrador Island Link (LIL) it
4 has continued operating predictably and reliably for customers in Newfoundland &
5 Labrador, Nova Scotia and beyond. As with the Maritime Link commissioning
6 certificate received in 2018, there are punch list items that will be addressed over the
7 coming months. The final version of LIL software is planned to be installed in 2024.
8

9 **2.9 Status of Benefits to NS Power Customers**

10
11 Customer benefits received to date are being reported by NS Power with its Quarterly
12 Maritime Link Benefits Report and otherwise in accordance with the Board's directions
13 in Decision M10206.
14

15 NS Block deliveries have been strong since February of 2023. With relatively minor
16 exceptions, delivery shortfalls since that time were due to planned outages made in
17 accordance with good utility practice and in coordination amongst the region's system
18 operators. Delivery levels (including purchased) from LIL Commissioning through the
19 end of March are approximately 175% of NS Block contractual amounts. The strong
20 level of make-up deliveries has reduced owed (make-up) energy from its peak of 650
21 GWh in March 2023 to 110 GWh at the end of March 2024 (below the 10% holdback
22 threshold of 122 GWh). The remaining Base Block (daytime, 365 energy) owed equates
23 to 104 GWh with 6 GWh relating to the Supplemental Block (winter, off-peak). As per
24 NS Power's FAM Quarterly Report, estimated value for Nova Scotians in 2023 was
25 over \$210 million compared to Assessment costs of \$163.7 million, and a holdback of
26 \$4.2 million, resulting in \$51 million of value for Nova Scotians.

1 **3.0 UPDATED COST SUMMARY**

2
3 NSPML continues to track and report costs, actual and forecast, consistent with the
4 methodologies used in the cost forecast represented in the Maritime Link Project
5 Application. Capitalized Project costs reported to the end of December 2023 have been
6 updated to reflect the Board's Decision in relation to unrecoverable costs. Costs
7 continue to be recorded in accordance with the Affiliate Code of Conduct. All costs
8 provided are in Canadian dollars.

9
10 Actual AFUDC has been tracked and recorded monthly up to December 31, 2017 and
11 has been adjusted from approximately \$209 million to approximately \$208 million in
12 accordance with the Board's Decision, and below the \$230 million amount originally
13 estimated.

14
15 **Total Actual Project Costs as of the end of Q4 2023**

16
17 The total actual Project capital costs incurred year to date in 2023 was \$145,392
18 primarily relating to land and legal costs incurred for Project close-out activities.

19
20 Sustaining capital spend year to date was \$315,557.

**NSPML Quarterly Report Q1 2024
Redacted (Attachment Only)**

4.0 2023 ASSESSMENT FINANCIAL UPDATE

NSPML receives monthly cost recovery revenues from NS Power pursuant to the Board's order.

With respect to the holdback mechanism, the threshold of 90% deliveries was fully achieved in October, November and December 2023. For the year ended December 2023 approximately \$4.2m in holdback relating to January, March and September has been returned to customers through NS Power's FAM account.

The threshold of 90% deliveries was also met in January (100% of NS Block; 117.7% with make-up energy) and February (97.8% of NS Block; 155.1% with make-up energy). March 2024 fell below the 90% threshold (84.9% of NS Block; 146.8% with make-up energy) due to planned outages, as well as a Labrador Island Link transmission outage near the end of the month.

LCP - ML PROJECT

SITE VISIT REPORT NOVEMBER 20 TO 24, 2023

Prepared for: Natural Resources Canada and NSP Maritime Link Inc. (NSPML)

IE Point of Contact: Nik Argirov

Date: January 18, 2024

Quality Assurance Statement

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1. GENERAL

On November 21st and 22nd Independent Engineer (IE) team visited the spare subsea cable storage site, Woodbine converter station, Big Lorraine Electrode Site and Point Aconi Transition Compound and conducted visual spot checks of HVDC transmission line towers. NSPML management arranged the transportation and organized the visits to the sites and the Project meetings in Halifax and Woodbine station. Resources Canada representative Joseph Krupski attended the meetings and site visits. Transportation to the sites was by road. Eric Cayouette coordinated the meetings and prepared the reference document.

Ref: Maritime Link IE Update, fall 2023 dated November 22, 2023

IE team: Nik Argirov (IE Team Lead)

Vlad Kahle (IE Electrical SME)

Hamdy Khalil (IE Transmission Lines SME)

Trip itinerary:

Nov. 20:

- Travel to Halifax, NS.

Nov. 20:

- Meeting in Emera's office in Halifax.
- Site visit to spare cable storage site.
- Travel to Sydney, NS.

Nov. 21:

- Maritime Link Update meeting at Woodbine converter station.
- Site visit at Woodbine converter station.
- Big Lorraine Electrode Site visit.
- Point Aconi Transition Compound and HDD site visits.
- Grounding Line and HVDC transmission line spot checks.

Nov. 23:

- Travel to Sydney.

Nov. 24:

- Travel to home bases.

2. NOVA SCOTIA PROJECT SITES VISTS– NOVEMBER 21 AND 22, 2023

2.1. Spare Cable Storage

- The site is being monitored 24/7 by a 3rd party security service provider.
- Motor drive is tested on an annual basis.
- The top cover is removed each year for visual inspection.
- The site has been well maintained and is in good order.

2.2. Woodbine Converter Station

- The station is fully operational and corrective maintenance is addressed in a prompt manner.
- There are no operational or maintenance concerns at this time.

2.3. Woodbine AC Station

- The station is fully operational and appears to be well maintained.
- There are no operational or maintenance concerns at this time.
- Electrode Line Fault Locator has been modified and its accuracy is improved. Past events indicate that system functions as designed. This item is now closed.

2.4. Big Lorraine Electrode Site

- The facility has been well maintained and is in good order.
- There are no operational or maintenance concerns at this time.
- Security measures have been implemented to prevent unauthorized operation of the site's disconnect switch.
- Emera conducted a post tropical storm site assessment.
- Breakwater is considered to be in good condition.



2.5. Point Aconi Transition Site

- The facility has been well maintained and is in good order.
- Cable temperature monitoring is in service.



2.6. Point Aconi HDD Site

- The cable trenches from the transition compound to and at the HDD site have been well maintained and are in good order.
- Disposal of leftover construction material will be explored.



3. MARITIME LINK UPDATE FALL 2023

a) Safety

- Winter driving is now in focus. Proper driving technique and emergency kit were emphasized.

b) Organizational Structure

- Current org chart dated Nov. 17, 2023, has been included in the Update document.

c) Project Updates

- Regulatory briefing took place including discussion on holdbacks.
- IGBTs failure rate experienced over the previous years 0.05-0.15% (guaranteed [REDACTED]).
- Special Protection System (SPS) has been installed at BBK. Commissioning and dynamic testing are expected to take place in Q1 and Q2 2024.
- LIL 900MW tests are expected to take place in Spring 2024.
- ML 500MW tests are planned for this coming winter.
- Converter transformer DC saturation Protection misoperated. It was attributed to saturation of printed circuit board mounted auxiliary CTs. New printed circuit boards were installed at BBK, WB to be completed.
- Master copies of Control and Protection software are stored on engineering workstations using a “Vault” software package. The storage is considered secure and is in line with NERC requirements. Back- up copies are available and completed annually.
- Cable failure represents a significant risk. NSPML continues negotiations on a Contingency Service Agreement with the cable OEM to ensure resource availability and a high level of preparedness in the event of a cable contingency.
- Forced outages caused by failures of a bypass breaker have been addressed.
- ABB/ Hitachi warranty ends January 2024; LTSA is to be renewed in 2024.

d) 2023 Planned Maintenance Outages

- Pole 1 planned outage occurred September 11-13.
- Pole 2 planned outage occurred September 13-15.
- Maintenance scope completed:
 - IGBT inspections, capacitance measurements, annual transformer maintenance, valve cooling maintenance and cooling pump motor replacement, fire protection, power apparatus maintenance (bushings, capacitors, reactors)
 - Warranty items include outdoor lighting, SF6 leaks, reactor hall door leaks and other miscellaneous items.
- Grounding Line and station outage scheduled for Sept 17th was deferred at the Nova Scotia Power System Operator's request due to anticipated arrival of tropical storm Lee.

e) Transmission Lines

- TL 2023 inspection program is complete.
- 2023 inspection completions were as follows:
 - Ground level 100%
 - Climbing 100%
 - Aerial inspection NL 100%
 - Aerial inspection NS 100%

- Vegetation Management:
 - NS Small program for HVDC is on track.
 - NL treatment program was timed to avoid calving season. 61.7 Ha were treated along HVAC, 68.1 Ha along HVDC and 0.5 Ha at the Indian Head site.
- 2024 key planned work:
 - A LiDAR survey will be completed across all lines in NL and NS in 2024/2025.
 - Climbing and ground inspections will be replaced with a drone-based inspection program.
 - Two aerial inspections are planned for 2024 and beyond on an annual basis.
 - The remaining OPGW / OHSW bonding jumper replacements that were intended for replacement during climbing inspections on TL269, are to be accelerated and spread across 2024/2025.

f) Marine

- Post Fiona (Fall 2022) subsea protection levels were reduced nearshore in NL. To restore and further enhance protection levels in this area, as well as in the areas where more acute risk exists, NSPML is advancing procurement of subsea rock installation.
- Nearshore subsea inspection of the HDD rock berms: completed the Point Aconi portion in October; currently awaiting weather window to remobilize for execution at Cape Ray.
- 2024 Marine Inspection Survey request for proposal is expected to be issued this November.
- Upward Looking Sonars were deployed near Cape Ray and re-programmed for current and wave height data acquisition.

g) Availability as the end of October 2023

- Monopole - 99.9%
- Pole 1 - 95.4%
- Pole 2 - 98.3%
- Bipole - 93.8%

CIGRE TB590	Q1	Q2	Q3	YTD
%EU	0.6%	0.6%	2.6%	2.6%
%FEU	0.4%	0.4%	0.7%	0.7%
%SEU	0.2%	0.2%	1.9%	1.9%
%EA	99.4%	99.4%	97.4%	97.4%
BFO	0	1	3	3

h) Forced Outages:

- Failure of P2.WN.T2 Optical Transformer on July 5, 2023. The current value froze due to a metering error caused by overmodulation. Pole 1 reacted correctly to the supplied erroneous data and blocked. Pole 2 was blocked for DCCT troubleshooting. Current detection software was modified, and the light intensity was reduced by installing different optical fiber.
- Power swing event during battery testing on Aug 25, 2023 125VDC/ 48VDC power was disconnected for battery discharge testing. This led to telecommunication loss and loss of Transition Compound disconnect status indication. A

software update correcting this behavior was implemented and the battery discharge test procedure was modified and implemented.

- Reactor hall doors opened on Aug. 27, 2023. Pole 1 tripped on an indication that reactor hall emergency door opened while the pole was in operation. Switch was modified and a panic bar set with top and bottom latches has been ordered. Will be installed when opportunity arises.

4. IE COMMENTS

All sites appear to be in order and are fully operational. Planned maintenance has been carried out and no safety or environmental issues have been reported to the IE. 2023 Maintenance Plan is in place and maintenance outages have been scheduled. Spare parts inventory is maintained in secure facility adjacent to the switchyard.

Minor corrective maintenance tasks have been completed or are in the planning stages. The HVDC forced outages were duly analyzed and their outage causes were either identified or are still under investigation. HVDC performance remains on target with monopole availability of 99.9% and Bi-pole availability of 93.8%.