

**NEWFOUNDLAND AND LABRADOR
BOARD OF COMMISSIONERS OF PUBLIC UTILITIES**

AN ORDER OF THE BOARD

NO. P.U. 9(2019)

1 **IN THE MATTER OF** the *Electrical Power*
2 *Control Act, 1994*, SNL 1994, Chapter E-5.1
3 (the “*EPCA*”) and the *Public Utilities Act*,
4 RSNL 1990, Chapter P-47 (the “*Act*”), as
5 amended, and regulations thereunder; and
6

7 **IN THE MATTER OF** an application by
8 Newfoundland and Labrador Hydro approving
9 its 2018 Capital Budget Application; and
10

11 **IN THE MATTER OF** the proposed Muskrat Falls
12 to Happy Valley-Goose Bay Interconnection project
13 which was deferred pursuant to Order No. P.U. 43(2017)
14 and Order No. P.U. 9(2018).
15
16

17 **Application**
18

19 On July 27, 2017 Newfoundland and Labrador Hydro (“Hydro”) filed its 2018 Capital Budget
20 Application with the Board. This application proposed the *Muskrat Falls to Happy Valley-Goose*
21 *Bay Interconnection* project¹ (the “Project”) to address both forecast capacity shortfalls and
22 reliability issues in Labrador East. This was a two-year project to add a new transmission section
23 from Muskrat Falls to Happy Valley-Goose Bay consisting of: i) a six kilometer segment of a 138
24 kV wood pole transmission line from Muskrat Falls 315 kV/138 kV Terminal Station to L1302;
25 ii) a partial 138 kV ring bus at this terminal station with future expansion possible for a second;
26 and iii) modifications to the Happy Valley-Goose Bay Terminal Station.
27

28 In Order No. P.U. 43(2017) the Board deferred consideration of the Project on the basis that the
29 evidence did not demonstrate that it was necessary and consistent with the least-cost provision of
30 service. Following the filing of additional material by Hydro the Board determined that there were
31 several significant issues related to the Project and its potential impact on the overall Labrador
32 Interconnected system which had not been adequately addressed by Hydro. In Order No. P.U.
33 9(2018) the Board again deferred the Project until Hydro provided further information including:
34

- 35 1. An expansion study for the Labrador Interconnected system (both Labrador East and
36 Labrador West) for a reasonable planning horizon, which addresses: i) planning criteria,

¹ 2018 Capital Budget Application, Volume I, page C-44.

1 including a discussion of the current reliability concerns and future reliability criteria; ii)
2 base load forecasts and sensitivities; iii) expansion plans to meet the various load forecast
3 scenarios; iv) the condition of existing assets and an estimate of remaining life; v) cost
4 benefit analysis of the alternatives; and vi) estimated projected rate impacts associated with
5 the proposed expansion scenarios.
6

- 7 2. A network addition policy setting out how new customers will be treated in regards to their
8 impact on the system and how costs will be allocated among customers for reliability,
9 economic, transmission, and load upgrades, either in the cost of service or through
10 contributions in aid of construction.
11

12 On October 31, 2018 Hydro filed a report entitled *Labrador Interconnected System Transmission*
13 *Expansion Study* (the “Expansion Study”). Hydro stated that the objective of the Expansion Study
14 was to identify least-cost, reliable transmission system additions that are currently anticipated to
15 be required for eastern and western Labrador.
16

17 On December 14, 2018 Hydro filed a report entitled *Labrador Interconnected System Network*
18 *Additions Policy* (the “Network Additions Policy”). Hydro stated that the purpose of the Network
19 Additions Policy was to limit rate increases that can result from investment in new transmission
20 assets to serve new load requests and to provide a reasonable sharing of costs between the customer
21 requesting service and existing customers.
22

23 On November 30, 2018 Hydro filed an update in relation to the Project which stated:
24

25 By interconnecting Happy Valley to Muskrat Falls TS2, Labrador East will receive
26 Churchill Falls Power via the new 315 kV system and the single 138 kV transmission line,
27 which will be reduced in length from 269 km to 36 km. This new interconnection will
28 improve reliability and increase capacity for the Labrador East System.²
29

30 Hydro noted that the Expansion Study “confirmed that the proposed Project was necessary and
31 remained the least-cost option to reliably meet the capacity requirements of the baseline forecast
32 in Labrador East.”³ This update set out a revised schedule for the Project which would establish
33 power flow in 2019 through the new transmission section between Muskrat Falls and Happy
34 Valley-Goose Bay with the remaining system requirements completed in 2020. The revised
35 schedule impacted the capital cost split over the two-year project such that \$13.1 million would be
36 required in 2019 and \$7.7 million required in 2020. Hydro explained:
37

38 This execution change is reflected in the Project Budget Estimate; however, while the
39 direct costs remain as proposed in the CBA, the project estimate has increased from \$20.0
40 million to \$20.8 million due to inflationary increases since the baseline estimate was
41 established in 2017.⁴
42

43 Hydro’s November 30, 2018 correspondence was copied to: Newfoundland Power Inc.

² Hydro correspondence, November 30, 2018, pages 1-2.

³ Hydro correspondence, November 30, 2018, page 2.

⁴ Hydro correspondence, November 30, 2018, page 3.

1 (“Newfoundland Power”); the Consumer Advocate, Dennis Browne, Q.C.; a group of Island
2 Industrial customers: Corner Brook Pulp and Paper Limited, NARL Refining Limited Partnership
3 and Vale Newfoundland and Labrador Limited; the communities of Sheshatshui, Happy Valley-
4 Goose Bay, Wabush, and Labrador City (“Labrador Interconnected Group”); Iron Ore Company
5 of Canada (“IOC”); Teck Resources Limited; and Praxair Canada Inc.
6

7 Requests for information (“RFIs”) were sent to Hydro by the Board, Newfoundland Power, the
8 Labrador Interconnected Group and IOC. Hydro filed its responses to the RFIs on January 9, 2019.
9

10 On January 16, 2019 Newfoundland Power and IOC filed comments. On the same date the Board
11 was advised that the Labrador Interconnected Group would no longer be represented by its joint
12 counsel. On January 16, 2019 the Town of Happy Valley-Goose Bay filed comments. On January
13 17, 2019 the Towns of Wabush and Labrador City filed a joint submission. On January 18, 2019
14 Hydro filed its reply submission. The Town of Wabush filed further comments on February 14,
15 2019. On March 1, 2019 the Labrador Interconnected Group filed further comments. No other
16 submissions were filed in relation to the Application.
17

18 **Submissions**

19

20 Newfoundland Power explained in its submission that it had no further comment on the Project.
21 As set out in Order No. P.U. 9(2018) Newfoundland Power’s February 16, 2018 submission stated
22 that it was satisfied that Hydro had established that it should proceed with the Project to address
23 forecast load growth.
24

25 The Town of Happy Valley-Goose Bay supported the Project. According to the Town of Happy
26 Valley-Goose Bay the existing direct connection to the town from Churchill Falls has outlived its
27 useful life and is in need of replacement. The Town stated that the interconnection with Muskrat
28 Falls would provide the Upper Lake Melville area with an enhanced reliable source of power with
29 increased capacity in comparison to the marginal capacity presently available with the possibility
30 of frequent and extended power outages.
31

32 The Towns of Labrador City and Wabush initially objected to the Project and cited a lack of
33 information and a need for more time to review the Project. The Town of Wabush subsequently
34 advised that it had received satisfactory information and retracted its objection to the Project.
35 Thereafter joint counsel for the Towns of Happy Valley-Goose Bay, Wabush, Labrador City and
36 Sheshatshui filed a further submission which stated that the Towns support the Project and that
37 this position supercedes previous statements, and that Sheshatshui does not have a position on the
38 Project.
39

40 IOC stated that it maintains its opposition to the Project at least until such time as the Board has
41 ruled on the Expansion Study and the Network Additions Policy. According to IOC Order No.
42 P.U. 9(2018) would “be rendered meaningless if the Board accepts the request by Hydro to approve
43 the proposed MFA-HVY Interconnection before the parties have a chance to consider the

1 requested Labrador Expansion Study and Network Addition Policy.”⁵ IOC suggested that Hydro’s
2 assumptions are questionable and must be addressed before a solution is chosen.

3 IOC asserted that the Project is meant to serve a permanent load, whereas growth in Labrador East
4 is not a certainty nor is it of a magnitude and nature to warrant a permanent long-term solution.
5 IOC stressed that the only evidence of growth in the region results from requests for service from
6 data centres whose activities are focused on cryptocurrencies. Given the recent decline in
7 cryptocurrency market value and some local municipal permitting issues, IOC argued that there is
8 considerable doubt as to whether such data centre load will materialize.

9
10 IOC argued that, until a new long-term larger load that can significantly contribute to the cost of
11 network additions occurs, Hydro should envisage a solution with few fixed costs, even if operating
12 costs increase in the short term. IOC asserted that Hydro over-estimated the costs associated with
13 a shorter-term supply option involving additional diesel generation and argued that Hydro cannot
14 maintain the view that mobile generation is a short-term solution and not consistent with the
15 provision of least-cost, reliable service.

16
17 IOC proposed that the proper solution for the Labrador East area is to empower Hydro to
18 responsibly manage the system peak load. IOC cited Hydro’s recent 5.5 MW Interruptible Load
19 Service Agreement with Labrador Lynx Limited and stated that such contracts are useful and
20 should be pursued with other customers to address peak issues at a lower cost. IOC elaborated that,
21 with the 5.5 MW Interruptible Load Service Agreement, Hydro is able to address all transmission
22 demand in Labrador East this winter and that nothing precludes Hydro from seeking a renewal of
23 this agreement. IOC also proposed that the Temporary Restriction Period for Load Additions that
24 was approved in Order No. P.U. 36(2018) be extended for a few months so as to allow time to
25 determine rules for load growth and a load management rate, similar to the current Interruptible
26 Load Service Agreement with Labrador Lynx.

27
28 IOC stated that, with respect to the Labrador Settlement Agreement,⁶ its view is that “the intent of
29 the bargain struck by the parties require that the whole project be commissioned to be included in
30 the 2019 closing rate base.”⁷ IOC argued that, given that completion of the Project is now
31 scheduled for 2020, the Project should only impact rates in a future rate application. IOC also
32 stated that the Project would not serve any Industrial transmission customers, yet its approval
33 would become part of the Labrador Interconnected system rate base and constitute the most
34 significant portion of the proposed increase to the Labrador Industrial Transmission rate in the
35 ongoing Hydro 2017 General Rate Application. IOC noted potential rate shock concerns arising
36 from that increase.

37
38 Hydro submitted that there is one Labrador Interconnected system and all least-cost, reliable
39 common transmission investments, like the Project, are allocated for cost recovery amongst all
40 customers and this is the cost recovery approved that has been in place since Order No. P.U.
41 14(2004). Hydro cited another recent major capital investment in Labrador City where the costs
42 of improvements are currently being recovered in the same manner from customers in both

⁵ IOC Submission, January 16, 2019, page 2.

⁶ The Labrador Settlement Agreement was signed August 24, 2018, and filed with the Board on September 6, 2018 as part of Hydro’s 2017 General Rate Application.

⁷ IOC Submission, January 16, 2019, page 9.

1 Labrador West and Labrador East.⁸ Hydro stated that the Project should be evaluated on whether
2 it meets the requirement of least-cost, reliable service for the long-term.

3
4 With respect to IOC's assertion that the Project should not proceed prior to the release of Board
5 rulings concerning the Expansion Study and the Network Additions Policy, Hydro noted that Order
6 No. P.U. 9(2018) does not state that the merits of the Project should be considered based on the
7 information or analysis contained within those two filings and that neither filing was submitted to
8 provide further justification for the Project.

9
10 In response to IOC's submission that the load growth in Labrador East is not a certainty and is not
11 of sufficient magnitude to warrant the Project, Hydro stated that the current base load forecast for
12 the 2018-2019 winter exceeds the transfer capacity of the Labrador East system. Hydro stated that
13 a debate concerning load forecasts ignores the main justification for the Project, which is reliability
14 for the existing customer base. According to Hydro it has provided evidence demonstrating that
15 the primary driver for the Project is service reliability and the Project would have been included
16 in the 2018 Capital Budget Application in the absence of the recent data centre load requests.
17 Hydro further stated that the first formal identification of the Project was in Hydro's 2017 Capital
18 Budget Application which noted the significant operational risk associated with the existing
19 system. Hydro acknowledged that discussions surrounding the increasing load in Labrador East
20 are relevant to the Project but argued that load growth concerns have been properly addressed as
21 part of its various filings and responses to RFIs.

22
23 Hydro disputed IOC's assertion that the increase in peak demand on the Labrador East system is
24 solely a result of cryptocurrency data centres and noted that it has received a formal request from
25 the Department of National Defense for additional load capacity. Hydro stated that, for privacy
26 reasons, it could not divulge the amount of the request, but could confirm an anticipated demand
27 greater than the combined demand of all known data centres currently in operation. Hydro
28 acknowledged that it continues to receive requests to provide service to data centres in Labrador
29 that would add new load to the system.

30
31 In Hydro's view IOC's estimates regarding temporary diesel generation are low and exclusive of
32 the capacity requirements for reliable service. Hydro stated that "investing in temporary solutions
33 to delay the Project is not consistent with least-cost provision of reliable service."⁹ In relation to
34 the alternative of managing load through lesser cost alternatives, such as the Interruptible Service
35 contract with Labrador Lynx Limited, Hydro stated that this was a short-term measure to provide
36 reliable service for the 2018-2019 season. Further Hydro submitted that the approval of the Project
37 provides a long-term solution at a reasonable cost, which would provide consistency in the
38 provision of service to both existing and new customers.

39
40 With respect to IOC's suggestion that the whole project must be completed prior to inclusion in
41 the 2019 rate base, Hydro stated that this is part of the 2017 General Rate Application and that
42 resolution of this issue is not relevant for the approval of the Project. Hydro stated that it is
43 consistent with historical regulatory practice that assets be included in rate base upon meeting the

⁸ In 2015 \$12 million in costs were incurred to complete the distribution line portion of the voltage conversion in Labrador City.

⁹ Hydro Submission, January 28, 2019, page 4.

1 test of being used and useful and that multi-year projects similar to the Project are often brought
2 into service in stages. Hydro explained that the revenue requirement impact for the Project is \$1.6
3 million once fully in service equating to a 17.7% increase in the regulated transmission charge for
4 Labrador Industrial customers. Hydro noted that, in terms of impact on IOC's overall billings,
5 there will be a 1.7% increase which Hydro does not characterize as rate shock.
6

7 Hydro submitted that the reliability issues on the Labrador East system justify the Project and
8 stated:
9

10 Hydro has demonstrated that the Project is not only prudent from a least-cost, reliable
11 service standpoint, but urgently required to avoid a reliability issue in Labrador East for
12 the long-term. Hydro emphasizes that, in its view, all parties have been amply informed of
13 the importance of the Project proceeding and the risks to the Labrador East system should
14 it be denied. Hydro believes that it has provided the required justification to enable
15 approval of this Project to fulfil its obligation to provide least-cost, reliable service to its
16 current customers of Labrador East who have been subjected to a materially higher risk of
17 unserved energy as compared to the vast majority of all other Hydro customers in the
18 Province.¹⁰
19

20 **Board Findings**

21

22 The Muskrat Falls to Happy Valley-Goose Bay Interconnection Project was initially proposed as
23 a part of Hydro's 2018 Capital Budget Application. In Order No. P.U. 43(2017) the Board deferred
24 consideration of this Project on the basis that further information should be provided. In the process
25 that was subsequently established for the consideration of this Project Hydro filed additional
26 information, answered information requests and attended a technical meeting with the parties and
27 the Board staff to discuss the Project. In Order No. P.U. 9(2018) the Board again concluded that
28 the Project should be deferred until further information was provided by Hydro. The Board stated
29 that, despite the size of the forecast load increases relative to the existing loads and the costs
30 associated with addressing this increase, Hydro had not completed a comprehensive plan to
31 address load growth and reliability on the Labrador Interconnected system. Thereafter Hydro filed
32 the Expansion Study and the Network Additions Policy and answered further information requests.
33 The Board does not believe that it is necessary or appropriate to delay consideration of the Project
34 until these filings are addressed. The Project can be considered based on the information which
35 has been provided by Hydro throughout this matter including both the Network Addition Policy
36 and the Expansion Study.
37

38 According to Hydro it has provided the required justification to enable approval of the Project to
39 provide least-cost, reliable service to its current Labrador East customers who have experienced a
40 materially higher risk of unserved energy as compared to the vast majority of other Hydro
41 customers. As set out in the Expansion Study Labrador East is interconnected to the Churchill
42 Falls Terminal Station via 269 kilometers of transmission lines. Transmission line L1301 was
43 constructed in the early 1970s to provide electricity to the Gull Island Construction site and L1302
44 was constructed in 1977 to connect the Town of Happy Valley-Goose Bay.¹¹ Since L1301 was

¹⁰ Hydro Submission, January 18, 2019, page 6.

¹¹ Expansion Study, page 4.

1 planned as a temporary installation the towers were not designed to Hydro standards and phase
2 spacing was shortened to 3.2 m as opposed to the standard 4.3 m. According to Hydro:

3
4 The reduced phase spacing on a large portion of TL1301 does not allow for standard
5 inspections as crews are unable to climb the structures between the phases while still
6 maintaining safe limits of approach. This causes a higher potential of missing a defect
7 during regular inspection and increasing the risk of a prolonged forced outage.¹²
8

9 Further the design return period selected for L1301 was 25 years rather than the typical 50 years
10 for this voltage class because the importance of the line at the time was identified as somewhat
11 lower.¹³ In response to questions from the Board Hydro provided transmission metrics for
12 Labrador East as compared to Labrador West, Northern Interconnected, Hydro Corporate and CEA
13 averages. These statistics showed that, over the period 2013 to 2017, both T-SAIFI and T-SAIDI
14 were substantially worse in Labrador East than in Labrador City/Wabush. Further the transmission
15 metrics were also substantially worse than on the other systems, except that the T-SAIFI on the
16 Northern Interconnected system was similar. Hydro also explained that, while no reliability criteria
17 exists for radial transmission system supply, particularly in Labrador, the calculated expected
18 unserved energy associated with the Project of 194 MWh demonstrates the overall improvement
19 in reliability given that its business continuity criteria for an outage on the island is 300 GWh of
20 unserved energy.¹⁴
21

22 In terms of load Hydro noted its base load forecast for the 2018-2019 winter exceeds the transfer
23 capacity of the Labrador East system. Further the Expansion Study addressed the reliability plan
24 for the 2018-2019 winter season, which included an interruptible load agreement as well as other
25 initiatives relating to back-up generation for peak loading conditions, inspections of the 138 kV
26 transmission line, temporary restrictions related to new customers above 100 kV, improved
27 operations protocols, enhanced customer communication initiatives and enhancements to the
28 Happy Valley-Goose Bay distribution system. The Expansion Study explained that analysis of the
29 existing 138 kV transmission system configuration serving Labrador East shows that it is capable
30 of delivering 77 MW and for load levels beyond 77 MW voltages will deteriorate ultimately
31 resulting in system voltage collapse and customer outages. The forecast load for this system is 83.3
32 MW in 2019, increasing to 94.8 MW in 2043. The Project would increase the system capacity
33 from 77 MW to 104 MW (excluding back-up generation).
34

35 Hydro has provided a great deal of information in relation to the Project since it was originally
36 proposed in its 2018 Capital Budget Application. The Town of Happy Valley-Goose Bay, which
37 had initially opposed the Project, has now advised that it supports the Project. According to the
38 Town of Happy Valley-Goose Bay the existing connection needs to be replaced and
39 interconnection with Muskrat Falls would provide an enhanced reliable source of power with
40 increased capacity in comparison to the marginal capacity presently available with the possibility
41 of frequent and extended power outages. IOC is the only party that continues to oppose the Project.
42 The Board acknowledges that, while there may be no direct benefit to IOC associated with the
43 Project, all customers on the Labrador Interconnected system are supplied from Churchill Falls

¹² LAB-NLH-049.

¹³ Expansion Study, Appendix E, *Reliability Assessment of the 138 kV lines Supplying Labrador East*, page 2.

¹⁴ *Muskrat Falls to Happy Valley Interconnection Report*, revised January 25, 2018, page 41.

1 and that as a result, the embedded cost of service study for that system reflects that all customers
2 share common costs of generation, transmission and other costs. This approach was approved for
3 the Labrador Interconnected system in Order No. P.U. 14(2004).
4

5 The Board is satisfied that the information filed by Hydro shows that there are both reliability and
6 capacity concerns in Labrador East, and that the Project is the least-cost alternative to address these
7 concerns. The Board finds that the Project is reasonable and necessary to provide reliable service
8 and meet load requirements and that it should be approved. The Board acknowledges that the costs
9 of the Project are significant and that these costs may impact rates on the Labrador Interconnected
10 system, both in Labrador West and Labrador East. Hydro estimated that the value of the capital
11 assets to be placed into service in 2019 is \$9.5 million, which would result in approximately \$4.7
12 million in average rate base being recovered from customer rates. Hydro also noted that capital
13 additions occurring subsequent to 2019 would not be recovered from customers until Hydro's next
14 general rate application.¹⁵ The Board is satisfied that the concerns raised related to the impact on
15 rate base and rates should be addressed in the context of the Board's processes associated with the
16 approval of Hydro's ongoing and next general rate applications.¹⁶
17

18 In terms of the amount of the proposed expenditures the Board notes that the update filed by Hydro
19 on November 30, 2018 explained that the project estimate had increased by 4% from \$20.0 million
20 to \$20.8 million due to inflationary increases since the 2017 estimate. The direct costs are the same
21 as proposed in 2017 but the amount set out for interest and escalation has increased. There was no
22 support provided showing how this increase was derived and no explanation showing that it is
23 reasonable in the circumstances other than the explanation that it was due to inflationary increases.
24 The Board will approve expenditures in the amount of \$20.0 million for the Project and expects
25 that Hydro will take all reasonable measures to keep the Project within the approved amount. To
26 the extent that the costs exceed this amount Hydro will provide a full explanation in its annual
27 capital budget expenditure report.
28

29 The Board notes that Order No. P.U. 9(2018) stated that the parties may apply for an award of
30 costs at the end of this proceeding. Should an intervenor wish to make a claim for costs they should
31 file a claim within 30 days of this Order, setting out the basis upon which an award of costs should
32 be made, including detailed support of the amount claimed.

¹⁵ LAB-NLH-040.

¹⁶ Hydro's forecast 2019 rate base is before the Board in its ongoing 2017 General Rate Application and Hydro's forecast 2020 rate base will be considered in its next general rate application.

IT IS THEREFORE ORDERED THAT:

- 1
- 2
- 3 1. The proposed capital expenditures for the Muskrat Falls to Happy Valley-Goose Bay
- 4 Interconnection project, in the amount of \$12,586,400 in 2019 and \$7,392,100 in 2020,
- 5 are approved.
- 6
- 7 2. Intervenors may file a claim for costs for the consideration of the Board within 30 days
- 8 of this Order.
- 9
- 10 3. Hydro shall pay all expenses of the Board arising from this Application.

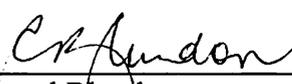
DATED at St. John's, Newfoundland and Labrador, this 5th day of March, 2019.



Darlene Whalen, P. Eng., FEC
Chair & CEO



Dwanda Newman, LL.B.
Vice-Chair



Cheryl Blundon
Board Secretary