

Commission of Inquiry Respecting the Muskrat Falls Project

Final Submissions of Grid Solutions Canada ULC

August 9, 2019

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A. Introduction

1. Grid Solutions Canada ULC (“**Grid**”) entered into two contracts with Nalcor Energy (“Nalcor”) on the Muskrat Falls Project (the “**MF Project**”) for the (a) the supply and installation of Converter Stations and Transition Compounds, and (b) the engineering, procurement and construction of AC Substations. Grid also acted as the Civil Works Engineer in respect of two (2) contracts between Nalcor and the civil works contractors.
2. On February 11, 2019, Grid was granted limited standing to participate in Phase 2 of the Inquiry, the review of delays and cost overruns of the MF Project. Grid’s standing is limited to Grid’s interest in the MF Project. Grid’s submissions below are therefore limited to its standing.

B. Grid’s Participation in the Inquiry

3. At the request of the Commission, Grid produced two (2) witnesses (Messrs. Thierry Martin and Laszlo von Lazar) to provide testimony to the Inquiry on May 3, 2019, and has produced seven (7) volumes of documents totalling more than 2,200 documents and 17,000 plus pages.
4. On May 3, 2019, Messrs. Martin and von Lazar appeared as witnesses before the Commission. Mr. Martin is an electrical engineer with significant experience in power projects and has been with Grid (and its predecessor) for twenty-nine (29) years. Mr. Martin was Project Director for Grid on the MF Project from November 2014 to May 2016 (see page 2 of the Transcript of Messrs. Martin and von Lazar dated May 3, 2019 (the “**Grid Transcript**”).

5. Mr. von Lazar was with Bechtel for twenty-seven (27) years in project management and construction. After Grid acquired Alstom, Mr. von Lazar joined General Electric (“GE”). Mr. von Lazar became involved in the MF Project in or around April 2016 and in January 2017, he became a senior executive with GE, responsible for large and complex projects (Grid Transcript, pp. 2 and 3).

C. Background

(a) The Grid Contracts

6. Grid entered into two (2) contracts (the “Grid Contracts”) with Nalcor for the MF Project:
 - (a) Contract 501 (“**Contract 501**”) between Alstom Grid Canada, Inc. (now Grid) and Labrador- Island Link Limited Partnership for the supply and installation of Converter Transformers and Transition compounds, dated March 31, 2014 (CIMFP Exhibit P-03199); and
 - (b) Contract 502 (“**Contract 502**”) between Alstom Grid Canada, Inc. (now Grid), on the one hand and Labrador Transmission Corporation and Labrador- Island Link Limited Partnership on the other for the Engineering, Procurement and Construction of AC Substations, dated August 15, 2014 (CIMFP Exhibit P-03216).
7. During the progression of the work under the Grid Contracts, issues arose and changes were made to the scope and timing of the work, which resulted in Nalcor and Grid negotiating and entering into seven (7) Amending Agreements for Contract 501 and four (4) Amending Agreements for Contract 502, which increased the Grid Contracts price and extended the time for completion of the work (CIMFP Exhibits P-02997, P-03013, P-03014, P-03015, P-03017, P-03018, and P-03153).

(b) Change in Grid Ownership

8. On or about November 2, 2015, GE purchased the thermal power, renewable power and grid business of Alstom. Following the sale, GE changed the name from Alstom Grid Canada Inc. to Alstom Grid Canada ULC/Alstom Réseau Canada ULC, before changing its name to the

current name, Grid Solutions Canada ULC (CIMFP Exhibit P – P-03151). The acquisition of Alstom by GE did not affect the MF Project (Grid Transcript, p. 3 and 4).

(c) The Civil Works Contracts

9. In addition to the Grid Contracts, Grid was named as the Civil Works Engineer in the following civil works contracts entered into between Nalcor and the civil works contractors, Pomerleau, Inc. (“Pomerleau”) and H.J. O’Connell Construction Limited (“HJOC”), for the civil works required for the Grid Contracts located at Churchill Falls, Muskrat Falls and Soldiers Ponds sites for the MF Project:

- (a) Contract 504-001 (“**HJOC Contract**”) between HJOC and Labrador-Island Link Limited Partnership for the provisions of civil works necessary to the performance of Contracts 501 and 502 at Soldiers Pond (CIMFP Exhibit P-04337).
- (b) Contract 504-002 (“**Pomerleau Contract**”) between Pomerleau on the one hand, and Labrador Transmission Corporation and Labrador- Island Link Limited Partnership on the other hand, for the provision of civil works necessary to the performance of Contracts 501 and 502 at Muskrat Falls and Churchill Falls sites. (The Pomerleau Contract has not been made an exhibit for the Inquiry).

D. Delays and Cost Overruns regarding the Grid Contracts

10. As part of Phase 2 of the Inquiry, the Commission requested information from Grid regarding certain issues that may have contributed to delays and/or additional costs to the MF Project. Set out below is Grid’s submissions with respect to the issues raised.

(a) The Contractual Matrix

11. The original intention of Nalcor was that Grid would carry out the civil works for the Churchill Falls, Muskrat Falls and Soldiers Pond sites under the Grid Contracts with Grid contracting directly with the civil works contractors. Grid submits that this type of contract structure is a more typical and traditional structure for these types of contracts.

12. Following receipt of the bids for Contracts 501 and 502, even though Grid was clearly the lowest of the bidders for the work, Nalcor was concerned with the overall cost of the MF Project and sought ways to lower its overall costs. As a result, Nalcor decided that rather than have Grid retain the civil works contractors directly as part of the Contract 501 and 502 work, Nalcor would remove the civil works from Grid's scope of work and enter into a direct contract with the civil works contractors (the "**Alternative Contract Approach**") (Grid Transcript p. 6 and CIMFP, Exhibit P-02993).

13. In order to implement the Alternative Contract Approach, Nalcor and Grid included Exhibit 17 in the Grid Contracts, titled "Joint Cost Savings Initiative for Civil Works" (CIMFP, Exhibit P-03231). Exhibit 17 provides that Nalcor and Grid agreed "to work in a collaborative fashion to reduce the overall cost of the civil work and leverage the respective experience of each Party [Nalcor and Grid]" (Section 1, CIMFP, Exhibit P-03231, p. 2). This Alternative Contract Approach was accompanied by a reduction in the Contract Price of the Grid Contracts to remove the profit and/or mark-up associated for the civil works and to reflect the shifting of some of the risk associated with the civil works back to Nalcor.

14. Nalcor and Grid were required to jointly review and evaluate proposals received from the civil works contractors and agree on a preferred bidder or bidders. However, the ultimate decision and approval of the civil works contractors was reserved to Nalcor. After the preferred contractors were selected, Grid assisted Nalcor with the negotiation of the civil works contracts (Section 2.4, CIMFP Exhibit P-03231, pp. 3 and 4).

15. Grid submits that the Alternative Contract Approach along with Nalcor's approach to the management of the contracts, affected Grid's ability to properly control the execution of the civil work and caused or contributed to increased costs, delays and/or lack of productivity of the civil works (Grid Transcript, p. 8).
16. Grid also submits that the Alternative Contract Approach contributed to delays and disruption in the change order process for the Pomerleau Contract and HJOC Contract. The Alternative Contract Approach added an additional layer of review and communication for changes that would not normally occur under a more traditional contractual structure and thus processing of the change orders by Nalcor was slower than expected (Grid Transcript, pp. 7 and 29). In addition, the inability to properly and expeditiously process the change orders caused or contributed to greater delays to the work (Grid Transcript, p. 27).
17. Therefore, Grid submits that Nalcor's Alternative Contract Approach resulted in a burdensome contract administration process. This caused and/or contributed to issues arising on the MF Project that ultimately negated the anticipated savings and increased the cost and time to complete the work. In hindsight, while the original contract model would have increased the initial contract price for the Grid Contracts, Grid submits that there would likely have been more value and less additional cost and time to the MF Project if the original and more traditional contract model had been instituted.

(b) Organization and Oversight of the Grid Work Sites

18. Given the nature and size of the MF Project, Grid retained different project directors as the Grid Contracts work progressed. Mr. Martin was the first project director, followed by Mr. Scott Bianchi, Mr. Tod Hubbard, and finally Mr. Jean Polyne, who is the current project

director. (Grid Transcript, p. 3). Grid submits that this is a typical process for a project of this size, given that contractors typically consider the needs of the project as it progresses and engage a project director with the strengths and skill set to match the needs of the project at that time. As noted by Mr. von Lazar at pp. 13 and 14 of the Grid Transcript, you look at a project like “a baseball game ... you’ve got a starting pitcher, you got a middle reliever and you have a closer.” Mr. Martin was the starter, Mr. Bianchi was the middle reliever and Messrs. Hubbard and Polyne were/are the finishers.

19. During the first phase of the Grid Contracts work there was conflict between the management teams for Grid and Nalcor, including disrespectful communications and threats to remove certain Grid management (Grid Transcript, pp. 14 and 15). In fact, Nalcor did remove several of Grid’s site managers. The conflict between the management teams contributed to less cooperation and impacted the progression of the Grids Contracts work. However, Grid continued to work collaboratively with Nalcor, ceding to requests for changes from Nalcor, regardless of whether or not Grid agreed with the request.

20. Ultimately, Nalcor management made changes to the Nalcor MF Project team, in or around December 2016. Thereafter, the Grid/Nalcor management teams became more aligned with their goals and methods, which increased productivity for the Grid Contracts work (Grid Transcript, p. 14).

(c) Disputes with Pomerleau and HJOC

21. During the progression of the Grid Contracts, Pomerleau and HJOC (the “Civil Works Contractors”) advanced claims for increased compensation. Grid submits that these types of claims from contractors on projects of this size, location and complexity are not unusual albeit

that the magnitude of the claims were greater in part due to Nalcor's Alternative Contract Approach.

22. Pursuant to Exhibit 17 of the Grid Contracts, Grid and Nalcor agreed that when a Civil Works Contractor brings a claim for additional compensation from Nalcor, Grid and Nalcor were to jointly evaluate and determine the factual basis and the merits of the claim. To the extent Grid and Nalcor determined that there is validity to such claims, Nalcor and Grid were to agree on the proportionate responsibility for such claims (Section 3.2(c), CIMFP Exhibit P-03215). For the most part, Grid and Nalcor followed this process for the claims made by the Civil Works Contractors.

23. In or around January 2017, HJOC submitted a Request for Equitable Adjustment to Nalcor and Grid seeking additional compensation in respect of the Soldiers Pond site. Also, in or around May 2017, HJOC registered a claim for lien in respect of its claims and in June 2017 commenced an action in respect of its claim for lien. In accordance with Exhibit 17, Grid and Nalcor reviewed and considered the HJOC claims. The parties arrived at a mutually agreed resolution to HJOC's claims, including Nalcor's and Grid's proportionate share, and terms for the completion of the HJOC Contract.

24. In or around September 2016, Pomerleau submitted a Request for Adjustment ("**Pomerleau RFA**") seeking additional compensation in respect of the Churchill Falls and Muskrat Falls sites. In or around October 2016, Pomerleau also registered claims for lien in respect of its claims. In or around early 2017, the parties attempted to resolve the Pomerleau RFA and throughout 2017 an audit of Pomerleau's claims was undertaken, which was followed by a further without prejudice meeting in December 2017. A resolution was not reached, and thus in February 2018, Pomerleau issued a Notice to Arbitrate under the Pomerleau Contract.

25. Throughout 2018 and 2019, the parties followed the arbitration procedure agreed to in the Pomerleau Contract, while also considering options to resolve the claims. In addition and in accordance with Exhibit 17, Grid and Nalcor collaborated with respect to the claims and ultimately, in May 2019, Nalcor, Pomerleau and Grid reached an amicable resolution of the claims and settled the arbitration.

(d) The Gas Insulated Switches (GIS) Building

26. The original design for the switchgear for the MF Project provided for an air-insulated switchgear (AIS) model. As part of Grid's proposal for the MF Project work, Grid proposed an alternative method which used a gas-insulated switchgear (GIS) model, to be considered by Nalcor (CIMFP Exhibit P-03232, p. 15 and Grid Transcript, p. 5).

27. The AIS model provides that the equipment would be installed outdoors and exposed to the elements, whereas the GIS model provides that the equipment be installed indoor. The GIS model requires more expensive equipment, however, savings are achieved through a reduction in the construction costs as the GIS model has a smaller footprint, and the installation of the equipment tends to be faster since the installation is not weather dependent. Also, since the equipment is located indoors it is easier to carry out the operation and maintenance in the colder temperatures of Labrador (Grid Transcript, pp. 5 and 6).

28. The completion of the construction of the GIS buildings at the Muskrat Falls and Churchill Falls sites was delayed, for the most part as a result of certain quality and safety issues arising from the work of Pomerleau, and its subcontractor, including the lack of concrete in the GIS building columns and the flatness of the concrete slab (Grid Transcript, p. 9).

29. On January 21, 2016, Grid notified Pomerleau of the quality issues discovered following the removal of the formwork, including, honeycombing, significant voids and missing concrete. The quality issues arose at both the Churchill Falls and Muskrat Falls sites, however, the issues were significantly worse at Muskrat Falls. Grid immediately required Pomerleau to prepare and submit (a) a safety plan for accessing the area, (b) a complete structural assessment plan and methods, (c) a detailed NCR report including identifying the root cause, immediate actions, remediation process, corrective actions and preventative actions to ensure the issues are not repeated (CIMFP Exhibit P-0305), and (d) prepare a remediation plan.

30. Pomerleau's original plan was inadequate as it amounted to little more than cosmetic repairs. Grid continued to work with Pomerleau to have Pomerleau prepare a proper plan that would be satisfactory to Nalcor to remedy the poor concrete. In the meantime, Nalcor undertook its own investigation of the concrete to ensure that the concrete was structurally sound. At that time, Nalcor was considering whether or not to have Pomerleau remove and replace all of the non-compliant concrete in accordance with the Contract specifications, which would further delay the MF Project.

31. Ultimately, through Grids efforts, Nalcor approved a remediation plan, which was carried out by Pomerleau and the work was completed. Any costs incurred and/or claims made that arose out of these issues were included in the resolution of the Pomerleau claims referenced above.

(e) The Impact of the Protests

32. During the progression of the MF Project certain protests occurred which impacted the MF Project. For example, transformers required as part of the Grid Contracts were scheduled to

be moved by barge from Newfoundland to Cartwright, off-loaded, and transported by multi-axle trailers to the sites. However, in the Fall of 2016, Grid was directed not to ship the transformers, and they remained in Bay Bulls. In the Spring of 2017 again Grid was to transport the transformers, however, as a result of heavy sea ice and protests, the transformers were not moved until July 2017. The additional storage costs and delays led to an increase in costs (Grid Transcript, p. 12).

33. Local protests also impacted on Grid's ability to have people access, and have equipment delivered, to the MF Project sites all of which delayed the progression of the work and/or increased the cost of the work (Grid Transcript, p. 13).

34. A dispute arose between Grid and Nalcor with respect to compensation for the delays and additional costs caused or contributed by the protests. (See CIMFP Exhibit P-03016, p.1 and Grid Transcript, pp. 12 and 13); however, ultimately, Grid received compensation of part of Amending Agreement No. 6 for Contract 501 and No. 3 for Contract 502 (CIMFP Exhibit P-03018).

(f) Camp Facilities

35. Section 6 of Exhibit 12 of the Grid Contracts 502 provides that Nalcor shall make available an Accommodation Complex at both the Muskrat Falls and Churchill Falls sites (the "Camps").

36. Grid would submit monthly forecasts of the craft loading for the performance of the work and the anticipated space required at the Camps. Nalcor was then to review the forecasts and

advise of the space available so that Grid could properly plan the work, including any impacts on the schedule. However, during the progression of the work, issues arose with the condition of the Muskrat Falls Camp facilities, and the number of beds available. (Grid Transcript, p. 10). Grid raised this issue with Nalcor on May 18, 2016 (see CIMFP Exhibit P-03012).

37. As a result of the lack of Camp availability, Grid had buses of workers/labourers turned back at the gate, which Grid had to fly back home, and other staff and workers were required to drive back and forth to the nearest town. The lack of Camp availability impacted on the project costs and productivity and delayed the MF Project. In particular, increased costs were incurred for transportation to and from the job site, the cost of housing in the town, and the time incurred to transport people to and from the job site. In addition, there was an ancillary cost of a lack of productivity as the people travelling back and forth have additional time added to the beginning and end of their day (Grid Transcript, pp. 10 and 11).

38. Grid did its best to manage the issue with Nalcor and Pomerleau and minimize the impacts of the lack of Camp availability, but there was a cost increase to the MF Project. Grid was compensated for some of these costs through Amending Agreement No. 5 for Contract 501 and No. 2 for Contract 502 (CIMFP Exhibit P-03017).

E. The Protection and Control Equipment

39. Contract 501 includes the supply and installation of equipment and switches for the protection and control software of the HVdc power system for the MF Project. The equipment relates to the transfer of power through the converter station at Muskrat Falls down the line through the converter station at Soldiers Pond (Grid Transcript, pp. 15 and 16).

40. In addition to resolving several other outstanding issues and changes, in Amending Agreement No. 5 for Contract 501 and No. 2 for Contract 502 (CIMFP Exhibit P-3017) Nalcor and Grid agreed to modify the delivery of the project into a two-tiered approach. The phased approach methodology for the delivery of the balance of the work existing in March 2017 allowed monopole to be delivered first, with bipole being delivered at a later date. The monopole system transmits power through one line whereas the bipole transmits power through two lines with options to switch lines automatically if there is an interruption in the system (Grid Transcript, p. 16). Therefore, Amending Agreement No. 5 sets out the agreement between Nalcor and Grid to have Grid focus its efforts on completing the monopole system so that Nalcor could start to flow power and Nalcor deferred the completion of the bipole system.

41. Nalcor and Grid then entered into Amending Agreement No. 6 for Contract 501 and No. 3 for Contract 502 (CIMFP Exhibit p-03018), pursuant to which Grid and Nalcor resolved additional change orders and agreed to a new monopole date of March 31, 2018. The monopole system was installed and is running such that power is being transmitted.

F. Conclusion

42. Grid was retained by Nalcor for (a) the supply and installation of Converter Stations and Transition Compounds, (b) the engineering, procurement and construction of AC Substations, and (c) to act as the Civil Works Engineer in respect of two (2) contracts between Nalcor and the civil works contractors.

43. Grid submits that the change from the original planned contract structure, which removed the civil works from Grid's scope of work, was a significant cause to the extent of the delays and

increased costs of the Grid Contracts and Civil Works Contracts. Unfortunately, the MF Project did not attain the overall savings that Nalcor initially hoped would be achieved from the Alternative Contract Approach.

44. Otherwise, Grid submits that most projects of this magnitude experience delay and changes; however, there were several factors that exacerbated the delays, increased costs and/or changes to the Grid Contracts and Civil Works Contracts, which at times were beyond any parties' control. Nevertheless, the delays, increased costs, and/or changes were resolved as both Grid and Nalcor worked cooperatively to achieve a positive completion of the Grid Contracts and Civil Works Contracts for the best possible value, and Grid continues to work with Nalcor to finalize and complete the MF Project.

ALL WHICH IS RESPECTFULLY SUBMITTED this 9th day of August, 2019



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