

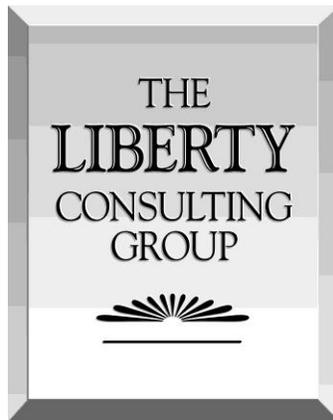
**Fifth Monthly Monitoring Report on  
Integrating LCP Facilities into the IIS  
and Hydro Preparations for Winter**

**Presented to:**

**The Board of Commissioners of Public Utilities  
Newfoundland and Labrador**

**Presented by:**

**The Liberty Consulting Group**



**November 17, 2020**

**1451 Quentin Rd Suite 400  
#343  
Lebanon, PA 17042**

---

## *Table of Contents*

1. Report Background and Purpose .....	1
2. Report Summary .....	1
3. LIL Status.....	3
4. Synchronous Condensers .....	6
5. Muskrat Falls Generators.....	7
6. Temporary LIL Faults.....	7
7. Overall TTO Schedule Performance.....	8
8. Hydro’s Preparations for Winter.....	8

### **1. Report Background and Purpose**

This fifth report following the change from quarterly reporting addresses the progress and status in the transitioning of Lower Churchill Project (LCP) assets to operation and Hydro’s progress in planned activities to optimize availability of its supply resources for the coming winter.

### **2. Report Summary**

#### *a. LIL Commissioning Remains Troubled*

Last month’s report explained why we concluded that LIL operation at levels materially contributing this winter to Island service was improbable:

- The failure of the FAT of the Interim B control software version, which required some rework and re-testing
- The halt in commissioning work following an August failure of two beams integral to converter valve operation.

This month brought successful resolution of the first issue. After correction of several deficiencies, Interim B software passed retesting and underwent site installation on October 23, 2020. However, the beam-failure issue remains and has not dimmed in schedule importance.

While its final report on the matter remains outstanding, GE has expressed to Nalcor substantial confidence that a defect in the manufacturing process by the supplier responsible for providing 90 percent of the beams caused the August flashovers in both LIL valve halls. Nalcor stated that GE’s final analysis will be ready within the next week. GE offered a permanent plan for replacing all of that manufacturer’s beams with ones made by a second, who provided the remaining 10 percent. GE also began a temporary beam replacement plan that would permit a restart of Pole 1 commissioning by the end of November 2020, with Pole 2 to follow later. That plan encountered difficulties because the deep-cleaning of the beams it entailed failed to permit 93 beams to pass subsequent testing of sufficiency to permit temporary use.

---

A very-recently confirmed revision to that plan still contemplates late-November restart of Pole 1 dynamic commissioning, but Nalcor believes the revision will extend the start of Pole 2 commissioning into January of next year. Even if achieved, those commissioning start dates will delay the start of LIL Trial Operation to mid-February 2021. Trial Operation requires 30 days of continuous bipole operation, making earliest completion in mid-March. This temporary plan will require complex disassembly and reassembly of the valve-hall equipment for which the beams requiring replacement provide structural support. This process will require storage of disassembled parts and equipment in the environmentally controlled valve hall - - not built for or having ample space for such use.

There is as yet no detailed plan for the process or a schedule that provides a basis for confidence in the current expectations for completing the work. The novelty and difficulty of performing it in such conditions make it very optimistic to expect commissioning restart as planned. Moreover, continuing to assume minimum durations for commissioning work remaining after restart and completion of Trial Operation's required 30 days with no trips of either pole simply does not comport with GE's performance history on the project. It could happen, but one should not expect a material LIL contribution to meeting Hydro's demand requirements this winter or completion of Trial Operation before April 2021.

*b. Hydro's Readiness Preparation Continues to Make Good Progress*

Hydro reported continued water supply levels that exceeded minimum targets, approached 20-year averages, and exceeded those experienced at this time last year. Management's updates regarding previously-reported issues at Bay D'Espoir indicate no concerns for the immediate term. We reviewed management's request for proposals to solicit longer-term repairs, and note below concerns regarding a need for inspections. Hydro has completed work on the four Holyrood capital projects, and a previously deferred inspection item. With the onset of winter now one month closer, we focused on annual work plan activities and winter readiness activities completion in more detail; both remain on track for completion as scheduled. We report below additional details concerning other risks to generating assets; Holyrood encountered two additional issues that warrant monitoring.

*c. Synchronous Condenser Progress Continues as Expected*

Progress in installing and testing two of the three Soldiers Pond synchronous condensers continued at the pace described in our last report. Both Units 2 and 3 have operated at levels sufficient to convince Nalcor that troubling vibration levels under prior operations have moderated very substantially, with firm confirmation awaiting the results of November operation. Nalcor continues to expect by the end of this month sufficient data and analysis from which to conclude whether vibration issues have been fully resolved or whether work should begin on foundation remediation as the next alternative solution.

It remains the plan to begin foundation work if the data gathered and analysis performed this month do not show full resolution of vibration issues; *i.e.*, a demonstrated ability for the two units, following modifications, to operate consistently within specified limits. Construction personnel required to begin foundation work are completing their required isolation in the province. As we

---

reported before, should the foundation work extend into next year, it should not threaten the ability to commission the LIL this coming winter.

*d. Muskrat Falls Generation*

Unit 1 has completed its 72-hour operation test and reportedly remains on track for commercial operations readiness by the end of November. Unit 2's corresponding date may extend briefly, into early January 2021, but, like Unit 1, has encountered no material problems since our last report. Unit 3 commercial operation, a trigger for power delivery obligations into Nova Scotia is slated for May 2021 - essentially contemporaneous with Nalcor's expectations for completion of LIL Trial Operations. Nalcor has reported the scheduling of talks with Hydro Quebec in the next several weeks, but Muskrat Falls generation appears sufficiently advanced to satisfy LIL commissioning needs this winter, absent future setbacks.

*e. Overall TTO Progress*

Our monthly reports have focused on high-level reviews of progress and delays in meeting the overall TTO schedule, which includes many detailed activities. Last month, our more detailed, quarterly review showed that, despite important progress made, long-standing, significant gaps in completing many activities required and in developing and delivering training remained. This month we continued to see limited progress in closing them.

*f. LIL Restarts*

We also continue to monitor progress in Hydro's efforts to address the conclusions of an outside expert that automatic LIL restart attempts following a temporary HVDC double line fault could produce underfrequency load shedding, absent restrictions on exports to Nova Scotia over the Maritime Link (ML).

### **3. LIL Status**

*a. Control Software*

It has long been the plan that Final LIL control software would not become available until after commissioning and successful completion of Trial Operation using the interim version; *i.e.*, in mid-2021. As we have reported earlier, only the Final version's successful installation and operation will provide the ability for the LIL to operate with its full specified capabilities.

GE has for well more than a year struggled to produce an interim version suitable for getting the LIL through commissioning and Trial Operation. Earlier this year, those efforts focused on a version termed Interim A, which never succeeded in completing the required FAT. Interim A gave way to Interim B, which underwent FAT in October.

Nalcor reported on October 16 that FAT on Interim B produced issues requiring resolution before LIL dynamic commissioning could resume. The issues, reportedly few in number, included database "flooding" and the need for a firmware update. After work to address the issues, Interim B passed retesting, and GE installed it at the site on October 23, 2020. Pending completion of work on the temporary beam solution, addressed below, this version appears to stand ready to support a

---

resumption of the dynamic commissioning activities halted following the August valve hall flashover events.

*b. Causes of the August Valve-Hall Flashover Events*

This past August, flashovers in the valve halls for both poles of the LIL added to Interim B testing issues another barrier to resuming LIL dynamic commissioning. The resolution of flashover causes remains incomplete and dynamic commissioning remains halted. GE has not yet issued a final root cause analyses report on flashover causes, but has expressed to Nalcor a high degree of confidence that a manufacturing defect in the beams supplied by one of the two manufacturers caused the flashover events that affected each pole. That manufacturer provided about 90 percent of the total numbers of beams.

*c. The First Temporary Plan to Address Beam Defects*

The permanent beam-defect solution, which GE cannot complete before mid-2021, continues to involve replacement of all 300 beams supplied by the principal manufacturer with beams from the second supplier. In the interim, GE attempted a first, temporary plan designed to enable resumption of commissioning, but it did not prove satisfactory. The initial temporary measures plan called for:

- Replacing the two beams that failed in connection with the August flashover incident
- Deep cleaning the others
- Instituting measures to mitigate the potential for beam failure during commissioning and operation:
  - Lowering valve-halls humidity to levels below those specified.
  - Increasing the sensitivity of protection systems to limit damage should a beam fail.

GE replaced the two beams and deep-cleaned the remainder involved. Ninety-three of the deep-cleaned beams (43 from Pole 1 and 50 from Pole 2) failed to pass the insulation testing required to validate their suitability for temporary use.

*d. The Second Temporary Plan*

A revision to the initial plan calls for replacing the 43 deep-cleaned Pole 1 beams that failed insulation testing with 43 Pole 2 beams that did pass insulation testing. GE has continued to test those that passed to ensure their continuing suitability. That testing will continue pending installation of the beams to support Pole 1 commissioning restart.

The Pole 1 and Pole 2 beams that failed the insulation testing will undergo heat curing at a local facility whose suitability has just been confirmed. Early reports on the results of tests of the process have been positive, and Nalcor anticipates the beams necessary for Pole 1 will have all undergone curing within the next week. Following curing, they will undergo retesting to validate their suitability for use in Pole 2 to support a restart of its commissioning. Following successful commissioning of each pole, commissioning of bipole operation at up to 225MW can commence.

The temporary plan requires beam disassembly/assembly and in-process storage of parts awaiting reassembly in the valve halls. These large beams provide structural support for the thyristor valves. The valve halls must maintain their highly protected environment while the work progresses. The

---

halls were not designed for such use, putting space for the required activities at a premium as well. The complex plan for performing the required work has not yet been established. Nalcor recognizes the complexity of the required pre-commissioning restart activities, but considers a late-November restart of Pole 1 commissioning realistically achievable. Nalcor now expects the current plan will push back the start of Pole 2 commissioning by several weeks (to early January), although GE believes it can advance that date. Nalcor previously anticipated a four- to six-week duration for commissioning work prior to Trial Operation. Applying Nalcor's expectation produces a mid-February start of Trial Operation, placing successful completion of the required 30-day uninterrupted run at mid-March 2021 at the earliest.

*e. Permanent Solution to the Defective Valve-Hall Beams*

The approximately 300 beams needed for permanent replacement after Trial Operation continue to be reported as on order. Nalcor recently described last month's expectations about second quarter delivery of them to the site as a "sense" of timing, rather than a "schedule." We sought confirmation that success in using the beams for commissioning would not cause their temporary use to default into a permanent solution. Management has reportedly told GE that Nalcor remains firm in requiring replacement, to which GE has consented. Permanent replacement will require another disassembly/reassembly process and attendant interim storage under the same space and environmental conditions accompanying the still-unplanned temporary solution.

*f. Feasibility of the Temporary Solution*

We continue to lack access to sufficiently detailed information about temporary beam replacement to comment on its propriety. However, we do understand that, assisted by outside expertise, Nalcor has closely monitored developments, proposals, and plans. Testing and analysis preceded the plan's development and testing continues on the beams that will support LIL commissioning. Our inquiries of Nalcor showed that it has been attentive to ensuring that commissioning resumption will occasion minimal risk of catastrophic failure.

*g. Temporary Solution Schedule*

The schedule - - particularly for LIL completion this winter - - remains, as it has for many months, a major issue. Mid-March has become the earliest date by which the LIL can successfully complete Trial Operation. That Interim B has passed FAT offers one source of optimism, but the history of software development warrants concern about identification of protection and control issues during commissioning. Other reasons for pessimism that we have noted in recent reports also remain. Moreover, three months past the August flashover events, uncertainties continue to surround the commissioning resumption plans. They concern both the effectiveness of heat curing, so far performed on only a very small number of the 93 beams involved, and the duration required to accomplish disassembly/reassembly work.

We consider completion of LIL Trial Operation before April possible, but relying on that date is overly optimistic. Achievement of reliable LIL operations may well extend beyond April. Given the complexity of beam replacement, the lack of a plan for accomplishing it, the number requiring heat curing, and the need for confirming curing effectiveness through testing, we consider schedule slippage in completing commissioning past April very likely.

---

We inquired into the possible impacts of winter-season LIL commissioning. Nalcor reported that it sees at present no events that would impair commissioning activities, or place Hydro's bulk power system at risk. Nalcor will undertake an assessment of LIL conditions and address the results with the System Operator and with Hydro, to permit them to determine whether any system-exposure concerns exist or any operating limits will be required, based on system loads and conditions as commissioning continues.

*h. Implications for the Permanent Solution*

There is no firm schedule for delivery, of the 300 or so replacement beams needed for the permanent solution. Nalcor considers second quarter 2021 delivery likely, with a greater chance that it will occur sooner rather than later. That belief is somewhat comforting, but does not rule out later delivery. If all goes well with commissioning, second quarter delivery of the replacement beams will commence another period of disassembly/reassembly of some 300 beams, as compared with the 93 involved in the temporary measures.

Moreover, the Final software version still requires completion and must undergo successful FAT. That version will be the first to enable the LIL to offer important features (such as overload capacity on the remaining pole when one trips). GE forecasts successful FAT completion on the Final software version at the end of April 2021. Commissioning of the LIL at power up to 900MW must then follow. Beam delivery and FAT completion in accord with these milestones indicate commencement of a final, 30-day Trial Operation run at full power in June 2021. We consider that date overly optimistic as a planning basis, given:

- Previous FAT performance, which has historically produced numerous and persistent "bugs" and which Nalcor accepts will in some numbers occur during Final version FAT
- The need for careful study and planning to identify necessary constraints on commissioning at high power levels to avoid collapse of AC networks.

Uncertainties inherent in final commissioning and Trial Operation and the history of problems and delays that have delayed LIL progress to date make it appropriate to caution that full power LIL operation may extend into the fall of 2021 or later.

Coincidentally, Nalcor expects commercial operation of the third Muskrat Falls generator in May 2021 - - roughly coincident with the delivery of the Final software version FAT. Moreover, we noted previously that Hydro's September 28, 2020 "Muskrat Falls Project Key Milestones" schedule moved expected completion of the Converter Stations Bipole Dynamic Testing out to September 30, 2021, more than a year from the already past due date of August 31, 2020. How activities associated with permanent replacement of the valve beams will affect this schedule remains unclear.

## **4. Synchronous Condensers**

We have been reporting for some time on continuing efforts to address binding, corrosion, and vibration issues affecting completion of the three Soldiers Pond synchronous condensers important to long-term LIL operation at its full capability of 900MW. We saw this month no reason to question previous reporting that binding and bearing-corrosion issues continue to appear effectively resolved.

---

Progress on SC2 and SC3 proved in the past month to match expectations overall. SC 2 operated while connected to the grid and using hydrogen-system cooling. The expected vibration measurements are being taken. Nalcor has observed what it considers much improved SC2 vibration levels, and GE has reported substantial reduction as well. Nalcor, however, has not yet received the data or analysis needed to confirm operation within specified limits. Nalcor found the degree of vibration reduction on SC2 surprisingly large. SC2 has not undergone modification to the elliptical bearing, considered an important part of vibration remediation efforts. The only notable change is moving from air to hydrogen-system cooling after fixes on the latter. One possible explanation for the large reduction in vibration levels is the ability of the hydrogen system to provide more even cooling and less friction since replacing the air-based temporary one.

SC3 has been equipped with the elliptical bearing, but remains temporarily cooled by an air system. Nalcor has observed much improved vibration levels on that unit as well. Collection and analysis of data during November will determine whether the drop has brought SC3 operation into conformity with specified limits. Nalcor expects that SC 3 will begin operating under hydrogen-system cooling next week.

Nalcor continues to expect that measurements taken through the remainder of this month will provide a sufficient basis for determining whether measures identified to date will fully resolve the vibration issues. In the meantime, Nalcor has continued to press for parallel continuation of efforts needed to perform the more substantial foundation modifications that remain the plan, should full resolution not be confirmed in the next weeks. We reported last month GE reluctance to proceed apace with mobilization, but Nalcor has reported that site workers are in the province and completing their required quarantine periods now. They should be ready to commence work at the site in December if GE and Nalcor reach a decision that closure of the vibration issue does not occur.

As we have reported for some time, it remains the case that no foreseeable need exists for Soldiers Pond synchronous condenser availability to support LIL commissioning this fall and winter. Generation availability at Holyrood will provide necessary support.

## 5. Muskrat Falls Generators

LIL commissioning has anticipated the availability of generation from Muskrat Falls units. Nalcor has successfully completed the required 72-hour continuous operation test on Unit 1, with subsequent inspections so far not disclosing issues material to schedule adherence. That unit remains scheduled for release for commercial operations this month. Nalcor also reports that Unit 2 remains on track to meet scheduled release for commercial operations on or before early January 2021. The corresponding date for Unit 3 is in May 2021.

## 6. Temporary LIL Faults

Our last report addressed the potential for automatic LIL restart following a temporary HVDC double line fault to produce a bipole outage that should activate restrictions of exports over the ML. Absent such an ML runback, underfrequency load shedding could result, depending on the number of synchronous condensers in service. Hydro management agreed to examine means to

---

avoid this result. We reviewed a technical report Hydro provided (HVdc Transmission Line Insulation Coordination Study). The details of that report remain under discussion with Hydro.

## 7. Overall TTO Schedule Performance

Overall TTO activity progress has regularly and significantly fallen below expectations since we began our monitoring efforts in early 2018. That gap continues, but no new threats have been identified over the last month. Having just completed and reported on our more detailed quarterly analysis in our last report, we relied this month primarily on a discussion with Nalcor management. Many TTO activities continue to be slowed by LIL and SC delays.

*HVDC Training Development and Delivery* continue to lag substantially, affected by continued gaps in GE resource availability and performance. We observed no GE progress this month, with 24 percent of HVDC operator training and 40 percent of synchronous condenser training courses not completed.

*Generation Training Development and Delivery* showed some progress, with completion of all Phase 1 Turbine/Generator training. Balance of Plant progress also occurred, with about 33 percent of training being completed. However, a significant amount of development and delivery of generation related training remains to be completed.

*Manpower* continued to show nearly all key positions filled, with one support position remaining open, but expected to be filled imminently. A number of engineering personnel have transferred to other positions, requiring posting of vacated positions. None are critical to completion of TTO activities.

*Contracting* progress now finds 41 of 61 generation-related O&M contracts addressed, with the other 20 in development.

*Muskrat Falls Emergency Response Plan* discussions continue about using O&M staff as first responders.

*Limited MPPA/IOA Progress* continued last month, but plans have been made to entertain discussions with Hydro Quebec in a few weeks.

## 8. Hydro's Preparations for Winter

We continued to review Hydro's efforts to prepare its supply resources for reliable winter operation.

### *a. Water Availability*

Management reported a substantial supply of water for these facilities this month, with a storage level 398 GWh above the minimum target. The storage levels remain near the 20-year average level. The storage level amounted to 1,804 GWh at the end of October - - 618 GWh more than last year. Hydro, therefore, continues to see minimal risk with regard to energy in storage.

---

*b. Bay d'Espoir Penstocks*

Hydro completed the planned inspection of Penstock 2. This level-2 inspection included visual (VT) and magnetic particle (MT) examinations and ultrasonic tests (UTs). The examinations included interior and exterior portions of Penstock walls. The inspections examined previous weld repairs and selected new wall areas. Hydro reported that inspection and testing did not find conditions degraded from those observed in 2019 inspections. The inspections did find a bulge in a small wall section, but it is not considered a matter of immediate concern. A detailed report of inspection results is expected in mid-December.

We resumed discussion with Hydro of the two additional Bay d'Espoir risks we reported last month. The first of those risks involved failure of a 230 kV dead tank circuit breaker at the terminal station. Hydro has reported that spare equipment on hand can be employed to make repairs to a failed phase in two to three days, if required. We inquired into: (a) the basis for this duration, versus longer ones experienced in the past, and (b) testing to ensure spare parts suitability, and (c) readiness of maintenance packages and tools to address a failure should one occur. Hydro reported that:

- GE confirmed the duration to replace a single phase in their facility
- The spare parts have undergone testing and confirmation via factory acceptance testing
- The maintenance packages and tools have been completed with assistance from GE.

The second Bay d'Espoir risk arose from higher than expected vibration of Unit 1 during operation between loads of 55MW and 65MW. Hydro believes it has resolved the guide-bearing alignment issue causing high vibration. Monitoring following realignment, has shown operation within applicable tolerances.

*c. Holyrood Capital Projects*

We continued to review the status of four Holyrood projects scheduled for completion prior to the coming winter:

- Unit 1, 2, and 3 boiler assessment and repair
- Overhaul of Unit 3's main boiler feed pump
- Overhaul of the Unit 2 main generator
- Overhaul of the Unit 2 turbine control valves.

Hydro has completed the planned work on the four projects. Hydro has performed the previously deferred inspection of Holyrood unit 3's main steam turbine terminal. The inspection has shown no material defects (*e.g.*; cracks, voids, or material creep).

*d. Corrective and Preventive Maintenance*

Hydro continued this month to operate under its integrated annual work plan (IAWP) for O&M activities. With the onset of winter approaching, we requested a more detailed view of progress made in accomplishing activities planned under the IAWP. Management provided data (as of October 30) for each unit, summarizing the status of planned activities, and updated it in our most recent meeting verbally, as follows:

- Number Complete
- Number Remaining

- 
- Percent Complete
  - Planned to Date
  - Difference to plan.

The total number of activities complete as of October 30, 2020 per the integrated annual work plan 30 was 82.9 percent. Subsequent to that date, work progressed to a percent complete status of 94 percent (as of November 10). Hydro reported that all IAWP items are on track for completion by December 31, 2020. The remaining items primarily involve time-based PMs, not corrective maintenance items (CMs). Therefore, the vast majority of the activities to complete are not related to equipment in a known degraded state.

*e. Winter Readiness Checklist*

We continued to inquire into the status of Hydro's winter readiness work plan. As of October 30, 86.4 percent of planned activities were considered complete. We reviewed with management the remaining work items to evaluate the potential risk to generation availability this winter. Virtually all of the remaining winter readiness items relate to preventative maintenance items that: (a) pose a low risk to generation and (b) are scheduled for completion by December 1, 2020. A very small number of the winter readiness open items involve corrective maintenance; these items are also scheduled for completion by December 1, 2020. Hydro reports that 96 percent of the winter readiness activities are complete as of November 10, 2020.

Just two contracts remain unfilled at this time, and Hydro reports them to be of no impact to winter readiness preparation. Management reported that supply of critical parts and equipment remains on track for December 1 completion, with 99.2 percent of items now in stock with about 18 items remaining to be ordered or received.

*f. Other Risks*

We discussed with Hydro two additional risks to generation. The first of these related to issues with the Holyrood Unit 1 Boiler Feed Pump West. Hydro experienced a failure of the feed pump on October 25, 2020. As described by management, during a routine start-up of the pump, smoke was noticed emanating from the pump motor. An inspection revealed that the pump shaft had seized, and the motor was damaged. Hydro indicated that no alarms or other indications of failure existed at the time of failure. An effort has been initiated to repair the pump itself and the motor. The pump has been sent its original manufacturer (Flowserve) for repair; Hydro does not anticipate its return by December 1, 2020. Attempts to repair it revealed that the motor in stock was configured for reverse operation. The motor has now been converted to run properly for its intended use. The pump was overhauled in 2016 and not scheduled for another overhaul until 2022 (six-year maintenance cycle). A root cause investigation is underway by Hydro staff with assistance from the manufacturer. The focus of the root cause effort is threefold:

- To determine the cause of the event
- To determine why protective design features did not prevent damage to the motor
- To determine why the spare motor was not configured properly.

This is a significant and unusual failure. We will continue to track the progress of the root cause for this event.

---

The second additional risk reviewed involved an issue that arose with Holyrood's Unit 3 Circulating Water Seal Pit Discharge Piping. In February 2020, a sink hole appeared over the stage 2 (Unit 3) circulating water discharge line from the seal pit to the outfall to Holyrood Bay. This was confirmed to be a leak in the circulating water discharge line. A repair plan was subsequently developed but could not be implemented because it was deemed unsafe for a diver to enter the water to install a line plug for the work. As a result, the repair was deferred until the next planned total unit outage, scheduled for 2021. Early indications suggest that the leak appears to be from a seam of the piping that has been compromised. Hydro initiated the performance of an inspection that determined that the pipe is in generally good condition outside this leak area. Consequently, Hydro and an engineering consultant determined that this leak is a low risk to generation at this time, and that the unit could continue operations. Hydro reports that should the pipe fail, Unit 3 would be unavailable until a repair was performed. Further details on a contingency plan are scheduled to be developed and reported in a December 10, 2020 report. We look forward to obtaining the risk assessment report for our review and the discussion on the contingency plan should a failure of the line occur.

*g. Bay d'Espoir Request for Proposal (RFP) for Long Term Penstock Repairs*

Hydro issued a request for proposals (RFP) for the performance of a Bay d'Espoir life extension project. The RFP outlines the relevant history of the Penstocks, a description of the construction of the penstocks, and the steps requested for the evaluation and the proposal deliverables. The RFP has been sent to experienced engineering firms previously used and to other firms that specialize in such repairs. The RFP contains nine specific tasks. The first focus of the effort is for Penstock 1 as this Penstock is arguably in the more degraded material condition.

We do observe that the RFP calls for a site inspection but does not specifically address an opportunity for an actual inspection of the penstock for those companies that have not heretofore been involved in this issue. Hydro stated that it will provide extensive amounts of inspection results to all companies as needed. This represents a productive and necessary step in the process but an actual inspection may provide valuable information for the repairs, especially for coating contractors.

*h. Our Plans for Next Month*

We plan to review any vendor inspections reports that become available for the Holyrood capital projects and the Penstock 2 inspections. We will continue to examine Corrective Maintenance, Preventative Maintenance, and Winter Readiness Work Item completion. In addition, we plan to review the Holyrood Unit 1 Boiler Feed Pump root cause analysis when available, the contingency plan for the Holyrood Unit 3 circulating water discharge piping leak, the inspection report for the Holyrood Unit 3 circulating water discharge piping leak along with the risk assessment for repair deferral until 2021 and the repair reports from the OEM for the Holyrood Unit 1 BFP when available.