Third 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



October 1, 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	
4. Synchronous Condensers	5
5. Muskrat Falls Generators	
6. Temporary LIL Faults	7
7. Overall TTO Schedule Performance	
8 Hydro's Preparations for Winter	S

1. Report Background and Purpose

This report 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. This version is the third since the Board changed our reporting cycle from quarterly to monthly, in order to provide more current information about LIL availability and Hydro's efforts to prepare its supply resources for this coming winter. End-of-quarter versions of these monthly reports will continue to provide greater details on the broad scope of TTO (Transition to Operations) activities. Interim ones, like this one, will focus on what we have observed as more immediate issues regarding winter resource availability and readiness.

2. Report Summary

Prospects for bringing the Labrador Island Link (LIL) into reliable service for the fast-approaching winter season continued to comprise a primary focus of our efforts. Last month we considered the LIL less rather than more probable of operation for much if not all of the coming winter. Events and announcements since our last report bring more pessimism, appearing to all but rule out reliable LIL operation through this winter. Hydro in fact advised just two days ago that the estimated date for completion of bipole testing completion has now stretched well past the coming winter - - to the fall of 2021.

The latest of the many problems LIL completion has encountered arose when an August 13 flashover at the Soldiers Pond Pole 2 valve hall damaged one of the fiberglass beams that support the HVdc converter assemblies. A similar flashover later occurred when GE restarted Pole 1 commissioning. Seven weeks later an examination of the incidents' root causes continues. GE has only preliminarily identified a cause and Hydro has reported that its resolution involves replacement of over 300 beams - - an undertaking for which no schedule yet exists.

Meanwhile, work on the long-delayed LIL control software continues, but GE has still not made available the additional "interim" version planned to support a third iteration of already twice-failed Factory Acceptance Testing. Even without the supervening beam problem, there is

essentially no time for further delay in delivering that software or in successfully completing the required 30-day, uninterrupted LIL Trial Operation period before the coming winter.

This combination of factors, the troubled history of LIL completion, the large body of completion and repair work looming add significant pessimism to already large doubt about LIL operation in the immediate term. Hydro's September 28 announcement of the extension of a key LIL testing milestone to well past the coming winter underscores that pessimism.

Last month we reported the potential for LIL operation at some meaningful level this winter even in the absence of a failure to complete Trial Operation successfully. The uncertainty about resolving the flashover events that has since arisen and the continued pendency of interim software delivery, however, do not inspire confidence in even that possibility anymore. A 2020-2021 winter without the LIL has become the most likely eventuality, subject to: (a) significant change in GE's view of the cause of the August trips, and (b) a level of performance in software delivery and remaining commissioning work much stronger than accomplished to date.

The inability to rely upon LIL operation through the winter heightens the importance of Hydro's completion of inspection and repair work designed to make its supply resources ready for operation this winter. Significant work still remains, especially on its capital projects, but Hydro has stayed close to schedule in completing it. Hydro has deferred past this winter some elements of planned work at Holyrood. While unfortunate, management has studied the risks involved, and judged them acceptable on a basis that we found reasonably informed. Work on maintenance and winter readiness activities has not quite reached 100 percent of plans the past two months, but the gap as yet has not reached a level posing major concern. Full progress this next month, however, is critical, as less time remains for full completion.

Commissioning of the three synchronous condensers being installed at Soldiers Pond (important to long-term, full-power operation of the LIL) has continued, along with work to incorporate and test the effectiveness of actions to reduce unacceptable vibration levels. Completion of these units remains subject to continuing, material uncertainty. However, the unavailability of the synchronous condensers in the immediate term does not threaten LIL commissioning, should that commissioning prove in any event able to continue toward completion prior to winter.

Management will collect data and make observations about vibrations during October and into November (as the synchronous condensers undergo commissioning activities). Nalcor continues to expect that these activities will provide a basis for validating the so-far apparent success of measures already identified to address excessive vibration. More extensive foundation work, identified as the "backup" plan should those measures fail, remains in progress. Work on that option has advanced significantly, permitting it to commence as early as this November. Even such a start date would delay availability of all three synchronous condensers to August 2021. Moreover, the current forecasted construction duration should be considered at risk however, given the current status of the foundation project.

We previously reported a small risk that generation at Muskrat Falls would not be available for LIL commissioning. Failing that availability, LIL commissioning will require another source of supply at 225MW. The risk arose from a system failure at one of the units - - since reportedly corrected. Nalcor now projects Unit 1's commercial availability in October and Unit 2's in December of this year. These expectations support LIL commissioning, should it otherwise be able to proceed. If needed, recall power from Churchill Falls remains an option for so long as increasing cold-weather winter electricity demand in Labrador allows. Continuing lack of progress in securing transmission access through Quebec and use of other-than-recall power from Churchill Falls appear to foreclose those two options in the now unlikely event that electricity proves unavailable from both Muskrat Falls and from recall power throughout this fall.

We will provide, as planned, a more detailed review of TTO schedule progress in our next, quarterending monthly report. Our higher level review this month shows, as has been the case since we began monitoring efforts, significant gaps in completing the many completion activities that remain (per the S-curve approach we have been using) and in developing and delivering training. Progress has, however, been made in securing generation-related O&M contracts and Muskrat Falls site emergency response plans.

Finally, a report to Hydro from TGS has concluded that automatice LIL restart attempts following a temporary HVDC double line fault could produce underfrequency load shedding, unless measures exist to runback exports to Nova Scotia over the Maritime Link. We plan to continue discussing with Hydro two potential measures that management has agreed to examine to address that threat.

3. LIL Status

We discussed last month the start of dynamic commissioning of Pole 2 on August 13, 2020, using an interim version of control software (Interim A), while a further interim version (Interim B) remained in development. Within a minute or so of deblocking the thyristor valves, the converter tripped. A flashover in the valve hall, subsequently attributed to one of the fiberglass beams providing structural support and insulation for the thyristor valves, caused the trip. Following preliminary investigation of the trip, GE commenced re-commissioning of Pole 1, which had operated for a time in 2019, without experiencing flashover issues. However, a similar if not identical flashover event tripped Pole 1 on August 25, 2020, following the same sequence of events.

Both poles have since remained out of service, pending completion of investigation and identification of the likely root cause of the flashover, to be followed by corrective measures required. We began discussing the incidents with Nalcor shortly after their occurrence. Nalcor initially expected lab test results fairly soon, but the investigation into the root cause still continues today, now some seven weeks later. Since the August flashover events, Nalcor has not been prepared to offer an assessment of likely schedule delay. Hydro did offer two days ago (on September 28), the movement of forecasted completion of Converter Stations Bipole Dynamic Testing from August 31, 2020 to September 30, 2021. We will discuss that extension with Nalcor.

Investigation and testing have included laboratory analysis of the beams, informed by senior-level expertise brought in by GE, monitored by Nalcor and resources available to it. About a month after the Pole 2 trip, on September 17, 2020, Nalcor advised that the investigation found no evidence of any foreign/unexpected material in the beam, but made clear that a flashover across the beam had occurred. The beams reportedly come from a firm that has regularly supplied them for GE, and with similar beams having operated in GE HVDC projects at other locations without incident. To assist with the Root Cause Analysis, GE Grid has shipped one beam to the manufacturer in Germany and the other beam, upon removal, will be shipped to a laboratory in New York for inspection and chemical analysis

GE has not settled on a firm conclusion about the root cause. However, residue found on some of the Soldiers Pond and Muskrat falls valve hall beams has formed a primary focus of investigation, testing, and analysis. The origin of the residue, at last reporting available to us, remained unknown. However, on September 28, 2020, Hydro reported that GE's preliminary Root Cause Analysis has indicated a potential manufacturing defect as the cause of the residue and posited that about 90 percent (approximately 350) of the beams installed will require replacement. No plan and schedule for the replacement yet exists.

In the meantime, GE has proposed an approach that will permit LIL dynamic commissioning of LIL to recommence in the immediate term and without large-scale beam replacement. Following completion of a damaged beam at Muskrat Falls and at Soldiers Pond, this approach would lead to dynamic commissioning recommencement early this coming November. We have not yet had the opportunity to discuss what other activities, if any, will be performed before commissioning starts or to question the implications of successful commissioning (i.e., no recurrence of similar flashover events) for large-scale beam replacement. Such a program would produce lengthy outages of one or both poles, depending on the ability to operate the converters without replacing the affected beams.

Hydro's September 28, 2020 document updated "Muskrat Falls Project Key Milestones" pushing completion of Converter Stations Bipole Dynamic Testing more than a year out from the already past due date of August 31, 2020 - - to September 30, 2021. The recent statements about the flashover event are highly qualified, with terms like "preliminary," "indicates," and "potential" applicable to both causation and solutions to the August flashover events. We plan to continue dialogue with Nalcor about LIL completion risks and date ranges, and the long term implications of the identified problem and the risks of re-occurrence.

The LIL already faced no schedule slack in completing Trial Operation prior to December 1. The uncertainty, magnitude of cited beam replacement work, and the long extension in LIL testing completion date make clear, the importance of promptly informing the Board (as our sorting out process continues) about the August events and their potential implications. What we know now supports a conclusion that LIL availability this winter - - already less than likely - - should not be considered a possibility to which one can attach a material likelihood of occurrence. That assessment may (and we certainly hope will) change as more becomes clear. However, with winter just around the corner, we believe the best available approach to assessing customer exposures this winter is to consider the LIL as unavailable.

We have been reporting the delays in completion of the control software for the LIL, now at Interim A version, with Interim B version still awaiting completion. A Final version (the first version that will provide the LIL with important bipole capabilities essential to operation at full power) will come at some time after eventual commercial operation. The Interim B version is scheduled for delivery by the end of September, and may replace the Interim A software for the planned recommencement of commissioning. However, the Interim B software must still successfully complete twice-failed Factory Acceptance Testing. Doing so requires both delivery of the Interim B version and a level of success its predecessors have not attained. As we have described earlier, there was little room for further delay relative to winter season's onset, even before the August flashover events.

Even apart from whatever barriers the August flashovers finally produce, much commissioning work remains. And even after other commissioning milestones yet to be reached, the LIL must undergo 30 consecutive days of untripped Trial Operation before it can be considered operational. We had previously reported that there was a possibility that the LIL might provide some reliable and material contribution to supply this winter even without completing Trial Operation. We do not consider it appropriate to place significant confidence in that possibility given the latest circumstances.

We inquired into other and potential causes of the August flashovers, including dust incursion. Thyristor valve integrity requires a valve hall with very low dust levels, and relies on overpressuring the hall to prevent dust incursion. Nalcor has not confirmed that over-pressuring has been maintained at all times. We also asked about the potential recurrence of glycol leaks found and repaired in 2019. Small glycol leaks can prove exceedingly difficult to spot. Laboratory testing so far has not identified the presence of glycol, but its leakage has not yet been eliminated as a potential cause. We also asked about the thyristor failures reported by site alarms. Later testing indicated that these alarms came in error - - the thyristors proved functional. GE plans to retest the thyristors after replacement of the damaged beam.

Finally, the electrical connection between Muskrat Falls and Soldiers Pond changed from that used for 2019 testing of Pole 1. The 2019 testing used the other HVDC line for the return current; the August 2020 flashovers occurred with the sea electrodes performing that function. Nalcor has reported that this and other differences in configurations at the two times fall within the scope of GE's continuing investigation.

4. Synchronous Condensers

Nalcor has for some time continued to address three material problems in completing the three Soldiers Pond synchronous condensers critical to long-term LIL operation at its full capability of 900MW - - binding, corrosion, and vibration. Nalcor continues to consider the binding issue and the bearing corrosion issue, which affected Synchronous Condenser Unit 3 (SC3), resolved. Uncertainty remains with respect to the third issue - - vibration observed on SC3 and SC2. Monitoring vibration data will help determine whether remedies already identified will fully resolve the issue, or whether the more time consuming alternative of performing work on the foundations for the units will still be required. GE has continued to progress on a project that will address foundation work. Design progress has reached a key 60 percent milestone, and work still remains on pace to support construction start as soon as November of this year, leading to availability of all three units by August 2021, as projected by Nalcor.

Thus, completion of synchronous condenser commissioning by the beginning of this winter remains at risk, and will depend in major part on the observations and data to be made during operations as part of commissioning activities. Nevertheless, retaining generation availability at Holyrood will substantially mitigate the consequences from any continuing unavailability of these three synchronous condensers, permitting LIL commissioning activities to continue at power transfer levels up to 225MW.

SC2 has been the most advanced of the three units, undergoing a successful July test while connected to the grid. SC2 operated in support of LIL testing since August 3. During August operation, lateral vibrations on SC2 exceeded specified levels, but remained below alarm thresholds. How those levels will affect synchronous condenser commissioning schedules and decisions about the need for the more substantial and longer duration foundation work remain uncertain.

GE has completed hydrogen detection system modifications on SC2, and recommenced unit commissioning in late September. Dynamic commissioning will involve running the unit at various loads up to 100 percent of capacity to test the unit, during which GE will capture vibration data. GE has also completed installation of SC3's elliptical bearings, reconnected auxiliary systems, and begun manual rotation testing of the Unit. Operation in November as part of commissioning activities will provide an opportunity to evaluate whether the installation of the bearings obviates the need for the more substantial and lengthy foundation remediation work. If proven successful on SC3, bearings for the other two units will undergo the same redesign. Installation of SC1 bearings and housings thus await the outcome of SC Unit 3 dynamic commissioning and a decision on the need for foundation remediation work.

GE and Nalcor continue to address construction schedule and mobilization priorities and logistics. If required, foundation remediation construction work will begin with SC1. We reported last month the preference for completion of work on SC1 after which work on the other two units would proceed simultaneously. A November 2020 start on SC1 is expected to make all three units available for operation in August of 2021. However, schedules for the three options understandably have a wide range. The current status of the projects leaves significant remaining design and other pre-construction work, making their schedules uncertain. However, progress over the last month appears to have been at a rate that has narrowed the uncertainty somewhat.

5. Muskrat Falls Generators

LIL commissioning has anticipated the availability of generation from first Muskrat Falls units. We previously reported that recognized delays in first Muskrat Falls unit availability, while not yet threatening, warranted consideration of alternatives to providing 225MW of power for transfer over the LIL. What has turned out to produce only a short delay in the Unit 1 operation date resulted from an unanticipated oil spill caused by a Unit 2 plant sump pump system overflow. Work on Unit 1 halted pending an analysis of the root cause of the Unit 2 event. That review has led to correction of the cause identified - - improper set up of the pumping system by the contractor. Connection of Unit 1 to the electricity grid in Labrador occurred on September 22, 2020. The

schedule for remaining testing has produced a late October release of Unit 1 for commercial operation.

Should Unit 1 experience further delay, excess recall power remains an option, subject to increasing electricity use in Labrador as cold weather deepens. We inquired again about the other options (requiring use of Hydro Quebec's transmission system or power from Churchill Falls), which have continued to show no material progress, thus making their availability this year very uncertain.

6. Temporary LIL Faults

A TGS Report, "Operational Considerations of LIL Restarts and ML Runbacks," has shown that automatic LIL restart following a temporary HVDC double line fault should not be attempted, because doing so may produce a bipole outage. An automatic restart process follows detection of a fault on the HVDC line, typically a few hundred milliseconds (200ms or more) after the fault, energizing the line to enable power flow. TGS observed that such an event should call for runback on the Maritime Link (ML) immediately on losing the LIL. It appears that ML run back activation will be activated only on the trip of a LIL pole. Therefore, the ML will still continue to export power to Nova Scotia after loss of both LIL poles. Continuing ML export will produce a rapid frequency decline, resulting from the combination of the loss of power from Labrador, the IIS system load and the continuing export to Nova Scotia. Such a decline will likely produce underfrequency load shedding (UFLS), depending on the number of synchronous condensers in service. The number of bipole outages would increase significantly, because lightning strikes affecting the conductors of both LIL poles will happen.

We have asked Hydro management to examine two alternatives, which management has agreed to consider:

- Modifying the control and protection system to send a signal immediately to the ML to order a runback in the event of a strike to both conductors
- Immediately tripping one pole in the event of a double-pole strike in the event that it is not permissible to run back the ML without the trip of a pole.

An immediate trip would place the remaining pole into its designed-for overload mode, as required. The tripped pole could be restarted within a few seconds, if automated, or several minutes if manual. If feasible, fewer bipole outages would result. Another, more expensive solution might be to increase the number of synchronous condensers to slow the rate of frequency decline.

7. Overall TTO Schedule Performance

Ever since we began monitoring activities, actual TTO activity progress has regularly and significantly fallen below expectations. That gap appears to be continuing. We will receive detailed TTO schedule information as part of the next, quarter-end monthly review, at which time we will undertake a more-detailed schedule review. Nalcor did, however, provide this month a high-level progress update on TTO activity progress; its highlights include:

• *MF Supervisor of Operation*: management has permanently filled this key position; while two lower level support positions remain open, Nalcor expects to fill them soon.

- *Limited MPPA/IOA progress*: CFLCo discussions are continuing, but without significant apparent progress on the IOA (the MPPA is a precondition to the IOA).
- Integrated Project Schedule updates: Nalcor continues to gather information and continues to anticipate the next update in September.
- Continued lag in bulk work progress: the slow pace in activity completion has continued, with the major focus on completing generation-related items that include spare parts identification, balance-of-plant training, development of low frequency preventative maintenance plans and operating procedures; witness and verification functions have lagged as a result of issues impairing LIL commissioning.
- *Progress on contracts:* 39 of 61generation-related O&M contracts have been addressed; the other 22 remain in development.
- Progress on Muskrat Falls emergency response plans: discussions continue about using O&M staff as first responders.
- Continuing HVDC training development and completion lag: there has been a continuing lack of full GE resource availability and performance, and no progress this month, with 24 percent of HVDC operator training and 40 percent of synchronous condenser training courses not completed.

8. Hydro's Preparations for Winter

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

a. Water Availability

Management reported a healthy supply of water for these facilities last month, with storage level 35 percent above the minimum storage limit and within 27 percent of the seasonal maximum operating level. Hydro therefore continues to see minimal risk with regard to energy stored.

b. Bay d'Espoir Penstocks

We discussed last month the history of penstock failures and the risks they pose to unit availability. Hydro last performed an inspection of Penstock 1 in July of this year and has scheduled the next one for 2021. Hydro plans a Penstock 2 inspection this October and a Penstock 3 inspection in 2021. The inspections will address previously repaired areas and other selected areas. We plan to examine the results for Penstock 2 when complete. Hydro has taken the following three actions to mitigate any failures of the penstocks should they occur.

- Perform an annual inspection of the penstocks and a weekly visual inspection of their exteriors
- Develop a work plan to expedite the repairs to the penstocks in the case of a failure; including pre-planning of resources and pre-staging of equipment and material
- Implement a standing instruction to limit rough zone operation on the penstocks with focused efforts to reduce deleterious effects of operation on Penstock 1.

We learned of two additional Bay d'Espoir risks as part of this month's communications with Hydro: (a) failure of a 230 kV dead tank circuit breaker at the terminal station, and (b) higher than expected vibration of Unit 1 during operation between loads of 55MW and 65MW. The 230 kV

circuit breakers failed twice in 2018 and then in 2019. Three available spare circuit breakers allow for repair following a failure. Hydro plans to present a long term plan to resolve the issue in its October Winter Readiness Planning Report. In addressing the second, vibration issue, management continues to review data collected during an outage on September 11, 2020, anticipating a fuller understanding of the issue in October.

c. Holyrood Capital Projects

We continued to review the status of four Holyrood projects scheduled for completion prior to the coming winter: Unit boiler assessment and repair, overhaul Unit 3's main boiler feed pump, overhaul of the Unit 2 main generator, and overhaul of the Unit 2 turbine control valves. Hydro has completed the Unit 1 and Unit 3 boiler inspections. The in-process Unit 2 boiler inspection is expected to be completed in early October.

Resource limitations resulting from COVID circumstances led Hydro to defer completion of five categories of boiler work items into 2021:

- Inspection of the main steam turbine terminal at Unit 3
- Borescope inspection of the Unit 1 and Unit 2 economizer inlet header
- Unit 3 wind box and corner tube inspections
- Condition assessment of the Units 1, 2, and 3 air heaters
- Assessment of the forced draft fans at Units 2 and 3.

Hydro has completed work on the other boiler work items, either finding no issues requiring remediation, or correcting those needing repair or replacement. We examined the rationales for the deferrals, finding them substantial under the circumstances.

An outside firm with extensive boiler experience has visually inspected or reviewed records of the unit equipment associated with the deferred items. The firm concluded that the existing condition supports operation through the deferral duration at an acceptable level of failure risk. Liberty has reviewed the reasoning for the deferral of the boiler assessment work as provided by the outside consultant.

We reviewed an analysis Hydro provided of deferring the phased array ultrasonic testing of the Unit 3 main steam turbine terminal. That analysis employed previous data for the main steam turbine terminal, used the minimum wall thickness data measured in 2017, and an assumed original maximum allowable code wall thickness to predict an average corrosion rate for the wall thickness. The analysis then applied this calculated corrosion rate to the 2017 wall thickness, extrapolating to determine the number of years to reach code minimum wall thickness at this rate of corrosion. The analysis concluded that the code minimum wall thickness would not be reached for the next eight years. In addition, the 2017 inspection did not find any recordable material indications.

A similar analysis supported the deferral of the Unit 1 and Unit 2 economizer inlet header borescope inspection. It used 2020 wall thickness data to calculate an average corrosion rate for the headers. This calculated average corrosion rate was then applied to the minimum 2020 wall thickness readings to predict a time period to reach code allowable minimum wall thickness. This

time period was calculated to be about 14 years for the Unit 1 economizer header and 36 years for the Unit 2 economizer inlet header.

We also discussed Hydro's rationale for the deferral of the Unit 3 wind box and corner tube inspections. Attempts to inspect the inside surfaces of the tubes where failures initiate were previously unsuccessful. As a result, a replacement of the attachment tube sections became the most reliable fix for potential future tube failures (three failures have occurred in 1993, 2002, and 2018). The modifications proposed (installation of expansion pleats and replacement of the attachment tubes) would require an extended outage and significant costs. Hydro has considered this cost unjustifiable, given failure risks. Failure is most likely to occur during transients of start-up and shut down of the unit. As the unit is scheduled to be left on-line at 70MW to 150MW during the four month winter readiness period, the stresses due to plant transients is considered low. In addition, Hydro has identified local resources to repair a failure if it were to occur. Hydro considered a repair duration of about a week, based upon the previous 2018 failure.

Hydro also offered a rationale for deferral of the condition assessment of the unit air heaters including assistance from the OEM. Minor repairs had followed a visual inspection of the air heaters, and the repairing entity deemed the air heaters fit for service, pending a condition assessment by the OEM scheduled for 2021. Hydro has planned this OEM inspection primarily to identify any required capital investments for longer term operation.

Hydro deemed deferral of the OEM inspection of the forced draft fans acceptable because the OEM inspection was intended to identify capital investments needed for long term extension of operation if needed. A visual inspection was completed by B&W, followed by minor repairs. B&W has indicated that the equipment is fit for operation until 2021.

Hydro has completed overhaul of the Unit 3 boiler feed pump, with its inspection finding a bent pump impeller shaft that required replacement. Hydro has scheduled completion of the replacement work by November 2. Further reports clarified that the shaft was not actually bent, but did fall outside the recommended run-out specifications. The shaft has been replaced.

Work on the other two major projects, overhaul of the Unit 2 main generator and turbine valves has progressed, but remains uncompleted. Hydro anticipates completion of the Unit 2 main generator overhaul by October 6, with work to date identifying no issues threatening availability for the winter season. Turbine valve disassembly, inspection, and refurbishment are continuing, again, with no major findings reported so far and an expectation that Hydro can complete the required work as scheduled.

d. Corrective and Preventive Maintenance

Hydro continued this month to operate under an integrated annual work plan that includes all O&M work activities. Management reported completion of planned September activities at plan 90 percent, versus a corresponding measure of 88 percent for planned August activities. Total progress to plan stands at 59 percent. Hydro reports work continues to remain on schedule in spite of not attaining 100 percent of monthly plans the last two months. Management subjects all work

to a system of regular status reporting, risk ranking, and prioritizing of remaining maintenance items.

e. Winter Readiness Checklist

We again inquired into the status of Hydro's winter readiness work plan. Hydro reported completion of 93 percent of planned September activities. Total completion for the season stood at 59 percent as of a September 11 report. Hydro last month had placed 104 of 106 planned contracts critical to winter operation; the other two were remain on schedule. Reported supply of critical parts and equipment also continued to remain on track.

f. Our Plans for Next Month

We plan to secure the following as part of our inquiries for the coming month:

- Continue status summaries for the ongoing Holyrood capital projects, including milestone information regarding the Holyrood boiler assessments and detailed information about exceptions produced by the turbine valve and main generator inspections
- Copies of any interim or final vendor inspections reports for the Holyrood Capital projects as they become available
- A deeper review of the CM, PM, and Winter Readiness Work Items if progress does not improve. The overall status of 59 percent begins to take on more significance, particularly in light of performance of less than 100 percent of monthly plans for August and September.