

Tenth Quarterly Monitoring Report on the Integration of Power Supply Facilities to the Island Interconnected System

Presented to:

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

Presented by:

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1. Purpose of this Report

This report examines first quarter 2020 scheduled and completed activities undertaken as part of the TTO organization's role in integrating the LCP into the province's electrical system by planned in-service dates. The scope of this monitoring effort has generally excluded Muskrat Falls construction activities, although we have considered the impacts of the scheduling of those activities on TTO work. Muskrat Falls construction continued to proceed under its own plans and schedules; progress against those construction milestones have continued to bear on and have material linkages to the TTO work streams and their schedules.

The four work streams of the TTO, each of which operate under dedicated teams, consist of:

- BTPO (Building the Production Organization) - - focused on operations and maintenance strategy, organization design and staffing, training, securing needed services from outside sources, and the development of operations and maintenance plans, systems, strategies, and procedures for the integration between the IIS and the LCP
- RFI (Ready for Integration) - - focused on system planning inputs for design and operational requirements, development of reliability standards, support for operational readiness, and participation in testing
- RCFI (Ready for Commercial Integration) - - focused on commercial, legislative, and regulatory matters
- RFO (Ready for Operations) - - functional oversight of a variety of requirements (*e.g.*, safety and environmental), contractor deliverables, and turnovers to operations. The transition schedule contains no RFO activities, which are embedded in the LCP.

Our review of progress over the past quarter continued to focus on the five substantive areas we have addressed over the past twenty-seven months:

- Sufficiency of BTPO, RFI, and RCFI work stream plans and schedules in providing a sufficiently comprehensive, well-defined, logically sequenced and connected set of activities
- Progress made in the last quarter relative to schedules for these work streams
- Management familiarity with schedule drivers
- Management's identification of measures to minimize schedule slippage
- Key measures, actions, and results for coming months.

We applied to the development of this report methods somewhat different from those used previously. Work restrictions imposed by coronavirus circumstances caused Nalcor to suspend updating the Integrated Project Schedule for Muskrat Falls, meaning that we had no current list of milestone dates - - a list that provided a framework for our earlier reviews. We did, however, have a currently updated TTO project schedule. We used it, but without an ability to relate it to the Integrated Project Schedule, except on a now outdated basis. Restrictions to manage coronavirus effects also ruled out an in-person session with management - - we employed instead a teleconference, held April 16, 2020. We added a second teleconference, on May 5, 2020, designed to focus on continuing uncertainties about LIL and synchronous condenser completion. With Factory Acceptance Testing (FAT) of the LIL looming, we particularly wanted to secure

information about how well it was proceeding. With the onset of the coming winter getting closer, and with LIL control software and synchronous condenser vibration issues still unresolved, we wanted to get the latest possible information into this report.

2. Summary of Major Observations

a. LIL Status

The sessions just recently held with Nalcor and Hydro cast further and substantial doubt on the prospects for LIL operation by December 1 or shortly thereafter. General Electrics in Stafford has been able to work on the software issues, but site work restrictions that began during March in Labrador and at Soldiers Pond have prevented LIL and synchronous condenser physical work necessary to support their commissioning, and will continue to do so for as long as they continue. Nalcor did not have sufficient information to offer an estimate of the date when craft workers will return, or to assess what restrictions may inhibit work after they do. More threatening, however, are: (a) the lack of success in Factory Acceptance Testing of the interim software (a result we find both surprising and disappointing), and (b) the failure to have identified a firm solution and plan for making corrections to the conditions causing synchronous condenser vibration.

Our prior reports have addressed significant doubt about the schedule for bringing the LIL into commercial operation. We do not have access to sufficient information to assign probabilities to December 1 LIL operation. However, from what we do know, we now find it appropriate to conclude that operation by that date appears less rather than more likely. A combination of factors makes it unrealistic to place a comforting level of confidence in December LIL availability:

- A sustained level of General Electric underperformance for what is now a very long time
- The remaining LIL software and synchronous condenser vibration issues
- The status of efforts to address them
- The need for physical work (both associated with and independent of them) to resume fairly soon
- The short time available to make alternate plans for winter operation.

The level of pessimism that now exists regarding LIL availability for the coming winter calls for an expedited effort to develop plans and the capability to operate without the LIL. Hydro should, as a matter of first priority, accelerate plans for identifying and executing plans for operating without the LIL this winter. We, like Nalcor and Hydro, hope that performance (and now work conditions) will improve soon enough to support LIL availability by this coming December. However, circumstances make it clear that reliance on that hope requires a backstop.

Nalcor management expressed more optimism about LIL schedule, but did express reservations about whether continuation of uncertainties and problems like those noted above past June would threaten LIL operation by the beginning of December.

The continuing problems experienced with General Electric's provision of protection and control software will delay the provision of a final (*i.e.*, tested, commissioned, and verified as supporting LIL operation with full functionality as designed) version of that software until some unknown date after LIL commissioning with the interim software and its continuing use by operators to

supply service to customers. Therefore, testing has proceeded and will continue to proceed using an interim version of the software. Nalcor and Hydro anticipate that continued testing will eventually produce an interim version that can be used during commercial operations until the final version that meets the full specification for the LIL is developed, tested, and put into full operation. Apart from the extended and continuing problems in getting the interim version through required testing, another material limitation looms.

Even after getting the interim software in a state that can pass required, pre-operations testing, it will still lack functionalities necessary to support LIL operation with all the capabilities for which it has been designed. Key features remain missing in areas that include bipole current control, overload capability, power modulation, sub synchronous damping control, and frequency control. These gaps will not be closed until the final software is completed, installed, and fully tested. LIL testing and later operation will employ an interim version until then. General Electric is not expected to produce the final version of the control and protection software until some, as yet uncertain time - - after LIL commercial operation has commenced.

The final software's added features will give operators important operating flexibility, absent which system operators will face constraints. For example, the final software will permit the remaining LIL pole to compensate for loss of the load carried when the pole fails. It will do so by overload operation of the remaining pole for a short period that will give operators time valuable in starting generation, to prevent under frequency load shedding. Hydro will not be able to rely on this backstop for a single pole loss until the protection and control software capability exists to permit it. Operational restrictions will have to be imposed to avoid system collapse and UGLS (under frequency load shedding). The lack of frequency control capability, which will await operation under the final software, offers another example of important limits on system operations that will require accommodation.

When the final software will become fully functional post-commercial operations of the LIL and what implications its commissioning will have for operations remain unknown.

b. Delays in Developing Training

As has been true for a number of quarters, efforts to develop and design training continues to show very little progress. It remained constrained by General Electric resource availability. On a positive note, the suspension of site activities resulting from efforts to address coronavirus spread has created an opportunity for the project team and operations to make plans for completing some of the training that has been lagging. This focus on training development and design comprises part of a broader effort by Management to advance work on commissioning activities lower in priority, but performable while restrictions on other work continue.

c. Schedule Performance Metrics

Overall schedule performance, as measured by activity completion continued to lag this quarter, as it has for some time. We observed a continuing failure to advance activity completion rates sufficiently to provide confidence that such completion will support key overall project milestones. With ever less time remaining to complete them, continuing lags cause an increasing threat to overall project completion. Management did report that the suspension of site activities has created

an opportunity for the project team and operations to focus on a variety of operational priorities, that have to date, had a lesser priority to commissioning activities. In recognition of this opportunity, several requirements have been identified and incorporated into the project teams 90-day plan, with working groups and project/operational leads identified in each area.

3. Major Findings

a. LIL Schedule

Work constraints imposed to address the coronavirus added another barrier to work progress in the first quarter, causing cessation of physical work on the LIL and at Muskrat Falls beginning on March 17, 2020. Management was not prepared to offer an assessment on the likelihood that restrictions will ease in time for it to be able to place the LIL in service by the beginning of the coming winter.

The LIL has remained out of service for almost twelve months (since June 5, 2019). Ongoing and new issues and constraints continue to delay its completion as preparation for installation of bipole software continues. Awaiting General Electric's delivery of the long-delayed interim bipole software remains, as it has been for many quarters now, the most critical LIL schedule driver.

General Electric completed Factory System Test (FST) during the first quarter. FST procedures test all aspects of the control and protection system, using a methodical approach designed to identify control and protection system flaws or issues that require correction to provide the full functionality specified. FST tests the current version of control and protection system, using a digital simulator (RTDS). Use of the RTDS enables modeling of the operation of the converter station and ac network. The actual control and protection cubicles, including software, are connected to the RTDS. After achieving stable converter operation as modelled, FST faults are applied to the HVDC and ac system designed to test the ability of the HVDC scheme to respond correctly. Completion of FST procedures generally takes several weeks.

Executing the FST procedures disclosed a number of software issues ("bugs"). As we have reported for many quarters, previous testing activities had also identified such bugs. Nalcor characterized the bugs resulting from FST procedures as critical - - presenting a scope and severity sufficient to cause retention by General Electric of outside expertise to expedite addressing them. A team led by a former senior General Electric HVDC managing director, now operating a consultancy, has been addressing the bugs since March of this year.

Factory Acceptance Testing (FAT) was scheduled to commence shortly after our April session with Nalcor and Hydro. Successful FAT completion represents the final step before delivery of the software to the site. FAT verifies that the equipment operates in accordance with design specifications, with components and controls working together to provide the required functionality. FAT uses a simulation process like that employed for the FST. In our experience, control and protection system developers (General Electric in this case) can be expected to have completed before FAT commencement not only the FST, but also any corrections required, and regression testing (to ensure both successful correction and non-introduction of any new problems resulting from such correction). Therefore, one would generally expect from owners and

developers a high level of confidence that the FAT will be successful and that it will not produce any surprises; *i.e.*, no major flaws requiring correction will emerge.

Management expressed to us confidence that work since the FST had sufficiently addressed the FST-disclosed flaws and issues sufficiently to warrant FAT initiation. Management, General Electric, and the Independent Third Party (ITP) appear to have agreed that proceeding with FAT at this time (just after our April session with Nalcor and Hydro) was appropriate. Management has relied on regular communication with the ITP for independent technical advice for quite some time now, including solicitation of its views on the appropriateness of commencing the FAT.

The original FAT plan called for completion in about two weeks. However, Management believed that coronavirus-related restrictions on work practices would lead to a moderately longer duration. Testing turned out to meet the two-week expectations (beginning on April 19 and concluding on May 1), and proceeded smoothly, as management described it. Management, the ITPs and the Independent Engineer (who represents federal government interests) participated in or observed FAT activities from remote locations, using software (called “Team Viewer”) presumably enabling access to screens available to operating and engineering personnel.

Management reported that the test assessed normal operating conditions, modelled LIL operation at up to 900MW, and applied a range of faults in the ac networks. Unfortunately, a significant number of material test failures (“surprises” as defined by typical experience) occurred. Management described some of the failed tests as “service affecting,” later explaining them as failures certainly requiring correction and successful results following re-testing. Management also advised that it expected a plan and schedule from General Electric addressing the correction of the failures discovered, sometime around May 13.

The FAT failures indicate that General Electric did not perform the level of FST and pre-FAT testing required to produce FAT success. Especially given the now long history of development problems, the FAT results make it appropriate to question matters like the level of care it exercised, the sufficiency of its control and protection engineering expertise, the pressures imposed by continuing delays and failures in correcting software issues, and combinations of these and other factors. In any event, the results pointedly demonstrate:

- The need for insistence that General Electric carefully plan and execute corrective measures, and repeat a complete set of FAT tests.
- That optimism about LIL completion dates following the provision of another schedule by General Electric will likely warrant significant discounting.

Management advised at our May 5 meeting that it expected from General Electric a schedule for addressing FAT results by around May 13. As of the date of this report, we had yet to receive the schedule or an alternate delivery date, but plans remain to provide it to us when available.

We are not privy to the detailed activities of General Electric; we have not been permitted direct access to its personnel or activities; we have not, despite continuing efforts, overcome what Nalcor has describe as General Electric’s unwillingness to permit our on-site visual examination of documentation of ITP’s work. We thus cannot be certain of what management and the ITP have been told about FST and FAT results. However, management’s reported examples of the bugs

disclosed by the FST appeared clearly to be minor (*e.g.*, spelling mistakes). Nalcor stated that they did not have the potential to result in malfunction of the control and protection software, resulting in trips or malfunctions during testing. Nevertheless, that is what FAT procedures disclosed, making what occurred between FST and FAT activities significant, and possibly very much so.

In any event, Management's description of post-FAT flaws is much more serious, with protection errors and bipole trips reported - - which raise very serious issues. We plan to review the General Electric schedule for correcting them when it becomes available, in order to secure both a listing of material defects and a schedule for correcting them.

We believe that this plan needs to incorporate regression testing, following General Electric's assurance that all known issues have been corrected with relevant re-tests (regression testing). Repeating tests both failed (and the subject of the corrections) and already passed is necessary to ensure that correction is complete and that it has not created additional defects. We consider it premature to reperform FAT testing without a robust regression testing program that produces multiple iterations that generate no observed failings.

In summary General Electric's performance on the development of the control and protection software and the need for significant work to prepare for subsequent FAT make it impossible to predict with substantial confidence when FAT testing can recur.

Needed work to correct a separate LIL concern adds to the uncertainty. Management must complete physical work to address issues observed in February 2020 during open circuit and open line testing. Point on wave-switching equipment will be installed at the transformer ac breakers to control high levels of in-rush current identified during testing. Installation must await easing of coronavirus-related restrictions on site work, although management has described the issue as minor. It may not prove possible to install this equipment before recommencement of LIL commissioning. Other means exist to demagnetize the transformer core, but it appears that they would require a longer wait between energizations.

Uncertainties surrounding timing of the next iteration of the interim software version FAT and its success when it does and the separately existing restrictions on physical work lead us to conclude at this point that completing the control and protection systems with the additional software required for full bipole functionality, before this coming winter is probably less rather than more likely. The remaining software development and implementation are complex, and require careful design and extensive RTDS FST testing before performing the FAT on the final version. After successfully passing FAT, the final software will require installation at the site and commissioning.

b. Soldiers Pond Synchronous Condenser Vibration and Binding

The LCP's electrical connection of Labrador and Newfoundland requires three Synchronous Condensers (SCs). An SC operates effectively as a generator without a prime mover; it cannot deliver continuous power. The roles of the three LCP SCs consist of: (a) increasing the short circuit level at the connection point of the inverter station, allowing the LIL to operate in a stable manner, and (b) increasing the inertia of the IIS to prevent temporary faults within the IIS or on the LIL from producing a need for under frequency load shedding.

Studies have demonstrated the need for a minimum of two SCs to be in operation when the LIL is delivering full power of 900MW to the IIS. Import of 225MW from Muskrat Falls (MF) has been achieved without any SCs in operation, but with Holyrood and other Island generation (material to the analysis) in service.

Commissioning work on the synchronous condensers identified material vibration and binding issues - - vibration identified during Unit 3 work and binding during Unit 1 and 2 work. Nalcor recently reported confidence that the binding issues have been resolved. Nalcor also believes that bearing modifications should serve to resolve one of the two vibration (longitudinal) issues affecting the SCs. General Electric has apparently issued a design/build RFP to address foundation resonance as a contributor to vibration. While continuing to seek less extensive means of satisfying the specifications, the RFP permits contemporaneous progress in examining more complex solutions, should they prove necessary. Those more complex design solutions include modification to the foundations for the SCs. The RFP sought proposals for design and construction of three of these more complex solutions. General Electric is engaged in discussions with large contractors now; no decisions on alternatives or commitments to any contractors appear to have been made.

Solutions requiring significant foundation work will require temporary SC operating measures pending work completion in 2021. Meanwhile, as noted, it remains possible that General Electric will find acceptable solutions obviating those requiring longer durations and significant foundation work. Pending the timing and nature of the solution selected, interim SC availability remains subject to confirmation that they can run continuously without completion of final foundation modifications that may prove necessary.

A TGS study (Operational Considerations with 0 and 1 SOP Synchronous Condensers) has concluded that operation of the LIL at up to 900MW could in principle be possible, but with caveats that include the need for additional studies, and permission to operate the LIL outside of the specified parameters. Management has also reported that:

- SC#3 had run continuously at rated speed for three or four days
- SC operation is not required when the LIL carries up to 225MW, with the Holyrood plant in service.
- Operating units at Holyrood can provide a temporary solution to unavailability of SC's. If there is insufficient time to resolve the remaining vibration issue before testing and operation at power higher than 225MW can take place, then it is possible that the SCs can be used to support such testing.

Progress is being made, but the information Nalcor reported to us does not support a reasonably firm conclusion that options identified so far will eliminate vibration as a source of limitation on synchronous condenser operations in the near term. We have also not seen a clear basis for determining what short- and long-range damage to the synchronous condensers the issues may cause (*e.g.*, the time to failure of the SC if solutions do not completely obviate the issues that exist). We also do not believe there exists at present a basis for making realistic projections of the time it will take to get the SCs to a point where vibration issues will not delay their commissioning. The work in addressing foundation-related causes and solutions remains open-ended at this point in

time, both with respect to magnitude of the problems caused by vibration and the means for addressing them.

c. Securing Needed Personnel

We have reported for some time substantial progress in securing personnel to operate LCP facilities. Staffing overall remains at a high level, but one key Muskrat Falls position (Supervisor of Operations) remaining open in the first quarter is currently filled through a temporary arrangement with a CFL(Co) resource on a part-time basis. Plans are to permanently fill the position by the end of 2020. An additional open position at MF (MF Contract Administrator) is being reassessed for need, with a decision in the second quarter of 2020. Permanent staffing has principally been completed as the next table illustrates.

We previously reported that limits on start-up resources to support converging commissioning activities presented a risk to activity completion. Rates of progress this past quarter indicate that the risk remains for the remainder of 2020, although cessation of site work has enabled plans to address lagging areas, in order to preclude them from threatening key milestones after work resumption. We consider timely execution of those plans important in addressing the convergence issue.

Overall Staffing Status as of March 31, 2020							
	***Total Planned	In Process	Hired-On-Board	Offers Accepted	*Total Secured	% Secured First Quarter 2020	% Secured Fourth Quarter 2019
Transmission O&M Staff	58	0	58	0	58	100%	97%
Generation O&M Staff	28	0	26	0	26	93%	93%
Engineering Services Staff	41	0	41	0	41	100%	100%
Support Services Staff	14	0	14	0	14	100%	100%
BTPO Staff/Contractors	14	0	14	0	14	100%	92%
Total	155	0	153	0	153	99%	97%
<small>* Secured = On-Board + Offer Accepted</small>							
<small>**In Process includes posted, screening, interview or offer stage</small>							
<small>***Total Planned reflects minor refinements to the Transmission ,Generation and BTPO Resource plan since the fourth quarter, 2018.</small>							

d. BTPO Training

Training also continues to lag - - like other areas, substantially affected by General Electric resource availability and performance. The first quarter of 2020 saw only one training course completed. Seven (33 percent) of the 21 identified HVdc Station’s General Electric Operator training courses in the TTO work plan have not been completed. A similar percentage (2 of 5) General Electric training courses on the four Synchronous Condensers have not been completed. The rate of completion raises a material concern. However, training comprises another area planned for increased immediate-term focus as suspension of construction activities resulting from the coronavirus continues.

e. Long-Term Agreement for Optimization of Hydraulic Resources

Our prior reports have discussed a Hydro-proposed Pilot Agreement that the company has addressed in an application to the Board. The application proposes to accumulate the proceeds from “optimized” hydro operations in a deferral account, pending a future application addressing disposition of resulting value (*i.e.*, the Hydro customers’ share of value produced by assets whose costs Hydro’s rates include) among the participating Nalcor entities. Filing dates for the Amended

Pilot Agreement and Long-term Agreement have been moved to May 31, 2020 and August 31, 2020 respectively (dependent on Department of Natural Resources D(NR) rate mitigation inputs)

4. Summary of Actual versus Scheduled Activity Completion

a. Overall First Quarter Schedule Progress

As previously reported, Nalcor's May 1, 2019 re-baselining of the TTO pushed back a significant number of activities. Our previous quarterly report noted that fourth quarter progress was less than anticipated. We saw similar results over the first quarter, 2020. As nominally reported, first quarter progress has slowed, lagging baseline expectations. First quarter completion dates have continued to move out into the second and third quarter quarters of 2020 and beyond.

The coronavirus-related work stoppage on March 17, 2020 clearly affected work in the last few weeks of the first quarter. However, progress was limited even in the preceding two and one-half months of the quarter. TTO activity completion delay continued to be affected by General Electric's inability to meet schedule commitments and by lack of sufficient resources to complete bulk work tasks. As noted, coronavirus work restrictions have produced movement of resources to completing a number of lagging TTO work items. Nalcor has established a list of priority items, and formed working groups to address such work tasks. Key items to prepare the Generation operations team include:

- Operating Procedures
- Operator Training (syllabus, logistics, scheduling, contracting, lessons learned/knowledge transfer workshops)
- Spares (contractor spares, recommended spares, special tools, surplus spares)
- Turnover preparation (documentation completion, operational review, NLSO acceptance criteria)
- Other (Grid Energization Procedures, Supports for O&M contracts etc.)

This resource movement needs to show results in the next quarter as little time remains to accomplish the much-improved work rates needed to meet schedule. We continue to emphasize the need, with ever less time remaining to complete activities, to turn the "corner" in completing critical work. Construction delays and ensuing schedule extensions have given the TTO team added time to complete its work. However, the team cannot continue to rely on being "gifted" with additional time as a result of such delays.

b. Key First Quarter Milestones

Key milestones extracted from the LCP Integrated Project Construction schedule provide the foundation for TTO's baseline integration schedule. Milestone dates tracked in the transition schedule represent the earliest date that the transition team can be ready. Following the mid-March work stoppage, Nalcor stopped updating the Integrated Project Schedule for Muskrat Falls and the LIL, and has no firm plans or date expectations for resuming the updates. Management continues to update the TTO project schedule, but with limits, given the lack of a continuing flow of milestone information typically supplied by the Integrated Project Schedule. We would normally provide a chart showing nominally reported milestone progress measured from the new May

baseline schedule. However, the lack of timely and accurate milestone date information normally extracted from the Integrated Project Schedules make such a comparison pointless until regular schedule updates are resumed.

c. First Quarter Activity Progress

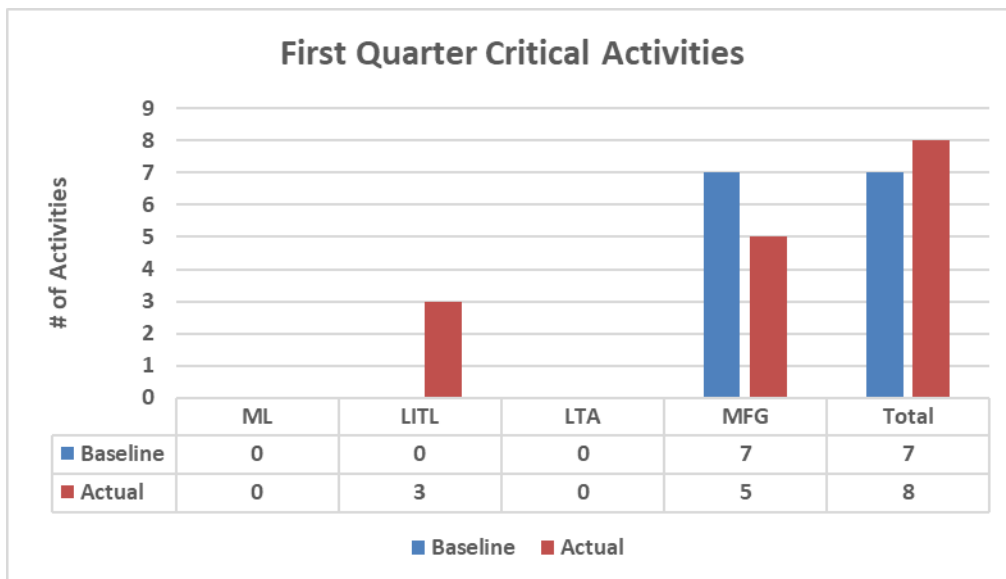
Completion of planned activities for the first quarter continued to lag. The table below shows 35 activities scheduled for completion in the first quarter of calendar 2020. Management completed less than a quarter of them (8 in total). The transition team did complete an additional 4 activities mainly targeted for completion in prior quarters.

First Quarter 2020-Performance Summary			
Baseline Activities Scheduled	Baseline Activities Scheduled and Completed	Unscheduled Activities Completed	Total Activities Completed
35	8	4	12

A significant number of activities originally scheduled for completion in the first quarter 2020 or earlier have now moved into the second and third quarters. The table’s activities slated for completion in the first quarter fell into two categories:

- Critical activities - - those having an impact on critical path milestones
- Bulk activities - - those just requiring completion by the end of the project.

The chart below summarizes first-quarter progress on activities that schedules show as critical to completion.



The May re-baseline called for the completion of 7 critical activities in the first quarter of 2020. Management’s actually completed 8 activities. However, this is somewhat misleading as 6 of the 8 completed activities were targeted for completion in prior quarters. Adjusting for the completion

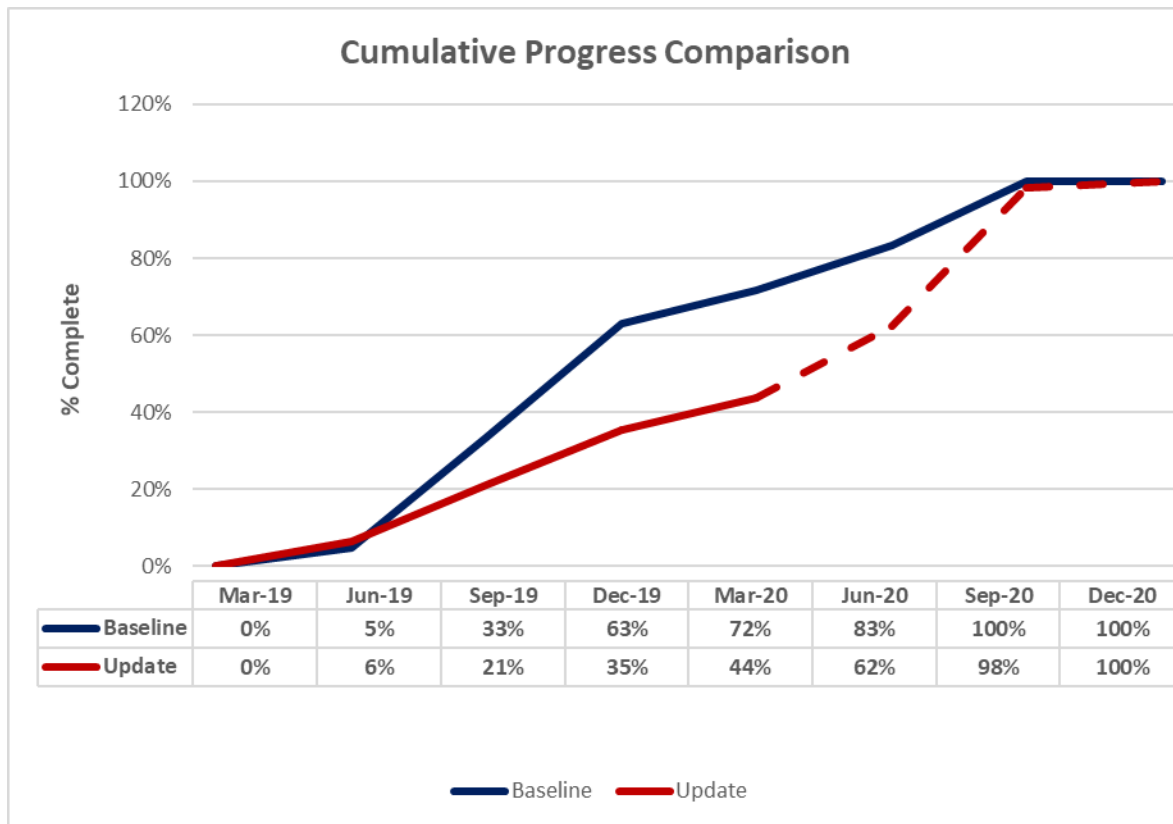
of prior quarter activities results in only 2 of the 7 activities scheduled for the first quarter actually being completed. A considerable number of outstanding activities originally targeted for completion in prior quarters remain to be completed. As we have reported for some time, continuation of a large number of outstanding activities increases in importance the schedule threat as overall project completion approaches.

d. Completion S-Curves

We have been measuring progress against a cumulative percent-complete “S-curve,” initiated at the outset of our monitoring activities due to gaps in management’s schedule construction and reporting. Percent complete as we have measured it equals cumulative number of activities scheduled for completion divided by total outstanding activities.

The May re-baseline caused us to re-initialize our curve to begin measurement of progress starting with the second quarter of 2019. The re-initialized curve shows through the first quarter, 44 percent of total outstanding activities were completed, versus a targeted completion of 72 percent. Significant improvement will be required to meet the forecast projections expectations for the second quarter 2020 (62 percent). Even with the accomplishment of this very unlikely level of achievement, it would still fall short of the second quarter baseline target of 83 percent which was established in May. Past performance suggests that attaining this level of achievement will be extremely challenging and very unlikely.

The next chart shows the increase in the gap between planned (Baseline) and actual (Update) through the first quarter of 2020. The chart also shows the much accelerated rate of performance required to complete remaining work. With progress impaired by a number of major issues (like coronavirus-related work restrictions, LIL software, synchronous condenser vibration, and the impacts of activity convergence on resource availability) we find the growing gap over the past several quarters grounds for further concern about TTO work completion schedule.



However, delays outside the scope of its work have given TTO more time to complete its activities. As time passes, confidence is lessening that this breathing room will remain sufficient. Issues like: (a) new scope, (b) continued failure to meet targets, (c) persistent identification of new and substantial problems, and (d) the ability to command the resources to complete all required work tasks remain as threats to schedule.

5. Follow-Up Action Items

The following is a list of action items resulting from the recent discussions with Nalcor.

- General Electric is expected to produce by the middle of May a schedule for correcting the LIL software deficiencies, which will be necessary to support retesting. Nalcor should provide to the Board and Liberty the General Electric schedule when it becomes available, in order to secure both a listing of material defects and a schedule for correcting them.
- Re-examination of the scope and frequency of monitoring efforts should address whether continuing performance lags (*e.g.*, LIL software and condenser vibration) and the now short-period remaining before the onset of the winter season call for changed focus, scope abbreviation, and frequency of interaction with management and reporting to the Board. Monthly reports may better focus attention on the barriers to completion before the coming winter period.