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Subject: Nalcor QAs
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Attachments: [Nalcor Questions 20160225 v1.docx](#)
[image001.jpg](#)

Hi team,
Attached is the most updated list of questions and answers.
Regards,



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Nalcor questions:

CH0030 (Andritz)

Scheduling & Dates

- 1. When are Andritz currently forecast to have access to the Turbine installation work area?**
 - The standard milestone defining access to Turbine installation activities is "Pit Free". Predecessor activities related to this milestone are related to the Main Civil works - Powerhouse. Due to ongoing coordination and review of the main civil works program, the forecast date for this milestone is being reviewed. Having said this, options are being examined to advance installation activities, such as installation of embedments as the concrete foundations are built.
- 2. Please confirm the planned installation progress percentage figure and planned commissioning progress percentage as at the end of the December reporting period**
 - The original control schedule baseline is not a reference to confirm planned percentages related to installation and commissioning activities due to explanation provided to item 1. The original contract milestones required Andritz to start work on site in May 2015 for installation of embedments. Mobilization has been delayed and the installation schedule has not been updated as the revised civil schedule is still under review with Astaldi. The planned progress figures therefore reflect the original contract dates and are no longer valid.
- 3. I understand Andritz are currently forecasting an 8 month delay in their installation works schedule. Please advise the current dates in the IPS for the dates in the 'selected key dates' file.**
 - The revised dates are not available as the revised civil schedule is still under review with Astaldi.
- 4. What is the nature of the schedule linkages between the completion of this work and subsequent works? (What is the key successor activities & what is the current float?)**
 - Completion of the concrete foundations and powerhouse steelwork for each unit is required prior to the start of the installation of the unit. Andritz is waiting on the civil works. Manufacturing is well ahead of Site progress. The equipment is being placed in storage.

Cost Trends / Changes

- 5. I would like to have a quick conversation to reconcile / clarify the figures between the following two documents(both attached for reference);**
 - **The changes & trends in the cost summary for CH0030 in the 'Cost & schedule Final' presentation (p34)'**
 - **The Andritz CH0030 change management register (open & closed claims)**
 - The outstanding changes shown on page 34 of the presentation (\$1.9 M) includes all items in the change register except CHR's 241, 122 and 245 and allowance has been included for the estimated costs of manufacturing delay in CHR-291. CHR's 241 and 245 are included in the trend for \$7 M (ECN's and

Apprentice Ratio) and CHR 122 for indoor storage is part of the \$13 M trend shown for storage.

6. **Understand what / where is the current cost provision for a potential delay & disruption claim from Andritz relating to delayed access and where represented in the forecast, (separate to storage cost trends)**
 - A cost provision for the schedule delay has not been included in the numbers. It has previously been explained to EY that this will be assessed when the situation with Astaldi is quantified.
7. What is the weather dependence of installation activities for CH 0030?
8. For both contracts, is there a requirement for Andritz and Astaldi to work in parallel – e.g. on concrete foundations or embedments or is a straight handover?

CH0032 (Andritz)

1. **I would like to confirm the current IPS forecast dates for the milestones in the attached spreadsheet**
 - CH0032 is working to a revised schedule for the spillway that has split "ready for diversion" into two scopes. A - Scope required for diversion and B - Scope required to impound the river to winter headpond elevation. CH0032 has not revised any other remaining milestones for the spillway or powerhouse. Start of hydromechanical works in each area is dependent on the civil construction schedule. All primary embedded parts for the spillway and powerhouse are at site.
2. **For the open & closed change requests (register attached) how are these represented in the contract forecast? (in particular item 2023 for 6.9M) How does this relate to the 1.6M trends figure?**
 - The scope of change 2023 has been revised significantly and is in line with the value in the trends figure.
3. **Regarding the accelerated element of the contract scope, I understand from our meeting last Thursday that;**
 - a. **The majority of the CH0032 acceleration works on the spillway gates are not a predecessor for river closure diversion milestone on 6th July, but rather the Winter Headpond 26th Oct & Impoundment milestones.**
 - This is correct. See also the note below with respect to the motivation for acceleration. Note the scope division with the contractor as required for the diversion milestone is the installation of all the major structural and mechanical systems and local controls. The scope remaining for winter headpond milestone is the electrical auxiliaries building and permanent backup power system and fuel supply. It also includes the installation of the trash cleaning machine that could be deferred later but is more economical to install at this time.
 - b. **That the motivation for the acceleration is to get Andritz out of the work area / offsite, rather than as a predecessor to the diversion 6th July milestone**

- The motivation for the acceleration is to complete spillway gates installation scope most effectively achieved prior to river closure in time for the diversion milestone. Demobilization of the contractor from the work area is also of benefit.
 - c. **Given the above, I would like to clarify the sequence of Andritz' spillway works, key dependencies for the accelerated portion & motivation for the acceleration**
 - Andritz is working unimpeded in the spillway, with no significant interdependencies upstream prior to the diversion milestone. There is an interface downstream with the civil contractor tied to completion of the spillway channel base slab construction later in the spring. The general sequence of the spillway work is as follows:
 1. installation of embedded guides and concreting
 2. installation of gates, hoist structure and hoists
 3. dry testing stoplogs and commissioning gates with local controls
 4. **Ready for diversion**
 5. Completion of spillway electrical building (starts before diversion)
 6. Commissioning auxiliary power and gate controls from the electrical building
 7. Trash Cleaning Machine installation (not a predecessor for winter head pond)
 8. **Ready for Winter Headpond**
 9. Rollway sill beam installation and commissioning of each gate in final operations configuration
 - d. **I would like to confirm what performance data is available for this portion of the installation works to date**
 - Andritz currently provides overall progress reporting against the baseline schedule scope (found in monthly report). The revised spillway portion of the schedule has not been formally accepted yet.
 - 12% of the scope required for diversion is complete vs. 17% in the accelerated plan. For the winter headpond and diversions scope combined, Progress is 11% vs 16% planned.
4. **Regarding the non-accelerated element of the contract scope,**
- a) **I understand from the CH0032 discussion on 26th Jan that the non-accelerated portion of the Spillway works, and the powerhouse works should be completed in Nov 2016 - I would like to confirm the above understanding is correct**
 - The winter headpond scope will be completed by Nov 2016. There is a small scope to modify the gate hoists and install sill beams in the rollway that will follow civil progress on the rollways. The powerhouse works will not be completed in 2016 and is dependent on the Astaldi civil schedule as per the baseline.
 - b) **Are the forecast installation durations for these works still the same as planned durations?**
 - Yes. They remain the same.
 - c) **What is the current level of installation progress for each of these elements of work?**
 - These activities have not started with the exception of supply of embedded parts to the civil contractor which is 100%.

CD0501 – Alstom – Supply & Install Converters & Transition Compounds Project
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1. **Review of the Nalcor Milestones (recently sent document), not aligned perfectly with Contractor Reports. Is Nalcor adjusting the Forecast dates to their understanding of progress and scope or are they tracking to a different float?**
 - Contractor Milestone.pdf document provides information on Nalcor “Dates”. Nalcor is independently managing the Forecast Dates that they use in the IPS Schedule via managed input from the Contractors Schedule and the Component Management understanding of the site/activity/project.

2. **As the Dynamic Commissioning of the Converters & Transitions Compound is a predecessor for the LITL Sub Project Milestone, why has the Target Milestone not shifted accordingly (perhaps it is just a “target” but wanted clarification). → Anthony Embury edits in Green**
 - We do not have a milestone "LITL sub Project". For clarity, there are 2 types of target milestones in the IPS, 1) Key Milestones, as identified in our overarching agreement with the Government, and 2) tracking milestones (of which there are only 8 total, 1 for LTA, 2 for LITL, and 4 for MFG).
~~Target Key Milestone: Milestone that is held in the schedule and managed to. This milestone, while not a contract milestone, has been made “public” and is the significant date that is managed to in terms of reporting to the Government.~~
 Tracking Milestone: Milestone that is currently the tracking date that the activities in the path of development of an asset a key milestone are planned to complete on. This date, while communicated to the Government, is managed monitored within the Nalcor Project Management system.
 Generally speaking there is expected Float between the Tracking and Target Key Milestones. ~~that includes activities, such as Dynamic Commissioning that will require coordination from other parties (and are not driven by the Contractor).~~
 Dynamic commissioning is an activity tied to the tracking milestone, however should be noted is an activity controlled via the Company rather than by the Contractor. Contractors control of the schedule ends at static commissioning in most cases. We refer to the Float watch reports in the IPS monthly report for clarity on the key workflows that may impact the Key Milestones.

3. **What assumptions related to productivity (i.e. progress / month) are the contractor and/or Nalcor utilizing to validate the forecast going forward?**
 - Nalcor Owner’s Team independently evaluates the Contractor Progress via ongoing internal analysis, reviewing and validating. Nalcor Team reviews the Contractors Forecast on an ongoing basis with the Contractor. Nalcor provides input into the acceptance of the Contractor’s Forecast, but is careful not to direct or issue a Forecast for the Contractor. Nalcor is actively reviewing the Forecast and providing input in terms of reviews of past performance, mitigations strategies, etc.
 - The Contractor Forecast remains the responsibility of the Contractor to manage.

4. **Understanding that the current schedule is to be revised, can we get a copy of the latest schedule for our review/analysis?**
 - o Alstom meetings ongoing. No updated schedule available.

5. **How are the risks being managed (i.e. float) between interdependencies of Alstom Scopes of Work and External Components / Contracts?**
 - o Nalcor is managing the interfaces with the various contractors on a given site, etc. at three levels 1) milestones, 2) schedule, 3) technical

6. **With respect to the FFC, the slides presented formed a very clear picture of how you were tracking FFC, Budget, Pending Changes, and Scope Award. Could you walk me through the Change Register alignment with the \$ values on the slide deck (7-E&Y_Cost & Schedule_FINAL_19-Jan-2016). In particular I noticed a \$25M Change Request that was turned into a \$5M Change Order (re: the Filters). It was my understanding that the \$5M was “close” to the overall expected value. → Anthony Embury edits in Green**
 - o Nalcor manages the elements of change through four registers elements:
 - 1) **Risks** – Profiled from the Risk Register, but no \$ carried in the Contractor Budget, i.e. the event has not occurred and is able to be mitigated.
Once a risk is realized, the Change management process is undertaken through the raising of a DAN. This process continues through development to either cancellation or the completion of a PCN (Budget, execution, schedule adjustment approval). In the meantime while development is ongoing, we evaluate the effects that may potentially exist through regular review. As a review of our potential impacts to the remaining contingencies, we look at the DANs as Potentials:
 - 2) **Potential** – Changes and Realized Risks that are being evaluated and continuously developed (i.e. Monte Carlo) to obtain a potential impact. ~~Please confirm if carried in the FFC?~~ As the completeness of the change is not fully quantifiable at the particular moment in time nor fully developed, we review the potentials quarterly through processes such as montecarlo. However these are not included in the FFC directly as these are checks to review if the Contingencies are sufficient. In other words, the existing contingency remains a part of our forecast.
 - 3) **Trend/Forecast** – ~~Evaluated Risks~~ Further developed changes that, while not finalized, have matured to a position that the project team determines a reasonable estimate of the impact is most likely to occur, a draw from contingency from the FFC to the relevant Cost items in the system is taken via the incorporation of a Trend. While the change is not fully ~~that have been~~ quantified, the change is noted and ~~are~~ carried in the FFC.
 - 4) **Budget** – PCN/Change Orders. Final quantified Changes approved in the CCB, and FFC.

CD0502 – Alstom – Supply and Installation of Substations (Switchyard)

1. It appears that Alstom has adjusted the current forecast milestone dates to align with contract milestone dates, without appreciable plan to address schedule SPI. What assumptions is the project making related to development of the forecast, in particular the bow wave of delayed procurement on construction activity start dates?
2. Review of the Nalcor Milestones are not aligned with Contractor Reports. Is Nalcor adjusting the Forecast dates to their understanding of progress and scope? Why misalignment?
3. Similar to CD501, a walk-through of the Change Register / Change Order Log and how it aligns to values on the slide deck ((7-E&Y_Cost & Schedule_FINAL_19-Jan-2016) that you presented during the review.

○ [SEE SECTION CD0501 FOR ANSWERS](#)

CD0534 – Alstom – Supply and Installation of Synchronous Condensers at Soldiers Pond

1. Past mitigation efforts to expedite procurement including prioritization of critical path PO's and splitting of PO's to expedite components have been implemented by the Contractor without material change to procurement progress. What assurances are in place to ensure that revised forecasted progress for remaining equipment and materials will be maintainable and not develop into construction delays?
2. Similar questions to CD0501 and CD0502.

○ [SEE SECTION CD0501 FOR ANSWERS](#)

CH0008-001 - North Spur Stabilization (Gilbert)

1. **In order to ensure that the cost performance savings are achieved, what management tools are in place to ensure that Contractor cost performance (CPI) is maintained during the execution of the scope?**
 - The contract structure has been established to incentivize the contractor to complete the work at lowest cost, and therefore maximize the contractor's bonus associated with completion. Company has established full time oversight at the construction site including specific project controls and labour relations supports in addition to the construction, health and safety, engineering and quality surveillance functions to ensure both cost and schedule performance are optimized in real time. Reimbursable labour productivity is the highest risk associated with cost performance and the deployment of full time labour management support has proven invaluable in supporting the contractor's efforts to maximize labour productivity and utilize the tools available within the project Collective Agreement. The onsite project controls personnel regularly review the contractor's progress measurement and reporting with the surveillance team. Daily and Weekly meetings with the contractor review performance and establish opportunities for optimization across all aspects of the work. And lastly, the MFG Delivery Team planned and is carrying-on a cost

review process for all construction activities performed during 2015 construction season to ensure full compliance to the agreement's provisions and savings for the identified target cost related to the cost reimbursable component.

- a) **Would like to receive a copy of the cost reimbursable portion of the contract – plan, spent, forecast.**
 - Is this still a requirement?

2. **There are three unresolved disputes (Valard accommodation, Annual Winter Maintenance, Early Winter Shutdown) that, while appearing minor, may have implications on budget forecasting. What value has been carried, if any, in the forecast to manage risk associated with the unresolved disputes?**
 - The three unresolved disputes will not impact the budget forecasting for this work. While the contractor has triggered dispute for these items, there remains a fundamental Contractor entitlement deficiency with respect to each dispute. We have established and communicated clear responsibility within the contractor's fixed price components for each of these items and are continuing to meet the contractor in an effort to resolve. Notwithstanding the triggering of dispute provisions by the Contractor, the contractor has not put forward a position to establish any Owner's responsibility, either in whole or in part for these items. Please also note that the value associated with the disputed items, if any entitlement is established, is very small in the context of overall.

3. **Nalcor has chosen to maintain Contract Dates as forecast, but Contract is representing a positive variance on dates. Confirm dates and approach?**
 - We are maintaining contract dates as forecast. The contractor is currently taking a positive view with respect to completion dates for the North Spur scopes based on execution ahead of plan in some areas in 2015. We are currently working with the contractor to evaluate execution planning for 2016, including workscope prioritization, mobilization timing, etc. and once that assessment is complete will revisit the forecast completion dates.

4. **Confirm any scope interdependences with other contractors?**
 - The North Spur scope is a standalone execution scope. The only construction interdependencies relate to completion of upstream scope for river diversion readiness with the dams contractor CH-0009. There is a contractual milestone associated with this activity that is planned for completion in 2016, however upstream workshops have been prioritized. In addition, there is tower installation scope required for the North Spur, but the interface is geographical and not schedule dependent.

CT0327-001 - HVdc TLC (Valard)

- 1. What is the current plan and status for Valard to improve performance and bring project back on track?**
 - A3: Valard's production performance has steadily been improving in 2016. Valard are presently developing a recovery plan which will demonstrate to LCMC the measures required in order to construct the balance of line in the most effective manner possible.

- 2. How are past schedule performance factored in the IPS Float Watch calculation for TL (i.e. LITL –HVdc Seg/ 1,2,3,4,5)?**
 - A4: LCMC is continually assessing Valard's performance in each of the particular Segments and combining this with our insights into opportunities and risks facing the work as it progresses, in order to forecast the completion date for each of the Segments as contained in the IPS.

- 3. Review figures in the tables in section 13.2.3.1 of Nalcor December progress report.**

- 4. Review assumptions on weight factors for calculating overall progress (understanding that contractor has not included overall progress calculation rules in its submission to LCMC yet).**
 - A1: The basis of measure for the Agreement and hence overall progress measured is founded in units installed, whether foundation, tower assembly, erection, conductor strung, etc.

- 5. What's the current plan to rectify the NCRs on tower foundation (current status and next step)? What are the impacts on progress?**
 - A2: Valard have developed a plan for remediation of all open NCRs on tower foundations that is presently being reviewed by LCMC. In the meanwhile individual NCRs are progressively being reviewed and dispensed by LCMC in a progressive manner as required pursuant to our normal NCR process and obligations under Agreement CT0319-001, while Valard are implementing any corrective actions stimulated in the NCR response.
 - LCMC are continuing to assess Valard's remediation efforts in order to form an opinion as to whether such efforts will impact the Substantial Completion Milestone contained in Exhibit 9.

- 6. Can you please give further detail on the rebaselining process for Valard. Have you rebaselined only at the IPS level based on Nalcor judgement or have rebaselined bottom up with the contractor? What assumptions have Nalcor made within the rebaselining process.**
 - Valard are presently developing a recovery plan. Following receipt, review and alignment of same, LCMC will implement any necessary re-baselining that results.

- 7. Please can you provide quantification for the 2016 improvement in Valard performance referred to, with reference to monthly reporting figures**

- my sense is that the response provided is a qualitative response and related to field reporting in January 2016 - but I will confirm whether there is quantitative data and respond accordingly.
- 8. The rebaseline question was with respect to the process undertaken in Sept 2015. Please can you detail:**
- I was going to augment our reply on this today as well as Anthony thought you might be asking about the September 2015 event. Regarding the rebaseline of CT-0327 scope in September 2015, the purpose was due to final acceptance of the contractor's baseline schedule which provided LCMC the guidance necessary to update the IPS. Since we had their revised forecast in August 2015, it was used as the basis to form the IPS current baseline. If the execution and recovery plan (in progress) is accepted, then LCMC may rebaseline the CT-0327 scope again in order to effectively inform the IPS.
- a) What performance assumptions were used here (to support the changes to the forecast completion dates for the different segments, but without change in the final completion date), e.g. expected progress – km / tower / per week, etc.?**
- Not sure we have this detail - as stated above, the re-baseline was to align the IPS to the accepted contractor schedule.
- b) Do these performance factors differ per segment, if so please specify?**
- Not sure we have this detail - as stated above, the re-baseline was to align the IPS to the accepted contractor schedule.
- c) How was Valard involved in this rescheduling process?**
- The re-baseline is essentially the accepted contractor schedule
- d) Was there a change in the risk register to reflect this re-baseline? Please quantify or clarify how the identified risks were captured and managed in the Sept 2015 baseline?**
- **Steve will check**
- 9. Most of the responses provided refer to the in progress Valard recovery plan. When are you able to give visibility on this to inform our reporting?**
- I am told this is in progress and there is no deliverable at this stage. This was discussed with Michael Kennedy this morning as well.
- 10. Please provide progress information on the % complete of the ROW and Clearing for each segment**
- I am getting this. We have not been measuring ROW and clearing by segment (5) but by blocks (18) and the blocks don't align exactly with the segments (which are transmission line units). However, it should be easy to estimate and I'll provide that ASAP.
- % complete of ROW and clearing by segment?**
1. 100%
 2. 100%
 3. close to 100% - some distance left in LRM
 4. 60%
 5. 2%
- 11. One specific point re the Valard 327 rebaseline. This is described as the accepted contractor schedule, but I think that Valard are reporting against the original contract baseline. Why is it that Nalcor and Valard are reporting against different schedules if this was proposed by Valard and accepted by Nalcor?**

- This was clarified in general terms in the Schedule meeting with Chris and Barrett last week. As also discussed in the response noted below in bullet 2, the Contractors approved baseline set the stage for the rebaseline of the IPS to align to the Contractor's execution plan. The IPS rebaseline further aligned to a forecast schedule issued by the contractor in order we did not have variances being reported right out of the gate. As the IPS really is a forward looking tool for us, the alignment of baseline schedules is not a requirement for us. We manage the contractor to his schedule and since at that time, no variations to the execution plan was warranted, the contractor did not rebaseline to forecast.

CT0319 (Valard)

1. **Review assumptions on weight factors for calculating overall progress (understanding that contractor has not included overall progress calculation rules in its submission to LCMC yet).**
 - A1: The basis of measure for the Agreement and hence overall progress measured is founded in units installed, whether foundation, tower assembly, erection, conductor strung, etc.
2. **In section 10 of the contract, Ready for Energization milestone is 20 April 2016, however in Exhibit 9 of the contract that same milestone is 01 August 2016. Liquidated damages are tied to that milestone.**
 - A3: For clarity, the Ready for Energization Milestone is 1-Aug-2016 as contained in Exhibit 9. Post contract award the error contained in Exhibit 2, Section 10 was corrected.
3. **What's the current plan to rectify the NCRs on tower foundation (current status and next step)? What are the impacts on progress?**
 - A2: Valard have developed a plan for remediation of all open NCRs on tower foundations that is presently being reviewed by LCMC. In the meanwhile individual NCRs are progressively being reviewed and dispensed by LCMC in a progressive manner as required pursuant to our normal NCR process and obligations under Agreement CT0319-001, while Valard are implementing any corrective actions stimulated in the NCR response.
 - LCMC are continuing to assess Valard's remediation efforts in order to form an opinion as to whether such efforts will impact the Substantial Completion Milestone contained in Exhibit 9.
4. **Please quantify the 2016 improvement in Valard performance referred to with reference to monthly reporting figures**
 -
5. **We want to understand the rebaseline process undertaken in Sept 2015. This made very significant changes to the forecast completion dates for the different segments, but no change in the overall completion date. What performance assumptions were used here – we want to understand the increase in risk level in the rebaseline. Was there a change in the risk register to reflect this**
6. **We need some visibility on the Valard updated plan discussions**
7. **Please quantify or clarify how the identified Risks, which "actualized" from the Risk Register – namely Valard Contractor Performance – were captured and managed in the Sept 2015 baseline. The risks materialized, so how was the mitigation completed to move forward with the same end date. Simply put, they have crashed the schedule but not illustrated how they are pulling it back.**

8. What back-up plans (Options) are in place if progress Valard cannot maintain the proposed progress? Although they had difficulties with the 1st section (ROW Access and Road Quality), it was part of the easier section. They have not entered the "high alpine sections". Would be good to understand the PF factors they used for each section in development of the plan. (Expected progress – km / tower / per day, etc). Understand that you have asked for the plan...but that is what I want to understand...what progress plans are they making. We should do some analysis ourselves.
9. Risk on Readiness / Access. Would like detailed progress information on the % complete of the ROW and Clearing for each segment. Valard and NALCOR seem to have varying opinions of completeness and responsibility. You have also asked for details on the costing of this work.
10. Can you please give further detail on the rebaselining process for Valard. Have you rebaselined only at the IPS level based on Nalcor judgement or have rebaselined bottom up with the contractor? What assumptions have Nalcor made within the rebaselining process

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General

1. The question is about the spend rate on Owner's costs versus the % of project completion and hence the impact on FFC. Based on the numbers in the Nalcor Monthly Reports, Project management has expended 73% (\$562m) of Current Control Budget (\$774m) vs. an Earned Construction Project Progress of 40.5% and an overall Project earned progress of c 50%. I recognise that a linear relationship does not exist between project management expenditure and project physical progress, but the difference here is significant. Although Project Management expenditure would be expected to tail off accordingly as elements of the project complete, I expect that Nalcor will continue with intensive contract management to mitigate the risks around contractor performance. Also, with the project fully in construction mode and with commissioning to follow I assume that required site resourcing levels will not reduce significantly. Can you explain the phasing of these costs which is consistent with the FFC. Based on a simple analysis of the average expenditure of the last 12 months, at the current "burn rate" the project management budget would expire in June 2017. Notwithstanding the costs associated with any Astaldi schedule delay, I want to understand whether this represents a cost risk, as the monthly Owner's costs are in the region of \$11m dollars.