

**From:** [David Steele](#)  
**To:** [Tim Calver](#); [Sam Wolyniec](#); [David Leather](#); [Kirsten Tisdale](#); [Michael Kennedy](#); [Paul Hickey](#)  
**Subject:** Proposal for final report - DRAFT 19.04 TC v3.pptx  
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**Attachments:** [Proposal for final report - DRAFT 19.04 TC v3.pptx](#)

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Team,

Attached is a revision of the next steps proposal. I would appreciate a read through and feedback.

In addition, I am working through some costing/approach considerations. Tim, let me know when you are able to chat (even if early tomorrow), I would like to run this by you.

Thanks,  
Dave

# Review of Muskrat Falls Cost and Schedule Forecast

Next steps discussion

April 2016

# Background and current request

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- ▶ EY's original scope of work was to assess the reasonableness of the Project's cost and schedule forecast and to identify opportunities to address any material/critical risks
- ▶ Due to the lack of availability of up-to-date forecast data for Astaldi, Valard and Alstom, GNL requested EY produce an Interim Report to assess the reasonableness of the Project's most recent approved cost and schedule forecast – namely the September 2015 Forecast. This was completed and submitted to GNL on 15<sup>th</sup> March
- ▶ EY can only complete a final report after Nalcor has completed QRA and reforecast activities for all three assets – MFG, LTA and LITL
  - ▶ GNL indicates that Nalcor is expected to complete these activities for LTA and LITL in May. The timescale for MFG is dependent on negotiations with Astaldi and it is assumed that this will extend the timetable for MFG into the summer
- ▶ EY has previously provided a proposal for completion of the final report once all Nalcor reforecasting activities are complete. GNL has requested EY to provide an approach to complete two more reporting cycles, one report for LTA and LITL in May, with a report for MFG being completed at a later date
- ▶ To execute on this approach, the following assumptions are made:
  - ▶ A standalone report is produced only addressing cost, schedule and risk for LTA and LITL
  - ▶ This report must be appropriate for public release and hence require full review scope
  - ▶ Overarching costs e.g. project management costs are reviewed as part of MFG scope
  - ▶ There will be no review or update LTA/LITL when the MFG scope of work is completed

# Key activities to produce final report(s)

Significant additional activities are required to assess Nalcor's revised baseline and produce a reliable assessment

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- ▶ The work completed to produce EY's Interim Report provides a valuable platform for the analysis and evaluation required for EY's final report(s). In particular:
  - ▶ EY is familiar with the major contracts, their history, performance data and metrics and status as of December 2015
  - ▶ EY has a strong understanding of the major issues and risks likely to be relevant to its assessment of cost and schedule forecast
  - ▶ EY is familiar with the Nalcor reporting suite and cost and schedule data, so can efficiently request and review these
  
- ▶ However, there are significant new areas of scope which were not possible or appropriate to complete for the Interim Report. These areas must be completed to produce a comprehensive final report(s). In particular:
  - ▶ Astaldi and impacted contracts will be a completely new cost, schedule and risk forecast requiring detailed assessment
  - ▶ EY did not review the Integrated Project Schedule for MFG as there was no approved schedule to review
  - ▶ Valard and Alstom contracts will reflect a new schedule with potential cost and risk impacts, requiring detailed assessment
  - ▶ All contracts reviewed for the Interim Report have had up to six months further progress with the associated cost, schedule and risk impacts
  - ▶ EY has had no visibility of Nalcor's current QRA process or output for any part of the Project scope. The QRA process and output is a detailed, complex and critical area of recommendations relating to contingency and risk level
  - ▶ EY performed only a high-level review of Project Management costs, Transfer to Operations and non major contract costs due to transparency of data and relevance to reaching a conclusion on Sept 2015 forecast. These elements need to be reviewed in detail to reach a final assessment.

# Reporting approach considerations

## One-step (1 final report) versus two-step (2 reports: LIL/LITL and MFG)

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- ▶ The two step approach does offer the potential for reach an early conclusion on cost and schedule for LTA/LITL and for this not to be dependent on timescales of Astaldi negotiation
- ▶ However, the following impacts of this approach should be noted:
  - ▶ Duplication of activities around mobilization, planning, reporting writing and validation (which will impact EY, Nalcor and GNL)
  - ▶ Lower efficiency of EY team as the same activities (whilst applying to independent scopes) are conducted twice over two separate scopes of work (which will impact EY and also Nalcor)
  - ▶ The shorter timescales for the two-step approach will require quicker validation and comment from stakeholders (impacting Nalcor and GNL)
  - ▶ Impact of delay in data or resource availability will be difficult to absorb in either of the two-steps since the timeframe is so short. For a single step there is more opportunity to prioritise and re-sequence work to mitigate the impact of delays
  - ▶ The above factors have a notable impact on cost to GNL

# Resource, costs and timescale to produce final report

## Original timescale – 1 additional (final) report CIMFP Exhibit P-03370

- Total weeks duration – 7 weeks
- Cost – \$550 – 600K

WK 1							WK 2							WK 3							WK 4							WK 5							WK 6							WK 7						
M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S
Prep and planning							Detailed contract Review QRA review Review of Project Management and indirect costs forecast Review of TTO and commissioning cost and schedule forecast														Detailed contract review QRA review Detailed review of cost and schedule contingency Review of total cost base forecast Report and working papers drafting														Report and working papers drafting Report validation, review and finalisation							Report validation, review and finalisation						

## Revised timescale – 2 additional reports

- Total weeks duration – 4.5 weeks each (9 weeks total) weeks
- Cost – \$350 - 400K each (700 - 800K total)

WK 1							WK 2							WK 3							WK 4							WK 5						
M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S
Prep and plan							Detailed contract Review QRA review Review of TTO and commissioning cost and schedule forecast Detailed review of cost and schedule contingency														Review of total cost base forecast Report and working papers drafting Report validation, review and finalisation Review of Integrated Schedule													

Needs to be repeated twice for Nalcor's LITL/LIL release and MFG release

## Expectations for the final report(s)

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- ▶ EY's Final Report will not provide an independent forecast of cost or schedule. This is the role of the executive management team of the Project.
- ▶ The Interim Report and EY's working papers were subject to significant concerns in respect of commercial sensitivity. These concerns influenced the form and content of reporting. EY assumes that the same constraints will be in place for the final report.
- ▶ EY proposes to produce the following in completion of our scope of work:
  - ▶ A final report(s), similar in format and level of detail to the interim report, assessing reasonableness of Nalcor's updated cost and schedule forecast
  - ▶ The Final Report will identify any material risks to Nalcor's updated cost and schedule forecast and where possible provide high level quantification of the cost and/or schedule risk
  - ▶ In addition to the Final Report, EY will retain detailed working papers documenting EY's detailed review and analysis of major contracts and the overall cost and schedule position for the project, and EY's review of the QRA process and output and the resulting contingency assessment

# Appendix – activity descriptions final reporting phases

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# Activities to produce Final Report

## Significant additional scope from Interim Report

Activity	Relationship to Interim Report
<b>Preparation, definition of data requirements, planning of meetings and logistics with Nalcor</b>	New activity specific to the final report. Will incorporate learnings from interim report
<b>Detailed review of cost, schedule and risk for 10 major contracts</b> , with a particular focus on; <ul style="list-style-type: none"> <li>- Astaldi CH007</li> <li>- Andritz CH0030 &amp; 32</li> <li>- Valard 327</li> <li>- Alstom 501,502,534</li> </ul>	These contracts were reviewed for the interim report, but EY expects significant changes requiring detailed assessment, namely: <ul style="list-style-type: none"> <li>- Astaldi and impacted contracts will be a completely new cost, schedule and risk forecast</li> <li>- Valard and Alstom contracts will reflect a new schedule with potential cost and risk impacts</li> <li>- All contracts have up to six months further progress with the associated cost, schedule and risk impacts</li> </ul>
<b>Detailed review of QRA process for LTA, LITL, MFG</b> <ul style="list-style-type: none"> <li>- Individual quantitative risk inputs to QRA</li> <li>- QRA process</li> <li>- QRA output and process to feed into cost and schedule forecast and contingency / management reserve</li> </ul>	EY only had information relating to the DG3 QRA process for the interim report A complete and updated QRA will have been performed for all areas of the project – none of this information was available for interim report. The QRA process is a critical area of recommendations in EY's interim report
<b>Detailed review of cost and schedule contingency</b> <ul style="list-style-type: none"> <li>- Understand the scope elements inside the contingency figure</li> <li>- Distribution across contingency and management reserve</li> </ul>	For the interim report, Nalcor's contingency was not based on QRA and was not related to specific risks. This review follows on from EY's review of the QRA and again is critical in assessing whether EY's recommendations have been implemented
<b>Updated review of progress on remaining contracts not covered above</b>	These contracts were reviewed for the Interim report. There is up to six months of progress since last report and potential for impacts to cost, schedule and risk, but this is expected to be a light touch activity
<b>Review of TTO and commissioning cost and schedule forecast</b>	EY gave this limited focus as it was not required to conclude on Sept 2015 forecast. A high level review is proposed as Nalcor's plans will have developed significantly in the elapsed time
<b>Review of Project Management and indirect costs forecast</b>	EY did a high-level review of Project Management costs, but did not get full transparency on these costs. This will be a major component of delay costs and needs to be assessed in detail.
<b>Review of Integrated Programme Schedule</b>	This was done for LTA/LITL as part of the Interim Report but not for MFG as there was no approved schedule. LTA/LITL assessment to be updated, MFG assessment required
<b>Review of total cost base forecast</b> (including all unallocated sums, growth provisions etc)	EY reviewed this at a high level only since there were material cost issues (e.g. Astaldi) completely unaddressed in the overall cost forecast. With an updated cost forecast from Nalcor, a more granular review on this is proposed versus the interim report
<b>Drafting of report and working papers</b>	EY will build on the report and papers produced for the interim report, but this will be substantially new to reflect the above review components
<b>Report validation, review and finalisation</b>	EY anticipates that the process for report validation will be similar to that for the interim report (including a commitment to give opportunity for Nalcor to review). Extensive socialisation of report is expected to be required to finalise based on interim report experience.

# Activities to produce Final LTA / LITL Report Page 10

## Highlighting areas of inefficiency

Activity	Relationship to Final MFG Report
<b>Preparation, definition of data requirements, planning of meetings and logistics with Nalcor</b>	Some inefficiency from doing this in two steps versus one
<b>Detailed review of cost, schedule and risk for relevant major contracts</b> , with a particular focus on; <ul style="list-style-type: none"> <li>- Valard 327</li> <li>- Alstom 501,502,534</li> </ul>	No overlap with activities required for MFG Report, but likely inefficiency and lower productivity (for both EY and Nalcor) from not reviewing all contracts in one step
<b>Detailed review of QRA process for LTA, LITL</b> <ul style="list-style-type: none"> <li>- Individual quantitative risk inputs to QRA</li> <li>- QRA process</li> <li>- QRA output and process to feed into cost and schedule forecast and contingency / management reserve</li> </ul>	Limited overlap with activities required for MFG Report, but likely inefficiency and lower productivity (for both EY and Nalcor) from not reviewing complete QRA scope in one step
<b>Detailed review of cost and schedule contingency</b> <ul style="list-style-type: none"> <li>- Understand the scope elements inside the contingency figure</li> <li>- Distribution across contingency and management reserve</li> </ul>	Limited overlap with activities required for MFG Report, but likely inefficiency and lower productivity (for both EY and Nalcor) from not reviewing complete scope in one step
<b>Updated review of progress on remaining contracts not covered above</b>	No overlap with activities required for MFG Report, but likely inefficiency and lower productivity (for both EY and Nalcor) from not reviewing all contracts in one step
<b>Review of TTO and commissioning cost and schedule forecast</b>	Limited overlap with activities required for MFG Report, but likely inefficiency and lower productivity (for both EY and Nalcor) from not reviewing complete scope in one step
<b>Review of Project Management and indirect costs forecast</b>	To be done as part of MFG Final report
<b>Review of Integrated Programme Schedule</b>	Limited overlap with activities required for MFG Report, but likely inefficiency and lower productivity (for both EY and Nalcor) from not reviewing complete scope in one step
<b>Review of total cost base forecast</b> (including all unallocated sums, growth provisions etc)	Limited overlap with activities required for MFG Report, but likely inefficiency and lower productivity (for both EY and Nalcor) from not reviewing complete scope in one step
<b>Drafting of report and working papers</b>	Inefficiency and duplication for EY will result from producing 2 reports rather than one
<b>Report validation, review and finalisation</b>	Inefficiency and duplication for EY, Nalcor and GNL will result from separate review and validation processes

# Activities to produce Final MFG Report

## Highlighting areas of inefficiency

Activity	Relationship to Final LTA/LITL Report
<b>Preparation, definition of data requirements, planning of meetings and logistics with Nalcor</b>	Some inefficiency from doing this in two steps versus one
<b>Detailed review of cost, schedule and risk for relevant major contracts</b> , with a particular focus on; <ul style="list-style-type: none"> <li>- Valard 327</li> <li>- Alstom 501,502,534</li> </ul>	No overlap with activities required for LTA/LITL Report, but likely inefficiency and lower productivity (for both EY and Nalcor) from not reviewing all contracts in one step
<b>Detailed review of QRA process for LTA, LITL</b> <ul style="list-style-type: none"> <li>- Individual quantitative risk inputs to QRA</li> <li>- QRA process</li> <li>- QRA output and process to feed into cost and schedule forecast and contingency / management reserve</li> </ul>	Limited overlap with activities required for LTA/LITL Report, but likely inefficiency and lower productivity (for both EY and Nalcor) from not reviewing complete QRA scope in one step
<b>Detailed review of cost and schedule contingency</b> <ul style="list-style-type: none"> <li>- Understand the scope elements inside the contingency figure</li> <li>- Distribution across contingency and management reserve</li> </ul>	Limited overlap with activities required for LTA/LITL Report, but likely inefficiency and lower productivity (for both EY and Nalcor) from not reviewing complete scope in one step
<b>Updated review of progress on remaining contracts not covered above</b>	No overlap with activities required for LTA/LITL Report, but likely inefficiency and lower productivity (for both EY and Nalcor) from not reviewing all contracts in one step
<b>Review of TTO and commissioning cost and schedule forecast</b>	Limited overlap with activities required for LTA/LITL Report, but likely inefficiency and lower productivity (for both EY and Nalcor) from not reviewing complete scope in one step
<b>Review of Project Management and indirect costs forecast</b>	This will be done for integrated project as part of MFG Final report
<b>Review of Integrated Programme Schedule</b>	Limited overlap with activities required for LTA/LITL Report, but likely inefficiency and lower productivity (for both EY and Nalcor) from not reviewing complete scope in one step
<b>Review of total cost base forecast</b> (including all unallocated sums, growth provisions etc)	Limited overlap with activities required for MFG Report, but likely inefficiency and lower productivity (for both EY and Nalcor) from not reviewing complete scope in one step
<b>Drafting of report and working papers</b>	Inefficiency and duplication for EY will result from producing 2 reports rather than one
<b>Report validation, review and finalisation</b>	Inefficiency and duplication for EY, Nalcor and GNL will result from separate review and validation processes