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MEMORANDUM

TO:	Darren Debourke NALCOR	**Date:**	14-Sept-2012
C.C.:	R.Power, N.Béchard, J.Kean		
FROM:	L. Chaussé/M.Makky	**Ref.:**	Power Advocate report
Subject:	Lower Churchill Project AC Substations Optimal Contract Approach		

1- OBJECTIVE

Power Advocate has submitted a report intended to recommend an Optimal Contract Approach for the three HVac Substations of the Project.

Power Advocate recommends that the Substations be built on an EPC Contract basis.

The objective of this memorandum is to analyze the Power Advocate report and provide the rationale for the selection of the strategy that is best suited for LCP project by addressing most of Power Advocate's recommendations and best industry practices.

2- CURRENT CONTRACTING STRATEGY

The current strategy for AC Switchyards consists of contracting the Earthworks on Lump Sum (LS) basis at an early stage (CD0503), performing detailed engineering for switchyard, procurement of long lead equipment in due time (PD0505 and PD0537) and contracting Civil and Electromechanical Installation works on a LS basis (CD502).

The present contracting approach is based on addressing the following challenges

- Secure the delivery of long lead equipment (HVac equipment of substations) for 2014 by engaging the procurement of those equipment as early as possible in 2012 in order to optimize the competitiveness (benefit from manufacturers wishing to load their factory in advance) and guarantee a delivery date with a reasonable planning margin. Engineering level of effort for tendering long lead equipment is relatively small to allow for RFP in 2012.

- Perform the earthworks early in 2013 and set-up a camp by the end of 2013 to allow the Construction to commence early in 2014 without delay.

- Prepare the design and tendering documents in 2013 for the construction to commence in early 2014: one single General Contractor performing all civil and electromechanical works under a lump sum Contract.

To meet the LCP overall project schedule, the AC Switchyards works are planned as follow:

- Commissioning and energization of the CF and MF substations when the 315kV T/L are completed in August 2015. This will secure the supply of power to Happy Valley/Goose Bay as well as for the Construction of the Hydro Plant and the accommodation camp.

- Energization of SP Substation in 2015 will have to be scheduled with NLH Operation for the winter of 2015 as the most appropriate time of the year considering that SP Substation will be interposed in critical lines feeding St-John's. This will allow readiness of Soldiers Pond Substation for September 2016 partial power transfer to Newfoundland.

- Commissioning and energization of the Converters and Transition Compounds by September 2016 once the submarine cables and HVdc line are ready to be energized. The intent is to allow for a partial power transfer (450MW) from Churchill Falls to NL network for winter 2016-17 in order to avoid Holyrood power plant from operating.

- Full power transfer when MF power Plant is ready at the end of 2017 early 2018. The full power transfer will have to be planned judiciously with NLH Operation at the most appropriate time of the year.

3- POWER ADVOCATE'S RECOMMENDATIONS

We have included in the appendix a table with our observations and remarks on the corresponding sections of Power Advocate report.

The main reasons not to concur with the EPC approach for the LCP Project are:

- Given the level of effort required to prepare for tendering, RFP will be postponed to middle of 2013. The bidders will have to perform basic design and inquire for equipment prices which would need at least 4 to 5 months to comfortably estimate their costs and calculate their prices. This would bring us to the end of 2013 for bid submittals and probably 4 to 6 months more for award. This would not allow the Contractor to order long lead equipment in a timely manner to meet the time schedule.

- The EPCM Engineer has practically completed the deployment of skilled staff with extensive experience with HV Substations in the Project office

- Considering the present strategy with early procurement of long lead equipment and competency and experience of present EPCM staff deployed in the Project office, any risk related to procurement and detailed engineering are well mitigated.

- Main area of risk related to the Construction material, labour and interfaces between sub-contractors will remain with the LS Contractor as for an EPC.

- The present contract strategy provides the lowest cost approach

With reference to Power Advocate report recommendations to maximize EPCM approach, we confirm that the recommendations have already been applied or engaged thanks to Nalcor initiatives and EPCM Engineer actions:

- The level of effort is under Owner's full control as mobilization of personnel in the Project office is approved on a case by case basis.

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- Estimate of number of hours has been agreed with Owner for both deliverables and non-deliverables. Any change must be justified and accepted by Owner.
- EPCM resources are allocated for front end engineering
- Process for land acquisition and environmental permits is well engaged and performance of geothechnical investigation is mostly completed
- Scope of works for CD502 will be completed and well defined
- EPCM resources plan has been adjusted and mobilization is mostly completed
- As per current contracting strategy, going in 2012 on the market to procure long lead equipment allows securing the schedule and optimizing the cost by obtaining competitive prices from suppliers and securing medium term shop loading for delivery in 2014. Therefore, long lead equipment has been identified and early procurement is engaged
- As the Owner and the EPCM Engineer share the same office space, there is constant communication on potential risks and gaps, accountability of EPCM for project success, reporting on project status and identification of performance issues and impact.
- Constructability reviews will be organized by the EPCM Engineer.
- With current CD502 strategy, there is no responsibility of the Owner or EPCM Engineer for the interfaces between Contractors and its subcontractors.
- A formal Project interface management process has already been implemented by the EPCM Engineer and responsibles designated

In addition to the above, report recommendations to benefit from EPC approach were also taken into considerations for the LS Construction Contract:

- Process has already been engaged for regulatory approvals, land acquisition, environmental permits, geptechnical survey, etc to minimize risk and unnecessary contingencies
- With the current contracting strategy, the Contractor does not need to manage external contract package interfaces.
- Critical milestones will also be used to establish the liquidated damages, and performance guarantee.
- Bid prices will include the escalation provision for construction material and labour considering the dates of the baseline time schedule. Reference will be made to standard formulae and indices from official Canadian publications for any adjustment that may be required.
- Bidders will go through a prequalification process.
- There will be a single point of contact with the LS Contractor.
- With the present contract strategy, the Owner retains the risks that are more cost effective.
- LS Contractor will have to submit regular project status report.

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4- Conclusion

We strongly recommend staying with the present contracting strategy given the combined Nalcor and EPCM Engineer capacities and skills. All conditions have been created to provide the best opportunity for the feasibility of an early delivery of the LCP HVac Transmission system LTA.

Moreover, this strategy allows integrating the Soldiers Pond 230kV Substation which is a prerequisite to the transfer of power from Churchil Falls into the Newfoundland Grid in September 2016 through the LITL, at the appropriate time of the year (winter 2015) defined by the Newfoundland Grid Operator.

The current approach is the most cost-effective and minimizes the risks for the Project.