

CONTRACTING PLAN

TY-1505: Site C Transmission Interconnection

Site C South Bank Substation Construction

RFP No. 6799 (CR634968)

Date: May 31, 2017

1. PURPOSE

The purpose of this Contracting Plan is to obtain early internal stakeholder support and approval (at a summary level) for Infrastructure Projects Supply Chain to commence formulation of the Southbank Substation Construction Request for Proposal (RFP) document, and the draft contract that will be included in the RFP prior to release. The South Bank Substation Construction will potentially include components from three separate projects including the Site C Interconnection Work Package for the Site C Project, the Fort St John and Taylor Electric Supply Project (FATES) and the Peace Region Electric Supply Project (PRES, pending project approval). This Contracting Plan supplements, where applicable, the Site C Procurement Approach approved June 11, 2012, the Site C Procurement Options Report dated July 2012 and the information in the Supply Chain Strategy documents for FATES and PRES dated June 14, 2016 and December 5, 2016 respectively, by introducing key concepts to be included in the proposed RFP and eventual contract.

2. PROJECT DESCRIPTION

The Site C Clean Energy Project will be a third dam on the Peace River that will optimize BC Hydro's two existing heritage assets upstream and develop the hydroelectric potential of the Peace River. Once completed, the project will provide 1100 MW of capacity and 5100GWh of energy each year -- be enough to power the equivalent of about 450,000 homes in B.C.

The Fort St John and Taylor Electric Supply (FATES) project will construct a 138kV switchyard adjacent to the Site C 500kV switchyard (part of the new Southbank Substation) to supply Fort St John and Taylor area loads. This will enable the removal of portions of 1L360 and 1L374 located on the Site C 500kV right-of-way.

The Peace Region Electric Supply Project (PRES) will construct two 230 kV transmission lines connecting to the South Bank substation to supply additional load to oil and gas customers.

The RFP will include the General Construction (GC) work; including civil, electrical, mechanical, P & C, SCADA and telecommunications installation works for the new Site C Southbank (SBK) substation.

3. CONTRACT REQUIREMENTS

3.1 Scope of Work

The Scope of Work will include:

- supply and installation of concrete foundations and slabs for the control building, major electrical equipment, microwave tower, bus work, terminal gantries, and cable trenches.
- civil construction including final site preparation, excavation and backfill, access roads and installation of insulating crushed rock surfacing;
- supply and installation of fencing and access gates, including foundations;
- supply and installation of storage building and oil shed;
- supply and installation of non-standard steel structures including equipment supports, microwave tower and transmission line terminal gantries.
- Supply and installation of transformer oil containment systems, including concrete pads, drain rock and oil-water separators;
- Installation of BC Hydro supplied grounding and bonding material, including grounding grid, equipment grounding and bonding, and grounding rods;
- Installation of bus work, including BC Hydro supplied insulators, tubular bus, strain bus, connectors and hardware;
- Installation of BC Hydro supplied power and control cables, including terminations to equipment and control panels;
- Installation of BC Hydro supplied lightning shielding, lighting and signage.

- Installation of BC Hydro supplied station service equipment including AC and DC switchboards, station service transformers, battery banks, battery chargers and AC transfer switch;
- Installation of control building access flooring, electrical systems, HVAC systems and fire protection and security systems;
- Installation of Protection & Control panels and Remote Terminal Units including support to communication protection and control contractor for panel testing and commissioning;
- Installation of telecom equipment, including panels, waveguide, microwave radios and telecom batteries;
- installation of BC Hydro supplied major electrical equipment, including: 500/138kV power transformers, 500kV circuit breakers, 500kV shunt reactor, 500kV disconnect switches, 500kV instrument transformers, 500kV surge arrestors, 138kV switchgear, 15kV switchgear and 12kV equipment;
- assisting BC Hydro in the testing and commissioning of all electrical equipment;
- Fulfilling the role of Prime Contractor during the work;
- engineering design, supply, installation and removal of any temporary works required for construction
- providing quality management as per project specific BC Hydro quality management requirements;
- providing environmental management as per project specific BC Hydro's Environmental Management Plan; and
- providing safety management as per project specific BC Hydro Safety Minimum Requirements.

Additional information pertinent to this Work includes:

- Preliminary site preparation is being done by Peace River Hydro Partners as part of the Site C project. This includes site preparation and grading for the ultimate station layout including all 230kV and 138kV areas.
- Engineering Design: BC Hydro Transmission Engineering will provide the design, specification and scope of work. The specification type is prescriptive and the specification form is based on BC Hydro's PPM template.
- All materials and equipment, except non-standard steel, control building mechanical systems and oil-water separators, will be provided by BC Hydro.
- Construction aggregates are being supplied on a unit price basis by Peace River Hydro Partners.
- Included in this RFP is optional 230kV unit priced work that would form the basis of additional contract work funded by the PRES Project, should the project receive approval to proceed to implementation. The current planned approval date for PRES is April 2018 and the issuance of a contract requisition is scheduled for June 2018.
- Distribution power will be provided by BC Hydro and the Contractor is responsible to connect to this source for their construction power needs.

3.2 Key Milestones

Substation Phase 1 Work Area Handover from PRHP	June 1, 2017
Control Building Foundation Handover to Empirica	October 10, 2017
Substation Phase 2 Work Area Handover from PRHP	November 1, 2017
Control Building Supply and Install Complete (Empirica)	January 31, 2018
T11 and T12 transformer pads Handover to Hyundai	June 30, 2018
Shunt Reactor foundation Handover to Siemens	July 31, 2018
138kV switchyard ready for energization	June 1, 2019
500kV switchyard ready for 5L005 energization	December 1, 2019
Contract Completion	October 31, 2020

3.3 Financial

This procurement is part of the Transmission Component of the Site C Project and the Fort St. John and Taylor Electric Supply (FATES) Project:

Work Package	WBS Element	Budget	Approved on
Constructed Site C Substation	YM-80004.4.S.01.0001		02 February 2016
FATES Project	TY-9014		November 2015

	Site C	FATES	Total
Contract Estimate:			
Contingency:			
Total CR amount:			

The forecast cost of the substation contract exceeds the approved work package budget. A change control process is currently underway to approve the change and resolve the funding shortfall through value engineering and a project contingency draw. It is expected that the transmission budget shortfall will be resolved by May 2017. Conditions precedent will be added in the RFP indicating award of the contract will be subject to BC Hydro receiving financial approval. The Contract will be awarded only after the project change notice is approved and the project team has confirmed that there is sufficient funding to cover the contract.

The contract contingencies are to address additional costs associated with the risk of unplanned/additional work arising from quantity variations and/or design changes.

Based on the above Project estimates, a Contract Requisition (CR) in the amount of [REDACTED] will be raised in PassPort. Upon acceptance, this Contracting Plan will be attached to the CR and the CR will require approval in accordance with BC Hydro's Financial Authority Approval Policy ("FAAP").

The Preliminary Estimate for the PRES project scope is [REDACTED]. However, there is no implementation funding approved currently for the PRES Project. Once the funding is available and if a decision is reached to award this portion of work to the Southbank substation contractor, a CR will be raised and approved in Passport.

4. MARKET SOUNDING

There are a number of companies that are capable of completing this work and are expected to be interested in this project, such as: [REDACTED]

There are no known current market or resource constraints and the receipt of several competitive bids is anticipated.

5. CONTRACT PLAN

5.1 Contracting Approach

In June 2012, the BC Hydro Board of Directors was presented with the results of the KPMG Options Report which indicated that the Electrical and Transmission Infrastructure be delivered through three separate contracts; one for transmission lines, one for the substation and a third contract for the upgrades required at the Peace Canyon substation. This contracting plan for the substation is in accordance with this approach.

In order to ensure costs for the three projects are accounted for separately, the contract will be structured in Passport as a non-committed blanket contract order (BCO). This Passport contract mechanism will allow for the contract to issue multiple releases directly related to each project.

On award, two releases will be created supported by approved CR's as per the Financial Authority Approval Policy as follows:

- Release #1: Site C Substation
- Release #2: FATES Project

A third release may be created to award the optional work for the PRES project based on the submitted pricing valid for one year from the bid closing date.

5.2 Lessons Learned

In reviewing the Lessons Learned Report, pulled from the Business Warehouse, and knowledge of the evaluation team of previous similar projects, the following were identified as areas that could improve this particular RFP:

- GY-0087 – for complex contract packages, allow sufficient duration for proposals (RFP is being posted for five weeks with an allotted time for extensions of up to two weeks);
- GY-0042 – do not suggest tenderers to use certain subcontractors;
- GZ-0056 – include a procedure for the acceptance of equipment/materials on site;
- TB9068 – architectural design of building needs to be firm prior to issuing RFP (the RFP will not be issued until the design is considered firm by BCHTE);
- TY0273 – Contract schedule needs to clearly identify milestones that drive equipment testing and commissioning and communication protection and control activities (A staging plan will be developed and RFP will have specific delivery milestones for construction staging so that testing and commissioning have target dates); and
- TY0273 – Environmental, Quality and Safety Representatives should not report to the Site Superintendent but a corporate manager (RFP will reflect expectations).

5.3 Sourcing Mechanism

An RFP will be issued on BC Bid and will request pricing for Site C and FATES projects as well as optional pricing for the PRES project. The contract will be prepared using the standard Construction RFP and contract templates and include:

- o Lump sum pricing basis because the work is well defined and specifications are pre-determined. A lump sum also supports a firm construction schedule;
- o Unit pricing for work subject to quantity variation (cable installation and termination, excavation and backfill);
- o Provisioning for any unforeseen environmental management requirements;
- o Optional pricing for PRES for the construction and installation of the 230kV switchyard including civil, electrical, mechanical, Protection & Control, Supervisory Control & Data Acquisition, equipment installation and testing and commissioning;
- o Any special terms conditions unique to Site C Project requirements; and,
- o The following are the mandatory items:
 - Submission of proposal by the closing time.
 - Minimum of 5 years' experience in the construction of 230kV or higher electrical substations in North America.
 - Experience of Site Superintendent in the last 5 years includes construction of 230kV or higher electrical substations in North America.
 - 5 years' experience assembling and installing 230kV or higher power transformers and/or shunt reactors, motorized disconnecting switches and circuit breakers.
- o Additional mandatory items may be added to the RFP prior to issue.

5.4 Supplementary General Conditions

The following Supplemental General Conditions will be included:

- Insurance provisions will be updated to cover the project specific insurance coverage. Risk / Insurance department will be requested to review the RFP insurance provisions prior to issuance.
- Policy with respect to apprentice engagement and reporting as introduced by the BC

- government will be included.
- Contractor COR (Certificate of Recognition) Certification requirement will be included
- Site C Project specific requirements will be included (Aboriginal Inclusion Schedule, Environmental Obligations, Confidentiality Agreement, Contractor Drug and Alcohol Policy, Labour Schedule).

5.5 Aboriginal Involvement

The Site C Southbank substation is located within Treaty 8. There are currently procurement commitments under the Site C Impact Benefit Agreements (IBA's) with some of the British Columbia Treaty 8 First Nations; [REDACTED]

Treaty 8 FN owned or affiliated companies are potential contractors [REDACTED]. There are also subcontracting opportunities in the following areas: foundations and structures supply, utility and road building, electrical services, environmental services, rebar supply and install, construction facilities (including trailers), traffic control, first aid, soil remediation and labourers.

In accordance with the Project Supply Chain Strategy, the recommended Aboriginal Procurement approach is either Direct Award or set-aside and Site C First Nation Engagement Team (Site C FNET) will provide guidance on the final approach for this contract. Further discussion between the project team and the Site C FNET confirmed the recommended set-aside amount for this contract as [REDACTED]. The Proponents will be requested to meet the set-aside amount by subcontracting work to the Treaty 8 First Nations. The Site C FNET provided further direction that the set-aside amount is to be restricted only to the specific nominated businesses, following the same approach as the generating station spillway civil contract to include in the RFP. The Proponents will be required to make their own assessment of the capacity and capability of the businesses. As standard language in the contract, the Contractor will be responsible for the quality of work and performance of their subcontractors.

In addition to subcontracting opportunities, the Proponents will be required to meet the minimum targets of 4 Aboriginal employees and 1 Aboriginal apprentice, as per the following estimate:

Contract	Employment		Apprentice	
	Total Peak Employment	Aboriginal Employment Target	Total Apprenticeable Trades	Aboriginal Apprentice Target
Southbank Substation	60	4	55	1

The fencing work will be issued as a separate contract and direct awarded to [REDACTED] the designated company of [REDACTED]. The estimated amount for this work is [REDACTED] and it will be counted against the commitment to [REDACTED]. A letter of confirmation from [REDACTED] to count this direct award against the IBA commitment will be secured by the Site C FNET.

The complex language will be included in Appendix K of the RFP documents.

5.6 Evaluation

The evaluation will proceed as per Section 8 of the standard BC Hydro RFP document. The "High-Level Evaluation Criteria," presented in the following table, will be included within the RFP document.

High-Level Evaluation Criteria

Weight
(out of 100%)

[REDACTED]	[REDACTED]
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The proposed split of the overall cost weighting [REDACTED] will be [REDACTED] for Site C and FATES and [REDACTED] for PRES. This split is roughly based on the current estimated percentages of each project against the total estimate, with the PRES weighting factor reduced to reflect that the project hasn't been approved for implementation. The contractor qualifications, experience and subcontractors on constructing substations are key evaluation criteria as hiring an inexperienced or unqualified contractor poses a high risk to successfully completing the contract on schedule and on budget. [REDACTED] weighting will be allocated for Labour Strategy, which is a key criterion specific to the Site C Project (this is equivalent to the 15 technical credit points for labour strategy in the Site C Generating Station and Spillways Civil Works RFP). Previous safety and environmental performance on similar BC Hydro contracts is also an important consideration.

5.7 Evaluation Committee (EC)

The EC is expected to be made up of the following individuals:



The EC may be provided with advice from Subject Matter Experts from the following areas:

- Project Estimating
- Construction and Contract Management
- Transmission Engineering
- Site C Safety
- Quality Assurance
- Site C Environment
- Site C First Nations Engagement
- Site C Labour Relations

5.8 Procurement Schedule

The procurement schedule is anticipated to be as follows:

- | | |
|-----------------------------------|-----------------|
| • Approve CR | June 5, 2017 |
| • Release RFP | June 14, 2017 |
| • Site Visit | June 28, 2017 |
| • Close RFP | July 19, 2017 |
| • Complete Evaluation | Aug 2, 2017 |
| • Approve Recommendation to Award | August 23, 2017 |
| • Award contract | August 31, 2017 |

6. KEY RISKS AND MITIGATION

6.1 Key Risks and Mitigation

The contract will be structured to address the relevant project risks identified in the Project Risk Register. The risk reduction objectives of this contract addresses:

- Procurement
- Schedule
- Financial (cost)
- Scope
- Contractor Performance
- Safety and Environment

6.1.1 **Procurement Risk** – includes receiving inadequate numbers of competitive responses and delays in procurement process.

- Prospective contractors are made well aware of this opportunity through the Site C project website. Prospective contractors will be notified of this opportunity once it is posted on BC Bid. The RFP will be posted on BC Bid for a minimum of 5 weeks to allow enough time for the proponents to prepare and submit bids.
 - The contract documents and specifications will be fully reviewed by the project team to ensure that the scope of work and requirements are clear, to enable potential bidders to price the work and submit bids within the time allotted.
 - Senior management or executives will be kept aware of the procurement status throughout the process to ensure that internal review and approval timelines are met.
- 6.1.2 **Schedule Risk** – delays in construction done by others (i.e., site preparation, control buildings), equipment quality issues, and delayed delivery of BC Hydro supplied equipment and materials could contribute to schedule delays.
- The RFP will clearly describe the schedule milestones, constraints, equipment and material delivery dates and interfaces with work done by other contractors to allow proper planning and scheduling of their work. The proponents will be required to submit a resource-loaded Work Program and Schedule incorporating all contract milestones and constraints, which is an evaluation criterion.
 - The project schedule includes float for anticipated weather conditions in the North Peace region including snowfall, extreme cold and spring break-up.
 - Procurement of long lead items has been carried out with adequate lead time and float to allow on-time delivery to the site. The power transformers, shunt reactors and 500kV disconnect switches were already ordered and anticipated to be available on-time for installation. BC Hydro supplied material will be ordered at the earliest opportunity to allow inventory forecast to adjust and also prepare BC Hydro suppliers with the demand increase to ensure on-time delivery. The Power Transformers and Shunt Reactors will be delivered on pad by the suppliers. Deliveries of the transformers were set based on the anticipated completion of pads. The other equipment and materials will be picked – up by the Contractor at Surrey stores.
 - A material expeditor will track material and equipment deliveries to ensure that materials do not cause schedule delays to the substation general contractor.
- 6.1.3 **Financial (Cost) Risk** – includes bids received being substantially higher than estimated and budgeted, and, inadequate construction contract specification resulting in costly claims.
- The Site C project and FATES both have project reserve for construction costs higher than estimated due to unforeseen market conditions.
 - Contract and specifications will be written to eliminate unknowns and minimize construction cost risks to potential bidders. Appropriate time has been allocated to allow for thorough review of the specifications by the Project Manager, Project Engineer, Construction Manager and design leads.
- 6.1.4 **Scope Change Risk** – exposure to scope changes due to incomplete P & C and telecom designs and varying site conditions.
- P & C and telecom scope changes will be mitigated through the inclusion of near-complete cable schedules in the RFP. Unit pricing for additional P & C work will be requested and negotiated with the lead proponent prior to contract award.
 - Detailed design and internal quality reviews of the bid documents will be completed prior to posting of the RFP in BC Bid.

- 6.1.5 **Contractor Performance Risk** – poor contractor performance negatively impacts the project(s).
- Proponents will be required to submit financial information as part of their proposal package. A financial evaluation will be conducted prior to contract award.
 - Proponents will be required to submit related experience complete with reference contact details and information. The evaluation team will verify the experience record to establish capacity, capability and past performance of the bidders.
 - The contractor will be required to submit a 50% performance bond and labour and materials bond.
 - Contractor safety and environmental performance on previous similar work will be evaluated.
- 6.1.6 **Safety Risk** – the contracted work exposes safety risk to workers, the public or BC Hydro employees. Safety risks include vehicle accidents on construction sites or access roads, worker electrical contact, exposure to silica dust, loss of control of construction equipment and materials, wildfire due to construction, exposure to hazardous gases, etc. Inadequate contractor safety management, poor contractor safety culture and poor implementation of safety plans may increase the associated safety risks.
- The contract will require COR certification. Safety minimum requirements will be included in the contract/RFP.
 - Safety is one of the key evaluation criteria and proponents will be required to submit sample site specific safety management plans for evaluation purposes. The evaluation team will engage safety subject matter experts (SME) to perform a detailed and thorough competency assessment of the proponents.
 - The contract will require all workers to take the required safety training before working on site and an ongoing tailboard meeting and risk assessments for all work performed on site.
- 6.1.7 **Environmental Risk** – the construction activities pose risks to the environment and must comply with the Site C environmental assessment certificate conditions.
- The contract will require compliance with the Site C Construction Environmental Management plan.
 - Proponents will be requested to submit sample environmental management plans that they used on previous similar projects and also to provide credentials of their environmental professional for evaluation purposes. Proponents who demonstrate poor environmental protection record and capability will receive poor scores in the environment criteria.

7. NEGOTIATION AND EXIT STRATEGIES

- 7.1 Negotiation is allowed with the identified lead proponent under this RFP. If negotiations are required, the Procurement Lead will conduct the negotiations with assistance from the Evaluation Team and subject matter experts as required.
- 7.2 Exit strategies at each stage of the procurement are:
- 7.2.1 During the RFP process, BC Hydro may cancel the RFP;
 - 7.2.2 During the negotiation process, BC Hydro may terminate negotiations if a mutually acceptable contract is not likely to be reached;
 - 7.2.3 During the contract's implementation, the standard termination for convenience clause will be in effect.

8. SUMMARY

Based on the assessment of the project requirements, market conditions and risks pertinent to this contract package, it is recommended that the subject Contracting Plan be approved for preparation of the RFP.

9. APPROVAL

Prepared By:

Jun 13, 2017
Date

Reviewed
By:

June 13, 2017
Date

Accepted By:

13 June 2017
Date

Reviewed
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13 June 17
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June 15, 2017
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Approved
By:

June 16/17
Date