



Request for Proposals

Provision of abandonment termination instrumentation at the Fundy Ocean Research Center for Energy Demonstration Site – Minas Passage

Release date: June 26, 2012

Fundy Ocean Research Center for Energy (FORCE)

fundyforce.ca

902-406-1166

1. Invitation

Full Proposals are invited from consultants or consulting firms (hereafter referred to as "consultants") to install instruments within the abandonment termination to permit continuous monitoring the cable termination at FORCE's facility in the Minas Passage, Bay of Fundy.

2. Background

FORCE is building Canada's lead centre for tidal energy technology research and demonstration. FORCE collaborates with industry, government, and researchers to study the interaction between tidal turbines and the Bay of Fundy environment.

When construction is completed, FORCE will provide a shared observation facility, submarine cables, grid connection, and environmental monitoring at its pre-approved test site. The site is well suited to testing, with water depths up to 45 meters at low tide, a sediment-free bedrock sea floor, straight flowing currents, and water speeds above 5 metres per second.

The Province of Nova Scotia selected the three initial berth holders – Nova Scotia Power (with OpenHydro), ALSTOM (using a Clean Current design), and Minas Basin Pulp and Power (with Marine Current Turbines). In 2009, NS Power deployed the first commercial scale device in North America at the FORCE test site and successfully recovered it in December 2010. The Province has since selected an additional berth holder, Atlantis Corporation. More information is available at fundyforce.ca

FORCE is undertaking detailed planning for the installation of subsea power cables at the Crown Lease area. To assist in monitoring once deployed, FORCE intends to install instrumentation within the abandonment termination of one of four cables. This instrumentation would take advantage of available power and fibre optic cables embedded within the main cable to provide data that can be used to assist in the technical observation of the cable until a TISEC is installed. This instrumentation will be monitored from the existing FORCE substation. Proposed systems cannot interfere with planned cable deployment operations or installation of the abandonment termination. FORCE is presently under contract with an engineering services firm to provide for a cable field testing program. Any proposed sensor systems to be installed within the termination housing must be developed in conjunction with the contractor's field testing plan.

The cable will be deployed from a barge using a combination of tugs. The operation will commence from the shore end and progress seaward to the Crown Lease area. The cable is 143mm in diameter and weighs 39.2 kg/m. Seabed terrain varies considerably along the proposed cable route and the cable and the abandonment housing will be exposed to current speeds of up to 3m/s on sea floor. An

abandonment termination will be installed on at the end of the cable. This termination is 2m in length and 40mm in diameter.

Detailed specifications of the cable and the abandonment termination as well as the cable field testing plan are deemed confidential. A copy of these documents will be made available to all qualified bidders by signing a confidentiality agreement. These documents will be returned to FORCE or a wavier signed indicating that the documents have been destroyed once the Request for Proposals is closed.

3. Proposal Requirements

The proposal will address the following:

Phase 1: System Design and Integration

1. Conduct an evaluation of commercially available sensors and instrumentation that could be used to position and monitor the cable abandonment termination once deployed. These sensors can take advantage of power and fibre optics within the main cable. Use of subsea electronics should be minimized to enhance system reliability and survivability. All sensors are to be located within the abandonment housing.
2. Provide recommendations to FORCE on which instruments are best suited for the purpose of this project. Possible physical characteristics to be measured include: movement of the abandonment termination, subsea positioning, noise, vibration and impact. Recommendations will include a complete description of performance specifications and system requirements.
3. Provide an assessment of how these sensors will aid in the monitoring of the cable.
4. Provide an overall system design including:
 - a. proposed system architecture;
 - b. substation/shore requirements;
 - c. planned layout of instruments within the abandonment termination;
 - d. proposed installation plan. Proposed systems cannot interfere with cable deployment operations or equipment within the abandonment termination. Installation must coincide with the installation of the abandonment housing in Saint John, NB and the cable deployment in the Crown Lease area (further detail provided to qualified bidders);
 - e. system maintenance requirements; and
 - f. a recommended data management and monitoring program.
5. Provide a complete cost breakdown for the proposed system. This turn-key solution will allow for the monitoring of the abandonment termination from the FORCE substation by FORCE personnel or a third party contractor. This breakdown is to specify:
 - a. procurement of instrumentation and sensors;
 - b. planning, design and engineering services;
 - c. installation;
 - d. system integration testing; and
 - e. commissioning, project handover and training.
6. Provide a post-installation performance assessment. This assessment will be made once the cable is deployed and sensor systems can be evaluated as deployed. The contractor must collect at least one month of sensor data and interpret the results in a report. This report will address the measured

capabilities and limitations of the sensor arrangement and substation monitoring equipment.

FORCE anticipates leaving this cable on the seabed for a period of not less than one year. No cable maintenance or retrieval of equipment is planned during this time. Therefore, all instrumentation must be robust enough and capable of remaining in the abandonment termination for the duration of the deployment..

4. Purpose of this Full Proposal

Consultants are invited to submit to FORCE a Full Proposal that contains at a minimum the relevant information outlined in section 7.

Please note that response to this Request for Proposals should not be seen as placing any obligation on FORCE to fund or any respondent to carry out any work.

5. Conflicts of Interest

It is the responsibility of consultants to identify all possible conflicts of interest that may affect services.

6. Guidelines for Submission of Full Proposals

Format: Submissions are to be made as outlined in section 8. The document must be submitted in Word document format as follows: single spaced, single sided, font size 12-point, Times New Roman, 1" margins on all sides, and contain the contents outlined in section 7.

The submission will be evaluated according to the criteria in Schedule A.

7. Full Proposal Contents

The Full Proposal shall clearly address all of the information requested in this section.

Since the objective is to produce documents that are easily understood the Full Proposal should demonstrate exemplary communication skills, be complete, and make a convincing case that the consultant can perform high quality work. The Full Proposal shall be organized with the subject headings in the sequence indicated:

- **Introduction** including a description of your firm and its areas of concentration and expertise with subsea monitoring systems and instrumentation.
- **Experience and Past Performance** in the energy and marine renewable energy sectors and developing electronic subsea monitoring systems.

Extensive experience with systems integration and instrumentation is required.

- **Organization and Personnel** include a profile of the project team and identify who will be the primary contact and any personnel proposed to be involved in services to FORCE.
- **Location** of your office or offices and from which office the work will be conducted.
- **Availability:** it is essential that this work get underway immediately to meet deadlines associated with the planned cable deployment.
- **Hourly rate(s)** and other fees associated with providing services for each person expected to be involved on behalf of the consultant.
- **Safety Record:** In the proposal please identify that you have all the safety processes and procedures in place to complete this work in a safe manner.
- **Estimate of total cost to complete the project.** Separate provisions for equipment costs, testing, system installation and a post installation performance assessment.
- **References.** You may provide two (2) letters of references for which similar work has been provided.
- **Signature.** The Full Proposal must be signed by an authorized official.

8. SUBMISSION

You may respond electronically or by hard copy.

Please submit your Full proposal to:

<i>In writing or on disc/memory stick</i> FORCE C/O Tony Wright P.O. Box 2573 Halifax, NS B3J 3N5	<i>Electronically</i> Tony.Wright@fundyforce.ca Re Abandonment Termination Instrumentation RFP
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Full Proposals must be submitted no later than **4PM AST, Jul 06, 2012**. Full Proposals received after that time will not be considered. All Full Proposals received by the deadline will receive an acknowledgement by email.

9. ENQUIRIES

Enquiries regarding FORCE or the selection process should be directed to:

**Tony Wright
FORCE
E-Mail: Tony.Wright@fundyforce.ca**

FORCE will respond to requests for clarification as soon as is reasonably possible. FORCE will respond in writing or orally as deemed appropriate in the circumstances. FORCE reserves the right to make any or all questions and answers to enquiries available to all other proponents. Generally, only substantial answers that clarify the process will be distributed.

10. Full Proposal Modification and Withdrawal

Addenda will be accepted until the closing date. Full Proposals may be withdrawn on written request of the proponent any time.

11. Full Proposal Changes and Amendments

FORCE may issue addenda and/or clarification to the Full Proposal as necessary. FORCE, will notify all proponents in writing if any changes are made to the Full Proposal. The closing date may be extended.

12. Principal Contact

Each Full Proposal should include the name and title of one individual who may be contacted in the event that further clarification of the Full Proposal is required.

Schedule A EVALUATION CRITERIA

Evaluation Criteria for Assessment of Full Proposals

The following are mandatory requirements. Full Proposals not meeting them will receive no further consideration during the evaluation process:

- All information requested in this Full Proposal is provided;
- Demonstrated experience with the requirements identified in the Full Proposal.

Full Proposal will be evaluated according to FORCE's procurement criteria and their completeness, content, and evidence of successful implementation and management of similar programs for similar organizations, and the abilities of the Proponent and its staff.

The criteria for evaluating Full Proposals are:

- **Experience and Past Performance** in the energy and marine renewable energy sectors and designing electronic subsea monitoring systems, systems integration and instrumentation . **40 points**
- **Full Proposal content and completeness** **30 points**
- **Budget** **30 points**