



Request for Proposals

Provision of acoustic energy reflecting devices 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 conduct a feasibility assessment, equipment recommendations and possible installation of an acoustic energy reflection device on the abandonment termination and possibly along the main subsea power cables 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 a fourth berth holder, Atlantis Corporation. More information is available at fundyforce.ca.

FORCE is undertaking the detailed planning for the installation of subsea power cables at the Crown Lease area. To assist with cable monitoring, FORCE intends to examine the feasibility of installing an acoustic energy reflection device on the abandonment termination and possibly along the length of one cable. These devices would complement a planned monitoring program that will include the use of sonar systems to assess the position of the cable on the seabed. The use of these devices cannot interfere with cable deployment operations.

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 3 m/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 on the cable and the abandonment termination are deemed confidential. A copy of the

cable specifications and abandonment termination 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 should address the following:

Phase 1: Feasibility Assessment

1. Conduct an evaluation of commercially available acoustic energy reflecting systems to determine the suitability for use on FORCE's medium voltage subsea power cables in the Crown Lease area, taking into account the high flow environment.
2. Provide recommendations to FORCE on which technology is most suitable to assist in positioning the abandonment termination and the cable on the seabed. FORCE intends to conduct regular surveys of the cable using various sonar systems to monitor the position of the cable.
3. Provide an assessment of how this technology will aid in the monitoring of the cable.
4. Provide recommendations to FORCE on system design including:
 - a. a description on how the proposed system will be used in conjunction with sonar imaging systems;
 - b. proposed securing methods to the cable and the abandonment termination; and
 - c. a proposed installation and deployment plan. The use of an acoustic energy reflecting systems cannot interfere with cable deployment operations or with the installation of other equipment in the abandonment termination. Installation must coincide with the installation of the abandonment housing and the cable deployment.
5. Provide a complete cost breakdown for the proposed system. This turn-key solution will enhance the use of sonar imaging systems to monitor the position of the cable. This breakdown is to specify:
 - a. procurement of acoustic energy reflecting devices;
 - b. planning, design and engineering services;
 - c. testing of acoustic energy reflecting devices;
 - d. installation and deployment operations; and
 - e. a performance assessment of this technology and recommendations to continue with the use of these systems to support a cable monitoring program at the Crown Lease area.
6. Testing: Develop a plan to test the selected acoustic energy reflecting device. The purpose of this test is to demonstrate the effectiveness of the technology to support the cable monitoring program. The testing program will also provide the contractor and FORCE with pre-deployment experience on the use of this system and serve to verify system capabilities and limitations. A report will be submitted to FORCE on the results of system testing and recommendations to proceed with installation on the FORCE cable and/or the abandonment termination.

Phase 2: Installation

1. Provide a detailed installation plan upon completion of the feasibility assessment and testing. This plan will describe methods of securing devices on the termination housing and/or along the cable. The plan will also include an overview of the proposed installation schedule. Installation of the proposed system must coincide with the installation of the abandonment termination and the deployment of the cable.
 - a. **Abandonment termination.** This work will take place in Saint John, NB.. All installation work must be scheduled in conjunction with other FORCE contractors installing the abandonment termination and associated equipment on the cable.
 - b. **Cable deployment:** The cable will be deployed in the Crown Lease area from a barge and tug arrangement. Installation of an acoustic energy reflecting device must be accomplished such that it has minimal impact on cable deployment operations. This work must be able to be performed the deck crew on the cable deployment barge.
2. Conduct the installation of the selected system. This may involve training third party contractors to install equipment on the abandonment termination and/or along the cable during deployment operations.
3. Provide a follow up report addressing the effectiveness of this technology in enhancing FORCE's cable monitoring program. This report shall provide a cost benefit analysis that will be used to determine the continued use of these systems to support a long term cable monitoring program.

This project is a turn-key project and the successful applicant will be responsible for supplying all equipment and installation requirements.

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 shall 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 sonar imaging technologies and the use of acoustic energy reflecting technologies.
- **Experience and Past Performance** in the energy and marine renewable energy sectors and using sonar systems to image objects on the sea floor and interpreting the results.
- **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 deadline 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 feasibility assessment, 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 Attention: Tony Wright Re Acoustic Energy Reflecting Device RFP	<i>Electronically</i> Tony.Wright@fundyforce.ca Re Acoustic Energy Reflecting Device RFP
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Full Proposals must be submitted no later than **4PM AST, July 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 using sonar systems to image objects on the sea floor and interpreting the results. **40 points**
- **Full Proposal content and completeness** **30 points**
- **Budget** **30 points**