



National Defence

Défense nationale

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LETTER OF INTEREST LETTRE D'INTÉRÊT

RETURN BIDS TO: RETOURNER LES SOUMISSIONS À:

Bid Receiving – PWGSC / Réception des
soumissions - TPSGC
11 Laurier St. / 11 rue Laurier
Place du Portage, Phase III
Core 0B2 / Noyau 0B2
Gatineau
Québec
K1A 0S5
Bid Fax: (819) 997-9776

OR / OU :

DND Contracting Authority
Cameron Airth
D Mar P 5-4-2-7
Cameron.Airth@forces.gc.ca

Solicitation Closes – L'invitation prend fin

At – à : 14 :00 EST

On - le : 13 / 01 / 2021

Title / Titre REQUEST FOR INFORMATION (RFI) FOR THE WIRELESS BATTERY MONITORING SYSTEM / DEMANDE DE RENSEIGNEMENTS (DR) CONCERNANT LES SYSTÈMES DE SURVEILLANCE SANS FIL DES BATTERIES
Solicitation No – N° de l'invitation W8482-207739/A
Date of Solicitation – Date de l'invitation 02 / 12 / 2020
Address Enquiries to – Adresser toutes questions à Cameron.Airth@forces.gc.ca
Telephone No. – N° de téléphone 819-939-3764
Destination Specified Herein / Précisé dans les présentes

Vendor Name and Address - Raison sociale et adresse du fournisseur
Name and title of person authorized to sign on behalf of vendor (type or print) - Nom et titre de la personne autorisée à signer au nom du fournisseur (caractère d'imprimerie)
Name/Nom _____ Title/Titre _____
Signature _____ Date _____

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REQUEST FOR INFORMATION (RFI) FOR THE WIRELESS BATTERY MONITORING SYSTEM

GENERAL INFORMATION

1. Purpose and Nature of the Request for Information (RFI)

The Department of National Defence (DND) is requesting Industry feedback regarding Wireless Battery Monitoring Systems, as found in Annex A, "Statement of Operational Requirements for the Wireless Battery Monitoring System", for the Royal Canadian Navy.

The objectives of this RFI are to:

1. Collect information regarding Wireless Battery Monitoring Systems
2. Help develop a potential RFP

This RFI is neither a call for tender nor a Request for Proposal (RFP). No agreement or contract will be entered into based on this RFI. The issuance of this RFI is not to be considered in any way a commitment by the Government of Canada, nor as authority to potential respondents to undertake any work that could be charged to Canada. This RFI is not to be considered as a commitment to issue a subsequent solicitation or award contract(s) for the work described herein.

Although the information collected may be provided as commercial-in-confidence (and, if identified as such, will be treated accordingly by Canada), Canada may use the information to assist in drafting performance specifications (which are subject to change) and for budgetary purposes.

Respondents are encouraged to identify, in the information they share with Canada, any information that they feel is proprietary, third party or personal information. Please note that Canada may be obligated by law (e.g. in response to a request under the Access of Information and Privacy Act) to disclose proprietary or commercially-sensitive information concerning a respondent (for more information: <http://laws-lois.justice.gc.ca/eng/acts/a-1/>).

Respondents are asked to identify if their response, or any part of their response, is subject to the Controlled Goods Regulations.

Participation in this RFI is encouraged, but is not mandatory. There will be no short-listing of potential suppliers for the purposes of undertaking any future work as a result of this RFI. Similarly, participation in this RFI is not a condition or prerequisite for the participation in any potential subsequent solicitation.

Respondents will not be reimbursed for any cost incurred by participating in this RFI.

The RFI closing date published herein is not the deadline for comments or input. Comments and input will be accepted any time up to the time when/if a follow-on solicitation is published.

2. Background Information

The purpose of this RFI is to determine the specifications, budgetary price, and availability of Military-Off-The-Shelf (MOTS) Submarine Wireless Battery Monitoring Systems (WBMS) currently in service on other submarine fleets.

The *Victoria*-Class Submarine propulsion battery consists of 480 cells equally distributed across two battery compartments. Currently, to determine the condition of the battery, an individual battery cell is selected and the voltage, temperature, electrolyte fluid level, and specific gravity readings are manually collected and recorded. From these readings a log of the battery's overall condition is developed.

The Department of National Defence (DND) has approved an Engineering Change (EC) project to fit a new WBMS to a *Victoria*-Class Submarine to automate the current manual process and expand the scope of monitoring to all 480 cells.

3. Potential Work Scope and Constraints

The potential work and requirements consists of the following components:

1. One ship set of a complete MOTS WBMS for installation in one *Victoria*-Class Submarine;
2. Field Service Representative support for all installations, tests and trials;
3. Recommended spares to support 60 months of operation;
4. Recommended Special Tools and Test Equipment (SPTATE);
5. All associated drawings, operations and maintenance manuals; and
6. Training course material and initial cadre training.

DND will confirm the compatibility of the proposed MOTS WBMS with the *Victoria*-Class Submarine battery with the OEM for current in-service submarine batteries.

Due to security and Intellectual Property limitations, the battery specifications will not be provided.

A detailed Statement of Operational Requirement for the WBMS is included in the attached Annex A of this RFI.

Information received from this RFI may be used to help raise a future solicitation.

4. Legislation, Trade Agreements, and Government Policies

The following is indicative of some of the legislation, trade agreements and government policies that could impact any follow-on solicitation(s):

- a) Agreement on Internal Trade (AIT)
- b) World Trade Organization – Agreements on Government Procurement (WTO-AGP)
- c) Defence Production Act
- d) Industrial and Regional Benefits (IRBs)
- e) Defence Procurement Strategy (DPS)
- f) Controlled Goods Program (CGP)
- g) Federal Contractors Program for Employment Equity (FCP-EE)
- h) Comprehensive Land Claim Agreements (CLCAs)

This list is not exhaustive, and legislations, trade agreements, and government policies that are not listed may impact future solicitations.

5. Submission of Responses

Responses and supporting information may be submitted in either English or French

Canada is not responsible and will not assume any liabilities whatsoever for the information found on websites of third parties.

Responses may be submitted through any method outlined below. Electronic submissions are preferred.

For submission response methods 2 and 3, respondents must submit their responses to the PSPC Bids Receiving Unit, identified below:

Bid Receiving – PWGSC / Réception des soumissions - TPSGC
11 Laurier St. / 11 rue Laurier
Place du Portage, Phase III
Core 0B2 / Noyau 0B2
Gatineau
Québec
K1A 0S5

1. E-mail

- a. Respondents may submit their response directly to the DND Contracting Authority, identified below, via email:

Name: Cameron Airth
Title: D Mar P 5-4-2-7
Department of National Defence
Email: Cameron.Airth@forces.gc.ca

- b. The DND Contracting Authority will provide positive confirmation of receipt.
- c. Emails larger than 10MB may not be received. Canada is not responsible for responses that are not received due to response files being too large.

2. Facsimile

- a. Unless specified otherwise in the RFI, responses may be submitted by facsimile.
- i. PWGSC, National Capital Region: The only acceptable facsimile number for responses is 819-997-9776 or, if applicable, the facsimile number identified in the RFI.
- b. For responses transmitted by facsimile, Canada will not be responsible for any failure attributable to the transmission or receipt of the faxed response including, but not limited to, the following:
- i. receipt of garbled, corrupted or incomplete response;
- ii. availability or condition of the receiving facsimile equipment;
- iii. incompatibility between the sending and receiving equipment;
- iv. delay in transmission or receipt of the response;
- v. failure of the Respondent to properly identify the response;
- vi. illegibility of the response; or
- vii. security of response data.
- c. A response transmitted by facsimile constitutes the formal response of the Respondent.

3. epost Connect

- a. Unless specified otherwise in the RFI, responses may be submitted by using the [epost Connect service](#) provided by Canada Post Corporation.
- i. PWGSC, National Capital Region: The only acceptable email address to use with epost Connect for responses to this RFI is: tpsgc.dgareceptiondessoumissions-abbidReceiving.pwgsc@tpsgc-pwgsc.gc.ca
- b. To submit a response using epost Connect service, the Respondent must either:

-
- i. send directly its response only to the specified PWGSC Bid Receiving Unit, using its own licensing agreement for epost Connect provided by Canada Post Corporation; or
 - ii. send as early as possible, and in any case, at least six business days prior to the solicitation closing date and time, (in order to ensure a response), an email that includes the RFI number to the specified PWGSC Bid Receiving Unit requesting to open an epost Connect conversation. Requests to open an epost Connect conversation received after that time may not be answered.
 - c. If the Respondent sends an email requesting epost Connect service to the specified Bid Receiving Unit in the RFI, an officer of the Bid Receiving Unit will then initiate an epost Connect conversation. The epost Connect conversation will create an email notification from Canada Post Corporation prompting the Respondent to access and action the message within the conversation. The Respondent will then be able to transmit its response afterward at any time prior to the solicitation closing date and time.
 - d. If the Respondent is using its own licensing agreement to send its response, the Respondent must keep the epost Connect conversation open until at least 30 business days after the solicitation closing date and time.
 - e. The RFI number should be identified in the epost Connect message field of all electronic transfers.
 - f. It should be noted that the use of epost Connect service requires a Canadian mailing address. Should a Respondent not have a Canadian mailing address, they may use the Bid Receiving Unit address specified in the solicitation in order to register for the epost Connect service.
 - g. For responses transmitted by epost Connect service, Canada will not be responsible for any failure attributable to the transmission or receipt of the response including, but not limited to, the following:
 - i. receipt of a garbled, corrupted or incomplete response;
 - ii. availability or condition of the epost Connect service;
 - iii. incompatibility between the sending and receiving equipment;
 - iv. delay in transmission or receipt of the response;
 - v. failure of the Respondent to properly identify the response;
 - vi. illegibility of the response;
 - vii. security of response data; or,
 - viii. inability to create an electronic conversation through the epost Connect service.
 - h. The Bid Receiving Unit will send an acknowledgement of the receipt of response document(s) via the epost Connect conversation, regardless of whether the conversation was initiated by the supplier using its own license or the Bid Receiving Unit. This acknowledgement will confirm only the receipt of response document(s) and will not confirm if the attachments may be opened nor if the content is readable.
 - i. Respondents must ensure that that they are using the correct email address for the Bid Receiving Unit when initiating a conversation in epost Connect or communicating with the Bid Receiving Unit and should not rely on the accuracy of copying and pasting the email address into the epost Connect system.
 - j. A response transmitted by epost Connect service constitutes the formal response of the Respondent and must be submitted in accordance with section 05.

6. Important Notes to Respondents

A point of contact for the respondent should be included in the response package.

Changes to this RFI may occur and will be advertised on the Government Electronic Tendering System. Canada asks respondents to visit Buyandsell.gc.ca regularly to check for changes, if any.

Annex B of this RFI includes a list of questions to be answered by the RFI respondents. RFI respondents are requested to provide answers to the questions listed.

7. Format of Responses

The respondents must identify all response data with the following information:

1. name and address of the respondent;
2. name, address, telephone number, and email address of the respondent's contact;
3. submission date;
4. RFI number; and
5. version number of the submission.

8. Enquiries

Since this is not a bid solicitation, Canada will not necessarily respond to enquiries in writing or by circulating answers to all potential suppliers. However, respondents with questions regarding this RFI may direct their enquiries to the DND Contracting Authority. The use of email to communicate is preferred.

Canada may, in its discretion, contact any respondent for clarification on any aspect of the respondent's submission.

All enquiries must be submitted to the DND Contracting Authority no later than ten (10) calendar days before the RFI closing date. Enquiries received after that time may not be answered.

Documents may be submitted in either official language of Canada.

9. Closing date for the RFI

Responses to this RFI are to be submitted in one of the three accepted response methods on or before 11 January, 2021, at 14:00 Eastern Standard Time (EST).

ANNEX “A” - Statement of Operational Requirements for the Wireless Battery Monitoring System

Configuration

1.1 Compatibility

1.1.1 The WBMS must be capable of interfacing with the *Victoria*-Class Submarine Type 27KR177T battery cell which was manufactured by Enersys Limited (EnerSys).

1.1.2 No modification to the battery cell is permitted.

1.2 Number of Main Battery Compartments

1.2.1 The WBMS must support simultaneous monitoring of the two *Victoria*-Class Submarine main battery compartments.

1.3 Number of Battery Cells per Compartment

1.3.1 The WBMS must be able to support 240 battery cells per compartment.

1.4 Wireless Battery Cell Sensor (WBCS)

1.4.1 The WBMS must include an individual WBCS for each cell. The WBCS must measure the following battery cell parameters:

- a) Voltage;
- b) Temperature; and
- c) Electrolyte fluid level.

1.4.2 The WBCS must transmit this information via wireless signal (WS) to a Central Monitoring Station (CMS) via any required Intermediate equipment located within each battery compartment.

1.4.3 The WBCS must be powered from the battery cell.

1.4.4 Each battery cell must be fitted with at least one WBCS.

1.4.5 The WBCS measurement probe must be compatible with the battery cell service port. Dimensions and drawings of the cell top and service port will be supplied upon request and completion of a Non-Disclosure Agreement.

1.5 Central Monitoring Station (CMS)

1.5.1 The WBMS must include a CMS, and any intermediate equipment, that receives each individual battery cell parameters listed above.

1.5.2 The CMS must have a Graphical User Interface (GUI) that provides a numeric and graphic display of each battery cell. The GUI must have a visual representation of each individual cell on a battery compartment map and must be a self-contained man-machine interface.

Functional Requirements

1.6 WBCS

1.6.1 Voltage:

The WBCS must measure voltages in the range of 1.000 Volt (V) Direct Current (DC) to 2.999 V DC with a resolution of 1 milliVolt (mV) and an accuracy of +/- 5 mV.

1.6.2 Temperature:

The WBCS must measure electrolyte temperatures in the range 5.0 degrees Celsius (C) to 65.0 degrees C, with a resolution of .1 degree C and an accuracy +/- 1 degree C.

1.6.3 Electrolyte Liquid Level:

The WBCS must measure the electrolyte liquid level with a measurement range of 125 millimeters (mm), with a resolution of 1 mm and an accuracy of +/- 5 mm at 0 degrees heel and trim.

1.6.4 Visual Indication:

The WBCS must provide a visual indication, at the battery cell, of the battery cells fluid level. The WBCS must provide a visual indication, at the battery cell, if it is transmitting data; or has failed.

1.6.5 Sample Rate:

The WBCS must sample and transmit the battery cell voltage, temperature and level to the CMS every 30 seconds or less.

1.7 CMS Information Display

1.7.1 Voltage

1.7.1.1 The CMS must display the cell number and voltage for each cell individually.

1.7.1.2 The CMS must identify, for each battery compartment, the cell with the highest voltage. The CMS must display the cell number and voltage for this cell.

1.7.1.3 The CMS must calculate and display, for each battery compartment, the mean voltage.

1.7.1.4 The CMS must calculate and display the total battery voltage of both battery compartments.

1.7.2 Temperature

1.7.2.1 The CMS must display the cell number and electrolyte temperature for each cell individually.

1.7.2.2 The CMS must identify, for each battery compartment, the cell with the highest electrolyte temperature. The CMS must display the cell number and electrolyte temperature for this cell.

The CMS must identify, for each battery compartment, the cell with the lowest electrolyte temperature. The CMS must display the cell number and electrolyte temperature for this cells.

The CMS must calculate and display mean electrolyte temperature for each battery compartment.

1.7.3 Electrolyte Liquid Level.

1.7.3.1 The CMS must display the cell number and electrolyte liquid level for each cell individually.

1.7.3.2 The CMS must identify, for each battery compartment, cells with a high electrolyte level and cells with a low level. The CMS must display the cell number and electrolyte level for these cells.

1.7.3.3 The CMS must identify, for each battery compartment, cells with correct electrolyte level. The CMS must display the cell number and electrolyte level for this cell.

1.7.4 Alerts

The CMS must provide alerts for unusual (outside of acceptable range as identified in part 1.6 of this Annex "A") voltage, electrolyte temperature and electrolyte liquid level for each single cell.

1.7.5 Alarms

The CMS must provide alarms if the wireless communication to a WBCS is permanently interrupted.

1.7.6 Data Recording

The CMS must record the collected measuring values (voltage, electrolyte temperature, electrolyte level) for each single cell. The information shall be stored in a password protected data base.

1.7.7 Data Export

The CMS must export this data base to an external system by means of a portable Universal Serial Bus (USB) drive. The data shall be capable of being reviewed using Microsoft Excel.

ANNEX "B" - Questions to Industry

Price, Availability and Current Customer Base

- 1.1 Acquisition Costs
 - 1.1.1 What is the acquisition cost of one ship set configured for the *Victoria*-Class Submarine (including drawings, manuals and training material)? Additionally, please include an individual breakdown of these costs.
 - 1.1.2 What are the recommended spares to support 60 months of operation, and the associated acquisition cost?
 - 1.1.3 What is the recommended SPTATE and the associated acquisition cost?
 - 1.1.4 What is the acquisition cost for one week of FSR support in Canada (Halifax, Nova Scotia or Esquimalt, British Columbia)?
 - 1.1.5 What are the average maintenance costs per year?
- 1.2 Acquisition Availability
 - 1.2.1 Is the system currently in production?
 - 1.2.2 What is the production lead time of this system?
 - 1.2.3 What is the operational availability of your system?
 - 1.2.4 What is the technical readiness level of the system?
- 1.3 Current Customer Base
 - 1.3.1 What other customers have installed this system?
- 1.4 Trade Controls
 - 1.4.1 What trade controls are this system subject to (e.g. Controlled Goods (CG), International Traffic in Arms Regulations (ITAR) and Export Administration Regulations (EAR), etc.)?

Marketing Information

- 1.5 Please provide any system literature for the system and its components.

System Description

- 1.6 Please identify any additional system capabilities already developed and currently available in your system over and above the requirements defined in Annex A. Additional system capabilities could include specific gravity, individual cell air agitation monitoring, time to run, overall battery percentage, amp hours in and amp hours out for charging and discharging. Specification of the fitted battery shunt will be supplied upon request and completion of a Non-Disclosure Agreement.
- 1.7 System/Sub-system Performance Specifications
 - 1.7.1 Please provide any available performance specifications for the system and sub-system components.

1.8 System/Sub-system Physical Characteristics

1.8.1 What are the dimensions of each of the system's major components (in metric units)?

1.8.2 What is the weight of each of the system's major components (in metric units)?

1.8.3 What are the electrical power requirements of the system?

1.8.4 What are the mounting requirements of system's major components?

1.9 System/Sub-System Certifications/Qualifications

1.9.1 Does the system have any hazardous material?

1.9.2 What are the qualifications the associated approved test methods for the requirements of the following major system components?

- a) Storage Temperature;
- b) Operating Temperature;
- c) Humidity;
- d) Shock;
- e) Compartment Pressure;
- f) Electro-Magnetic Capability/Electro-Magnetic Interference;
- g) Water Ingress (Watertight); and
- h) Explosion Protection.

1.9.3 Please identify what qualification levels have been achieved for any of the major system components above.

1.10 Reliability, Maintainability, Availability

1.10.1 What is the system's mean-time-between failure (MTBF)?

1.10.2 What is the system's mean-time-to-repair (MTTR)?

1.11 Service Life

1.11.1 What is the intended service life of your system?