Public Works and Government Services Canada

Travaux publics et Services gouvernementaux Canada

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 0A1 / Noyau 0A1
Gatineau
Québec
K1A 0S5
Bid Fax: (819) 997-9776

REQUEST FOR PROPOSAL
DEMANDE DE PROPOSITION

Proposal To: Public Works and Government Services Canada

We hereby offer to sell to Her Majesty the Queen in right of Canada, in accordance with the terms and conditions set out herein, referred to herein or attached hereto, the goods, services, and construction listed herein and on any attached sheets at the price(s) set out therefor.

Proposition aux: Travaux Publics et Services Gouvernementaux Canada

Nous offrons par la présente de vendre à Sa Majesté la Reine du chef du Canada, aux conditions énoncées ou incluses par référence dans la présente et aux annexes ci-jointes, les biens, services et construction énumérés ici sur toute feuille ci-annexée, au(x) prix indiqué(s).

Comments - Commentaires

Title - Sujet
HEMTV Prop/Gen Feasibility Analys

Solicitation No. - N° de l'invitation	**Date**
F7049-140167/A	2014-08-13

Client Reference No. - N° de référence du client
F7049-140167

GETS Reference No. - N° de référence de SEAG
PW-$$ML-044-24624

File No. - N° de dossier	**CCC No./N° CCC - FMS No./N° VME**
044ml.F7049-140167	

Solicitation Closes - L'invitation prend fin
at - à 02:00 PM
on - le 2014-09-24

Time Zone
Fuseau horaire
Eastern Daylight Saving Time EDT

F.O.B. - F.A.B.
Plant-Usine: ☐ **Destination:** ☐ **Other-Autre:** ☐

Address Enquiries to: - Adresser toutes questions à:	**Buyer Id - Id de l'acheteur**
Aussant, Marc	044ml

Telephone No. - N° de téléphone	**FAX No. - N° de FAX**
(819) 934-1386 ( )	(819) 956-0897

Destination - of Goods, Services, and Construction:
Destination - des biens, services et construction:

Specified Herein
Précisé dans les présentes

Instructions: See Herein

Instructions: Voir aux présentes

Vendor/Firm Name and Address
Raison sociale et adresse du fournisseur/de l'entrepreneur

Delivery Required - Livraison exigée	**Delivery Offered - Livraison proposée**
See Herein	

Vendor/Firm Name and Address
Raison sociale et adresse du fournisseur/de l'entrepreneur

Telephone No. - N° de téléphone
Facsimile No. - N° de télécopieur

Name and title of person authorized to sign on behalf of Vendor/Firm (type or print)
Nom et titre de la personne autorisée à signer au nom du fournisseur/ de l'entrepreneur (taper ou écrire en caractères d'imprimerie)

Signature **Date**

Issuing Office - Bureau de distribution
Marine Machinery and Services / Machineries et services maritimes
11 Laurier St. / 11, rue Laurier
6C2, Place du Portage
Gatineau
Québec
K1A 0S5

Canada

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HEMTV GENERATION AND PROPULSION UPGRADE FEASIBILITY AND OPTIONS ANALYSIS

PART 1 - GENERAL INFORMATION

1. Security Requirement

There is no security requirement associated with this bid solicitation.

2. Statement of Work

2.1 To deliver to the Canadian Coast Guard the High Endurance Multi Task Vessel (HEMTV) Generation and Propulsion Upgrade Feasibility and Options Analysis, in accordance with the SOW Annex ‘‘A’’ titled HEMTV Generation and Propulsion Upgrade Feasibility and Options Analysis Revision 5, dated July 24, 2014.

2.2 To carry out, within the Work Period of the Contract, all unscheduled work authorized by the Contracting Authority.

> The authorization of unscheduled work will be subject primarily, to the achievement of the Requirement during the Work Period. Consequently, in response to a request of unscheduled work from Canada to the Contractor, the Contractor will have to clearly demonstrate to Canada, through its planning and scheduling system, that by adding an unscheduled work, the Requirement will still be achievable within the Work Period. Should it be clearly demonstrated to Canada that the Requirement will not be achievable during the Work Period, Canada will not authorize the unscheduled work or will authorize the unscheduled work with an amendment extending the Work Period in order to provide sufficient time to achieve the Requirement with the subject unscheduled work.

3. Debriefings

Bidders may request a debriefing on the results of the bid solicitation process. Bidders should make the request to the Contracting Authority within 15 working days of receipt of the results of the bid solicitation process. The debriefing may be in writing, by telephone or in person.

4. Trade Agreements

The requirement is subject to the provisions of the World Trade Organization Agreement on Government Procurement (WTO-AGP), the North American Free Trade Agreement (NAFTA) and the Agreement on Internal Trade (AIT).

PART 2 - BIDDER INSTRUCTIONS

1. Standard Instructions, Clauses and Conditions

All instructions, clauses and conditions identified in the bid solicitation by number, date and title are set out in the *Standard Acquisition Clauses and Conditions Manual*.
(https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual) issued by Public Works and Government Services Canada.

Bidders who submit a bid agree to be bound by the instructions, clauses and conditions of the bid solicitation and accept the clauses and conditions of the resulting contract.

The 2003 (2014-03-01) Standard Instructions - Goods or Services - Competitive Requirements, are incorporated by reference into and form part of the bid solicitation.

2. Submission of Bids

Bids must be submitted only to Public Works and Government Services Canada (PWGSC) Bid Receiving Unit below by the date and time indicated on page 1 of the RFP.

Bid Receiving Unit
Public Works and Government Services Canada
11 Laurier Street
Gatineau, Québec, K1A 0S5
Fax: (819) 956-9776

3. Former Public Servant - Competitive Requirements

Contracts awarded to former public servants (FPS) in receipt of a pension or of a lump sum payment must bear the closest public scrutiny, and reflect fairness in the spending of public funds. In order to comply with Treasury Board policies and directives on contracts awarded to FPS, bidders must provide the information required below before contract award. If the answer to the questions and, as applicable the information required have not been received by the time the evaluation of bids is completed, Canada will inform the Bidder of a time frame within which to provide the information. Failure to comply with Canada's request and meet the requirement within the prescribed time frame will render the bid non-responsive.

Definitions

For the purposes of this clause,""former public servant"" is any former member of a department as defined in the Financial Administration Act, R.S., 1985, c. F-11, a former member of the Canadian Armed Forces or a former member of the Royal Canadian Mounted Police. A former public servant may be:

a. an individual;
b. an individual who has incorporated;
c. a partnership made of former public servants; or
d. a sole proprietorship or entity where the affected individual has a controlling or major interest in the entity.

""lump sum payment period"" means the period measured in weeks of salary, for which payment has been made to facilitate the transition to retirement or to other employment as a result of the implementation of various programs to reduce the size of the Public Service. The lump sum payment period does not include the period of severance pay, which is measured in a like manner.

""pension"" means a pension or annual allowance paid under the Public Service Superannuation Act (PSSA), R.S., 1985, c.P-36, and any increases paid pursuant to the Supplementary Retirement Benefits Act, R.S., 1985, c.S-24 as it affects the PSSA. It does not include pensions payable pursuant to the Canadian Forces Superannuation Act, R.S., 1985, c.C-17, the Defence Services Pension Continuation Act, 1970, c.D-3, the Royal Canadian Mounted Police Pension Continuation Act , 1970, c.R-10, and the Royal Canadian Mounted Police Superannuation Act, R.S., 1985, c.R-11, the Members of Parliament Retiring Allowances Act , R.S., 1985, c.M-5, and that portion of pension payable to the Canada Pension Plan Act, R.S., 1985, c.C-8.

Former Public Servant in Receipt of a Pension

As per the above definitions, is the Bidder a FPS in receipt of a pension? **Yes (__) No (__)**

If so, the Bidder must provide the following information, for all FPS in receipt of a pension, as applicable:

a. name of former public servant;
b. date of termination of employment or retirement from the Public Service.

By providing this information, Bidders agree that the successful Bidder's status, with respect to being a former public servant in receipt of a pension, will be reported on departmental websites as part of the published proactive disclosure reports in accordance with Contracting Policy Notice: 2012-2 and the Guidelines on the Proactive Disclosure of Contracts.

Work Force Adjustment Directive

Is the Bidder a FPS who received a lump sum payment pursuant to the terms of the Work Force Adjustment Directive? **Yes (__) No (__)**

If so, the Bidder must provide the following information:

a. name of former public servant;
b. conditions of the lump sum payment incentive;
c. date of termination of employment;
d. amount of lump sum payment;
e. rate of pay on which lump sum payment is based;
f. period of lump sum payment including start date, end date and number of weeks; and
g. number and amount (professional fees) of other contracts subject to the restrictions of a work force adjustment program.

For all contracts awarded during the lump sum payment period, the total amount of fees that may be paid to a FPS who received a lump sum payment is $5,000, including Applicable Taxes.

4. Enquiries - Bid Solicitation

All enquiries must be submitted in writing to the Contracting Authority no later than seven (7) calendar days before the bid closing date. Enquiries received after that time may not be answered.

Bidders should reference as accurately as possible the numbered item of the bid solicitation to which the enquiry relates. Care should be taken by bidders to explain each question in sufficient detail in order to enable Canada to provide an accurate answer. Technical enquiries that are of a proprietary nature must be clearly marked "proprietary" at each relevant item. Items identified as "proprietary" will be treated as such except where Canada determines that the enquiry is not of a proprietary nature. Canada may edit the questions or may request that the Bidder do so, so that the proprietary nature of the question is eliminated, and the enquiry can be answered with copies to all bidders. Enquiries not submitted in a form that can be distributed to all bidders may not be answered by Canada.

5. Applicable Laws

Any resulting contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in Ontario.

Bidders may, at their discretion, substitute the applicable laws of a Canadian province or territory of their choice without affecting the validity of their bid, by deleting the name of the Canadian province or territory specified and inserting the name of the Canadian province or territory of their choice. If no change is made, it acknowledges that the applicable laws specified are acceptable to the bidders.

6 Bidder’s Conference

A bidders' conference will be held in Dartmouth, Nova Scotia at 50 Discovery Drive on September 4, 2014. The conference will begin at 0900 ADT, in the Atrium Boardroom. The scope of the requirement outlined in the bid solicitation will be reviewed during the conference and questions will be answered. It is recommended that bidders who intend to submit a bid attend or send a representative.

Bidders are requested to communicate with the Contracting Authority before the conference to confirm attendance. Bidders should provide, in writing, to the Contracting Authority, the names of the person(s) who will be attending and a list of issues they wish to table at least **five (5) working days** before the scheduled conference.

Any clarifications or changes to the bid solicitation resulting from the bidders' conference will be included as an amendment to the bid solicitation. Bidders who do not attend will not be precluded from submitting a bid.

7 Site Visit - Vessel

It is recommended that the Bidder or a representative of the Bidder visit the vessel. Arrangements have been made for site visit to be held on **September 3, 4 and 5, 2014 inclusively onboard CCGS Edward Cornwallis** tied up alongside at the Bedford Institute of Oceanography in Dartmouth, Nova Scotia at 1 Challenger Drive. Bidders must communicate with the Contracting Authority no later than **five (5) working days** before the scheduled visit to confirm attendance and provide the names of the person(s) who will attend. Bidders will be required to sign an attendance form. Any clarifications or changes to the bid solicitation resulting from the site visit will be included as an amendment to the bid solicitation.

PART 3 - BID PREPARATION INSTRUCTIONS

1. Bid Preparation Instructions

Canada requests that bidders provide their bid in separately bound sections as follows:

Section I: Technical Bid 5 hard copies and 5 soft copies on DVD,

Section II: Financial Bid 1 hard copy and 1 soft copy on DVD,

Section III: Certifications 1 hard.

If there is a discrepancy between the wording of the soft copy and the hard copy, the wording of the hard copy will have priority over the wording of the soft copy.

Prices must appear in the financial bid only. No prices must be indicated in any other section of the bid.

Canada requests that bidders follow the format instructions described below in the preparation of their bid:

(a) use 8.5 x 11 inch (216 mm x 279 mm) paper;
(b) use a numbering system that corresponds to the bid solicitation.

In April 2006, Canada issued a policy directing federal departments and agencies to take the necessary steps to incorporate environmental considerations into the procurement process Policy on Green Procurement (http://www.tpsgc-pwgsc.gc.ca/ecologisation-greening/achats-procurement/politique-policy-eng.html). To assist Canada in reaching its objectives, bidders should:

1) use 8.5 x 11 inch (216 mm x 279 mm) paper containing fibre certified as originating from a sustainably-managed forest and containing minimum 30% recycled content; and

2) use an environmentally-preferable format including black and white printing instead of colour printing, printing double sided/duplex, using staples or clips instead of cerlox, duotangs or binders.

Section I: Technical Bid

Bidders must submit a Technical Bid package for Canada's evaluation. In their technical bid, bidders must demonstrate their understanding of the requirements contained in the bid solicitation and explain how they will meet these requirements. Bidders should demonstrate their capability in a thorough, concise and clear manner for carrying out the work.

The Technical Bid must address clearly and in sufficient depth the points that are subject to the Evaluation Procedures and Basis of Selection as per the Part 4 of the RFP. Simply repeating the statement contained in the RFP is not sufficient. In order to facilitate the evaluation of the proposal, Canada requests that bidders address and present topics in the order of the evaluation criteria under the same headings. To avoid duplication, bidders may refer to different sections of their proposals by identifying the specific paragraph and page number where the subject topic has already been addressed.

Bidders must structure the contents of Section I Technical Bid as follows:

1 Mandatory Technical Criteria (ref article 4 sub article 1.1.1);

- The bidder must confirm that he responded to all the sections within the technical bid Mandatory and Point Rated Technical Criteria.
- The bidder must certify that all tasks and sub tasks can and will be completed with in the period of the contract.
- The bidder must supply a preliminary plan and schedule.

2 Point Rated Criteria (ref article 4 sub article 1.1.2);

- For Previous Similar Projects
- For Education and Experience of Key Personnel
- For Proposed Approach to Work

Section II: Financial Bid

Bidders must submit their financial bid in accordance with the Annex C - Financial Bid Presentation Sheet and the Appendix 1 to Annex C - Pricing Data Sheet. The total amount of the applicable taxes must be excluded or shown separately.

1. Cost Breakdown

Bidders must include with their financial bid a complete cost breakdown of its bid price for the Work in accordance with the Appendix 1 to Annex C - Pricing Data Sheet and transfer the total to line item A) of the Annex C Financial Bid Presentation Sheet. Once in contract the PDS will be part of the Basis of Payment Annex B.

2. Hourly Rates and Overtime Premiums for Unscheduled Work.

i. Bidders must provide hourly rates and if applicable overtime **premiums** in accordance with the line item B) of the Annex C.

ii. Hourly Rates and Overtime Premiums provides will be extended against predetermined amount of hours set out by Canada for evaluation purpose only. Once in contract these Hourly Rates and Premiums will be part of the Contract Basis of Payment Annex B.

3. Financial bid evaluation.

i. The Evaluation Price will be used for evaluating the bid. The amount of person-hours used for the evaluation of the Unscheduled Work Hourly Rates and Overtime Premiums are based on historical experience and there is no minimum or maximum amount of hours for Unscheduled Work nor is there a guarantee of such Unscheduled Work.

ii. The information submitted as a mandatory item will be held as confidential business information. The details of this information may be used for contractual evaluation purposes and/or contract administration purposes.

4. Exchange Rate Fluctuation

C3011T, (2013-11-06), Exchange Rate Fluctuation

5. Evaluation of Price

SACC Manual Clause A0222T (2013-04-25) Evaluation of Price**.**

Section III: Certifications

Bidders must submit the certifications required under **Part 5.**

PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION

1. Evaluation Procedures

(a) Bids will be assessed in accordance with the entire requirement of the bid solicitation including the technical and financial evaluation criteria.

(b) An evaluation team composed of representatives of Canada will evaluate the bids.

1.1 Technical Evaluation

The technical bid must address clearly and in sufficient depth the points that are subject to the evaluation criteria against which the bid will be evaluated. Simply repeating the statement contained in the bid solicitation is not sufficient. In order to facilitate the evaluation of the bid, Canada requests that bidders address and present topics in the order of the following evaluation criteria under the same headings in a thorough, concise and clear manner. To avoid duplication, bidders may refer to different sections of their bids by identifying the specific paragraph and page number where the subject topic has already been addressed.

The bidders should structure the contents of the Technical Bid as follows;

1.1.1 Mandatory Technical Criteria

- The bidder must confirm that he responded to all the sections within the technical bid Mandatory and Point Rated Technical Criteria.

- The bidder must certify that all tasks and sub tasks can and will be completed within the period of the contract. This will be achieved by a listing every tasks and sub tasks with their respective SOW reference number and an individual certification for each of them certifying that they can and will be completed within the contract period.

- The bidder must provide with its bid a preliminary plan and schedule in way of a Gantt chart with a WBS in working days for each task down to scenarios and activities within each scenario with links associated to their respective predecessors and successors;

1.1.2 Point Rated Technical Criteria

1.1.2.1 Previous Similar Projects

The Bidder must provide 3 projects of a similar nature to the work of this bid solicitation, undertaken within the last 10 years. Each Project shall be based on a different area of expertise; Propulsion Renewal, Engine Replacement, and Power Management. By similar it is meant that;

- Ship is of a comparable size and power output (83m 6.6MW)
- Project was a feasibility study and/or a design,
- Project involved investigating multiple configurations

Previous Similar Projects Scoring Matrix

Point Rated Technical Criteria **Previous Similar Projects (30 points total)**	
Project 1 – Propulsion Renewal	
Ship is of a comparable size and power output >= 83m 6.6MW >50m 3.0 MW <50m 3.0 MW	(3 points) (2 Points) (1 Point)
Provide One Example Project was a feasibility study and/or a design of a Diesel Electric Plant. Project was a feasibility study and/or a design of Propulsion Control. Project was a feasibility study and/ or design.	(5 points) (2 points) (1 Point)
Project involved investigating multiple configurations >= 3 Configurations 2 Configurations	(2 points) (1 point)
Project 2 – Engines Replacement	
Ship is of a comparable size and power output >= 83m 6.6MW >50m 3.0 MW <50m 3.0 MW	(3 points) (2 Points) (1 Point)
Project was a feasibility study and/or a design of a Diesel Electric Plant. Project was a feasibility study and/or a design of a Geared Diesel Plant Project was a feasibility study and/ or design.	(5 points) (2 points) (1 Point)
Project involved investigating multiple configurations >= 3 Configurations 2 Configurations	(2 points) (1 point)

Project 3 – Power Management		
Ship is of a comparable size and power output	>= 83m 6.6MW	(3 points)
	>50m 3.0 MW	(2 Points)
	<50m 3.0 MW	(1 Point)
Project was a feasibility study and/or a design of a Diesel Electric Plant.		(5 points)
Project was a feasibility study and/or a design of a Geared Diesel Plant		(2 points)
Project was a feasibility study and/ or design.		(1 Point)
Project involved investigating multiple configurations	>= 3 Configurations	(2 points)
	2 Configurations	(1 point)

1.1.2.2 Education and Experience of Key Personnel

The Bidder must provide a proposed employee organization chart for the work. Describe the number of personnel intended to be deployed on this work, with position titles and names. Indicate each person's responsibilities. For each Key Person, the Bidder must provide the following information:

- Name and brief description of this person's field of work and years of work experience, past project accomplishments and notable achievements and describe other cases of particularly relevant experience that is not already captured under the projects listed above.

- Role proposed for this work, degree of responsibility, and level of involvement.

Key Personnel Scoring Matrix

Key Personnel	(20 points total)
Overall average education range is based on the minimum diploma = 5 points for a Technologist to 10 points for a Professional Engineer	(10 points)
Years of experience of key personnel is based on the overall average of assigned key persons. 1 year = 1 point.	(10 points)

1.1.2.3 Proposed Approach to Work

This project's evaluation is heavily weighted on the Bidder's approach to work. The amount of information that will be returned from industry, as well as the time needed for completion, are important factors to this contract.

The Bidder must provide a detailed breakdown of each task describing what their proposed work solution will provide in way of:

- The number of suppliers that will be contacted for each task.

- The number of options that will be provided for each sub-task.
- *The total number of calendar days to completion from contract award date.
(*To alleviate factors out of the bidder's control, the bidder shall be allowed to deduct any time waiting for supplier response from the total calendar days)

Proposed Approach to Work Scoring Matrix

Proposed Approach to Work	**(90 points total)**
Task 1 – T1100 Motors, Converters, and Transformers	
Task 1 Overview	
Number of Suppliers	1 point/supplier (6 Points)
Ref SOW # 2.3.2 Scenario 2 – Upgrade the Cycloconverter	
Number of Options	>=2 (2 points) 1 (1 Point)
Ref SOW # 2.3.3 Scenario 3 – Replace with Similar	
Number of Options	>=3 (3 points) 2 (2 Points) 1 (1 Point)
Ref SOW # 2.3.4 Scenario 4 – Replace with Different	
Number of Options	>=3 (3 points) 2 (2 Points) 1 (1 Point)
Total Time to Complete Task (from Contract Award)	60 Days (10 Points) 61-80 Days

(5 Points) >80 Days (1 Point)
Task 2 – T1100 Main Generators
Task 2 Overview Number of Suppliers 1 point/supplier (6 Points)
Ref SOW # 3.3.3 Scenario 3 – Replace with Similar Number of Options >=3 (3 points) 2 (2 Points) 1 (1 Point)
Ref SOW # 3.3.4 Scenario 4 – Replace with Different Number of Options >=3 (3 points) 2 (2 Points) 1 (1 Point)
Total Time to Complete Task (from Contract Award) 60 Days (6 Points) 61 – 80 Days (3 Points) >80 Days (1 Point)
Task 3 – T1100 Main Engines
Task 3 Overview Number of Suppliers 1 point/supplier (6 Points)
Ref SOW # 4.3.2 Scenario 2 – Replace with Similar Number of Options >=3 (3 points) 2

(2 Points) 1 (1 Point)
Ref SOW # 4.3.3 Scenario 3 – Replace with Different Number of Options >=3 (3 points) 2 (2 Points) 1 (1 Point)
Total Time to Complete Task (from Contract Award) 60 Days (4 Points) 61 – 90 Days (2 Points) >90 Days (1 Point)

Task 4 – T1100 Auxiliary Engine and Generator
Task 4 Overview Number of Suppliers 1 point/supplier (6 Points)
Ref SOW # 5.3.2 Scenario 2 – Replace with Similar Number of Options >=3 (3 points) 2 (2 Points) 1 (1 Point)
Ref SOW # 5.3.3 Scenario 3 – Replace with Different Number of Options >=3 (3 points) 2 (2 Points) 1 (1 Point)
Total Time to Complete Task (from Contract Award) 60 Days (4 Points) 61 – 90 Days

(2 Points) Days (1 Point)	>90
Task 5 – CCGS Sir William Alexander Power Management	
Task 5 Overview	
Number of Suppliers Points)	1 point/supplier (6
Ref SOW # 6.3.2 Section 1 – Remote Controls	
Number of Options points) (2 Points) 1 (1 Point)	>=3 (3 2
Ref SOW # 6.3.4 Section 3 – Mimic Board	
Number of Options points) (2 Points) 1 (1 Point)	>=3 (3 2
Total Time to Complete Task (from Contract Award)	
 Points) (2 Points) Days (1 Point)	60 Days (4 61 – 90 Days >90

1.2 Financial Evaluation

The evaluation price of the Annex C - Financial Bid Presentation Sheet must be signed, dated and presented in Canadian dollars, Applicable Taxes excluded, FOB destination, Canadian customs duties and excise taxes included.

1.3 Other Evaluation

The Part 5 Certifications must be completed, signed and dated where applicable. Failing to complete, sign and date where applicable the Part 5 Certifications, will render the bid non-responsive.

2. Basis of Selection - Highest Combined Rating of Technical Merit and Price

2.1 To be declared responsive, a bid must:

a. comply with all the requirements of the bid solicitation; and
b. meet all mandatory criteria; and
c. obtain the required minimum of 90 points overall for the technical evaluation criteria which are subject to point rating. The rating is performed on a scale of 140 points.

2.2 Bids not meeting (a) or (b) or (c) will be declared non-responsive.

2.3 The selection will be based on the highest responsive combined rating of technical merit and price. The ratio will be 35 % for the technical merit and 65 % for the price.

2.4 To establish the technical merit score, the overall technical score for each responsive bid will be determined as follows: total number of points obtained / maximum number of points available multiplied by the ratio of 35 %.

2.5 To establish the pricing score, each responsive bid will be prorated against the lowest evaluated price and the ratio of 65 %.

2.6 For each responsive bid, the technical merit score and the pricing score will be added to determine its combined rating.

2.7 Neither the responsive bid obtaining the highest technical score nor the one with the lowest evaluated price will necessarily be accepted. The responsive bid with the highest combined rating of technical merit and price will be recommended for award of a contract.

2.8 The table below illustrates **an example** where all three bids are responsive and the selection of the contractor is determined by a 60/40 ratio of technical merit and price, respectively. The total available point equal 135 and the lowest evaluated price is $45,000 (45).

Basis of Selection - Highest Combined Rating Technical Merit (60%) and Price (40%)

	Bidder 1	Bidder 2	Bidder 3
Overall Technical Score	115/135	89/135	92/135
Bid Evaluated Price	$55,000.00	$50,000.00	$45,000.00
Technical Merit Score Calculation	115/135 x 60 = 51.11	89/135 x 60 = 39.56	92/135 x 60 = 40.89
Pricing Score Calculation	45/55 x 40 = 32.73	45/50 x 40 = 36.00	45/45 x 40 = 40.00
Combine Rating	83.84	75.56	80.89
Overall rating	1st	3rd	2nd

PART 5 - CERTIFICATIONS

Bidders must provide the required certifications and associated information to be awarded a contract.

The certifications provided by bidders to Canada are subject to verification by Canada at all times. Canada will declare a bid non-responsive, or will declare a contractor in default in carrying out any of its obligations under the Contract, if any certification made by the Bidder is found to be untrue whether made knowingly or unknowingly, during the bid evaluation period or during the contract period.

The Contracting Authority will have the right to ask for additional information to verify the Bidder's certifications. Failure to comply and to cooperate with any request or requirement imposed by the Contracting Authority may render the bid non-responsive or constitute a default under the Contract.

1. Certifications Required Precedent to Contract Award

1.1 Integrity Provisions - Associated Information

By submitting a bid, the Bidder certifies that the Bidder and its Affiliates are in compliance with the provisions as stated in Section 01 Integrity Provisions - Bid of Standard Instructions 2003. The associated information required within the Integrity Provisions will assist Canada in confirming that the certifications are true.

_____ _____
(Signature) (Date)

1.2 Federal Contractors Program for Employment Equity - Bid Certification

I, the Bidder, by submitting the present information to the Contracting Authority, certify that the information provided is true as of the date indicated below. The certifications provided to Canada are subject to verification at all times. I understand that Canada will declare a bid non-responsive, or will declare a contractor in default, if a certification is found to be untrue, whether during the bid evaluation period or during the contract period. Canada will have the right to ask for additional information to verify the Bidder's certifications. Failure to comply with any request or requirement imposed by Canada may render the bid non-responsive or constitute a default under the Contract.

For further information on the Federal Contractors Program for Employment Equity visit Employment and Social Development Canada (ESDC)-Labour's website.

Date:_____(YYYY/MM/DD) (If left blank, the date will be deemed to be the bid solicitation closing date.)

Complete both A and B.

A. Check only one of the following:

( ) A1. The Bidder certifies having no work force in Canada.

( ) A2. The Bidder certifies being a public sector employer.

( ) A3. The Bidder certifies being a federally regulated employer being subject to the Employment Equity Act.

( ) A4. The Bidder certifies having a combined work force in Canada of less than 100 employees (combined work force includes: permanent full-time, permanent part-time and temporary employees [temporary employees only includes those who have worked 12 weeks or more during a calendar year and who are not full-time students]).

A5. The Bidder has a combined workforce in Canada of 100 or more employees; and

( ) A5.1. The Bidder certifies already having a valid and current Agreement to Implement Employment Equity (AIEE) in place with ESDC-Labour.

OR

( ) A5.2. The Bidder certifies having submitted the Agreement to Implement Employment Equity (LAB1168) to ESDC-Labour. As this is a condition to contract award, proceed to completing the form Agreement to Implement Employment Equity (LAB1168), duly signing it, and transmit it to ESDC-Labour.

B. Check only one of the following:

( ) B1. The Bidder is not a Joint Venture.

OR

( ) B2. The Bidder is a Joint Venture and each member of the Joint Venture must provide the Contracting Authority with a completed annex Federal Contractors Program for Employment Equity - Certification. (Refer to the Joint Venture section of the Standard Instructions).

_____ _____
(Signature) (Date)

1.3 Education and Experience

By submission of a bid, the Bidder certifies that all the information provided in the résumés and supporting material submitted with its bid, particularly the information pertaining to education, achievements, experience and work history, has been verified by the Bidder to be true and accurate. Furthermore, the Bidder warrants that every individual proposed by the Bidder for the requirement is capable of performing the Work described in the resulting contract.

_____ _____
(Signature) (Date)

1.4 Status and Availability of Resources

By submission of a bid, the Bidder certifies that, should it be awarded a contract as a result of the bid solicitation, every individual proposed in its bid will be available to perform the Work as required by Canada's representatives and at the time specified in the bid solicitation or agreed to with Canada's representatives. If for reasons beyond its control, the Bidder is unable to provide the services of an individual named in its bid, the Bidder may propose a substitute with similar qualifications and experience. The Bidder must advise the Contracting Authority of the reason for the substitution and provide the name, qualifications and experience of the proposed replacement. For the purposes of this clause, only the following reasons will be considered as beyond the control of the Bidder: death, sickness, maternity and parental leave, retirement, resignation, dismissal for cause or termination of an agreement for default.

If the Bidder has proposed any individual who is not an employee of the Bidder, the Bidder certifies that it has the permission from that individual to propose his/her services in relation to the Work to be performed and to submit his/her résumé to Canada. The Bidder must, upon request from the Contracting Authority, provide a written confirmation, signed by the individual, of the permission given to the Bidder and of his/her availability.

_____ _____
(Signature) (Date)

1.5 Valid Labour Agreement

Where the Bidder has a labour agreement, or other suitable instrument, in place with its unionized labour, it must be valid for the proposed period of any resulting contract. Documentary evidence of the agreement or suitable instrument must be provided.

_____ _____

(Signature) (Date)

1.6 Restrictions on Bidding

The Bidder (hereinafter "Contractor") acknowledges and agrees that if it enters into a contract resulting from this solicitation (the "Contract"), the Contractor may have access to proprietary or confidential information or to information related to future solicitations or future contracts (collectively "future contracts") for work related to the Work that will be performed under the Contract. The Contractor accordingly agrees to the following restrictions to avoid any unfair advantage or conflict of interest:

1) The Contractor agrees that, both during and after the period of performance of the Contract, neither it nor any of its affiliates may bid or participate as a subcontractor or consultant or in any other role in the preparation of any bidder's bid for any future contract. Affiliate is as defined in the Canada Business Corporations Act, R.S.C. 1985, Chapter 44, as amended.

2) Any bid by the Contractor or any bid participated in by the Contractor in a future contract as prohibited by paragraph 1) will be deemed non-compliant and will not be considered. If a violation is discovered after award of a future contract, the violation shall be grounds for termination under the default provisions of the contract.

3) The Contractor agrees that Contractor personnel working on a task may be restricted for the period of time specified in the task authorization from working on any future contracts that would result from work performed under any such task, and the Contractor will ensure that such personnel are advised of this restriction and will have such personnel sign an acknowledgement of the restriction before they begin work under the task.

4) Canada may, in its discretion, in any solicitation for future contracts, decide to not disqualify a bid of any person or participated in by any person who is restricted under paragraph 1) from bidding or otherwise participating, if Canada has been provided evidence satisfactory to Canada, in Canada's absolute discretion, that no advantage or other conflict of interest would arise as a result.

5) The Contractor shall indemnify and save harmless Canada, the Minister and their servants and agents (the indemnitees) from and against any damages, costs and expenses or any claim, action, suit or other proceeding which they or any of them may at any time incur and suffer as a result or arising out of any loss or damage which may be or alleged to be caused to or suffered by any person subject to any of the above restrictions, and for all loss or damage suffered by any of the indemnities as a result of any breach by the Contractor of these restrictions.

6) The Contractor hereby agrees that it will advise the Contracting Authority in advance, should it undertake or perform services on behalf of, or contract with, any bidder, contractor or subcontractor on any future contract.

7) The Contractor will safeguard all third party proprietary or confidential information which may be provided to the Contractor during the performance of the Contract to the same degree as the Contractor safeguards its own similar information, and will disclose same only to those Contractor personnel who have a need to know for the purposes of the Contractor's performance of the Contract, unless the Contractor obtains the prior written authorization of the Contracting Authority for any further disclosure, and at a minimum the Contractor shall have each of its employees and agents to whom any such proprietary or confidential information is to be disclosed sign a nondisclosure agreement on terms and conditions acceptable to Canada before commencing work on any task under the Contract.

_____ _____

(Signature) (Date)

PART 6 - RESULTING CONTRACT CLAUSES

1. Security Requirement

There is no security requirement applicable to this Contract.

2. Statement of Work

2.1 To deliver to the Canadian Coast Guard the Heavy Endurance Multi Task Vessel (HEMTV) Generation and Propulsion Upgrade Feasibility and Options Analysis, in accordance with the SOW Annex ''A'', HEMTV Generation and Propulsion Upgrade Feasibility and Options Analysis Revision 5, dated July 24, 2014.

2.2 To carry out, within the Work Period of the Contract, all unscheduled work authorized by the Contracting Authority.

The authorization of unscheduled work will be subject primarily, to the achievement of the Requirement during the Work Period. Consequently, in response to a request of unscheduled work from Canada to the Contractor, the Contractor will have to clearly demonstrate to Canada, through its planning and scheduling system, that by adding an unscheduled work, the Requirement will still be achievable within the Work Period. Should it be clearly demonstrated to Canada that the Requirement will not be achievable during the Work Period, Canada will not authorize the unscheduled work or will authorize the unscheduled work with an amendment extending the Work Period in order to provide sufficient time to achieve the Requirement with the subject unscheduled work.

2.3 Unscheduled Work

a. The Contractor hereby acknowledges that Canada may require the Contractor, on an as and when required basis, to perform Unscheduled Work.

b. The Contractor shall perform the Unscheduled Work under the same terms and conditions of the Contract.

3 Work Location:

To be determined.

4. Standard Clauses and Conditions

All clauses and conditions identified in the Contract by number, date and title are set out in the *Standard Acquisition Clauses and Conditions Manual*

(https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual) issued by Public Works and Government Services Canada.

4.1 General Conditions

2010C (2014-03-01) General Conditions - Services (Medium Complexity) apply to and form part of the Contract.

5. Restrictions on Bidding

The Contractor acknowledges and agrees that as a result of this Contract, the Contractor may have access to proprietary or confidential information or to information related to future solicitations or future contracts (collectively "future contracts") for work related to the Work that will be performed under the Contract. The Contractor accordingly agrees to the following restrictions to avoid any unfair advantage or conflict of interest:

1) The Contractor agrees that, both during and after the period of performance of the Contract, neither it nor any of its affiliates may bid or participate as a subcontractor or consultant or in any other role in the preparation of any bidder's bid for any future contract. Affiliate is as defined in the Canada Business Corporations Act, R.S.C. 1985, Chapter 44, as amended.

2) Any bid by the Contractor or any bid participated in by the Contractor in a future contract as prohibited by paragraph 1) will be deemed non-compliant and will not be considered. If a violation is discovered after award of a future contract, the violation shall be grounds for termination under the default provisions of the contract.

3) The Contractor agrees that Contractor personnel working on a task may be restricted for the period of time specified in the task authorization from working on any future contracts that would result from work performed under any such task, and the Contractor will ensure that such personnel are advised of this restriction and will have such personnel sign an acknowledgement of the restriction before they begin work under the task.

4) Canada may, in its discretion, in any solicitation for future contracts, decide to not disqualify a bid of any person or participated in by any person who is restricted under paragraph 1) from bidding or otherwise participating, if Canada has been provided evidence satisfactory to Canada, in Canada's absolute discretion, that no advantage or other conflict of interest would arise as a result.

5) The Contractor shall indemnify and save harmless Canada, the Minister and their servants and agents (the indemnitees) from and against any damages, costs and expenses or any claim, action, suit or other proceeding which they or any of them may at any time incur and suffer as a result or arising out of any loss or damage which may be or alleged to be caused to or suffered by any person subject to any of the above restrictions, and for all loss or damage suffered by any of the indemnities as a result of any breach by the Contractor of these restrictions.

6) The Contractor hereby agrees that it will advise the Contracting Authority in advance, should it undertake or perform services on behalf of, or contract with, any bidder, contractor or subcontractor on any future contract.

7) The Contractor will safeguard all third party proprietary or confidential information which may be provided to the Contractor during the performance of the Contract to the same degree as the Contractor safeguards its own similar information, and will disclose same only to those Contractor personnel who have a need to know for the purposes of the Contractor's performance of the Contract, unless the Contractor obtains the prior written authorization of the Contracting Authority for any further disclosure, and at a minimum the Contractor shall have each of its employees and agents to whom any such proprietary or confidential information is to be disclosed sign a nondisclosure agreement on terms and conditions acceptable to Canada before commencing work on any task under the Contract.

6. Term of Contract

6.1 Period of the Contract

The Work is to be performed during the period from the date of Contract award to January 31, 2015 the latest.

7. Deliverables

In accordance with the Statement of Work SOW**.**

8. Authorities

8.1 Contracting Authority

The Contracting Authority for the Contract is:

Marc Aussant
Supply Team Leader
Public Works and Government Services Canada
11 Laurier St, Gatineau, Québec
K1A 0S5
Telephone: 819-934-1386
Email: marc.aussant@tpsgc-pwgsc.gc.ca

The Contracting Authority is responsible for the management of the Contract and any changes to the Contract must be authorized in writing by the Contracting Authority. The Contractor must not perform work in excess of or outside the scope of the Contract based on verbal or written requests or instructions from anybody other than the Contracting Authority.

8.2 Project Authority

The Project Authority for the Contract is **:**

Troy Roode
HEMTV Class Project Manager / Chef de Projet navire
Integrated Technical Services/ Services techniques intégrés
Canadian Coast Guard / Garde Côtière Canadienne
Phone (902) 407-7751 / Cell (902) 483-2070
Email: Troy.Roode@dfo-mpo.gc.ca

The Project Authority is the representative of the department or agency for whom the Work is being carried out under the Contract and is responsible for all matters concerning the technical content of the Work under the Contract. Technical matters may be discussed with the Project Authority; however the Project Authority has no authority to authorize changes to the Scope of the Work. Changes to the scope of the Work can only be made through a contract amendment issued by the Contracting Authority.

8.3 Contractor's Representative

Name : _____
Title : _____

Address : _____
_____
_____

Telephone : ___ ___ _____
Facsimile : ___ ___ _____
E-mail address : _____

9. Proactive Disclosure of Contracts with Former Public Servants

By providing information on its status, with respect to being a former public servant in receipt of a *Public Service Superannuation Act* (PSSA) pension, the Contractor has agreed that this information will be reported on departmental websites as part of the published proactive disclosure reports, in accordance with Contracting Policy Notice: 2012-2 of the Treasury Board Secretariat of Canada.

10. Payment

10.1 Basis of Payment – Firm Price

In consideration of the Contractor satisfactorily completing all of its obligations under the Contract, the Contractor will be paid a firm price in accordance with the Basis of Payment in Annex B, applicable Taxes extra. Payment for unscheduled work shall be in accordance with Annex B.

No increase in the total liability of Canada or in the price of the Work resulting from any design changes, modifications or interpretations of the Specifications, will be authorized or paid to the Contractor unless such design changes, modifications or interpretations have been authorized in writing, by the Contracting Authority prior to their incorporation in the Work.

10.2 Limitation of Price

SACC Manual clause C6000C (2011-05-16) Limitation of Price

10.3 Method of Payment - Milestone Payments

a) Canada will make milestone payments in accordance with the Appendix 1 to Annex B Schedule of Milestone for Payment, and other payment provisions of the Contract, no more than once a month, up to 90 percent of the amount claimed and approved by Canada if:

- an accurate and complete claim for payment using form PWGSC-TPSGC 1111, Claim for Progress Payment, and any other document required by the Contract have been submitted in accordance with the invoicing instructions provided in the Contract;
- the amount claimed is in accordance with the basis of payment;
- the total amount for all milestone payments paid by Canada does not exceed 90 percent of the total amount to be paid under the Contract;
- all certificates appearing on form PWGSC-TPSGC 1111 have been signed by the respective authorized representatives.

b) The balance of the amount payable will be paid in accordance with the payment provisions of the Contract upon completion and delivery of all work required under the Contract if the Work has been accepted by Canada and a final claim for the payment is submitted.

c) Milestone payments are interim payments only. Canada may conduct a government audit and interim time and cost verifications and reserves the rights to make adjustments to the Contract from time to time during the performance of the Work. Any overpayment resulting from milestone payments or otherwise must be refunded promptly to Canada.

11. Invoicing Instructions

11.1 The Contractor must submit a claim for payment using form PWGSC-TPSGC 1111, Claim for Progress Payment.

Each claim must show:

(a) all information required on form PWGSC-TPSGC 1111;
(b) all applicable information detailed under the section entitled "Invoice Submission" of the general conditions;
(c) the description and value of the milestone claimed as detailed in the Contract;
(d) quality assurance documentation when applicable and/or as requested by the Contracting Authority.

11.2 The Goods and Services Tax or Harmonized Sales Tax (GST/HST), as applicable, must be calculated on the total amount of the claim before the holdback is applied. At the time the holdback is claimed, there will be no GST/HST payable as it was claimed and payable under the previous claims for progress payments.

11.3 The Contractor must prepare and certify one original and one (1) copy of the claim on form PWGSC-TPSGC 1111, and forward it to the Contracting Authority identified under the section entitled "Authorities" of the Contract for appropriate certification after inspection and acceptance of the Work takes place.

11.4 The Contracting Authority will then forward the original of the claim to the Technical Authority for certification and onward submission to the Payment Office for the remaining certification and payment action.

11.5 The Contractor must not submit claims until all work identified in the claim is completed.

12. SACC Manual Clauses

H4500C - Lien - Section 427 of the Bank Act, (2010-01-11)
C2000C - Taxes - Foreign-based Contractor, (2007-11-30)
C0711C - Time Verification, (2008-05-12)
1031-2 - Contract Cost Principles, (2012-07-16)

13. Certifications

13.1 Compliance

The continuous compliance with the certifications provided by the Contractor in its bid and the ongoing co-operation in providing associated information are conditions of the Contract. Certifications are subject to verification by Canada during the entire period of the Contract. If the Contractor does not comply with any certification, fails to provide the associated information, or if it is determined that any certification made by the Contractor in its bid is untrue, whether made knowingly or unknowingly, Canada has the right, pursuant to the default provision of the Contract, to terminate the Contract for default.

13.2 Federal Contractors Program for Employment Equity - Default by the Contractor

The Contractor understands and agrees that, when an Agreement to Implement Employment Equity (AIEE) exists between the Contractor and Employment and Social Development Canada (ESDC)-Labour, the AIEE must remain valid during the entire period of the Contract. If the AIEE becomes invalid, the name of the Contractor will be added to the "FCP Limited Eligibility to Bid" list. The imposition of such a sanction by ESDC will constitute the Contractor in default as per the terms of the Contract.

14. Applicable Laws

The Contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in _____.

15. Priority of Documents

If there is a discrepancy between the wordings of any documents that appear on the list, the wording of the document that first appears on the list has priority over the wording of any document that subsequently appears on the list.

(a) The Articles of Agreement;
(b) The general conditions 2010C (2014-06-26) General Conditions - Services (Medium Complexity);
(c) Annex "A", Statement of Work (SOW);
(d) Annex "B", Basis of Payment;
(e) Appendix 1 to Annex "B", Schedule of Milestone Payments
(f) Appendix 2 to Annex "B", Pricing Data Sheet;
(g) Other Annexes; and
(h) The Contractor's bid dated _____

16. Project Schedule

The Contractor must revised the project Preliminary Plan and Schedule on an as required basis and submit to Canada for review and concurrence every month . If the revision is due to authorized unscheduled work, the revision must include the unscheduled work, all related schedule impact on the work and impact to the delivery date of the requirement should it be the case.

17. Post Contract Award Meeting

A Post Contract Award Meeting will be convened and chaired by the Contracting Authority at the Contractor's facility at a time to be determined. At the meeting the Contractor will introduce the project management personnel supported by an organization chart, and Canada will introduce the Authorities of the Contract. A review of the term and conditions of the Contract will be conducted by the Contracting Authority.

The Contractor's costs of holding a Post Contract Award Meeting must be included in the price of the bid. Travel and living expenses for Government Personnel will be arranged and paid for by the Canada.

18. Progress Report

1. The Contractor must submit monthly reports on the progress of the Work in an electronic format to the Technical Authority and to the Contracting Authority.

2. The progress report must contain two (2) Parts:

(a) PART 1: The Contractor must answer the following three questions:

(i) is the project schedule being impacted and if impacted why?
(ii) is the project delivery date being impacted and if impacted why?
(iii) is the project within budget?
(iv) is the project free of any areas of concern in which the assistance or guidance of Canada may be required?

(b) PART 2: A narrative report, brief, yet sufficiently detailed to enable the Technical Authority to evaluate the progress of the Work, containing as a minimum:

(i) a description of the progress of each task and of the Work as a whole during the period of the report. Sufficient sketches, diagrams, photographs, etc., must be included, if necessary, to describe the progress accomplished.

19. Outstanding Work and Acceptance

1. The Project Authority, in conjunction with the Contractor, will prepare a list of outstanding work at the end of the work period. This list will form the annex to the Work Acceptance form PWGSC-TPSGC1205, Annex D. A Work Acceptance Meeting will be convened by the Contracting Authority on the work completion date to review and sign off the Acceptance form.

A holdback of twice the estimated value of outstanding work will be held until its completion. The estimated value and the completion date of each outstanding work item will be determined by Canada, at its sole discretion. The Goods and Services Tax or Harmonized Sales Tax, as applicable, will be calculated on this outstanding work holdback amount and paid at the time that the outstanding work holdback is released.

However, at any time after acceptance of the Work, Canada may in its sole discretion decide that one or more of the outstanding work items will not be completed by the Contractor. The Contracting Authority will provide written notice to the Contractor of such a decision. In the event that Canada decides that any outstanding work items will not be completed by the Contractor, the holdback of twice

the estimated value of the outstanding work not completed by the Contractor will not be paid to the Contractor and the contract value will be amended accordingly.

2. The Contractor must complete the above form and annex in three (3) copies, which will be distributed by the Inspection Authority as follows:

(a) original to the Contracting Authority;
(b) one copy to the Technical Authority;
(c) one copy to the Contractor.

20. Dispute Resolution

The parties agree to follow the procedures below for the settlement of any disputes which may arise throughout the life of this Contract prior to seeking redress through court procedures:

(a) Disputes arising from this Contract will in the first instance be resolved by the Contracting Authority and the Contractor's Contract Administrator within (15) working days or such additional time as may be agreed to by both parties.

(b) Failing resolution under (a) above, the Manager of the Machinery and Logistic Support Division of the Marine Systems Directorate at PWGSC and the Contractor's Representative Supervisor will attempt to resolve the dispute within an additional fifteen (15) working days.

(c) Failing resolution under (a) or (b) above, the Senior Director of the Marine Systems Directorate at PWGSC, and the Contractor's Senior Management will attempt to resolve the dispute within an additional thirty (30) working days.

(d) Notwithstanding the above procedure, either party may seek a decision through the courts at any time during the dispute.

21. Discretionary Audit

The Contractor's certification that the price or rate is not in excess of the lowest price or rate charged anyone else, including the Contractor's most favoured customer, for the like quality and quantity of the goods, services or both, is subject to verification by government audit, at the discretion of Canada, before or after payment is made to the Contractor.

If the audit demonstrates that the certification is in error after payment is made to the Contractor, the Contractor must, at the discretion of Canada, make repayment to Canada in the amount found to be in excess of the lowest price or rate or authorize the retention by Canada of that amount by way of deduction from any sum of money that may be due or payable to the Contractor pursuant to the Contract.

If the audit demonstrates that the certification is in error before payment is made, the Contractor agrees that any pending invoice will be adjusted by Canada in accordance with the results of the audit. It is further agreed that if the Contract is still in effect at the time of the verification, the price or rate will be lowered in accordance with the results of the audit.

22. Failure to Deliver

Time is of the essence of the Contract. Changes in the Completion date not caused by Canada are Contractor defaults, will prejudice Canada and are at the Contractor's expense. The Completion date will not be extended without consideration being provided by the Contractor acceptable to Canada in the form of adjustment to the price, warranty or services to be provided.

ANNEX A

HEMTV Generation and Propulsion Upgrade Feasibility and Options Analysis

Statement of Work

Revision 5

Date: July 24, 2014

Prepared by

Integrated Technical Service / Vessel Life Extension
50 Discovery Drive
Dartmouth, Nova Scotia
B2Y 3Z8

TABLE OF CONTENTS

1.0 HEMTV PROPULSION ENGINEERING FEASIBILITY STUDY

1.1 Identification

The Canadian Coast Guard has 6 High Endurance Multi-Tasked Vessels (HEMTV's) operating in Pacific, Central and Arctic, and Atlantic Regions of Canada. These vessels were constructed in the mid 1980's and all are fitted with diesel-electric propulsion plants that share common equipment such as the electric propulsion motors, converters, transformers, generators and main engines. Differences exist between the vessels in way of the power management and switchboard layouts; however, the general operating methodology is the same. The main propulsion and generation equipment has experienced approximately 28 years of continuous service with little to no upgrades or refurbishments. There are a number of items within the systems that are now obsolete and require replacement with current technology.

The Coast Guard is looking to undertake an engineering feasibility study to determine the following on the CCGS *Sir William Alexander:*

- Upgrade options available for the individual propulsion and power management systems and components. These are broken down as individual tasks within this specification; and,
- Obtaining overall system support from a single service provider for the existing equipment and any new equipment (except main engines) fitted based on selections from the feasibility study.

1.1.1 Vessel Availability

1.1.1.1 As the vessel has an operational program to deliver, it cannot be guaranteed available upon Contractor's request. Coast Guard will make every possibility to make the vessel available to the Contractor when possible and therefore, in order to help in this matter, the Contractor is requested to provide the Coast Guard with its planning of site visit at least 30 days prior to a planned visit.

1.1.1.2 For site visits the Contractor shall assume that the vessel will be available at the Coast Guard Base in Dartmouth, Nova Scotia. The Contractor must determine the number of visits required to meet with CG personnel to gather the necessary data as outlines in the attached Tasks.

1.1.2 CCG Personnel Support

1.1.2.1 During the option analysis phase the Contractor will be provided access to and support from CCG staff in way of system overview, maintenance regimes, maintenance history and performance data of the fitted systems.

1.2 Common Statements for all Tasks

1.2.1.1 The following generalized work statements apply to all Technical Description sections within each task:

1.2.1.2 The Contractor shall review and provide the basic design concept for each of the options that will meet the operational requirements of the vessel.

1.2.1.3 The Contractor shall identify all relevant drawings required to assess the procurement and installation of any new equipment. All reference drawings shall be in paper or .pdf format only.

1.2.1.4 The Contractor shall assemble all the necessary technical data required for equipment selection including, but not limited to, the re-use of existing equipment, the system methodology, the component characteristics, etc. to meet the January 1983 Specification for Type 1100 Navaids Vessels.

1.2.1.5 The equipment sourcing strategy should be to minimize suppliers and to ensure that Industry will use Commercial–off–the–shelf (COTS) standard items where possible.

1.2.1.6 The Contractor shall ensure that equipment selected meets the required Statutory and Regulatory requirements as defined by the Canada Shipping Act and its associated regulations. Where equipment is selected based on Classification requirements, the Contractor shall ensure that the classification society is one acceptable to Transport Canada Marine Safety (TCMS).

1.2.1.7 Tasks 3 & 4 - The Contractor shall address all applicable environmental obligations CCG would encounter with the option of installing new engines. Specific auxiliary equipment needed to meet current emission regulations shall be detailed and shall be included in the feasibility report for the Task.

1.2.1.8 Tasks 3 & 4 – For each new engine option a fuel oil and lube oil consumption analysis shall be provided as part of the final report. Any new Operating and Maintenance (O&M) requirements such as the use of additives, (urea for example) shall be priced as part of the through life cycle costs for the option and shall be clearly identified in the option analysis report.

1.2.1.9 The Contractor shall demonstrate that proposed solutions will include technical support from suppliers in way of Canadian based training, FSR availability, on-site annual or semi-annual inspections, in-house trending and maintenance software, equipment lifecycle support, replacement component availability and lead time, and phone or internet troubleshooting support.

1.2.1.10 The Contractor must inform all suppliers of Canada's Terms and Conditions and highlight any supplier objections within the reports for each task, sub task or options.

1.2.1.11 Costing Estimates - The Contractor shall develop an initial cost estimate for each option provided. In order to engage industry, the contractor shall develop a costing template that will be populated by all suppliers. This template must be approved by CG prior to issuance. Where new equipment installation is an option, the cost to install the equipment must be detailed and included as part of the costs in addition to the equipment procurement. The Contractor is responsible for the engineering required to determine the cost and time to install.

1.3 Statement of Work (SOW) Task Index

The common HEMTV propulsion equipment will be addressed as common tasks, whereas ship specific equipment, such as power management, will be given a separate task number.

- Task 1 – Cycloconverters and Propulsion Transformers

- Task 2 – HEMTV Main Generators
- Task 3 – HEMTV Main Engines
- Task 4 – HEMTV Auxiliary Engine and Generator
- Task 5 – CCGS *Sir William Alexander* Power Management

1.4 Contract Deliverables

1.4.1 Options Analysis Report

1.4.1.1 For each task, sub task, and option, the Contractor shall provide a report within the time frame that was provided in the Contractor's Proposal.

1.4.1.2 The reports shall include a written overview of the results obtained from industry as well as the supportability of the existing equipment. The substantiations (quotations, letters, emails) supporting the results obtained from the Industry must be made available to Canada upon request.

1.4.1.3 The report shall include a comparison table highlighting available options for each scenario, the procurement and installation timelines for those options, the total procurement and installation costs for the options, and the technical support available for each option.

1.4.1.4 The contractor shall be responsible for taking the initial data obtained from industry and adding any subsequent or affiliated costs. This shall include, but is not limited to, any ancillary equipment changes, structural modifications, class approvals, etc.

1.4.1.5 A minimum of 20 hours shall be allotted by the Contractor to meet or teleconference with CCG to discuss the results of this study. Canada reserves the right to meet or discuss the results at any time during the tasks.

1.4.1.6 The Contractor shall provide 1 paper copy and 1 electronic copy of the report in Microsoft Word and or Excel format.

1.4.1.7 The Contractor shall provide the conceptual design drawings for each of the scenario options in the following format: 1 paper copy and 1 electronic copy of the design drawings. Paper copies shall be on standard ANSI "D" size paper as a minimum and shall be in AutoCAD 2012 DWG format non-password protected.

2.0 TASK 1 – CYCLOCONVERTERS AND PROPULSION TRANSFORMERS

2.1 Identification

The HEMTV vessels use three General Electric (GE) synchronous generators to produce a total of 6300kW on the Main Switchboard. The Main Switchboard is a low voltage 600V 60Hz system. Propulsion is achieved by two step-up transformers providing 600V-1100V, 60HZ inputs into two GE Silicon Controlled Rectifier (SCR) based Cyclo-converters (Drives) which create a variable low frequency +/-18HZ, 1900V output to two 2600kW (3500hp) synchronous motors.

It is Coast Guard's intention to retain the original General Electric propulsion motors and the focus of the Contractor in this task will be to assess the options for upgrading or replacing the existing Cycloconverters and associated transformers.

2.2 References

Drive Performance Requirements – The Contractor shall refer to the Canadian Coast Guard Specification for Type 1100 Navaids Vessel and General Electric Systems Engineering Specification 7-9286-6605.

Existing Equipment Data (Typical Data for all vessels)

Horizontal Synchronous Propulsion Motor

Make:	Canadian General Electric
Type:	Synchronous
Rating:	3500 HP Continuous, 1900 Volts AC 2715 KVA, 3 Phase Wye, 825Amps 14.4 – 18 Hz, 144 – 180 RPM, P.F. 1
Excitation:	437 V, 57 Amps, Overload 62 Amps
Frame:	6000
Service Factor:	1.1

Cycloconverters

Make:	Canadian General Electric
Type:	Silicon Controlled Rectifier (SCR) Cycloconverters

Propulsion Transformers

Type:	Dry Class F ANN Triple Secondary 600/1100 Volts, 3 Phase, 60 Hz
Primary:	3400 KVA, 600 V, 3 Ph. Delta Connection
Secondary:	1400 KVA, 1100 V, 3 Ph. Delta Connection Port / Wye Connection Stbd

Annex C: DRAWINGS – Task 1.Please note this is a sampling of drawings provided for bid purposes. The successful Contractor will have access to additional drawings. The following is a list of available drawings:

Documentation

Document Number	Description	Electronic Number
4005E1203CK	CGE Motor	
4005E1203CR	CGE Generator	
4004D1039AF	Propulsion Motor Converter Assembly	
4004D1041BJ	Propulsion Motor Exciter Assembly	
49519-7M	Michell Marine Thrust Block	
PGEI-11431	CGE Industrial AC Machines - T1100 Propulsion Generator Instruction Manual	
PGEI-11404	CGE Industrial AC Machines - T1100 Propulsion Motor Instruction Manual	
Instructions	Polygon Industries - T1100 Propulsion Transformer Instruction Manual	
Information	Edward Cornwallis Propulsion Data	
Information	T1100 Propulsion Motor Data	
Information	Canadian Coast Guard T1100 Original TSOR.	

2.3 Technical

The Engineering Contractor shall investigate the following options and provide the results in the final report. Where equipment is recommended to be replaced, the Contractor shall review and identify any issues with the proposed options and their interaction with the electrical supply and system monitoring. This shall include an analysis of the Total Harmonic Distortion (%THD) produced by the new components, as well as the specific harmonics produced and the effects on related equipment. This is particularly important for Scenarios 3 and 4 and these should be done in conjunctions with Task 2 of this specification.

2.3.1 Scenario 1 – Maintain Status Quo

2.3.1.1 The Contractor shall analyze the option of maintaining the existing equipment as-is for an additional 15 years. This shall include but is not limited to parts availability, obsolescence, projected maintenance costs, defining critical failure components, FSR expertise and supportability.

2.3.2 Scenario 2 – Upgrade of Cycloconverter Components

2.3.2.1 The existing Cycloconverters can be defined via the following key sections:

- The Programmable Logic Controller (PLC);
- Analog Controller (DII Page)
- Power Components (SCR Cubicles)
- Excitation Cubicle
- Auxiliary Equipment (General Control, Harmonic Filters, Dynamic Resistor Banks)

2.3.2.2 The Contractor shall investigate solutions for upgrades of the individual sections and components within that section. It is imperative that the Contractor identify the interdependencies and integration efforts required to replace only sections of the Cycloconverter drives. It is also imperative that for ease of maintenance and in-service support, solutions be provided and supported by a single service provider.

2.3.2.3 The Contractor shall determine the overall space requirements for any incremental upgrades. As space onboard is limited to that available currently, solutions that require excess space or that cannot be fitted within the limitations should be identified as such.

2.3.2.4 The Contractor and the CCG shall assess and define the drive sections necessary to be upgraded to maintain the vessel's original performance criteria for an additional 15 year life cycle.

2.3.2.5 The Contractor shall enquire as to the new equipment supplier's willingness to provide support for the propulsion motors and remaining original equipment within the drive systems.

2.3.3 Scenario 3 – Replace with Similar

2.3.3.1 The Contractor shall investigate the option of replacing the Cycloconverter with another Cycloconverter of similar ratings and operating methodology. This option could be based around line commutated SCRs or Gated Turn-Off Thyrister (GTO) technology and may see the existing propulsion transformers re-used.

2.3.4 Scenario 4 - Replace with Different

2.3.4.1 The Contractor shall investigate the option of replacing the Cycloconverter with a different style drive. This option could possibly be based on Insulated Gated Bipolar Transistor (IGBT) technology used in the primary or secondary of the drive. This option may necessitate the replacement of the propulsion transformers.

2.4 TASK 1 - ENGINEERING FEASIBLITY STUDY

2.4.1 Scope of Work

2.4.1.1 For each scenario listed above the Contractor shall consider the commercial off-the-shelf equipment provided by all manufacturers that would be suitable. The Contractor shall detail the findings of each scenario and shall do a comparative analysis of the scenarios against each other.

2.4.1.2 For each scenario and each manufacturer of equipment within that scenario, the Contractor is to consider all of the following items:

- Size of the equipment relative to the space available and relative to the space taken up by other equipment that is to remain. Provide plan and section views showing

the layout of the general equipment in each option in the space available. Identify if there are interference items and possible solutions to remove the interference items or re-locate them to other positions. Identify on the drawings all areas where there is less than optimal access space for maintenance activities. For scenarios involving multiple pieces of equipment, investigate how the connections will be made between them.

- Provide a timeline for the work of implementing of each scenario. Including the following:
  - Time for delivery of equipment after ordering;
  - Time for detailed engineering work required to fit equipment into existing space and connect it to existing systems including the time required for Class approval of installation drawings;
  - Time to effect removals required;
  - Time to relocate items (e.g. electrical panels, etc.) needed to make room for new equipment;
  - Time for shipyard to install and hook up the new equipment; and,
  - Time to commission the system.
- Provide both initial costs and life cycle costs for 15 years
- Provide an itemized breakdown of the operation and maintenance costs used in the life cycle cost analysis, including the cost of overhauls at manufacturer's recommended intervals and in-line with Transport Canada Marine Safety requirements.
- Discuss the operational performance, focusing on all anticipated improvements or degradations of the propulsion system performance. (e.g. changes in speed, range, response time, crash stop time, etc.).
- Quantify the time for spare parts supply from the equipment manufacturer for critical system spares and common parts required during a regular overhaul.

2.5 Deliverables

Identified in Section 1.4.1 of this specification

3.0 TASK 2 – MAIN GENERATORS

3.1 Identification

The HEMT vessels use three General Electric (GE) synchronous generators to produce a total of 6300kW on the Main Switchboard. This is achieved using a low voltage 600VAC 60Hz system.

The CCG wishes to conduct an industry scan to determine the option of retaining the existing generators versus replacing them with new units. The results should provide indicative costs to acquire and install new equipment versus maintaining the existing.

3.2 References

Main Generator Performance Requirements – The Engineering Contractor shall refer to the Canadian Coast Guard Specification for Type 1100 Navaids Vessel and General Electric Systems Instruction Manual PGEI-11431.

Horizontal Propulsion Generator

Make:	Canadian General Electric
Type:	ATI Synchronous, Fully Enclosed
Rating:	2625 KVA, 2100 KW, 2526 Amps 600 Volts, 3 Phase, 60 Hz, 900 RPM 0.8 Power Factor
Excitation:	116 Volts, 3.3 Amps
Frame:	6000

Annex C: DRAWINGS – Task 1. Please note this is a sampling of drawings provided for bid purposes. The successful Contractor will have access to additional drawings. The following is a list of available information;

- VNDB2_358-08_Propulsion System Tank Top Between FR 70&126

Documents:

- T1100 Main Generator Data Sheet
- PGEI-11431 Horizontal Synchronous Generators Instruction Manual
- Canadian Coast Guard T1100 Original TSOR

3.3 Technical

The Engineering Contractor shall investigate the following options and provide the results in the final report:

3.3.1 Scenario 1 - Maintain Status Quo

3.3.1.1 The Contractor shall investigate the requirement of maintaining the existing generators and maintenance regimes such that the generators can deliver an additional 15 years of service. The status quo option shall investigate whether or not it would be feasible to

not recondition the winding insulation of the generators and whether or not this would potentially break down prior to the end of the 15 year life cycle.

3.3.2 Scenario 2 - Upgrade the Generator and Auxiliary Components

3.3.2.1 The Contractor shall define address the necessary upgrades for maintaining the existing equipment for a 15 year life cycle. This would include but not be limited to:

- The replacement of the obsolete Basler 250 voltage regulators and associated limiters and boosters;
- The upgrades for the brushless exciter rectifier ring firing modules and crowbar circuitry;
- The refurbishment or replacement of the generator coolers;
- The potential for manufacturing of obsolete pedestal bearings or the possibility of finding replacement pedestals bearings;
- The need to rewind the generators or re-condition the winding insulation.

3.3.3 Scenario 3 – Replace with Similar Generators

3.3.3.1 The Contractor shall investigate options for similar replacement generators. These units could be single or double pedestal provided they fit in the space allocation of the existing units and they must match up to the existing Alco 251 main engines.

3.3.3.2 The Contractor shall develop basic arrangement sketches for the various vendor offered solutions proposed for generator replacements.

3.3.3.3 This Task should be investigated and coordinated with Tasks 1 and 3.

3.3.4 Scenario 4 – Replace with Different Generators

3.3.4.1 The Contractor shall provide options for medium and high speed generators. This Scenario should be investigated and coordinated with Task 1 and 3.

3.3.4.2 The Contractor shall develop basic arrangement sketches for the various vendor offered solutions proposed for generator replacements.

3.4 TASK 2 - ENGINEERING FEASIBLITY STUDY

3.4.1 Scope of Work

3.4.1.1 For each scenario and each manufacturer of equipment within that scenario, the Contractor is to consider all of the following items:

- Size of the equipment relative to the space available and relative to the space taken up by other equipment that is to remain. Provide plan and section views showing the layout of the general equipment in each option in the space available. Identify if there are interference items and possible solutions to remove the interference items or re-locate them to other positions. Identify on the drawings all areas where there is less than optimal access space for maintenance activities. For scenarios involving multiple pieces of equipment, investigate how the connections will be made between them.
- Provide a timeline for the work of implementing of each scenario. Including the following:
    - Time for delivery of equipment after ordering;

  - Time for detailed engineering work required to fit equipment into existing space and connect it to existing systems including the time required for Class approval of installation drawings;
  - Time to effect removals required;
  - Time to relocate items (e.g. electrical panels, etc.) needed to make room for new equipment;
  - Time for shipyard to install and hook up the new equipment; and,
  - Time to commission the system.
- Provide both initial costs and life cycle costs for 15 years
- Provide an itemized breakdown of the operation and maintenance costs used in the life cycle cost analysis, including the cost of overhauls at manufacturer's recommended intervals and in-line with Transport Canada Marine Safety requirements.
- Discuss the operational performance, focusing on all anticipated improvements or degradations of the propulsion system performance. (e.g. changes in speed, range, response time, crash stop time, etc.).
- Quantify the time for spare parts supply from the equipment manufacturer for critical system spares and common parts required during a regular overhaul.

3.5 Deliverables

As per Section 1.4.1 of this Specification.

4.0 TASK 3 – MAIN ENGINES

4.1 Identification

Main Engine Description: The HEMTV vessels are currently fitted with Alco 251F 16 cylinder 4 stroke engines running at a constant speed of 900rpm. There are 3 engines per vessel producing 3000hp each.

The CG would like to investigate the availability, cost and time lines needed to re-engine the vessels with current production engines that can meet the 2016 IMO Tier III NOx emission standards. The Contractor shall investigate if there are any current production engines that could be considered as replacements. This Task should be carried out in conjunction with Task 2.

4.2 References

Main Engine Performance Requirements – The Engineering Contractor shall refer to the Canadian Coast Guard Specification for Type 1100 Navaids Vessel.

Annex C: DRAWINGS – Task 1. Please note this is a sampling of drawings provided for bid purposes. The successful Contractor will have access to additional drawings. The following is a list of available information

- Bombardier Generator Set Outline

Documents
- Alco 251 data sheets
- Canadian General Electric Maintenance Manual and Parts Catalogue 16Cyl 251-E

4.3 Technical

The Contractor shall investigate the following options and provide the results in the final report:

4.3.1 Scenario 1 - Maintain the Status Quo

4.3.1.1 The Contractor shall investigate the cost of maintaining the existing main engines, the maintenance regimes and the challenges of retaining the current main engines to meet an additional 15 years in service. This shall include costs for incremental upgrades offered by the engine manufacturer to increase the fuel efficiency and decrease lube oil consumption if these upgrades are available. Costing is to include operational and maintenance costing as well as overhauls to maintain TCMS certifications.

4.3.2 Scenario 2 – New Diesels driving <u>the Existing Propulsion Generators (900 rpm)</u>

4.3.2.1 This scenario involves:

- The ALCO diesel engines and associated components (coolers, seawater supply and discharge piping as well as fresh water piping and exhaust piping, etc) shall be removed and replaced with modern medium speed diesel engines and ancillary systems which closely matches the horsepower and speed characteristics of the currently fitted engines;
- The new diesels shall attach directly to the existing propulsion generators which shall be retained. The existing generators are single pedestal bearing design.

- Considerations to include:
    - Space in the engine room – alignment, positioning and seating of the diesels, generators and associated equipment.
    - Ease of compatibility with the fitted control system.
    - Support of the generator armature – the fitted diesel supports the fwd end of the generator armature.
    - Regenerative power – can the new diesel handle this during a full ahead to full astern crash reversal.

4.3.3 Scenario 3 – New Diesels driving New Propulsion Generators

4.3.3.1 This scenario involves:

- The ALCO diesel engines and associated components (coolers, piping, etc) and fitted AC generators shall be removed and replaced with modern diesel generator sets.
- The new generators shall be designed to produce the appropriate voltage and power for the vessel. The design of the generator sets shall allow the diesel engines to operate at their most efficient speed and power characteristics;
- Considerations include:
    - Availability of such a diesel engine/generator set.
    - Space in the engine room – alignment and positioning of the new generating sets and associated equipment.
    - Ease of compatibility with the fitted control system.
    - Regenerative power – can the new diesel generating set handle this

4.4 TASK 3 - ENGINEERING FEASIBLITY STUDY

4.4.1 Scope of Work

4.4.1.1 For each scenario and each manufacturer of equipment within that scenario, the Contractor is to consider all of the following items:

4.4.1.2 • Size of the equipment relative to the space available and relative to the space taken up by other equipment that is to remain. Provide plan and section views showing the layout of the general equipment in each option in the space available. Identify if there are interference items and possible solutions to remove the interference items or re-locate them to other positions. Identify on the drawings all areas where there is less than optimal access space for maintenance activities. For scenarios involving multiple pieces of equipment, investigate how the connections will be made between them.

- Quantify the expected reduction in emissions for each scenario.
- Quantify the expected reduction of fuel and lube oil consumption
- Provide a timeline for the work of implementing of each scenario. Including the following:
    - Time for delivery of equipment after ordering;

  - Time for detailed engineering work required to fit equipment into existing space and connect it to existing systems including the time required for Class approval of installation drawings;
  - Time to effect removals required;
  - Time to relocate items (e.g. electrical panels, etc.) needed to make room for new equipment;
  - Time for shipyard to install and hook up the new equipment; and,
  - Time to commission the system.
- Provide both initial costs and life cycle costs for 15 years
- Provide an itemized breakdown of the operation and maintenance costs used in the life cycle cost analysis, including the cost of overhauls at manufacturer's recommended intervals and in-line with Transport Canada Marine Safety requirements.
- Discuss the operational performance, focusing on all anticipated improvements or degradations of the propulsion system performance. (e.g. changes in speed, range, response time, crash stop time, etc.).
- Quantify the time for spare parts supply from the equipment manufacturer for critical system spares and common parts required during a regular overhaul.

4.5 Deliverables

As identified in Section 1.4.1 of this specification

5.0 TASK 4 – AUXILIARY GENERATOR SET

5.1 Identification

The HEMTV vessels use one auxiliary gen set per vessel. This is comprised of an 806hp Caterpillar 3508 4 stroke engine running at 1800 rpm coupled to a 500kw Hewitt 600VAC 3phase 60Hz generator.

CG wishes to investigate the cost of maintaining the current engine/generator combination versus replacing with a new unit. The Contractor shall investigate suitable replacement models.

*SPECIAL – Some HEMT vessels are requesting the ability to start the foam pump or heavy lift crane without the use of a main engine. The Contractor shall investigate the possibility of upgrading the size of the gen set to 700kW output and advise what further engineering work would be necessary.

5.2 References

Auxiliary Generator Set Performance Requirements – The Engineering Contractor shall refer to the Canadian Coast Guard Specification for Type 1100 Navaids Vessel and the Instruction Manual Navaid Type 1100 Ice Breaker D3508 Generating Set.

Annex C: DRAWINGS – Task 1. Please note this is a sampling of drawings provided for bid purposes. The successful Contractor will have access to additional drawings. The following is a list of available information;

- M7066B-103A1 Ship Service Switchboard Aux Gen Breaker 52-4

Documents:

- TSOR 1983 Power Plant Control System
- Caterpillar 3508 Parts Book
- Hewitt D3508 Generating Set Instruction Manual
- Coast Guard Auxiliary Generator Draft RFP SOR
- Caterpillar 3508 Data Sheets

5.3 Technical

The Contractor shall investigate the following options and provide the results in the final report:

5.3.1 Scenario 1 - Maintain the Status Quo

5.3.1.1 The Contractor shall investigate maintaining the existing auxiliary generator set and maintenance regimes for an additional 15 years in service.

5.3.2 Scenario 2 – Replace with Similar

5.3.2.1 The Contractor shall investigate options for a suitable replacement unit with the same or very similar characteristics of the existing unit.

5.3.2.2 The Contractor shall develop basic arrangement sketches for the various vendor offered solutions proposed for gen set replacements.

5.3.3 Scenario 3 – Replace with Different

5.3.3.1 The Contractor shall investigate upgrading the generator output to 700kW. This should include but not be limited to, the sizing of cabling, motorized breaker frame, auxiliary switchboard bus, gen set footprint, etc. The Contractor is not responsible for providing any re-engineering at this stage; it is simply an investigation and costing exercise.

5.3.3.2 The Contractor shall develop basic arrangement sketches for the various vendor offered solutions proposed for generator replacements.

5.4 Deliverables

As per Section 1.4.1 of this specification

6.0 TASK 5 – POWER MANAGEMENT SYSTEM

6.1 Identification

Power Management Description – Within this task, power management is defined as the control and feedback of the plant used by the Watch Keeping Engineer.

REMOTE CONTROL - On the *Sir William Alexander*, the plant is controlled via a large mimic board that uses Woodward automatic synchronizers and relay logic sequences to achieve desired configurations. The vessel uses 3 different switchboards that are typically connected together to form a common bus.

MANUAL CONTROL - Each generator or bus tie can be manually synced or disconnected locally at the emergency, auxiliary, and main switchboards.

CCG wishes to upgrade various portions of the power management system for the CCGS Edward Cornwallis. For simplicity the power management methodology shall remain the same. The Contractor shall investigate the existing system(s) and recommend upgrades for aged and obsolete equipment. Both Relay Logic and PLC control shall be investigated for the Remote Control. The large mimic board shall be renewed. The Local function will be retained as is. The Engineering Contractor shall itemize and cost the refurbishment of the local switchboard controls and instrumentation.

6.2 References

Power Management Requirements – The Engineering Contractor shall refer to the Canadian Coast Guard Specification for Type 1100 Navaids Vessel and Marine Industries Limited switchboard drawings.

Annex C: DRAWINGS – Task 1. Please note this is a sampling of drawings provided for bid purposes. The successful Contractor will have access to additional drawings. The following is a list of available drawings:

Main Switchboard

M7066A-9A1 Schematic Diagram Main Gen No. 1

M7066A-7A1 Schema.Diagr.Volt Sensing & Synchro Ckt

M7066A-19A1 Schematic Diagram Synchro

M7066A-27A2 Auto Synchronising Sequences

Documents:

TSOR 1983 Power Plant Control System
T1100 Bedard Gerard Switchboard Instruction Manual
Sir William Alexander BGI/Automatec Drawing List
Power Plant Spec 1983

6.3 Technical

6.3.1.1 The Contractor shall investigate the following options and provide the results in the final report:

6.3.2 Section 1 – Remote Controls

6.3.2.1 The Contractor shall investigate options of renewing the relay logic and synchronizers needed to achieve the control of the plant from the Engine Control Room.

6.3.3 Section 2 – Local Switchboards (Manual Control)

6.3.3.1 The Contractor shall itemize and cost the individual switchboard renewals.

6.3.4 Section 3 – Mimic Board

6.3.4.1 The Contractor shall provide options for the mimic board renewal. The construction shall remain similar to the original. A multi-screen HMI is not the desired upgrade.

6.3.4.2 The Contractor shall develop basic arrangement sketches for the various vendor offered solutions proposed for the mimic board renewal.

6.4 Deliverables

As per Section 1.4.1 of this specification

ANNEX B - BASIS OF PAYMENT - FIRM PRICE

Annex B will form the Basis of Payment for the resulting Contract and must not be filled in at the bid submission stage.

B1 Contract Firm Price

A)	**Known Work** For work as stated in Article 2, Specified in Annex "A" and detailed in the attached Pricing Data Sheets, for a FIRM PRICE of:	**$**
B)	**Tx as applicable**	**$**
C)	**Total Firm Price applicable Tx included**	**$**

B2 Unscheduled Work

The Contractor will be paid for unscheduled work arising, as authorized by Canada. The authorized unscheduled work will be calculated as follows:

"Number of hours (to be negotiated) X $_____ being the Contractor's firm hourly charge-out labour rate which includes overhead, consumable, and profit, plus net laid-down cost of materials to which will be added a markup of 10%, plus Goods and Services Tax or Harmonized Sales Tax, if applicable, of the total cost of material and labour. The firm hourly charge-out labour rate and the material markup will remain firm for the duration of the Contract and any subsequent amendments."

B2.1: Notwithstanding definitions or usage elsewhere in this document, or in the Contractor's Cost Management System, when negotiating hours for unscheduled work, PWGSC will consider only those hours of labor directly involved in the production of the subject work package.

Elements of Related Labour Costs identified in B2.2 below, will not be negotiated, but will be compensated for in accordance with B2.2.

B2.2: Allowance for Related Labour Costs such as: Management, all Supervision, Purchasing and Material Handling, Quality Assurance and Reporting, Estimating and Preparing Unscheduled Work Submissions will be included as Overhead for the purposes of determining the Charge-out Labour Rate entered in line B2 above.

B2.3: The 10% markup rate for materials will also apply to subcontracted costs. The markup rate includes any allowance for material and subcontract management not allowed for in the Charge out Labour Rate. The Contractor will not be entitled to a separate labour component for the purchase and handling of materials or subcontract administration.

Prorated Prices Unscheduled Work

Hours and prices for unscheduled work shall be based on comparable historical data applicable to similar work at the same facility, or shall be determined by prorating the quoted Work costs in the Contract when in similar areas of the vessel.

B3 Overtime

The Contractor must not perform any overtime under the Contract unless authorized in advance and in writing by the Contracting Authority. There will be no overtime payment for Known Work. Any request for payment must be accompanied by a copy of the overtime authorization and a report containing the overtime performed pursuant to the written authorization. Payment for authorized overtime will be calculated as follows:

For unscheduled work, the Contractor will be paid the authorized overtime hours at the quoted charge-out labour rate plus the following **premium** rates:

For Time and one half: $____ per hour; or,

For Double time $____ per hour

The above premiums will be calculated by taking the average hourly direct labour rate premiums, plus certified fringe benefit, plus profit on labour premium and fringe benefits. These rates will remain firm for the duration of the Contract, including all amendments and are subject to audit if considered necessary by Canada.

B4 Pricing Data Sheets

Parameters from the Pricing Data Sheets will be used at Canada's sole discretion in the determination of unscheduled work price.

APPENDIX 1 TO ANNEX B - SCHEDULE OF MILESTONES FOR PAYMENT - HEMTV GEN & PROP UPGRADE FEASIBILITY OPTION ANALYSIS - RFP # F7049-140167/A		
MILESTONE PAYMENTS ITEM NO.	ACTIVITIES	TOTAL % OF THE CONTRACT VALUE TO BE PAID AGAINST EACH MILESTONE
1	TASK 1 - CYCLOCONVERTERS AND PROPULSION TRANSFORMERS	25%
2	TASK 2 – MAIN GENERATORS	15%
3	TASK 3 – MAIN ENGINES	15%
4	TASK 4 – AUXILIARY GENERATOR SET	15%
5	TASK 5 – POWER MANAGEMENT SYSTEM	20%
6	RELEASE OF HOLDBACK AT WORK ACCEPTANCE	10%

ANNEX C - FINANCIAL BID PRESENTATION SHEET

C1 Price for Evaluation

A)	**Known Work** For work as stated in Part 1 Clause 2, Specified in Annex "A" and detailed in the attached Pricing Data Sheets Appendix 1 of Annex "C", for a FIRM PRICE of:	**$**
B)	Unscheduled Work Contractor Labour Cost:Estimated labour hours at a firm Charge-out Labour Rate, including overhead and profit for evaluation purpose only: 100 person hours X $_____ per hour for a PRICE of:See Article C2.1 and C2.2 below. Overtime premium for time and one half: Estimated hours for evaluation purposes only: 40 person hours X $_____per hour for a PRICE of: See Article C3 below. Overtime premium for double time: Estimated hours for evaluation purposes only: 24 person hours X $_____ per hour for a PRICE of: See Article C3 below.	**$** **$** **$**
C)	EVALUATION PRICE TX EXCLUDED, [A + B]: For an EVALUATION PRICE of (Tx excluded):	**$**

C2 Unscheduled Work

The Contractor will be paid for unscheduled work arising, as authorized by Canada. The authorized unscheduled work will be calculated as follows:

"Number of hours (to be negotiated) X $_____, being the Contractor's firm hourly charge-out labour rate which includes overhead, consumable, and profit, plus net laid-down cost of materials to which will be added a markup of 10 %, plus Goods and Services Tax or Harmonized Sales Tax, if applicable, of the total cost of material and labour. The firm hourly charge-out labour rate and the material markup will remain firm for the duration of the Contract and any subsequent amendments."

C2.1: Notwithstanding definitions or usage elsewhere in this document, or in the Contractor's Cost Management System, when negotiating Hours for unscheduled work, PWGSC will consider only those hours of labour directly involved in the production of the subject work package.

Elements of Related Labour Costs identified in C2.2 below, will not be negotiated, but will be compensated for in accordance with Note C2.2. It is therefore incumbent upon the bidder to have bid appropriately which will result in fair compensation, regardless of their Cost Management System.

C2.2: Allowance for Related Labour Costs such as: Management, all Supervision, Purchasing and Material Handling, Quality Assurance and Reporting, Estimating and Preparing Unscheduled Work Submissions will be included as Overhead for the purposes of determining the Charge-out Labour Rate entered in line C2 above.

C2.3: The 10% markup rate for materials will also apply to subcontracted costs. The markup rate includes any allowance for material and subcontract management not allowed for in the Charge out Labour Rate. The Contractor will not be entitled to a separate labour component for the purchase and handling of materials or subcontract administration.

Prorated Prices Unscheduled Work
Hours and prices for unscheduled work shall be based on comparable historical data applicable to similar work at the same facility, or shall be determined by prorating the quoted Work costs in the Contract when in similar areas of the vessel.

C3 Overtime

The Contractor must not perform any overtime under the Contract unless authorized in advance and in writing by the Contracting Authority. There will be no overtime payment for Known Work. Any request for payment must be accompanied by a copy of the overtime authorization and a report containing the overtime performed pursuant to the written authorization. Payment for authorized overtime will be calculated as follows:

For unscheduled work, the Contractor will be paid the authorized overtime hours at the quoted charge-out labour rate plus the following **premium** rates:

For Time and one half: $ _____ per hour; or,

For Double time $ _____ per hour

The above premiums will be calculated by taking the average hourly direct labour rate premiums, plus certified fringe benefit, plus profit on labour premium and fringe benefits. These rates will remain firm for the duration of the Contract, including all amendments and are subject to audit if considered necessary by Canada.

C4 Pricing Data Sheets

Parameters from the Pricing Data Sheets will be used at Canada's sole discretion in the determination of unscheduled work price.

_____ _____

(Signature) (Date)

APPENDIX 1 TO ANNEX C - PRICING DATA SHEET - HEMTV GEN & PROP UPGRADE FEASIBILITY OPTION ANALYSIS - RFP # F7049-140167/A

		A	B	C	D	E	F
Pricing Data Sheet Item No.	Description	Total Hours	Total Labour Profit Included - $CAD - Tax Excluded	Total Material Profit Included - $CAD - Tax Excluded	Total Sub-Contractor Profit Included - $CAD - Tax Excluded	Total FSR Profit Included - $CAD - Tax Excluded	Total Cost Profit Included - $CAD - Tax Excluded = (B+C+D+E)
	TASK 1 - CYCLOCONVERTERS AND PROPULSION TRANSFORMERS						
1	2.3.1 Scenario 1 – Maintain Status Quo						$0
2	2.3.2 Scenario 2 - Upgrade of Cycloconverter Components						$0
3	2.3.3 Scenario 3 - Replace with Similar						$0
4	2.3.4 Scenario 4 - Replace with Different						$0
	TASK 2 – MAIN GENERATORS						$0
5	3.3.1 Scenario 1 - Maintain Status Quo						$0
6	3.3.2 Scenario 2 - Upgrade the Generator and Auxiliary Components						$0
7	3.3.3 Scenario 3 - Replace with Similar Generators						$0
8	3.3.4 Scenario 4 - Replace with Different Generators						$0
	TASK 3 – MAIN ENGINES						
9	4.3.1 Scenario 1 - Maintain the Status Quo						$0

APPENDIX 1 TO ANNEX C - PRICING DATA SHEET - HEMTV GEN & PROP UPGRADE FEASIBILITY OPTION ANALYSIS - RFP # F7049-140167/A

		A	B	C	D	E	F
Pricing Data Sheet Item No.	**Description**	**Total Hours**	**Total Labour Profit Included - $CAD - Tax Excluded**	**Total Material Profit Included - $CAD - Tax Excluded**	**Total Sub-Contractor Profit Included - $CAD - Tax Excluded**	**Total FSR Profit Included - $CAD - Tax Excluded**	**Total Cost Profit Included - $CAD - Tax Excluded = (B+C+D+E)**
10	4.3.2 Scenario 2 - New Diesels driving the Existing Propulsion Generators (900 rpm)						$0
11	4.3.3 Scenario 3 - New Diesels driving New Propulsion Generators						$0
	TASK 4 – AUXILIARY GENERATOR SET						
12	5.3.1 Scenario 1 - Maintain the Status Quo						$0
13	5.3.2 Scenario 2 - Replace with Similar						$0
14	5.3.3 Scenario 3 - Replace with Different						$0
	TASK 5 – POWER MANAGEMENT SYSTEM						
15	6.3.2 Section 1 - Remote Controls						$0
16	6.3.3 Section 2 - Local Switchboards (Manual Control)						$0
17	6.3.4 Section 3 - Mimic Board						$0
	TOTAL KNOWN WORK (To be reported to the line A) of the Annex C)	**0**	**$0**	**$0**	**$0**	**$0**	**$0**

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ANNEX D

Acceptance - Acceptation

Project No. - N° du projet	File No. - N° du dossier	Contract Serial No. - N° de série du contrat
Vessel - Navire	Owner - Propriétaire	Contractor's Name - Nom de l'entrepreneur
Specification - Devis		

We the undersigned, certify that the work as outlined in the Specification and Additional Work Arisings has been duly completed in keeping with the terms of the captioned contract.

All outstanding items, deviations or deficiencies are as noted on the Appendix form "A" and will be dealt with in accordance with the contract terms and conditions.

Nous, soussignés, attestons que le travail exposé dans le Devis et dans les états de travaux additionnels qui en découlent est dûment achevé conformément aux conditions du contrat susmentionné.

Tous les postes non terminés, déviations et manquements sont tels qu'ils sont indiqués à l'Appendice (formule A); il sera disposé en conformité des modalités et conditions du contrat.

For Contractor - Pour l'entrepreneur Signature	Title - Titre
Inspection Authority - Service d'inspection Signature	Title - Titre
Owner's Representative - Représentant du propriétaire Signature	Title - Titre
Date	Location - Endroit

Remarks - Remarques

ANNEX E - PROCEDURE FOR PROCESSING UNSCHEDULED WORK

1. Purpose

The Unscheduled Work Procedure has been instituted for the following purposes:

a. To establish a uniform method of dealing with requests for Unscheduled Work;

a. To obtain the necessary Technical Authority approval and Contracting Authority authorization before Unscheduled Work commences;

a. To provide a means of maintaining a record of Unscheduled Work requirements including Serial Numbers, dates, and accumulated cost the Contractor shall have a cost accounting system that is capable of assigning job numbers for each Unscheduled Work requirement so that each requirement can be audited individually.

2. Definitions and Particulars

a. An Unscheduled Work Procedure is a contractual procedure whereby changes to the scope of Work under the Contract may be defined, priced and contractually agreed to. Such changes may arise from;

i. "Work Arising" from opening up of machinery and/or surveys of equipment and material, or

ii. "New Work" not initially specified but required on the Vessel.

b. The procedure does not allow for the correction of deficiencies in the Contractor's Proposal.

c. No unscheduled work may be undertaken by the Contractor without written authorization of the Contracting Authority except under emergency circumstances described in Sub. Paragraph 3(b). Unscheduled Work.

d. Work undertaken without written Contracting Authority authorization will be considered the Contractor's responsibility and cost.

e. The appropriate PWGSC form is the final summary of the definition of the Unscheduled Work requirement, and the costs negotiated and agreed to.

3. Procedures

a. The procedure involves the electronic form PWGSC-TPSGC 1379 (10/2011) for refit and repair and will be the only form for authorizing all Unscheduled Work (Appendix 1 to Annex ''E'').

b. Emergency measures required to prevent loss or damage to the Vessel which would occur if this procedure were followed, shall be taken by the Contractor on its own authority. The

responsibility for the cost of such measures shall be determined in accordance with the terms and conditions of the Contract.

c. The Technical Authority will initiate a work estimate request by defining the Unscheduled Work requirement. It will attach drawings, sketches, additional specifications, other clarifying details as appropriate, and allocate their Serial Number for the request.

d. Notwithstanding the foregoing, the Contractor may propose to the Technical Authority in writing, either by letter or some type of Defect Advice Form (this is the Contractor's own form) that certain Unscheduled Work should be carried out.

e. The Technical Authority will either reject or accept such Proposal, and advise the Contractor and Contracting Authority. Acceptance of the Proposal is not to be construed as authorization for the work to proceed. If required, the Technical Authority will then define the Unscheduled Work requirement in accordance with Sub. Paragraph 3.(c).

f. The Contractor will electronically submit its Proposal to the Contracting Authority together with all price support, any qualifications, remarks or other information requested.

The price support shall demonstrate the relationship between the scope of work, the Contractor's estimated costs and its selling price. It is a breakdown of the Contractor's unit rates, estimates of person hours by trade, estimate of material cost per item, for both the contractor and all of its subcontractors, estimates of any related impact and an evaluation of the contractor's time required to perform the Unscheduled Work.

g. The Contractor shall provide copies of purchase orders and paid invoices for Subcontracts and/or materials, including stocked items, in either case. The Contractor shall provide a minimum of two quotations for Subcontracts or materials. If other than the lowest, or sole source is being recommended for quality and/or delivery considerations, this shall be noted. On request to the Contractor, the Contracting Authority shall be permitted, to meet with any proposed Subcontractor or material supplier for discussion of the price and always with the Contractor's representative present.

h. After discussion between the Contracting Authority and the Contractor and if no negotiation is required, the Contracting Authority will seek Technical Authority confirmation to proceed by signing the form. The Contracting Authority will then sign and authorize the Unscheduled Work to proceed.

i. In the event the Technical Authority does not wish to proceed with the work, it will cancel the proposed Unscheduled Work through the Contracting Authority in writing.

j. In the event the negotiation involves a Credit, the appropriate PWGSC form will be noted as "credit" accordingly.

k. In the event that the Technical Authority requires Unscheduled Work of an urgent nature or an impasse has occurred in negotiations, the commencement of the Unscheduled Work should not be unduly delayed and should be processed as follows, in either case. The Contractor will complete the appropriate PWGSC 1379 form indicating the offered cost and pass it to the Contracting Authority. If the Technical Authority wishes to proceed, the Technical Authority and the Contracting Authority will sign the completed PWGSC form with the notation, "CEILING PRICE SUBJECT TO DOWNWARD ADJUSTMENT", and allocate a Serial Number having the suffix "A". The work will proceed with the understanding that following an audit of the

Contractor's actual costs for completing the described work, the cost will be finalized at the ceiling price or lower, if justified by the audit. A new PWGSC form will then be completed with the finalized costs, signed and issued with the same Serial Number without the suffix "A", and bearing a notation that this form is replacing and cancelling the form having the same Serial Number with the suffix "A".

NOTE: PWGSC forms bearing Serial Numbers with a suffix "A" shall not to be included in any contract amendments, and therefore no payment shall be made until final resolution of the price and incorporation into the contract.

4. Amendment to Contract or Formal Agreement.

The Contract will be amended from time to time in accordance with the Contract terms to incorporate the costs authorized on the appropriate PWGSC forms.

APPENDIX 1 TO ANNEX E

Public Works and Government Services Canada Travaux publics et Services gouvernementaux Canada		Project No. - No du projet
Work Arising or New Work – Travaux imprévus ou nouveaux travaux		File No. - No de dossier
Contractor's Name Nom de l'entrepreneur	Specification No. and Date No de spécification et date	Contract Serial No. No de série du contrat
Vessel – Navire	Customer Dept. – Ministere client	PWGSC 1379 Serial No. N° de série TPSGC 1379
Signature	Title – Titre	Date

Spec. Item No. Article spécif. No	Wer. No. DET. No	Description of Work, Labour and Material Detail Description des travaux, main-d'oeuvre et matériaux	Hours Heures	Labour Cost Coût de la Main-d'oeuvre	Material Cost Coût du matériel

Remarks - Remarques	Hourly Rate Taux horaire	Total Labour Cost Coût total de la Man-d'oeuvre	$0.00
		Total Material Cost Coût total du matériel	$0.00
		Fee – Commission 10% of material du matériel	$0.00
		Sub-Total Sous-total	$0.00

Contractor - Entrepreneur Contract will be completed as scheduled Le contrat sera achevé dans les délais impartis Or specify date: Sinon, préciser la date:	Signature		H.S.T. – TPS	$0.00
	Title-Titre	Date	**TOTAL**	**$0.00**
Customer – Described work technically approved for price negotiated Client – Description des travaux approuvés en Principe au prix négocié	Signature	Title – Titre		Date
PWGSC – Authority to proceed with work TPSGC – Autorisation d'effectuer les travaux	Signature	Title – Titre		Date
PWGSC – 1379 Serial No. No de série TPSGC 1379	Excel form based on ELF PWGSC-TPSGC 1379 (10/2011)		WER No. DET no	