



**RETURN BIDS TO:
RETOURNER LES SOUMISSIONS À:**

**Bid Receiving - PWGSC / Réception des
soumissions - TPSGC**

**11 Laurier St. / 11, rue Laurier
Place du Portage, Phase III**

Core 0B2 / Noyau 0B2

Gatineau

Quebec

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 Diesel Gensets - CCGS Earl Grey	
Solicitation No. - N° de l'invitation F7049-210251/A	Date 2022-04-14
Client Reference No. - N° de référence du client F7049-210251	
GETS Reference No. - N° de référence de SEAG PW-\$\$MB-009-28644	
File No. - N° de dossier 009mb.F7049-210251	CCC No./N° CCC - FMS No./N° VME
Solicitation Closes - L'invitation prend fin at - à 02:00 PM Eastern Daylight Saving Time EDT on - le 2022-05-19 Heure Avancée de l'Est HAE	
F.O.B. - F.A.B. Plant-Usine: <input type="checkbox"/> Destination: <input type="checkbox"/> Other-Autre: <input type="checkbox"/>	
Address Enquiries to: - Adresser toutes questions à: Girard, Maude	Buyer Id - Id de l'acheteur 009mb
Telephone No. - N° de téléphone (418) 571-4028 ()	FAX No. - N° de FAX () -
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**

Issuing Office - Bureau de distribution

Marine Chartering Services Directorate/Direction des
services d'affrètements maritime

11 Laurier St./ 11, rue Laurier
Place du Portage, Phase III, 6C2

Gatineau

Quebec

K1A 0S5

Delivery Required - Livraison exigée See Herein – Voir ci-inclus	Delivery Offered - Livraison proposée
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

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PART 1 - GENERAL INFORMATION

1.1 Technical Statement of Requirement (TSOR)

The requirement is detailed under Article 6.2 of the resulting contract clauses.

1.2 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 from receipt of the results of the bid solicitation process. The debriefing may be in writing, by telephone or in person.

1.3 Canada Post Corporation's (CPC) Connect service

This bid solicitation allows bidders to use the Connect service provided by Canada Post Corporation to transmit their bid electronically. Bidders must refer to Part 2 entitled Bidder Instructions, and Part 3 entitled Bid Preparation Instructions, of the bid solicitation, for further information.

1.4 COVID-19 vaccination requirement

This requirement is subject to the COVID-19 Vaccination Policy for Supplier Personnel. Failure to complete and provide the COVID-19 Vaccination Requirement Certification as part of the bid will render the bid non-responsive.

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PART 2 - BIDDER INSTRUCTIONS

2.1 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) (<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](#) (2020-05-28) Standard Instructions - Goods or Services - Competitive Requirements, are incorporated by reference into and form part of the bid solicitation.

Subsection 5.4 of [2003](#), Standard Instructions - Goods or Services - Competitive Requirements, is amended as follows:

Delete: 60 days
Insert: 90 days

2.1.1 SACC Manual Clauses

SACC Manual clause [A1009C](#) (2008-05-12) Work Site Access
SACC Manual clause [B1000T](#) (2014-06-26) Condition of Material

2.2 Submission of Bids

Bids must be submitted electronically either through Canada Post Corporation's (CPC) Connect service or Facsimile to Public Works and Government Services Canada (PWGSC) Bid Receiving Unit, as specified below, by the date, and time indicated in the bid solicitation.

PWGSC Bid Receiving Unit
Facsimile number: (819) 997-9776
Connect service: tpsgc.pareceptiondessomissions-apbidreceiving.pwgsc@tpsgc-pwgsc.gc.ca

Note: Bids will not be accepted if emailed directly to the above email address. This email address is to be used to open a CPC Connect conversation, as detailed in Standard Instructions [2003](#), or to send bids through a CPC Connect message if the Bidder is using its own licensing agreement for CPC Connect service.

No bid shall be sent directly to the PWGSC Contracting Authority.

Due to the nature of the bid solicitation, hard copy bids (paper or soft copies on media) submitted to PWGSC will not be accepted.

2.3 Former Public Servant

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 FPSs, 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 FPSs 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

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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;
- 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.

2.4 Enquiries - Bid Solicitation

All enquiries must be submitted in writing to the Contracting Authority maude.girard@tpsgc-pwgsc.gc.ca no later than **ten (10) 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 question(s) or may request that the Bidder do so, so that the proprietary nature of the question(s) is eliminated, and the enquiry can be answered to all bidders. Enquiries not submitted in a form that can be distributed to all bidders may not be answered by Canada.

2.5 Improvement of Requirement During Solicitation Period

Should Bidders consider that the specifications or Technical Statement of Work contained in the bid solicitation could be improved technically or technologically, Bidders are invited to make suggestions, in writing, to the Contracting Authority named in the bid solicitation. Bidders must clearly outline the suggested improvement as well as the reason for the suggestion. Suggestions that do not restrict the level of competition nor favour a particular Bidder will be given consideration provided they are

submitted to the Contracting Authority at least ten (10) calendar days before the bid closing date. Canada will have the right to accept or reject any or all suggestions.

2.6 Applicable Laws

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

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.

2.7 Bid Challenge and Recourse Mechanisms

- a) Several mechanisms are available to potential Bidders to challenge aspects of the procurement process up to and including contract award.
- b) Canada encourages Bidders to first bring their concerns to the attention of the Contracting Authority. Canada's [Buy and Sell](#) website, under the heading "[Bid Challenge and Recourse Mechanisms](#)" contains information on potential complaint bodies such as:
 - Office of the Procurement Ombudsman (OPO)
 - Canadian International Trade Tribunal (CITT)
- c) Bidders should note that there are **strict deadlines** for filing complaints, and the time periods vary depending on the complaint body in question. Bidders should therefore act quickly when they want to challenge any aspect of the procurement process.

PART 3 - BID PREPARATION INSTRUCTIONS

3.1 Bid Preparation Instructions

Canada requests that the Bidder submits its bid in accordance with section 08 of the 2003 standard instructions. The CPC Connect system has a limit of 1GB per single message posted and a limit of 20GB per conversation.

Canada requests that the Bidder submits its bid in separately bound sections as follows:

- Section I: Technical Bid
- Section II: Financial Bid
- Section III: Certifications

If the Bidder is simultaneously providing copies of its bid using multiple acceptable delivery methods, and if there is a discrepancy between the wording of any of these copies and the electronic copy provided through CPC Connect service, the wording of the electronic copy provided through CPC Connect service will have priority over the wording of the other copies.

Due to the nature of the bid solicitation, hard copy bids (paper or soft copies on media) will not be accepted.

Soft copies of the bids shall be delivered in MS Word, MS Excel, MS Project and PDF formats.

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

Canada requests that Bidders use a numbering system that corresponds to the bid solicitation.

Section I: Technical Bid

In their technical bid, Bidders should 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 in accordance with the **Annex A – Technical Statement of Requirement** and the **Attachment 3 - Technical Evaluation Criteria**.

The technical bid should 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 evaluation criteria under the same headings. 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.

Omissions from the Bidders does not keep them from the responsibility to meet the regulatory or the maintenance manuals requirement. All omissions will be considered to be included in the price.

The technical bid consists of the following:

- a) **Supporting Technical Documentation:** Bidders must provide English version of technical documentation such as but not limited to data sheets, drawings, catalogues, maintenance and operation manuals to demonstrate compliancy with the mandatory and point-rated technical criteria listed in **Attachment 3 - Technical Evaluation Criteria**.
- b) **Maintenance Schedule Requirements:** Bidders must provide an English copy of the Original Equipment Manufacturer (OEM) recommended maintenance schedule for the type and model of the Gensets offered with their bid submission. The schedule must be Time-Based and must detail the maintenance required to be performed at regular, scheduled time intervals based on Class requirements, in accordance with the **Annex A, section 9.3**.
- c) **Life Cycle Analysis (LCA):** Bidders must provide a complete Life Cycle Analysis of the Gensets with their bid submission. This analysis must define both the fuel and non-fuel operating consumption, the expected Level of effort for maintenance, repair and overhaul required to support the expected operational lifespan of ten (10) years. This analysis must include a complete list of OEM recommended spare parts to carry out the maintenance and install these parts for 3 years. The Bidders are requested to use the form provided in **Appendix 2 to Attachment 3 – Part 1 – Life Cycle Analysis (LCA) Data Sheet**.
- d) **Technical Reference Sheet:** Bidders must include the completed Technical Reference Sheet provided in **Appendix 1 to Attachment 3 – Part 1** with their bid submission. Bidders must provide evidence describing how their proposed Gensets meet all listed mandatory requirements and must reference where this evidence is located within their supporting technical documentation.

Section II: Financial Bid

- a) **Pricing:** Bidders must submit their financial bid in accordance with the **Attachment 4 – Financial Evaluation**. The total amount of Applicable Taxes must be shown separately. Unless otherwise indicated, Bidders must include a single, firm, all-inclusive price quoted in Canadian dollars in each cell requiring an entry in the pricing tables.
- b) **All Costs to be Included:** The financial bid must include all costs for the requirement described in the bid solicitation for the entire Contract Period, including any optional requirement. The identification of all necessary equipment, software, peripherals, cabling and components required to meet the requirements of the bid solicitation and the associated costs of these items is the sole responsibility of the Bidder.

All prices must be in Canadian Dollars, Delivered Duty Paid (DDP) Incoterms 2020 included, if applicable. The total amount of Applicable Taxes must be shown separately.
All prices quoted must include all costs associated with packaging, shipping, transportation charges, and all travel and living expenses.

- c) **Blank Prices:** Unless specified otherwise, Bidders are requested to insert “\$0.00” for any item for which it does not intend to charge or for items that are already included in other prices set out in the tables. If the Bidder leaves any price blank, Canada will treat the price as “\$0.00” for evaluation purposes and may request that the Bidder confirm that the price is, in fact, \$0.00. No

Bidder will be permitted to add or change a price as part of this confirmation. Any Bidder who does not confirm that the price for a blank item is \$0.00 will be declared non-responsive.

- d) **Spare Parts Costed List:** Bidders must provide a complete costed list for **3 years** of OEM recommended on-board voyage spare parts, tools and associated items necessary to carry out maintenance and install these spare parts. At a minimum, the list must be based on the OEM recommended maintenance documentation provided, and the recommendations as found Lloyd's Registry of Shipping document "*Guidance on Spare Gear.*" are requested to use the form provided in **Annex C – OEM Recommended Spare Parts List**

- i. Product Name or Description
- ii. Manufacturer Part number
- iii. Unit of measure (i.e. Each / Lot) (*if applicable*)
- iv. Quantity per Unit (*if applicable*)
- v. Firm Unit Price
- vi. Extended Price

3.1.1 Electronic Payment of Invoices – Bid

If you are willing to accept payment of invoices by Electronic Payment Instruments, complete Attachment "2" Electronic Payment Instruments, to identify which ones are accepted.

If Attachment "2" Electronic Payment Instruments is not completed, it will be considered as if Electronic Payment Instruments are not being accepted for payment of invoices.

Acceptance of Electronic Payment Instruments will not be considered as an evaluation criteria.

3.1.2 Exchange Rate Fluctuation

SACC Manual clause [C3011T](#) (2013-11-06), Exchange Rate Fluctuation

3.1.3 SACC Manual Clauses

Section III: Certifications

Bidders must submit the certifications and additional information required under Part 5.

PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION

4.1 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.

4.1.1 Technical Evaluation

The technical evaluation process will include the evaluation of the mandatory technical criteria and the evaluation of point rated technical criteria of the bid documentation. Mandatory and point-rated technical evaluation criteria are included in **Attachment 3 – Technical Evaluation Criteria, Part 1 and Part 2**.

4.1.1.1 Mandatory Technical Criteria

Each bid will be reviewed to determine whether it meets the mandatory requirements of the bid solicitation. Any element of the bid solicitation identified with the words “shall”, “must” or “will” is a mandatory requirement. Bids that do not comply with each and every mandatory requirement will be declared non-responsive and be disqualified.

The Supporting Technical Documentation submitted will be reviewed for compliance with the mandatory technical requirement identified in **Attachment 3 – Part 1 - Mandatory Technical Evaluation Criteria**, including **Appendix 1 – Technical Reference Sheet and Appendix 2 – Life Cycle Analysis Data Sheet**.

4.1.1.2 Point-Rated Technical Evaluation Criteria

Bids meeting the mandatory technical criteria will be rated by assigning a score to the rated requirements, which are identified in the bid solicitation by the word “rated” or by reference to a score. Bidders who fail to submit complete bids with all the information requested by this bid solicitation will be rated accordingly. The point-rated criteria are described in **Attachment 3 – Part 2 – Point Rated Technical Evaluation Criteria**.

4.1.2 Financial Evaluation

The financial evaluation will be conducted by calculating the Total Evaluated Price of the Bid in accordance with the pricing tables provided in **Attachment 4 - Financial Evaluation**.

4.1.3 Evaluation of Price - Canadian / Foreign Bidders

- 1. Bidders must submit firm prices, customs duties and excise taxes included, and Applicable Taxes excluded.

2. Unless the bid solicitation specifically requires bids to be submitted in Canadian currency, bids submitted in foreign currency will be converted to Canadian currency for evaluation purposes. The rate given by the Bank of Canada in effect on the bid solicitation closing date, or on another date specified in the bid solicitation, will be applied as a conversion factor to the bids submitted in foreign currency.
3. Bidders must provide prices Delivered Duty Paid (DDP) Nova-Scotia Incoterms 2020 for shipments from a commercial contractor. Bids will be assessed on an DDP basis.

4.2 Basis of Selection - Highest Combined Rating of Technical Merit and Price

1. To be declared responsive, a bid must:
 - a. comply with all the requirements of the bid solicitation; and
 - b. meet all mandatory criteria;
 - c. obtain the required minimum of 52.5 points overall (75%) for the technical evaluation criteria which are subject to point rating. The rating is performed on a scale of 70 available points.
2. Bids not meeting (a), (b) and (c) will be declared non-responsive.
3. The selection will be based on the highest responsive combined rating of technical merit and price. The ratio will be 65% for the technical merit and 35% for the price.
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 65%.
5. To establish the pricing score, each responsive bid will be prorated against the lowest evaluated price and the ratio of 35%.
6. For each responsive bid, the technical merit score and the pricing score will be added to determine its combined rating.
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.

The table below illustrates an example where all three bids are responsive and the selection of the contractor is determined by a 65/35 ratio of technical merit and price, respectively. The total available points equals 1 and the lowest evaluated price is \$20,000.

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Basis of Selection – Highest Combined Rating Technical Merit (65%) and Price (35%)				
		Bidder 1	Bidder 2	Bidder 3
Overall Technical Score		1/1	0/1	1/1
Bid Evaluation Price		\$25 000.00	\$20 000.00	\$34 000.00
Calculations	Technical Merit Score	$1/1 \times 65 = 65.00$	$0/1 \times 65 = 0.00$	$1/1 \times 65 = 65.00$
	Pricing Score	$20/25 \times 35 = 28.0$	$20/20 \times 35 = 35.0$	$20/34 \times 35 = 20.59$
Combined Rating		93	35	85.59
Overall Rating		1st	3rd	2nd

PART 5 – CERTIFICATIONS AND ADDITIONAL INFORMATION

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

The certifications provided by Bidders to Canada are subject to verification by Canada at all times. Unless specified otherwise, Canada will declare a bid non-responsive, or will declare a contractor in default 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 will render the bid non-responsive or constitute a default under the Contract.

5.1 Certifications Required with the Bid

Bidders must submit the following duly completed certifications as part of their bid.

5.1.1 Integrity Provisions - Declaration of Convicted Offences

By submitting a bid, the Bidder certifies that the Bidder and its affiliates are in compliance with the provisions as stated in Section 21 Code of Conduct for Procurement - Bid of Standard Instructions 2003. The related documentation therein required will assist Canada in confirming that the certifications are true.

In accordance with the Integrity Provisions of the Standard Instructions, all bidders must provide with their bid, **if applicable**, the declaration form available on the [Forms for the Integrity Regime](http://www.tpsgc-pwgsc.gc.ca/ci-if/declaration-eng.html) website (<http://www.tpsgc-pwgsc.gc.ca/ci-if/declaration-eng.html>), to be given further consideration in the procurement process.

5.1.2 COVID-19 vaccination requirement certification

In accordance with the COVID-19 Vaccination Policy for Supplier Personnel, all Bidders must provide with their bid, the COVID-19 Vaccination Requirement Certification attached to this bid solicitation in Attachment 7, to be given further consideration in this procurement process. This Certification incorporated into the bid solicitation on its closing date is incorporated into, and forms a binding part of any resulting Contract.

5.2 Certifications Precedent to Contract Award and Additional Information

The certifications and additional information listed below should be submitted with the bid, but may be submitted afterwards. If any of these required certifications or additional information is not completed and submitted as requested, the Contracting Authority will inform the Bidder of a time frame within which to provide the information. Failure to provide the certifications or the additional information listed below within the time frame provided will render the bid non-responsive.

5.2.1 OEM FSR Certification

Bidders must provide certifications detailing the Original Equipment Manufacturer (OEM) qualification of their authorized field service representatives (FSR).

By submission of a bid, the Bidder certifies that all the information provided in the certification 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.

5.2.2 Integrity Provisions – List of Names

Pursuant to section 01 of Standard Instructions 2003, Bidders who are incorporated, including those bidding as a joint venture, must provide a complete list of names of all individuals who are currently directors of the Bidder, see Attachment 1. Bidders bidding as sole proprietorship, including those bidding as a joint venture, must provide the name of the owner. Bidders bidding as societies, firms or partnerships do not need to provide lists of names.

5.2.3 Federal Contractors Program for Employment Equity - Bid Certification

By submitting a bid, the Bidder certifies that the Bidder, and any of the Bidder's members if the Bidder is a Joint Venture, is not named on the Federal Contractors Program (FCP) for employment equity "FCP Limited Eligibility to Bid" list available at the bottom of the page of the [Employment and Social Development Canada \(ESDC\) - Labour's](https://www.canada.ca/en/employment-social-development/canada/esdc-labour/sdc-labour/development-programs/employment-equity/federal-contractor-program.html) website (<https://www.canada.ca/en/employment-social-development/programs/employment-equity/federal-contractor-program.html>).

Canada will have the right to declare a bid non-responsive if the Bidder, or any member of the Bidder if the Bidder is a Joint Venture, appears on the "FCP Limited Eligibility to Bid" list at the time of contract award.

Canada will also have the right to terminate the Contract for default if a Contractor, or any member of the Contractor if the Contractor is a Joint Venture, appears on the "[FCP Limited Eligibility to Bid](#)" list during the period of the Contract.

The Bidder must provide the Contracting Authority with a completed Attachment 6 entitled Federal Contractors Program for Employment Equity - Certification, before contract award. If the Bidder is a Joint Venture, the Bidder must provide the Contracting Authority with the completed Annex 6 - Federal Contractors Program for Employment Equity - Certification, for each member of the Joint Venture.

5.2.4 Additional Certifications Precedent to Contract Award

5.2.4.1 OEM Certification

(i) Any Bidder that is not the Original Equipment Manufacturer (OEM) for every item of hardware or equipment proposed as part of its bid is required to submit the OEM's certification regarding the bidder's authority to provide and maintain the OEM's hardware or equipment, which must be signed by the OEM (not the bidder). No Contract will be awarded to a Bidder who is not the OEM of the hardware

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or equipment it proposes to supply to Canada, unless the OEM certification has been provided to Canada. Bidders are requested to use the OEM Certification Form included with the bid solicitation at Attachment 5. Although all the contents of the OEM Certification Form are required, using the form itself to provide this information is not mandatory. For Bidders/OEMs who use an alternate form, it is in Canada's sole discretion to determine whether all the required information has been provided. Alterations to the statements in the form may result in the bid being declared non-responsive.

(ii) If the hardware or equipment proposed by the Bidder originates with multiple OEMs, a separate OEM certification is required from each OEM.

(iii) For the purposes of this bid solicitation, OEM means the manufacturer of the hardware or equipment, as evidenced by the name appearing on the hardware or equipment and on all accompanying documentation.

PART 6 - RESULTING CONTRACT CLAUSES

The following clauses and conditions apply to and form part of any contract resulting from the bid solicitation.

6.1 Security Requirements

There is no security requirement applicable to the Contract.

6.2 Requirement

6.2.1 Initial Requirement

The Contractor must provide two (2) complete skid-mounted, marine rated diesel powered ships service generator packages (Gensets) along with on-board spare parts and accessories required for their operation, in accordance with the Requirement at Annex A – Technical Statement of Requirement.

6.2.1 Option to Purchase Additional Units

The Contractor grants to Canada the irrevocable option to purchase 2 additional Gensets under the same terms and conditions and at the prices and/or rates stated in the Contract.

Canada may exercise this option by sending a written notice to the Contractor no more than 90 calendar days after the date of acceptance by CCG of delivery of the initial requirement. The options may only be exercised by the Contracting Authority, and will be evidenced for administrative purposes only, through a contract amendment.

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

6.3.1 General Conditions

[2010A](#) (2021-12-02), General Conditions - Goods (Medium Complexity), apply to and form part of the Contract.

1. Section 09 entitled Warranty of general conditions 2010A (2020-05-28), is amended by replacing the period of 12 months by 60 months from the date of acceptance or 36 months following the commissioning, whichever comes first, or the length of the Contractor's or manufacturer's standard warranty period, whichever is longer.

All other provisions of the warranty section remain in effect.

2. Section 09 entitled Warranty of general conditions 2010A is amended by deleting subsection 2 in its entirety and replacing it with the following:

The Contractor must pay the transportation cost associated with returning the Work or any part of the Work to the Contractor's plant for replacement, repair or making good. The Contractor must also pay the transportation cost associated with forwarding the replacement or returning the Work or part of the Work when rectified to the delivery point specified in the Contract or to another location as directed by Canada. If, in the opinion of Canada, it is not expedient to remove the Work from its location, the Contractor must carry out any necessary repair or making good of the Work at that location. In such cases, the Contractor will be responsible for all Costs (including travel and living expenses) incurred in so doing, Canada will not reimburse these Costs.

All other provisions of the warranty section remain in effect.

6.3.2 Supplemental General Conditions

4003 (2010-08-16) Licensed Software, and
4004 (2013-04-25) Maintenance and Support Services for Licensed Software,

apply to and form part of the Contract.

6.3.2.1 Suspension of the work

1. The Contracting Authority may at any time, by written notice, order the Contractor to suspend or stop the Work or part of the Work under the Contract for a period of up to 180 days. The Contractor must immediately comply with any such order in a way that minimizes the cost of doing so. While such an order is in effect, the Contractor must not remove any part of the Work from any premises without first obtaining the written consent of the Contracting Authority. Within these 180 days, the Contracting Authority must either cancel the order or terminate the Contract, in whole or in part, under section(s) 23, entitled "Default by the Contractor" or section 24, entitled "Termination for convenience" of General conditions 2010A.
2. When an order is made under subsection 1, unless the Contracting Authority terminates the Contract by reason of default by the Contractor or the Contractor abandons the Contract, the Contractor will be entitled to be paid its additional costs incurred as a result of the suspension plus a fair and reasonable profit.
3. When an order made under subsection 1 is cancelled, the Contractor must resume work in accordance with the Contract as soon as practicable. If the suspension has affected the Contractor's ability to meet any delivery date under the Contract, the date for performing the part of the Work affected by the suspension will be extended for a period equal to the period of suspension plus a period, if any, that in the opinion of the Contracting Authority, following consultation with the Contractor, is necessary for the Contractor to resume the Work. Any equitable adjustments will be made as necessary to any affected conditions of the Contract.

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6.4 Term of Contract

6.4.1 Period of the Contract

The period of the Contract is from date of Contract award and ends at the end of the warranty period as defined in the Contract.

6.4.3 Delivery

6.4.3.1 Initial Requirement

All deliverables must be delivered between May 1st, 2024 – August 1st, 2024.

6.4.3.2 Optional Requirement

If the option is exercised, the optional requirement must be delivered no later than 40 weeks following the Contract Amendment.

6.4.4 Delivery Points

Delivery of the requirement will be made to delivery points specified at Annex A of the Contract.

6.5 Authorities

6.5.1 Contracting Authority

The Contracting Authority for the Contract is:

Name: Maude Girard
Title: Supply Officer
Organization: Public Services and Procurement Canada
Acquisitions Branch
Major Marine Construction Sector
Address: 11 Laurier Street, Phase III
Place du Portage, Gatineau, Quebec
K1A 0S5
Telephone: 418-571-4028
E-mail address: maude.girard@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.

6.5.2 Technical Authority *(to be filled in only at contract award)*

The Technical Authority for the Contract is: *(to be filled in only at contract award)*

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Name: _____
Title: _____
Organization: _____

Address: _____

Telephone: _____
E-mail: _____

The Technical Authority named above 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 Technical Authority, however the Technical 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.

6.5.4 Contractor's Representative *(to be completed by the bidder)*

The telephone number (with extension if applicable) of the person responsible for:

General enquiries

Name: _____
Tel. No. _____ ext: _____
E-mail address: _____

Delivery Follow-up

Name: _____
Tel. No. _____ ext: _____
E-mail address: _____

Technical Support

The telephone number for Technical Support is: _____

6.6 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: 2019-01 of the Treasury Board Secretariat of Canada.

6.7 Payment

6.7.1 Basis of Payment - Firm Prices

In consideration of the Contractor satisfactorily completing all of its obligations under the Contract, the Contractor will be paid firm prices in accordance with the Basis of Payment Annex B. DDP Delivered Duty

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Paid, Incoterms 2020. Canadian customs duties and excise taxes included and Applicable Taxes extra.

Canada will not pay the Contractor for any design changes, modifications or interpretations of the Work, unless they have been approved, in writing, by the Contracting Authority before their incorporation into the Work.

All Travel and Living expenses shall be included into each item listed in the Basis of Payment at Annex B.

6.7.2 Economic Price Adjustment (EPA)

If Canada chooses to exercise the option to supply additional Gensets, all prices of Annex B - Basis of Payment for additional goods that will be order following the first 12 months of Contract period, will be subject to an EPA.

6.7.3 Calculation of the Economic Price Adjustment

At the beginning of each year following the first year (12 months) of the Contract, on the anniversary of the Contract effective date, all firm prices for the optional purchase of additional Gensets indicated in the Annex B - Basis of Payment will be adjusted upward or downward to account for inflation or deflation. The adjusted unit price(s), lot price(s) and rate(s) for the coming twelve (12) months period shall be calculated in accordance with the formula below and they will be firm for the coming twelve (12) months.

$$P(x) = P(o) \times \text{Index}(x) / \text{Index}(o)$$

P(x) = Firm Price for the coming twelve (12) months period

P(o) = Firm Price for the first (1st) year of contract

Index (x) = The index used to calculate the EPA will be obtained in Table 18 "The Consumer Price Index, monthly, not seasonally adjusted" 18-10-0004-01 (formerly CANSIM 326-0020), published by Statistic Canada. The Product group to be used is "All-items". The index to be used shall be the one that is three (3) months prior to the anniversary of the contract.

Index (o) = The index used to calculate the EPA will be obtained in Table 18 "The Consumer Price Index, monthly, not seasonally adjusted" 18-10-0004-01 (formerly CANSIM 326-0020), published by Statistic Canada. The Product group to be used is "All-items". The index to be used shall be the one that is three (3) months prior to the anniversary of the contract award date.

6.7.3 Method of Payment

SACC Manual clause [H1001C](#) (2008-05-12) Multiple Payment

6.7.4 SACC Manual Clauses

C2000C (2007-11-30) Taxes - Foreign-Based Contractor *(if applicable)*

C2611C (2007-11-30) Customs Duties - Contractor Importer *(if applicable)*

6.7.5 Electronic Payment of Invoices – Contract

To be updated at contract award

The Contractor accepts to be paid using any of the following Electronic Payment Instrument(s):

- a) Visa Acquisition Card;
- b) MasterCard Acquisition Card;
- c) Direct Deposit (Domestic and International);
- d) Electronic Data Interchange (EDI);
- e) Wire Transfer (International Only);

6.8 Invoicing Instructions

6.8.1 The Contractor must submit invoices in accordance with the section entitled "Invoice Submission" of the general conditions. Invoices cannot be submitted until all work identified in the invoice is completed.

6.8.2 Invoices must be distributed as follows:

- a) The Original must be forwarded to the Technical Authority identified under section 6.5, Authorities, for certification and payment.
- b) One (1) copy must be forwarded to the Contracting Authority identified section 6.5, Authorities of the Contract.
- c) To facilitate the payment process, it is important that the Contractor quote the contract number on all the invoices, shipping bills and packing slips. Failure to do so will delay payment and the date used for calculating interest on overdue accounts.

6.9 Certifications and Additional Information

6.9.1 Compliance

Unless specified otherwise, the continuous compliance with the certifications provided by the Contractor in its bid or precedent to contract award, and the ongoing cooperation in providing additional information are conditions of the Contract and failure to comply will constitute the Contractor in default. Certifications are subject to verification by Canada during the entire period of the Contract.

6.9.2 Compliance with on-site measures, standing orders, policies, and rules

The Contractor must comply and ensure that its employees and subcontractors comply with all security measures, standing orders, policies or other rules in force at the site where the Work is performed.

6.10 Applicable Laws

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

6.11 Priority of Documents

If there is a discrepancy between the wording 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 [2010A](#) (2020-05-28), modified as herein;
- c) the Supplemental General Conditions in the following order:
 - i. [4003](#) (2010-08-16), Licensed Software;
 - ii. [4004](#) (2013-04-25), Maintenance and Support Services for Licensed Software;
- d) Annex A - Technical Statement of Requirement;
- e) Annex B - Basis of Payment;
- f) Annex C – OEM Recommended Spare Parts List;
- h) the Contractor's bid dated _____ (*insert at the time of contract award*)

6.12 Defence Contract

SACC Manual clause [A9006C](#) (2012-07-16) Defence Contract

6.13 SACC Manual Clauses

[G1005C](#) (2016-01-28) Insurance
[A1009C](#) (2008-05-12) Work Site Access

6.14 Shipping Instructions – Delivery at Destination

Goods must be consigned to the destination specified in the Contract and delivered:

Delivered Duty Paid (DDP), Incoterms® 2020 for shipments from a commercial contractor.

The Contractor will be responsible for all delivery charges, packaging, administration, costs and risk of transport and customs clearance, including the payment of customs duties and taxes.

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6.15 Dispute Resolution

- a) The parties agree to maintain open and honest communication about the Work throughout and after the performance of the contract.
- b) The parties agree to consult and co-operate with each other in the furtherance of the contract and promptly notify the other party or parties and attempt to resolve problems or differences that may arise.
- c) If the parties cannot resolve a dispute through consultation and cooperation, the parties agree to consult a neutral third party offering alternative dispute resolution services to attempt to address the dispute.
- d) Options of alternative dispute resolution services can be found on Canada's Buy and Sell website under the heading "[Dispute Resolution](#)".

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ANNEX A – TECHNICAL STATEMENT OF REQUIREMENT

(Separately Attached)

ANNEX B – BASIS OF PAYMENT

(to be completed by Canada at contract award)

The prices are in Canadian dollars and includes all costs associated with packaging, shipping and transportation charges, Incoterms 2020 "Delivered Duty Paid" (DDP) to destinations, Canadian customs duties and excise taxes included and Applicable Taxes are extra.

The following prices encompass all costs related to the Contract, for the initial contract period, as defined in the Contract, including the travel and living expenses to be present at the delivery address to overview the inspection of the Gensets at time of delivery.

1.0 Initial Requirement

Table 1 – Firm Prices for the CCGS Earl Grey

Diesel Generator Sets				
Item	Description	Firm Unit Price (For 1 Genset)	Quantity	Extended Price (Number of Units X Firm Unit Price)
1	Complete assembled Genset including all associated equipment along with control systems, special tools and accessories required for its operation.	\$ _____	2	\$ _____
Software				
2	All required Genset controllers, governor, AVR Software, Firmware, Program, Licenses, communication leads, and software dongles required for the maintenance and overhauling of the Gensets.	\$ _____	2	\$ _____
OEM Recommended On-board Voyage Spares Parts for 3 years				
3	Cost of defined, on-board voyage spare parts supplied with the initial purchase of Gensets – Total Cost of Annex C	\$ _____	2	\$ _____
Extended Warranty				
4	Extended warranty of 36 months after acceptance of the equipment commissioning including tests and trials, or 60 months after acceptance of the equipment delivery, whichever comes first, or the length of the Contractor's or manufacturer's standard warranty period, whichever is longer.	\$ _____	2	\$ _____
Table 1 Total Price (Initial Requirement)				\$ _____

2.0 Option to Purchase Additional Gensets

Table 2 – Firm Prices for the CCGS Risley

Diesel Generator Sets				
Item	Description	Firm Unit Price (For 1 Genset)	Quantity	Extended Price (Number of Units X Firm Unit Price)
1	Complete assembled Genset including all associated equipment along with control systems, special tools and accessories required for its operation.	\$ _____	2	\$ _____
Software				
2	All required Genset controllers, governor, AVR Software, Firmware, Program, Licenses, communication leads, and software dongles required for the maintenance and overhauling of the Gensets.	\$ _____	2	\$ _____
OEM Recommended On-board Voyage Spare Parts for 3 years				
3	Cost of defined, on-board voyage spare parts supplied with the purchase of additional Gensets – Total Cost of Annex C	\$ _____	2	\$ _____
Extended Warranty				
4	Extended warranty of 36 months after acceptance of the equipment commissioning including tests and trials, or 60 months after acceptance of the equipment delivery, whichever comes first, or the length of the Contractor's or manufacturer's standard warranty period, whichever is longer.	\$ _____	2	\$ _____
Table 2 Total Price (Optional Requirement)				\$ _____

Calculation of the Economic Price Adjustment

At the beginning of each year following the first year (12 months) of the Contract, on the anniversary of the Contract effective date, all firm prices for the optional purchase of additional Gensets indicated in the Annex B - Basis of Payment will be adjusted upward or downward to account for inflation or deflation. The adjusted unit price(s), lot price(s) and rate(s) for the coming twelve (12) months period shall be calculated in accordance with the Economic Price Adjustment with the formula provided in article 6.7.3 of the Contract, and they will be firm for the coming twelve (12) months.

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ANNEX C – OEM RECOMMENDED SPARE PARTS LIST

This costed list of OEM recommended on-board voyage Spare Parts and components for the Gensets must match the Contractor’s OEM recommended maintenance documentation provided, and must be based on the recommendations as found in Lloyd’s Registry of Shipping document “Guidance on Spare Gear.”

The following items must be based on the continuous operation of 1 Genset, and the quantity offered must be able to meet the first **3 years** of the OEM recommended maintenance schedule. This must include all Special tools and associated items necessary to carry out maintenance and install these replacement parts.

All items listed will be considered available for a minimum of ten 10 years.

Item #	Product Name or Description	Name of the Manufacturer	Model/Part Number	Unit of Measure (Each / Lot) (if applicable)	Quantity per Unit (if applicable)	Firm Unit Price	Number of Units (for 3 years)	Extended Price (Number of Units X Firm Unit Price)
						\$ _____		\$ _____
						\$ _____		\$ _____
						\$ _____		\$ _____
						\$ _____		\$ _____
						\$ _____		\$ _____
						\$ _____		\$ _____
TOTAL								\$ _____
Customs duties are included and Applicable Taxes extra								

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ATTACHMENT 1 – INTEGRITY PROVISION – LIST OF NAMES

In accordance with Part 5, Article 5.2.1 – Integrity Provision – List of Names, please complete the Form below.

Complete Legal Name of Company	
Company's address	
Company's Procurement Business Number (PBN)	
Solicitation Number	
Board of Directors/Owners (Use Format – First name, last name)	
Name	Title
Other members	

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ATTACHMENT 2 - ELECTRONIC PAYMENT INSTRUMENTS

The Bidder accepts any of the following Electronic Payment Instrument(s):

- VISA Acquisition Card;
- MasterCard Acquisition Card;
- Direct Deposit (Domestic and International);
- Electronic Data Interchange (EDI);
- Wire Transfer (International Only).

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ATTACHMENT 3 – PART 1 – MANDATORY TECHNICAL EVALUATION CRITERIA

The following requirements are the mandatory technical evaluation criteria which will be evaluated during the Bid Evaluation.

Although the Bidders must propose products that meet all the specifications described in the Annex A, bids will be evaluated on the following technical requirements. Regardless of the content of the information provided, if the Bidder is awarded a Contract, work must be done in accordance with Annex A - Technical Statement of Requirement.

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 evaluation criteria under the same headings. 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.

Any bid that does not clearly demonstrate compliance with each of the mandatory technical requirements listed below will be considered non-responsive.

Bidders are requested to cross reference the mandatory technical criteria in a concise format by using page, paragraph(s) and sub-paragraphs as applicable to their supporting technical documentation.

Item #	Mandatory Criteria	Compliant		Bid Reference to applicable page and paragraph
		Yes	No	
Technical Reference Sheet				
	Bidders must provide the completed Technical Reference Sheet, in Appendix 1 to Attachment 3, with their bid submission.			
M1	For each listed requirement, the Bidder must provide a response in the "Reference to applicable page and paragraph of Bidder's Proposal" Technical Requirements table to clearly explain how the requirement is met, either by including the specific reference to indicate where in their proposal the information is found.			
Maintenance				
M2	The Bidder must provide an English copy of the manufacturers (OEM) recommended maintenance schedule for the type and model of the Gensets offered with their bid submission.			

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Item #	Mandatory Criteria	Compliant		Bid Reference to applicable page and paragraph
		Yes	No	
	The schedule must be Time-Based and must detail the maintenance required to be performed at regular, scheduled time intervals based on Class requirements, in accordance with the Annex A, section 9.3.			
Experience				
M3	Bidder must provide at least 3 examples of their experience on recent procurement contracting projects with supply, delivery, oversee the installation and commissioning of OEM Gensets that had similar requirements aboard Marine vessels that entered into service within the last 7 years where proven technologies were implemented. Bidder must provide the names of clients / representatives and their contact details to validate the information for each project presented.			
Field Service Representatives (FSR) and Supportability				
M4	The Bidder must provide a response plan that demonstrates that it has or will have certified OEM FSR technicians available to answer service calls 24/7 and to perform on-site services aboard the vessels and at the delivery addresses detailed in the TSOR at Sections 7.0 and 10.0, within 24 hours following service calls, for the warranty period as defined in the Contract.			
Life Cycle Analysis (LCA)				
M5	The Bidder must provide the completed Life Cycle Analysis (LCA) data sheet, in Appendix 2 to Attachment 3.			
Classification Society				
M6	Bidder must provide the name of the Classification Society that will provide the Type Approval Certificates according to the Class Rules and Regulations applicable to the Diesel Engine, the Gensets Control and Safety system, the Alternator and the Generator as per the TSOR. The Classification Society must be listed in Section 2 (1) of the Marine Machinery Regulations, Canada Shipping Act, 2001.			

**APPENDIX 1 TO ATTACHMENT 3 – PART 1
 TECHNICAL REFERENCE SHEET**

The Bidders must provide evidence describing how their proposed Gensets meet all listed requirements, in accordance with the Annex A and must reference where this evidence is located within their technical documentation.

Canada may require that the Bidder provide additional certification to demonstrate any features, functionality and capabilities described in this bid solicitation or in its bid, in order to verify compliance with the requirements of this bid solicitation.

Technical Requirements	Bid Reference to applicable page and paragraph
The Gensets must be of a marine design with proven reliability and be in compliance with the required Acts and Regulations in accordance with the Canada Shipping Act 2001 and comply with all additional Regulations, Standards, Guidelines and Codes referenced in Section 2.3-2.10 of the TSOR.	
The Gensets must possess Marine IACS class approval	
General Gensets requirements as per section 3.1-3.2 of the TSOR	
General technical requirement as per 3.1.1	
General technical requirement as per 3.1.2	
General technical requirement as per 3.1.3	
General physical requirements as per 3.2.1	
General physical requirements as per 3.2.2	
Unit Technical and Physical Specifications as per Section 3.3 of the TSOR	
General technical requirement as per 3.3.1	
General technical requirement as per 3.3.2	
General technical requirement as per 3.3.3	
General technical requirement as per 3.3.4	
General technical requirement as per 3.3.5	
General technical requirement as per 3.3.6	
General technical requirement as per 3.3.7	
General technical requirement as per 3.3.8	
Diesel Engine requirements as per section 3.4. of the TSOR.	
3.4.1.1(a)	
3.4.1.1(b)	
3.4.1.1(c)	
3.4.1.1(d)	
3.4.1.1(e)	
3.4.1.1(f)	
3.4.1.1(g)	
3.4.1.1(h)	
3.4.1.1(i)	
3.4.1.1(j)	
3.4.1.1(k)	
3.4.1.1(l)	

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3.4.1.1(m)	
The Gensets must, as a minimum, meet the Pollution Prevention Regulations under the Canada Shipping Act and IMO MARPOL 73/78 Annex VI and Tier III Environmental requirements as per Section 3.4.1.2 of the TSOR.	
At a minimum, each engine must be provided and fitted with an on-skid air start system capable of operating at a maximum supply air pressure of twenty-five (25) Bar. Starter motor that must be capable of operating either locally or remotely from the local or remote-control panel as per Section 3.4.2.1 of the TSOR.	
The Gensets must come complete, assembled with an engine driven, pump circulated lubrication system Section 3.4.3 of the TSOR.	
Each engine's dual water cooling system (Sea Water and fresh water) must be cooled using raw water coolers constructed for high ambient/engine temperatures. The coolers must be capable of cooling the engine when the diesel alternator set is delivering full rated load at a raw water temperature of 35°C and an ambient air temperature of up to 50°C in the engine room area as per Section 3.4.4.1 of the TSOR.	
Cooling requirement as per 3.4.4.1(a)	
Cooling requirement as per 3.4.4.1(b)	
Cooling requirement as per 3.4.4.1 (c)	
Cooling requirement as per 3.4.4.1 (d)	
Cooling requirement as per 3.4.4.1 (e)	
Cooling requirement as per 3.4.4.1 (f)	
The Gensets must come complete, assembled with compatible exhaust piping sections as per Section 3.4.5 of the TSOR.	
The Gensets must come coated and insulated as per Section 3.4.6 of the TSOR.	
Insulation and coating requirement as per 3.4.6	
Each Genset must be equipped with a thermostat controlled coolant immersion heater as per section 3.4.7 of the TSOR.	
The Gensets must include an electronic governor system to maintain automatic isochronous frequency regulation as per Section 3.4.8.1 of the TSOR.	
The engines shall be designed for operation on Ultra Low Sulfur Diesel (ULSD) fuel (≤ 0.5 % m/m sulfur) and meet as a minimum the MARPOL Annex VI Fuel Sulfur Limits for 2020. They must be capable of operating continuously on the same diesel fuel requirements of the Vessel's main engines Naval Distillate Fuel, CGSB-3.11-2017 Type 11, (max. -6°C pour point Apr. 1 – Oct. 31), Type 15 (max. -18°C pour point Nov 1, - Mar. 31) or commercial equivalent as per Section 3.4.9 of the TSOR.	
Alternator requirements as per section 3.5 of the TSOR	
The engines must be directly coupled to a rotating, brushless, synchronous, 600V, 60Hz, 3 phase electrical alternator with a power output between 515 kVa/412 kw to 531 kVa/425 kW, continuous rating, and must meet all remaining technical requirements detailed in section 3.5.1.1 of the TSOR.	
Alternator requirement as per 3.5.1.2	
Alternator requirement as per 3.5.1.3	
Alternator requirement as per 3.5.1.4	
Alternator requirement as per 3.5.1.5	
Alternator requirement as per 3.5.1.6	
The alternator must be Class 'H' to ABS/TP 127 as per Section 3.5.2 of the TSOR.	
Alternator excitation system requirement as per 3.5.3.1	

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Alternator excitation system requirement as per 3.5.3.2	
Alternator excitation system requirement as per 3.5.3.3 (a-c)	
Alternator AVR requirements as per 3.5.4	
Each Genset supplied must be capable for synchronization/integration with the vessel's existing Easy Gen Control system as per Section 3.5.5.1	
Control system requirements as per 3.6.1 (a – c)	
Control system requirements as per 3.6.2.1	
Control system requirements as per 3.6.2.2	
Control system requirements as per 3.6.2.3	
Control system requirements as per 3.6.2.4 (a – c)	
Control system requirements as per 3.6.2.5 (a – m)	
Control system requirements as per 3.6.2.6.1 (a - d)	
Control system requirements as per 3.6.2.6.2	
Protection system requirements/Voltage monitoring as per 3.6.3	
Nameplate requirements as per 3.7	

**APPENDIX 2 TO ATTACHMENT 3 – PART 1
LIFE CYCLE ANALYSIS DATA SHEET**

The Technical evaluation of the proposed Gensets Life Cycle Analysis, addresses the following seven (7) aspects of the Gensets life cycle:

1. the OEM recommended maintenance;
2. the OEM recommended on-board voyage spare parts;
3. the transport Canada Marine safety (TCMS) five (5) Year Inspections;
4. the first Major Overhaul;
5. the Specific Fuel Oil Consumption (SFOC);
6. the Specific Lubricating Oil Consumption (SLOC); and
7. the OEM Recommended Lub Oil Changes

The Bidder must complete the following evaluation Tables using validated and certified technical parameters which must match the OEM technical documentation in accordance with Annex A.

Any activity required to be done in order to achieve a listed objective and that is not appearing in the following Tables must be listed and estimated by the Bidder into the most appropriate Table.

For the evaluation purpose only, the Bidder must consider that it will supply the entire management, supervision, technical support, production and services work force, spare parts, material, equipment's, tools etc. required to accomplish all activities related to the achievement of all Life Cycle items. In its estimate, the bidder must not consider that any activity will be partially or entirely assumed by Canada.

Operational Profile for the Life Cycle Cost Evaluation

The proposed Genset Life Cycle evaluation must be based on a total yearly engine running time of **2,000 hours per Genset** distributed in accordance with the following profile:

Operation Mode	% Time	% Load	Diesel Alternators
Transit	50	85	2

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Table 1 OEM Recommended Maintenance for the first (1st) Ten (10) Years

Year #	OEM Recommended Maintenance Description	Level of Effort (hrs) for one (1) Genset
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
TOTAL LEVEL OF EFFORT FOR THE MAINTENANCE OF 1 GENSET		
Total Level of effort of ten (10) Years OEM Recommended Maintenance for two (2) Gensets		X 2 Gensets

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Table 2 OEM Recommended Spare Parts List for three (3) Years

This list of OEM recommended on-board voyage Spare Parts and components for the Gensets must match the Contractor's OEM recommended maintenance documentation provided, and must be based on the recommendations as found in Lloyd's Registry of Shipping document "*Guidance on Spare Gear.*"

The following items must be based on the continuous operation of 1 Genset, and the quantity offered must be able to meet the first **3 years** of the OEM recommended maintenance schedule. This must include all Special tools and associated items necessary to carry out maintenance and install these replacement parts.

All items listed will be considered available for a minimum of ten 10 years.

Item #	Product Name or Description	Name of the Manufacturer	Model/Part Number	Unit of Measure (Each / Lot) (if applicable)	Quantity per Unit (if applicable)	Number of Units (for 3 years)

** This list must match the costed list provided in Annex C.*

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Table 3 Transport Canada Marine Safety (TCMS) 5-Years Inspections

ABS Inspection Period	TCMS 5-Years Inspections Description	Level of Effort (hrs) for one (1) Genset
1		
1		
1		
1		
2		
2		
2		
2		
TOTAL LEVEL OF EFFORT FOR TWO (2) TCMS 5-YEARS INSPECTIONS		X 2 Gensets
Total Level of Effort for two (2) TCMS five (5)-years Inspections for two (2) Gensets		

Table 4 Major Overhaul

Activity #	First Major Overhaul Activity Description	Level of Effort (hrs) for one (1) Genset
TOTAL LEVEL OF EFFORT FOR THE FIRST MAJOR OVERHAUL FOR ONE (1) GENSET		
Total Level of Effort for the First (1st) Major Overhaul for two (2) Gensets		X 2 Gensets

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Table 5 Fuel Operating Consumption over the Extended Life

Mode	Operation	% of Annual Operation (A)	% Engine Load (B)	Fuel Consumption in g/kWh (C)	Total kW Rating (D)	Total Operating Hours/year (E)	Density of Fuel in g/ml (DOF):	Litres of Fuel/year for each Engine (F) $A \times B \times C \times D \times E \div DOF \div 1000$
1	Transit	0	0		0	2000	0.83	
Total Level of effort for the Operational Fuel Oil Consumption for one (1) Genset for one (1) year								
X 2 Gensets								
Total Level of effort for the Operational Fuel Oil Consumption for two (2) Gensets for one (1) year								
X 10 Years								
Total Level of effort for the Operational Fuel Oil Consumption for two (2) Gensets for ten (10) years								

Table 6 Lube Oil Operating Consumption for the Extended Life

Mode	Operation	% of Annual Operation (A)	% Engine Load (B)	Fuel Consumption in g/kWh (C)	Total kW Rating (D)	Total Operating Hours/year (E)	Liters of Tube Oil/year for each Engine (F) $A \times B \times C \times D \times E \div 1000$	Density of Lube Oil in g/ml (DOL):
1	Transit	0	0		0	2000		0.88
Total Operational Lub Oil Consumption for one (1) Genset for one (1) year								
Total Evaluation Price of the Operational Lub Oil Consumption for two (2) Gensets for one (1) year								X 2 Gensets
Total Evaluation Price of the Operational Lub Oil Consumption for two (2) Gensets for ten (10) years								X 10 Years

Table 7 Lube Oil Engine Sump Changes over the Extended Life

Mode	Operation	OEM RECOMMENDED LUBE OIL TYPE / GRADE	No. of changes per year (per Engine)	Engine Oil Sump Capacity in Liters
1	Transit			
Total OEM recommended No. of Lub Oil changes for one (1) Genset for one (1) year				\$ _____ X 2 Gensets
Total OEM recommended No. of Lub Oil changes for two (2) Gensets for one (1) year				\$ _____ X 10 Years
Total OEM recommended No. of Lub Oil changes for two (2) Gensets for ten (10) years				\$ _____

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ATTACHMENT 3 – PART 2 – POINT RATED TECHNICAL CRITERIA

Each bid meeting all of the mandatory technical criteria will be evaluated in accordance with the following point rated evaluation criteria.

To be declared technically compliant, the bid must achieve a Performance Score equal to or greater than 52.5 out of 70 available points in the point rated technical evaluation. The Bidder will be evaluated on the clarity and accuracy of the content of its proposal. The proposal should be well structured and easy to understand.

Bidders are requested to cross reference the point rated technical criteria with the applicable section of their Proposal.

Item #	Point Rated Requirements			
R1	Maintenance			
<p>Based on the manufacturers (OEM) recommended maintenance schedule provided in Mandatory criteria M2, Bidder should detail the maintenance activities to be performed at regular, scheduled time intervals based on Class requirements. As a minimum the maintenance schedule should address the intervals described in Annex A, section 9.0</p> <p>The Schedule should be organized for a preventive maintenance management (PMM) program. A thorough breakdown and explanation of the hourly maintenance requirements must be provided.</p>	<p>Excellent</p> <p>Bidder provided a Maintenance Schedule based on the manufacturers (OEM) recommended maintenance requirements for all major components of the Gensets, including detailed information on the Gensets regular maintenance activities to be conducted on a daily basis.</p> <p>Bidder included structured hourly intervals with regards to the</p>	<p>Good</p> <p>Bidder provided a clear description of maintenance for all major components of the Gensets, including a Maintenance Schedule and a list of activities to be conducted on a daily basis.</p> <p>Bidder included general information broken down by time intervals with regards to the regular maintenance activities of few minor components such as</p>	<p>Marginal</p> <p>Bidder provided some information related to the maintenance for all major components of the Gensets.</p> <p>Bidder provided brief information with regards to the main regular maintenance activities to be conducted related to some major and/or minor components.</p>	<p>Poor</p> <p>Bidder provided limited or no information related to the maintenance for all major components of the Gensets.</p> <p>Bidder provided limited or no information with regards to regular maintenance activities to be conducted related to the Gensets components.</p>

	inspections, overhauls and renew of all minor components such as fuel injectors, valve clearances, filters, and pumps as well as all major components such as main bearings, cylinder heads, pistons, and turbocharger.	fuel injectors, valve clearances, filters, and pumps as well as few major components such as main bearings, cylinder heads, pistons, and turbocharger.		
Score				
Bid Reference and Comments				
R2	Experience			
	Based on the project examples provided in Mandatory criteria M3, Bidder should demonstrate the level of their experience on at least 3 recent procurement contracting projects with supply, delivery, oversee the installation and commissioning of OEM Gensets that had similar requirements aboard Marine vessels that entered into service within the last 7 years where proven technologies were implemented.			
	Bidder should provide information on the projects timeframe, and the examples should clearly demonstrate that on-site support aboard Marine vessels was provided by their OEM FSR technicians, and describe what category of support was performed (training, repairs, overhaul, maintenance, etc.).			
	Bidder must provide the names of clients / representatives and their contact details to validate the information for each project presented.			
Evaluation guidelines	Excellent Bidder has provided detailed information on their experience on 3 projects or more with supply, delivery, oversee the installation and commissioning of OEM Gensets that had similar technical requirements aboard Marine vessels that entered into service within the last 5 years, including: - the names of vessels;	Good Bidder has provided general information on their experience on 3 projects with supply, delivery, oversee installation and commissioning of OEM Gensets that had similar technical requirements aboard Marine vessels that entered into service within the last 7 years, including:	Marginal Bidder has provided a summary of their experience with supply, delivery, oversee installation and commissioning of OEM Gensets that had similar technical requirements on Marine vessels within the last 7 years, including: - brief summary of the project with limited information on the	Poor Bidder provided limited or no information to demonstrate any proven technologies and their experience with supply, delivery, oversee installation and commissioning of OEM Gensets that had similar technical requirements on Marine vessels within the last 7 years.

	<p>- the projects location; - the start date and the 100% completion date; - the project detailed timeframe; - detailed description of the equipment that was installed and the general operating conditions under which the equipment would be used; - detailed description of their roles and responsibilities with regard to installation and commissioning of Gensets. Bidder has provided a detailed description of the on-site support that was performed by their OEM FSRs for each project, including a list of activities for each category of support that was required, the location where it has been performed, the number of resource involved and the delay of response following a service call. Bidder has provided the names, the titles, the phone numbers and email addresses of clients / representatives to validate the information for each project presented.</p>	<p>- general information on the vessels location and timeframe of the projects; - general description of the equipment that was installed; - general description of their roles and responsibilities with regard to oversee installation and commissioning of Gensets. Bidder has provided a general description of the on-site support that was performed by their OEM FSRs for each project, including the categories of support that was required, the location where it has been performed, the number of resource involved and the delay of response following a service call. Bidder has provided the names and titles of clients / representatives and their contact details to validate the information for each project presented.</p>	<p>timeframe and on the equipment that was installed; - brief summary of their roles and responsibilities with regard to oversee installation and commissioning of Gensets. Bidder indicates that it has provided OEM FSRs to perform on-site support for each project presented, and indicates at least 1 category of support that was required without any additional details. Bidder has provided the names and contact information of clients / representatives to validate the information for each project presented.</p>	<p>Bidder provided limited or no information to demonstrate that it has provided OEM FSRs to perform on-site support for each project, and limited or no information on the category of support that was required. Bidder has provided limited or no contact information of clients / representatives to validate the information for each project presented.</p>
Score				

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Bid Reference and Comments				
R3	Field Service Representatives (FSR) and Supportability			
Based on the response plan provided in Mandatory criteria M4, Bidder should clearly present its technical approach and methodology to demonstrate that it has or will have OEM FSRs qualified technicians that will be available to provide on-site support at the two (2) vessels homeports as detailed in the TSOR within 24 hours following service calls, for the warranty period as defined in the Contract. The technical approach and methodology should be coherent, relevant, complete and realistic.				
The response plan should demonstrate that the Bidder has or will have the capability to provide a single toll-free phone number with service available in English, and that it will be available to respond 24 hours, 7 days a week, for the warranty period as defined in the Contract.				
Evaluation guidelines	Excellent	Good	Marginal	Poor
Bidder has provided a detailed response plan that clearly describes its approach to supportability, including the location of OEM FSRs and their ability to be on-site at any one of the two vessels homeports within 24 hours following service calls.	Bidder has provided a clear response plan that briefly describes its approach to supportability, including the OEM FSRs ability to be on-site at any one of the two vessels homeports within 24 hours following service calls.	Bidder provided a brief summary of their approach to supportability and indicates that their FSRs can be onsite within 24 hours without any additional details.	Bidder provided a brief summary of their approach to supportability and indicates that their FSRs can be onsite within 24 hours without any additional details.	Bidder provided limited or no information of their approach to supportability and indicates that their OEM FSRs can be on-site within 24 hours without any additional details.
Bidder has provided contact information of a staffed toll-free phone line available to respond 24/7 to service calls.	Bidder has provided contact information of a staffed toll-free phone line available to respond 24/7 to service calls.	Bidder indicates that it is prepared to respond to service calls 24/7 with no additional details or provides no information on the phone line.		
Score				
Bid Reference and Comments				

R4	Life Cycle Analysis			
<p>Based on the Life Cycle Analysis provided in Mandatory criteria in M5, Bidder should demonstrate the sustainability, the reliability and the level of support required to ensure the optimal maintenance and operation of the proposed type and model of Gensets.</p> <p>Bidder should provide accurate, coherent, complete and realistic information that defines both the fuel and non-fuel operating consumption, the expected Level of effort for maintenance, repair and overhaul required to support the expected operational lifespan of the Gensets.</p> <p>Bidder must include in this analysis a list of OEM recommended on-board voyage spare parts to be delivered as part of the initial purchase of Gensets by Canada and to demonstrate that spare parts are readily available and can be quickly shipped to the 2 homeports, directly from the original manufacturers or through authorized suppliers. The list should meet the expected maintenance requirements for 3 years of continuous operation, and must be based on the OEM recommended maintenance documentation provided, and the recommendations as found Lloyd's Registry of Shipping document "Guidance on Spare Gear."</p> <p>Evaluation guidelines</p>	<p>Excellent</p> <p>Bidder has provided a detailed Life Cycle Analysis that clearly describes each of the recommended maintenance and operation activities broken down by year based on the proposed Gensets model's OEM documentation.</p> <p>Bidder has provided a level of details that clearly describes the extend of each listed activities including the level of effort, material, parts and consumables required, as well as detailed information related to which parts and components of the Gensets are involved.</p>	<p>Good</p> <p>Bidder has provided a clear Life Cycle Analysis that briefly describes the recommended maintenance and operation activities broken down by year based on the proposed Gensets model's OEM documentation.</p> <p>Bidder has provided information to describe the extend of each listed activities including the level of effort, material, parts and consumables required, as well as some information related to which parts and components of the Gensets are involved.</p>	<p>Marginal</p> <p>Bidder has provided a brief summary of a Life Cycle Analysis that describes the recommended maintenance and operation activities for the proposed Gensets.</p> <p>Bidder has provided some information to describe the estimated level of effort, material, parts and consumables required to perform the activities, without any additional details.</p>	<p>Poor</p> <p>Bidder provided limited or no information on the recommended maintenance and operation activities for their proposed Gensets in the Life Cycle Analysis.</p> <p>Bidder provided limited or no information to describe the estimated level of effort, material, parts and consumables required to perform the activities</p>

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Score			
Bid Reference and Comments			

The rated criteria are summarized in the following table:

RATED EVALUATION CRITERIA	MIN	MAX
R1	0	20
R2	0	20
R3	0	20
R4	0	10
TOTAL	0	70

ATTACHMENT 4 – FINANCIAL EVALUATION

The Bidder must submit their financial bid in accordance with Section II: Financial Bid, of Part 3 – Bid Preparation Instructions.

All cells provided for rates or prices in the Tables below must be properly filled in. All amounts must encompass all costs related to the Contract, for the initial contract period, as defined in the Contract, and must meet all the technical requirements in accordance with the **Annex A – Technical Statement of Requirement**.

The prices must be in Canadian dollars and must include all costs associated with packaging, shipping and transportation charges. All Travel and Living expenses must be included into each item listed in the following Tables.

The sum of the Sub-totals shown in the Tables below will constitute the basis of the financial evaluation.

A. Initial Requirement – Firm Prices for the CCGS Earl Grey

Diesel Generator Sets				
Item	Description	Firm Unit Price (For 1 Genset)	Quantity	Extended Price (Number of Units X Firm Unit Price)
1	Complete assembled Genset including all associated equipment along with control systems, special tools and accessories required for its operation. The prices includes the OEM FSR travel and living expenses to be present at the delivery address to overview the inspection of the Gensets at time of delivery.	\$ _____	2	\$ _____
Software				
2	All required Genset controllers, governor, AVR Software, Firmware, Program, Licenses, communication leads, and software dongles required for the maintenance and overhauling of the Gensets.	\$ _____	2	\$ _____
OEM Recommended On-board Voyage spare parts for 3 years				
3	Cost of defined, on-board voyage spare parts supplied with the initial purchase of the Gensets – <u>Total Cost of Annex C</u>	\$ _____	2	\$ _____
Extended Warranty				
4	Extended warranty of 36 months after acceptance of the equipment commissioning including tests and trials, or 60 months after acceptance of the equipment delivery, whichever comes first, or the length of the Contractor's or manufacturer's standard warranty period, whichever is longer.	\$ _____	2	\$ _____
Sub-total (A)				\$ _____

B. Optional Requirement – Firm Prices for the CCGS Risley

Diesel Generator Sets				
Item	Description	Firm Unit Price (For 1 Genset)	Quantity	Extended Price (Number of Units X Firm Unit Price)
1	Complete assembled Genset including all associated equipment along with control systems, special tools and accessories required for its operation. The prices includes the OEM FSR travel and living expenses to be present at the delivery address to overview the inspection of the Gensets at time of delivery.	\$ _____	2	\$ _____
Software				
2	All required Genset controllers, governor, AVR Software, Firmware, Program, Licenses, communication leads, and software dongles required for the maintenance and overhauling of the Gensets.	\$ _____	2	\$ _____
OEM Recommended On-board voyage spare parts for 3 years				
3	Cost of defined, on-board voyage spare parts supplied with the initial purchase of the Gensets – <u>Total Cost of Annex C</u>	\$ _____	2	\$ _____
Extended Warranty				
4	Extended warranty of 36 months after acceptance of the equipment commissioning including tests and trials, or 60 months after acceptance of the equipment delivery, whichever comes first, or the length of the Contractor's or manufacturer's standard warranty period, whichever is longer.	\$ _____	2	\$ _____
Sub-total (B)				\$ _____

* The Prices for the optional purchase of additional Gensets must be the Bidder's Selling Prices for the Year One of the Contract
 **Year One is from Contract Award to 12 months later.

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The estimates of levels of effort and spending amounts shown in the Tables (C) and (D) below are only estimations made in good faith for the financial evaluation purpose only and are not to be considered in any way as commitment from Canada.

C. On-site Support - Hourly Labour Rate

OEM FSR On-site Support			
<p>OEM FSR labour rate shall be a blended rate of all classes of labour and inclusive of all fringe benefits, overhead and profit.</p> <p>The labour rate must include all travel and living expenses to the Vessel home port in accordance with the Initial Requirement of the Contract.</p> <p>Prices are per <u>two (2) Gensets</u></p>			
Description			
<p>OEM FSR technicians must have the ability to perform on-site services that may include but is not limited to:</p> <ul style="list-style-type: none"> • Oversee commissioning/Testing of the units; • Crew training regarding Genset operation, maintenance and troubleshooting; • Technical oversight for unit overhauls; • Normal inspections; • Repairs. 			
* Year #	Hourly Rate	** Quantity (hours)	Extended Price (Number of Units X Firm Unit Price)
1	\$ _____	250	\$ _____
Sub-total (C)			\$ _____

** Year One is from Contract Award to 12 months later.*

*** Canada may require that the Bidder provide proof of invoicing of recent similar project.*

**** 250 hours is used for evaluation purpose only and in no way represent commitment by Canada.*

D. Life Cycle Cost

The Bidder must quote on a Life Cycle Cost for the type and model of the proposed Gensets.

This analysis must match the Life Cycle Analysis provided in **Appendix 2 to Attachment 3 – Part 1**, and must define both the fuel and non-fuel operating costs, the expected maintenance and repair costs, including spares costs required to support the expected operational lifespan of ten (10) years.

The term "cost(s)" means the costs for Canada, to acquire at the time of bid closing:

- a) all parts, material and components, consumables, required to do the work. That cost must be the bidder's selling price;
- b) all the labour required to do the work. That cost must be the bidder's estimated Level of Effort multiplied by the estimated labour rate provided for evaluation purpose only. The proposed estimated Labour Rate is not representative of the industry average rates as it includes associated Government of Canada fees;
- c) all the Travel and Living expenses required to execute the work.

The following prices must encompass all costs related to each activity applicable and related to each Life Cycle Cost requested to be evaluated. Any activity required to be done in order to achieve a listed objective and that is not appearing in the following Tables must be listed and estimated by the Bidder into the most appropriate Table.

For evaluation purpose only, the bidder must consider that it will supply the entire management, supervision, technical support, production and services work force, spare parts, material, equipment's, tools etc. required to accomplish all activities related to the achievement of all Life Cycle Cost items. In its estimate, the bidder must not consider that any costs will be partially or entirely assumed by Canada.

Operational Profile for the Life Cycle Cost Evaluation

The proposed Gensets Life Cycle Cost evaluation must be based on a total yearly engine running time of 2,000 hours per Genset distributed in accordance with the following profile:

Operation Mode	% Time	% Load	Diesel Alternators
Transit	50	85	2

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Table 1 Cost of the OEM Recommended Maintenance for the first (1st) Ten (10) Years

Year #	OEM Recommended Maintenance Description	Level of Effort (hrs)	Hourly Rate (\$/hr)	Spare Parts, Material, Equipment, Tools, Travel and Living TOTAL COSTS (\$)	COST (\$) of the OEM Recommended Maintenance for one (1) Genset
1			\$ 150	\$ _____	\$ _____
2			\$ 150	\$ _____	\$ _____
3			\$ 150	\$ _____	\$ _____
4			\$ 150	\$ _____	\$ _____
5			\$ 150	\$ _____	\$ _____
6			\$ 150	\$ _____	\$ _____
7			\$ 150	\$ _____	\$ _____
8			\$ 150	\$ _____	\$ _____
9			\$ 150	\$ _____	\$ _____
10			\$ 150	\$ _____	\$ _____
TOTAL COST OF 10 YEARS OEM RECOMMENDED MAINTENANCE FOR 1 GENSET					\$ _____
Total Evaluation Cost of ten (10) Years OEM Recommended Maintenance for two (2) Gensets					X 2 Gensets \$ _____

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Table 2 Cost of Transport Canada Marine Safety (TCMS) 5-Years Inspections

ABS Inspection Period	TCMS 5-Years Inspections Description	Level of Effort (hrs)	Hourly Rate (\$/hr)	Spare Parts, Material, Equipment, Tools, Travel and Living TOTAL COSTS (\$)	COST (\$) of Each TCMS 5-Years Inspections for one (1) Genset
1			\$ 150	\$ _____	\$ _____
1			\$ 150	\$ _____	\$ _____
1			\$ 150	\$ _____	\$ _____
1			\$ 150	\$ _____	\$ _____
2			\$ 150	\$ _____	\$ _____
2			\$ 150	\$ _____	\$ _____
2			\$ 150	\$ _____	\$ _____
2			\$ 150	\$ _____	\$ _____
COST OF TCMS 5-YEARS INSPECTIONS (Total for INSPECTION 1 and INSPECTION 2) FOR 1 GENSET					\$ _____
Table 2 Total Evaluation Cost of two (2) TCMS five (5)-years Inspections for two (2) Gensets					X 2 Gensets
					\$ _____

Table 3 Cost of the first Major Overhaul

Activity #	First Major Overhaul Activity Description	Level of Effort (hrs)	Hourly Rate (\$/hr)	Spare Parts, Material, Equipment, Tools TOTAL COSTS (\$)	COST (\$) of Activity for one (1) Genset
			\$ 150	\$ _____	\$ _____
			\$ 150	\$ _____	\$ _____
			\$ 150	\$ _____	\$ _____
			\$ 150	\$ _____	\$ _____
TOTAL COST OF THE FIRST MAJOR OVERHAUL FOR ONE (1) GENSET					\$ _____
Table 3 Total Evaluation Cost of the First (1st) Major Overhaul for two (2) Gensets					X 2 Gensets
					\$ _____

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Table 4 Fuel Operating Costs over the Extended Life

						Density of Fuel in g/ml (DOF):	0.83	
						COST OF FUEL per Liter (COF):	\$ 1.00	
Mode	Operation	% of Annual Operation (A)	% Engine Load (B)	Fuel Consumption in g/kWh (C)	Total kW Rating (D)	Total Operating Hours/year (E)	Litres of Fuel/year for each Engine (F) $A \times B \times C \times D \times E \div DOF \div 1000$	TOTAL \$ for FUEL/yr for each Engine (G) $G = F \times COF \text{ \$/L}$
1	Transit	50	85			2000		\$ _____
						Total Operational Fuel Oil Costs for one (1) Genset for one (1) year		\$ _____
						Total Evaluation Price of the Operational Fuel Oil Consumption for two (2) Gensets for one (1) year		\$ _____
						Total Evaluation Price of the Operational Fuel Oil Consumption for two (2) Gensets for ten (10) years		\$ _____

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Table 5 Lube Oil Operating Costs for the Extended Life (per consumption)

		Density of Lube Oil in g/ml (DOL):				0.88		
		COST OF LUBE OIL per Liter (COL):				\$ 4,60		
Mode	Operation	% of Annual Operation (A)	% Engine Load (B)	Fuel Consumption in g/kWh (C)	Total kW Rating (D)	Total Operating Hours/year (E)	Liters of Tube Oil/year for each Engine (F) $A \times B \times C \times D \times E \div 1000$	TOTAL \$ for TUBE OIL /yr for each Engine (G) $G = F \times COF \text{ \$/L}$
1	Transit	50	85			2000		\$ _____
Total Operational Lub Oil Costs for one (1) Genset for one (1) year								\$ _____
Total Evaluation Price of the Operational Lub Oil Costs for two (2) Gensets for one (1) year								\$ _____
Total Evaluation Price of the Operational Lub Oil Costs for two (2) Gensets for ten (10) years								\$ _____

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Table 6 Lube Oil Engine Sump Changes over the Extended Life

The Bidder must estimate the projected Lub Oil Change costs for the first ten (10) years of operation based on the recommended Lub Oil Change for the operation profile of section 1. above and a Lub Oil cost of \$4.60 / liter.

No. of changes per year (per Engine) (A)	Engine Oil Sump Capacity in Liters (B)	OEM RECOMMENDED LUBE OIL TYPE / GRADE	LUBE OIL COST \$/ LITRE at bid closing date (C)	TOTAL COSTS D = A x B x C
			\$ _____	\$ _____
Total OEM recommended Lub Oil changes Costs for one (1) Genset for one (1) year				
Total OEM recommended Lub Oil changes Costs for two (2) Gensets for one (1) year				
Total Evaluation Price of the OEM recommended Lub Oil changes for two (2) Gensets for ten (10) years				
Table 6			\$ _____	\$ _____

Sub-total (D) Summation of the above Tables totals 1+2+3+4+5+6 \$ _____

E. Total Evaluated Price of the Bid

Sub-Total	Description	Price
(A)	Initial Requirement – Two (2) Gensets on the CCGS Earl Grey	\$ _____
(B)	Optional Requirement – Two (2) Gensets on the CCGS Risley	\$ _____
(C)	On-site Support - Hourly Labour Rate	\$ _____
(D)	Life Cycle Cost	\$ _____
Total Evaluated Price = Sub-total (A) + Sub-total (B) + Sub-total (C) + Sub-total (D)		\$ _____

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ATTACHMENT 5 - OEM CERTIFICATION

OEM Certification Form	
This confirms that the original equipment manufacturer (OEM) identified below has authorized the Bidder named below to provide and maintain its products under any contract resulting from the bid solicitation identified below.	
Name of OEM	_____
Signature of authorized signatory of OEM	_____
Print Name of authorized signatory of OEM	_____
Print Title of authorized signatory of OEM	_____
Address for authorized signatory of OEM	_____
Telephone no. for authorized signatory of OEM	_____
Fax no. for authorized signatory of OEM	_____
Date signed	_____
Solicitation Number	_____
Name of Bidder	_____

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ATTACHMENT 6 - FEDERAL CONTRACTORS PROGRAM FOR EMPLOYMENT EQUITY

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 permanent full-time and/or permanent part-time employees.

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

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ATTACHMENT 7 – COVID-19 VACCINATION REQUIREMENT CERTIFICATION

I, _____ (first and last name), as the representative of
_____ (name of business) pursuant to
_____ (insert solicitation number), warrant and certify that all personnel of
_____ (name of business) that will provide on the resulting Contract who access

federal government workplaces where they may come into contact with public servants will be:

- a. fully vaccinated against COVID-19;
- b. for personnel that are unable to be vaccinated due to a certified medical contraindication, religion or other prohibited grounds of discrimination under the *Canadian Human Rights Act*, subject to accommodation and mitigation measures that have been presented to and approved by Canada; or
- c. partially vaccinated against COVID-19 for a period of up to 10 weeks from the date of their first dose and subject to temporary measures that have been presented to and approved by Canada, immediately after which period the personnel will meet the conditions of (a) or (b) or will no longer access federal government workplaces where they may come into contact with public servants under this Contract;

until such time that Canada indicates that the vaccination requirements of the COVID-19 Vaccination Policy for Supplier Personnel are no longer in effect.

I certify that all personnel provided by _____ (*name of business*) have been notified of the vaccination requirements of the Government of Canada's COVID-19 Vaccination Policy for Supplier Personnel, and that the _____ (*name of business*) has certified to their compliance with this requirement.

I certify that the information provided is true as of the date indicated below and will continue to be true for the duration of the Contract. I understand that the certifications provided to Canada are subject to verification at all times. I also understand that Canada will declare a contractor in default, if a certification is found to be untrue, whether made knowingly or unknowingly, during the bid or contract period. Canada reserves the right to ask for additional information to verify the certifications. Failure to comply with any request or requirement imposed by Canada will constitute a default under the Contract.

Signature: _____

Date: _____

Optional: _____

For data purposes only, initial below if your business already has its own mandatory vaccination policy or requirements for employees in place. Initialing below **is not** a substitute for completing the mandatory certification above.

Initials: _____

Information you provide on this Certification Form and in accordance with the Government of Canada's COVID-19 Vaccination Policy for Supplier Personnel will be protected, used, stored and disclosed in accordance with the *Privacy Act*. Please note that you have a right to access and correct any information on your file, and you have a right to file a complaint with the Office of the Privacy Commissioner regarding the handling of your personal information. These rights also apply to all individuals who are deemed to be personnel for the purpose for the Contract and who require access to federal government workplaces where they may come into contact with public servants.

TECHNICAL STATEMENT OF REQUIREMENTS

THE SUPPLY OF DIESEL SHIP SERVICE GENERATOR SETS
FOR THE CANADIAN COAST GUARD VESSEL
EARL GREY

March 2022



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TECHNICAL STATEMENT OF REQUIREMENTS SHIP SERVICE GENERATOR SUPPLY

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TECHNICAL STATEMENT OF REQUIREMENTS

SHIP SERVICE GENERATOR SUPPLY

1.0 SCOPE

1.1 Intent

- 1.1.1 The Canadian Coast Guard has a requirement to procure two (2) marine, diesel powered ship service generator packages (Gensets) along with control systems and accessories required for their operation.
- 1.1.2 The objective is to replace the two (2) existing Volvo Penta D16C-A-MG ship service generator sets, currently found aboard CCGS Earl Grey (the Vessel), with two (2) new complete generator sets.
- 1.1.3 The Contractor must also provide pricing for the potential future supply of two (2) additional, identical units for the CCGS Risley, the sister ship of the CCGS Earl Grey. This future optional procurement for the CCGS Risley, if exercised, will be an identical supply contract to that of the Earl Grey, unless otherwise noted in this document. Therefore, all required deliverables and requirements detailed in this Specification for the CCGS Earl Grey supplied Gensets must also be applicable for the future CCGS Risley Gensets and all associated costs must be included in the Contractor's pricing.
- 1.1.4 The Contractor must provide OEM certified, on-board voyage spares for 3 years with the delivery of the new Gensets, complete with part/component lists, and must have the ability to provide OEM Field Service Representative (FSR) installation support, technical support, assistance and training through confirmed North American service to the Coast Guard's Operations. The date and location of the installation and technical support is yet to be determined.
- 1.1.5 This Technical Statement of Requirements (TSOR) provides the specifications for the design, materials, fabrication, inspection, testing, documentation, certification and the preparation for shipment of the new Gensets.

1.2 Background Information

- 1.2.1 CCGS Earl Grey is a medium endurance multi-tasked vessel in the Canadian Coast Guard. Constructed in 1986, the Vessel serves a variety of roles, including light ice-breaking and buoy tending, as well as being strengthened for navigation in ice to perform tasking along the shores off the Atlantic coast of Canada.
- 1.2.2 The Vessel's home port is located on Dartmouth Nova Scotia and is currently equipped with two (2) shaft generators, two (2) Volvo Penta D16C-A-MG Auxiliary Gensets and one (1) Caterpillar 3306 Emergency Genset.

1.3 List of Acronyms

- 1.3.1 The following is a list of the acronyms used within this document:

TECHNICAL STATEMENT OF REQUIREMENTS SHIP SERVICE GENERATOR SUPPLY

Acronym	Description
°C	degree Celsius
A	Ampere
ABS	American Bureau of Shipping
AC	Alternating Current
AVR	Automatic Voltage Regulation
BKW	Brake Kilowatt
BMEP	Brake Mean Effective Pressure
BTU	British Thermal Unit
CCG	Canadian Coast Guard
CFM	Cubic Feet per Minute
CSA	Canada Shipping Act
dBa	Decibel A-weighting
DC	Direct Current
ECM	Electronic Control
FAT	Factory Acceptance Test
FPM	Feet per Minute
FSR	Field Service Representative
g	Gram
HP	Horsepower
Hr.	Hour
Hz	Hertz
IMO	International Maritime Organization
ISO	International Organization for Standardization
ITP	Installation Test Plan
kVA	Kilo Volt Ampere
kVAr	Kilo Volt Ampere reactive
kW	Kilowatt
ekW	Electric Kilo Watt
kWh	Kilowatt hour
LCCA	Life Cycle Cost Analysis
LED	Light-emitting diode
m	Meter
mA	Milli-Ampere
mm	Millimeter
mm ²	square millimeter
MTRB	Marine Technical Review Board
OEM	Original Equipment Manufacturer
PF	power factor
PLC	Programmable Logic Control
ppm	parts per million
RMS	Root Mean Square
rpm	Revolutions per minute
SAT	Site Acceptance Test
TCMSS	Transport Canada Marine Safety and Security
TSOR	Technical Statement of Requirements
V	Volt
VA	Volt Ampere
VAr	Volt Ampere reactive
W	Watt
Ω	Ohm

TECHNICAL STATEMENT OF REQUIREMENTS

SHIP SERVICE GENERATOR SUPPLY

2.0 REFERENCES

2.1 General

- 2.1.1 The CCGS Earl Grey is currently delegated to the American Bureau of Shipping (ABS) in accordance with the Transport Canada Marine Safety and Security (TCMSS) Delegated Statutory Inspection Program, (DSIP). The Vessel is certified for 'Unlimited - beyond 2000 nautical miles in accordance with the Canada Shipping Act 2001 and the Safety Convention as per the Regulations, Standards and Codes referenced therein. Inspection requirements of the generator set must be in accordance with the Canada Shipping Act 2001 and must be carried out by the designated Class (ABS) as required.
- 2.1.2 All of the Technical Specifications stated within this TSOR are subject to Class approval and inspection and must meet all Class imposed requirements.
- 2.1.3 Throughout this TSOR, the term "ABS" will be referred to as "Class" with regards to all approval and inspection requirements

2.2 Existing Equipment

- 2.2.1 The following is the description of the existing Genset units that are to be replaced:

DIESEL ENGINE (x2)

Manufacturer: AB VOLVO PENTA
Model No. D16C-A MG
Power Rating: 500 kW (670 BHP)
Speed: 1800 RPM
No. of Cylinders: 6
Cylinder Dia. 144 mm
Stroke: 165 mm
Arrangement: In-line

AC ALTERNATOR (X2)

Manufacturer: STAMFORD
Model No.: HCM534D2
kVA: 531 kVA
Rated Power: 425 kW, Continuous
Power Factor: 0.8
Voltage: 600/346
Phase: 3
Frequency: 60 hz
Amperage: 511
Speed: 1800 rpm
Insulation: Class "H"

Note: As the existing Genset units are fitted with air intake filters, their power rating is de-rated by 5% to 403.56 kW

2.3 Acts, Regulations, Standards, Rules, Codes and Guidelines (ARSRC&G)

2.3.1 General

- 2.3.1.1 The new Gensets must meet the Acts and Regulations in accordance with the Canada Shipping Act (CSA) 2001 and the designated Classification Society (ABS).
- 2.3.1.2 The SOLAS (Safety of Life at Sea) Convention applies as referenced in the Regulations under the Canada Shipping Act 2001 and as applicable (where otherwise not directly referenced) for a

TECHNICAL STATEMENT OF REQUIREMENTS SHIP SERVICE GENERATOR SUPPLY

government Vessel on non-commercial service.

- 2.3.1.3 The most current, up to date versions of all Publications, Acts, Regulations, Standards, Rules, Codes and Guidelines referenced in the document must be used.

2.4 Regulations Pursuant to the Canada Shipping Act 2001

- 2.4.1 The following table is a list of applicable CSA Regulations that are pertinent to this procurement. The Contractor must ensure that any other CSA Regulations that are required, but not noted herein, are being met.

REF.	REGULATION
A	Vessel Construction and Equipment Regulations (VCER)
B	Marine Machinery Regulations (SOR/90-264)
C	Vessel Pollution and Dangerous Chemicals Regulations (SOR/2012-69)
D	Arctic Shipping Safety and Pollution Prevention Regulations (SOR/2017-286)
E	Vessel Certificates Regulations (SOR/2007-31)
F	Canadian Environmental Protection Act, specifically, the Sulphur in Diesel Fuel Regulations (SOR/2002-254)

- 2.4.2 Any requests for exemptions to CSA 2001 Regulations/IMO Conventions/ IMO Codes are subject to an MTRB decision by TCMSS. Any exemption or equivalency identified or being proposed by the Contractor must be brought to the attention of Canada which may, after consideration, make application for an MTRB to TCMSS through ABS.

2.5 IMO Instruments

- 2.5.1 IMO International Conventions are applicable as referenced in the Regulations under the Canada Shipping Act 2001, which may include Canadian specific requirements.
- 2.5.2 Any document such as Resolutions, Circulars, Guidelines, recommendations, or requirements adopted by IMO or set out in an IMO instrument referred to in a footnote to a document referenced in the Regulations will be considered mandatory.
- 2.5.3 Principal IMO Codes, Resolutions, Circulars, Guidelines and Recommendations are listed below for guidance:

REF.	IMO INSTRUMENT
A	NOx Technical Code (2008) - Technical Code on Control of Emission of Nitrogen Oxides from Marine Diesel Engines

TECHNICAL STATEMENT OF REQUIREMENTS SHIP SERVICE GENERATOR SUPPLY

2.6 TCMSS Technical Publications (TP)

Note: Technical Publications (TP's) referenced in part or their entirety within a Regulation are considered as a mandatory requirement under the Regulation.

REF.	TCMSS TECHNICAL PUBLICATIONS (TP)
A	TP 127 Ships Electrical Standards
B	TP 3231 – Ship Safety Bulletins

2.7 American Bureau of Shipping (ABS) Rules and Codes

2.7.1 ABS Rules for Building and Classing Marine Vessels (Marine Vessel Rules), updated January 1, 2020 (ABS, Rules and Codes applicable for each Vessel to be confirmed with ABS). The Vessel is delegated to ABS, but it is not 'in-class.' The proposed Vessel Construction and Equipment Regulations, however, will adopt SOLAS II-1 and accept ABS Rules.

2.8 Electrical Codes and Standards

REF	ELECTRICAL CODES & STANDARDS
A	IEC International Electrotechnical Commission 60092 – Electrical Installations in Ships may be used as referenced in the Regulations, IMO instruments and accepted by ABS.
B	IEC 12207 - Systems and software engineering
C	IEC 2500, 25041 - Systems and software engineering – Systems and software Quality Requirements and Evaluation
D	IEC/ISO 31010 - Risk management – Risk assessment techniques
E	IEC 60034 - Rotating Electrical Machines
F	IEC 60529 – Degrees of Protection Provided by Enclosures
G	IEC 60533 Electrical and Electronic Installations in Ships – Electromagnetic Compatibility
H	IEEE Std 45 Institute of Electrical and Electronic Engineers Recommended Practice for Electrical Installations on Shipboard
I	BSI - BS 4999-32 General Requirements for Rotating Electrical Machines - Part 32 for Class 'H' insulation

2.9 ISO Standards

2.9.1 The ISO standards prescribed below are applicable as referenced in this TSOR or otherwise in the Regulations or Rules.

REF.	ISO STANDARD
A	ISO 2081- Metallic Coatings- Electroplated Coatings of Zinc on Iron or Steel

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REF.	ISO STANDARD
B	ISO 8501-1 - Preparation of steel substrates before application of paints and related products
C	ISO 8861 - Shipbuilding — Engine-room ventilation in diesel-engined ships — Design requirements and basis of calculations
D	ISO 10816-1 - Mechanical vibration -- Evaluation of machine vibration by measurements on non-rotating parts -- Part 1: General guidelines
E	ISO14726 Ships and marine technology — Identification colors for the content of piping systems

2.10 Other Applicable Standards and Codes

2.10.1 The standards prescribed below are applicable as referenced in this TSOR or otherwise in the Regulations or Rules.

REF.	STANDARD
A	ASME Y14.100 - American Society of Mechanical Engineers Y14.100 - 2017 Engineering Drawing Practices - Nov. 14, 2017
B	ASTM F1166 Standard Practice for Human Engineering Design for Marine Systems, Equipment and Facilities as guidance
C	ASTM F683 Standard Practice for Selection and Application of Thermal Insulation for Piping and Machinery
D	CAN/CGSB 3.11- Naval Distillate Fuel
E	CAN/CGSB-3.517 - Diesel Fuel
F	CAN/CGSB-3.520 - Diesel fuel containing low levels of biodiesel (B1–B5)
G	BS 5970:2012 - Code of Practice for Thermal Insulation of Pipework, Ductwork, Associated Equipment in The Temperature Range of -100°C To +870°C

3.0 TECHNICAL REQUIREMENTS

3.1 General Requirements

3.1.1 The purpose of this TSOR is to have the Contractor provide two (2) complete skid mounted, marine rated ships service diesel generator packages (Gensets) of a defined capability, including spare parts, tools, controls, and all accessories as outlined in this TSOR.

3.1.2 The Gensets must be, at a minimum, in current production and be well supported across Canada and specifically in the Atlantic Canadian region (Nova Scotia, Newfoundland & Labrador, New Brunswick and Prince Edward Island - A copy of the CCG Regional Operation map is available upon request).

3.1.3 The Gensets must be marine designed/certified, robust, have proven reliability, and must be rated for continuous use and designed to be supportable both in parts and field service support and

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capable of accomplishing its design parameters for not less than ten (10) years.

3.2 Physical Operating Conditions for Equipment

3.2.1 The Gensets and associated panels must be designed to operate under the following conditions:

- Outside air temperature (Winter): -40 degrees Celsius
- Outside air temperature (Summer): +35 degrees Celsius
- Water temperature (Winter): 0 degrees Celsius
- Water temperature (Summer): +30 degrees Celsius
- Wind Velocity: Up to eighty (80) knots
- Sea State: Six (6)
- Ship inclination of up to thirty-five (35) degrees roll on either side, with a cycle frequency of 10 seconds, and ten (10) degree pitch with a cycle frequency of five (5) seconds and maximum linear acceleration of 1.0 g
- Permanent list of 22.5 degrees either to port or starboard, and permanent trim of ten (10) degrees fore and aft.

3.2.2 All equipment being supplied must also be capable of its intended operation at the following ambient conditions in the engine room:

- 95% relative humidity at temperatures up to fifty (50) degree Celsius (122 °F) for high temperature mechanical working areas
- Sea water temperatures of 30 °C (86 °F)

3.3 Particular Specifications

3.3.1 Each generator must be driven by a dual water-cooled (fresh water/sea water), heavy-duty, marine rated, four cycle, diesel engine.

3.3.2 Each complete Genset must be mounted on a common, skid-type steel base frame. The engines/alternators must be insulated from the frame by suitably rated and oil resistant anti-vibration mounts. The complete Genset skid assemblies must be capable of fitting into a maximum footprint of 3050 mm in length by 1560 mm in width. The Gensets must be a maximum of 1700 mm in height.

3.3.3 Each diesel engine must be provided with an oil evacuation hand pump mounted and connected for draining/filling the engine oil sump.

3.3.4 The engine must be supplied with vertically mounted spin-on duplex oil and duplex fuel filter(s) that can be removed without spilling their related fluids.

3.3.5 During each initial start of the engine, a system must be provided to allow pre-lubrication at low idle speed. When the internal oil pressure reaches a predetermined safe value, the engine speed will then increase to alternator set operating speed.

3.3.6 Each diesel engine must be equipped with duplex fuel filters (primary and secondary

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filters), duplex lube oil filters, heavy-duty lube oil coolers each temperature controlled by a thermostat valve, fuel transfer pump, fuel priming pump, charge-cooler and heavy duty type air filters, service meter, engine driven cooling water pump, and unit mounted instruments.

- 3.3.7 Supply and spill fuel-lines, and all associated fittings, must be included and fitted to be able to allow the return to the Vessel's day-tank. The Fuel system must include a duplex fuel/water separator.
- 3.3.8 Unit mounted instruments must include water temperature gauge, and lubrication oil pressure gauge. The engine must be provided with low oil pressure, high water temperature, and low coolant level and over speed safety shutdowns. Additional instruments and safety shutdowns must be provided as noted in Sections 3.5 and 3.6 of this document.

3.4 Diesel Engine Requirements

3.4.1 General

3.4.1.1 Each Diesel Engine must, as a minimum include;

- a) Diesel engine rated at 1800 rpm, directly coupled to a 600VA, 60 Hz, 3 phase synchronous electrical alternator.
- b) The engines, including turbocharger and coolers, must be fresh water cooled with the jacket water heat exchanger and expansion tank mounted on the engine.
- c) Jacket water cooler, to be cooled by sea water.
- d) Fabricated structural steel base skid for mounting inclusive of all protection systems, control systems to be mounted for permanent mounting on the ship's deck.
- e) Air start system with four-stroke cycle design that is capable of accepting load immediately after starting.
- f) Marine rated dual primary fuel filters, Duplex fuel/water separators and fuel priming pump as noted in 3.3.6 above
- g) Lubrication system capable of utilizing a bulk lubrication oil and containing engine lube oil pumps, oil filter.
- h) A deep marine oil sump with sufficient capacity that, according to the manufacturer's published recommended heavy duty industrial or marine maintenance schedule, will allow for oil change intervals of at least 500 hours. A dipstick or bayonet gauge must be provided for gauging the lubricating oil level while the diesel engine is running under load. Each engine must be fitted with an engine mounted, jacket water cooled, lube oil cooler.
- i) Duplex spin-on disposable cartridge type full flow filters on the discharge side of the engine oil header. The filters must be conveniently located to facilitate oil change. Elements must conform to engine manufacturer's specifications. A relief valve must be provided external to the filter casing. The relief valve must bypass oil around the filter if the filter becomes clogged and provide notification of the same.
- j) A crankcase breather system including a filter and separator must be provided to dissipate, through the engine intake, all engine generated oil fumes.
- k) Local Genset control panel controlling a common rail or unit injection system type and Engine Control Module (ECM) operated. The ECM system must be able to record and provide hourly and total fuel consumption data through the ECM data history for future download.

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- l) The ability to be directly integrated into the Vessel's existing Easy Gen 3500 XT P2 synchronization and control system.
- m) Each complete Genset must be provided with safety guards to protect personnel from moving or rotating parts.

3.4.1.2 The new engines must, as a minimum, meet the Pollution Prevention Regulations under the Canada Shipping Act and IMO MARPOL 73/78 Annex VI. This requirement sets limits for NO_x emissions from marine engines with power outputs more than 130 kW that have either been installed on a ship constructed on or after January 1, 2000, or have had major conversions on or after January 1, 2000, and must meet Tier III Environmental requirements when transmitting its designed BKW at a Maximum Continuous Rating.

3.4.2 Starting System

3.4.2.1 Each engine must be provided and fitted with an on-skid air start system capable of operating at a maximum supply air pressure of twenty-five (25) Bar. Starter motor must be capable of operating either locally or remotely from the local or remote control panel.

3.4.3 Lubrication

3.4.3.1 The lubrication system must comprise an engine driven pump to circulate lubricating oil under pressure. Full flow filters must be provided together with replaceable elements. Lube oil make-up must be automatically monitored and alarmed by the control system. The lubrication system must be provided with alarms and trip sensors for high/low oil levels and temperatures and fitted with a crankcase heater if required.

3.4.4 Engine Cooling

3.4.4.1 The engine cooling system must be capable of adequately cooling the diesel alternator engine when the diesel alternator is delivering full load at the specified maximum sea water temperature. The cooling system must be provided with the following:

- a) Water pumps for jacket water and turbocharger intercooler cooling complete with thermostatic bypasses.
- b) Sea water cooled heat exchanger for jacket water and turbocharger intercooler.
- c) Alarms and trip sensors for high/low coolant levels and temperatures.
- d) All cooling system components must be monitored and alarmed by the control system.
- e) Each engine's dual cooling water system (freshwater and sea water) must be cooled using water coolers constructed for high ambient/engine temperatures. The coolers must be capable of cooling the engine when the diesel alternator set is delivering full rated load at a maximum raw water temperature of 35⁰ C and an ambient air temperature of up to 50°C, in accordance with Section 3.2.

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- f) The engine must be provided with a thermostatic valve placed in the jacket water outlet between the engine and the cooling source. This valve must maintain the proper jacket water temperature under all load conditions.

3.4.5 Exhaust System

- 3.4.5.1 The diesel engine exhaust system must be supplied with a flanged flexible stainless steel thermal expansion bellows at the diesel engine exhaust outlet sized to marry with the existing exhaust ducting. Appended Original Ships Drawing # 218-369-004 - Main Engine, Generator & Boiler Uptakes – must be referenced for sizing requirements. This drawing will be made available on request.

3.4.6 Insulation and Coating

- 3.4.6.1 The Contractor must provide and install thermal insulation on the diesel alternator and supplied auxiliaries where required for the efficiency of the works, to meet statutory requirements and safety of personnel.
- 3.4.6.2 No part of the Genset that can be touched during normal operation must have a surface temperature in excess of 50°C. Insulation materials used must not contain any asbestos or asbestos based products.
- 3.4.6.3 All external, steel/metallic areas of the generator units must be suitably coated with hi-temp, marine grade paint. No lead based coatings may be used.
- 3.4.6.4 All insulation applied to pipe work, machinery, works, and ducting must be clad with aluminum or stainless steel cladding of appropriate thickness and methods of securing as per BS 5970:2012 the Code of Practice for Thermal Insulation of Pipework, Ductwork, Associated Equipment in The Temperature Range Of -100°C To +870°C. (or equivalent North American Standard).
- 3.4.6.5 All insulation must be sufficiently clad to be completely protected. Insulation and cladding must be designed and applied with proper allowance for expansion and contraction.

3.4.7 Diesel Engine Heaters

- 3.4.7.1 Each diesel engine must be equipped with a thermostat controlled coolant immersion heater, to aid engine starting, in cold temperatures. The heater must be automatically switched off when the engine is running.

3.4.8 Governor

- 3.4.8.1 Each diesel engine must be provided with an electronic governor system, to be matched to the easy gen controller, to allow automatic isochronous and droop frequency regulation. The fuel rate must be regulated as a function of starting, accelerating to start, disconnects speed, accelerating to rated speed, and operating in various isochronous or parallel states. The control system must interface directly with the governor.

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3.4.9 Fuel Requirements

- 3.4.9.1 The engine must be designed for continuous operation on Ultra Low Sulfur Diesel (ULSD) fuel (≤ 0.50 % m/m sulfur) and meet, as a minimum, Annex VI of the 2020 International Convention for the Prevention of Pollution from Ships (MARPOL).
- 3.4.9.2 The diesel engines must also be capable of operating continuously on the same diesel fuel requirements of the Vessel's main engines. I.e., Naval Distillate Fuel CGSB-3.11-2017 Type 11, (max. -6°C pour point Apr. 1 – Oct. 31), Type 15 (max. -18°C pour point Nov 1, - Mar. 31) or commercial equivalent.

3.5 Alternator

3.5.1 General

- 3.5.1.1 Each unit must be a synchronous, 600V Δ , 60 Hz, 3 phase electrical alternator with a rated output power from 515 kVa/412 kW to 531 kVa/425 kW, continuous rating. The alternator must be air-cooled, single or dual bearing (depending on size and coupling type), be of a drip proof marine type with a power factor of 0.8 and operate at an overload capability of 10 % for one (1) hour every twelve (12) hours.
- 3.5.1.2 Each alternator must be fitted with thermostatically controlled, anti-condensation heaters. These heater controls must be capable of remote switching and indication.
- 3.5.1.3 The system and must be of a rotating field brushless design and must have an integral rotating exciter with an excitation supply from a permanent magnet alternator or other Class approved method of supply.
- 3.5.1.4 The alternators must be fitted with a stator winding and bearing temperature monitoring system.
- 3.5.1.5 The synchronous alternator must be rated for a nominal continuous output and overload capacity at the specified environmental and operating conditions and must be capable of delivering rated output (kVA) at rated frequency and power factor, at any voltage not more than 5 per cent above or below rated voltage.
- 3.5.1.6 The instantaneous voltage dip must not exceed 20% of rated voltage when full load, at rated power factor, is suddenly applied. Recovery of stable operation must occur within five (5) seconds. Steady state modulation must not exceed +0.5%.

3.5.2 Temperature Rise

- 3.5.2.1 The winding insulation must be Class 'H' to ABS/TP127 approved standards/guidelines. At rated output under the specified operating conditions, the temperature rises for Class 'H' insulated windings must not exceed those specified in ABS/TP127 standards/guidelines for Class 'H' insulation.

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3.5.3 Excitation System

- 3.5.3.1 The exciter must be a fast response type and have a low time constant and large capacity to minimize voltage transients under severe load changes. The voltage regulation performance must be in accordance with Class regulations.
- 3.5.3.2 A permanent magnetic exciter must be provided and must cause the breaker to trip on overload when sustaining short circuit currents of up to 300% for three (3) seconds under the control of the automatic voltage regulator. To prevent possible overheating of the armature windings, appropriate relaying must be supplied to limit faults to under ten seconds.
- 3.5.3.3 The excitation system must incorporate the following features:
 - a) Protection against AVR failures (e.g., over/under excitation combined with over/under voltage).
 - b) Supervised fault detection.
 - c) A brushless excitation design with capability to operate and sync with automatic synchronizing equipment.

3.5.4 Automatic Voltage Regulation (AVR)

- 3.5.4.1 The alternator must be AVR (Automatic Voltage Regulator) controlled (digital type). The alternator must furnish a controlled rectifier type voltage regulator containing a Zener diode reference with $\pm 1\%$ regulation. The regulator must include 3-phase voltage sensing, automatic short circuit protection and automatic under frequency protection to allow the alternator to operate at no load for engine start-up and shutdown procedures.
- 3.5.4.2 The AVR must be capable of preventing sustained over voltage during over speed conditions following the loss of load. After a sudden load rejection at rated power factor, rated voltage must be restored within two (2) seconds.
- 3.5.4.3 Torque matching characteristic must be adjustable for roll-off frequency and rate and be capable of being curve-matched to the engine torque curve. The voltage regulator must include adjustments for gain, damping, and frequency roll-off. Controls must be provided to monitor the output current of the alternator set and initiate an alarm (over current warning) when load current exceed 110% of the rated current of the alternator set on any phase for more than sixty (60) seconds.

3.5.5 Synchronizer

- 3.5.5.1 Each Genset must be capable of complete integration with the Vessel's existing Easy Gen Control system and switchboard controls.

3.6 Diesel Generator Control System

- 3.6.1 The local main diesel generator control panel must be a sturdy, self-supporting, of stainless steel construction (conforming to ABS/IP 54 protection standards). It must comprise all equipment

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necessary to support the function, controls and modes of operation described below:

- a) Must use a 120V main supply and a 24V backup supply.
- b) Automatic controls including operator interface capable of communications for transmission of status and alarms.
- c) Comprehensive indication including but not limited to:
 - i. Voltage / current per phase.
 - ii. Power meters for alternator kW, kWh, kVAR
 - iii. Power factor.
 - iv. Frequency.
 - v. Lube oil pressure/temperature
 - vi. Fuel system monitoring.
 - vii. Engine/Alternator speed.
 - viii. Coolant temperatures.
 - ix. Start fail.
 - x. Panel controls for circuit breaker.
 - xi. Panel controls and status of diesel alternator test, manual and automatic operations.
 - xii. Emergency stop – lock down / twist to release mushroom style.

3.6.2 Control Switches

3.6.2.1 Mode Select Switch

3.6.2.1.1 The mode select switch must initiate the following control modes. When in the RUN or Manual position the alternator set must start and accelerate to rated speed and voltage as directed by the operator. In the OFF position the alternator set must immediately stop, bypassing all time delays. In the AUTO position the alternator set must be ready to accept a signal from a remote device to start and accelerate to rated speed and voltage. In the LOAD TEST mode position the alternator set must be ready to be tested under varying-load conditions.

3.6.2.2 Emergency Stop Switch

3.6.2.2.1 The emergency stop switch must be Red "mushroom-head" push-button. Depressing the emergency stop switch must cause the alternator set to immediately shut down and be locked out from automatic restarting.

3.6.2.3 Reset Switch

3.6.2.3.1 The RESET switch must be used to clear a fault and allow restarting the alternator set after it has shut down for any fault condition.

3.6.2.4 Alternator AC Output Metering

3.6.2.4.1 The alternator set must be provided with a metering set including the following features and functions:

- a) Digital Controller working in parallel with analog metering set with 0.5% accuracy, to

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indicate alternator RMS voltage and frequency, output current (three (3) ammeters)

- b) The control system must log total number of operating hours and total kW hrs.
- c) The control system must log total fuel consumed given certain number of operating hours and or total kW hrs.

3.6.2.5 Engine Status Monitoring

3.6.2.5.1 The following information must be available from a digital display status panel on the alternator set control:

- a) Engine oil pressure (psi or kPA)
- b) Engine coolant temperature (degrees C)
- c) Jacket Water Pressure
- d) Raw Water Pressure
- e) Engine oil temperature (degrees C)
- f) Engine speed (rpm)
- g) Number of hours of operation (hours)
- h) Number of start attempts
- i) Fuel pressure
- j) Air manifold pressure
- k) Cylinder exhaust temperature
- l) Stack temperature
- m) Turbo rpm

3.6.2.6 Control Interfaces for Remote Monitoring

3.6.2.6.1 The control system must provide a minimum of four (4) programmable output relays. These relay outputs must be configured for any alarm, shutdown, or status condition monitored by the control. The relays must be configured to indicate at a minimum:

- a) Alternator set operating at rated voltage and frequency,
- b) Common warning,
- c) Common shutdown,
- d) Load shed command.

3.6.2.6.2 The electronic and electrical controls and wiring must be able to withstand the ambient temperature and vibrations inside the enclosure. The panel itself must also be vibration insulated.

3.6.3 Diesel Alternator and Engine Protection System

3.6.3.1 The Gensets must be equipped with a dedicated engine protection system that acts to minimize damage in the event that the unit malfunctions or is exposed to an external fault. This must include, but is not limited to, the following warnings and trips:

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- a) An engine protection shut down system including high coolant temperature, low oil pressure, and overspeed
- b) An emergency stop operator push button system, with emergency stops.
- c) Turbo charger over speed (if applicable).
- d) High oil temperature warning.
- e) High jacket water temperature warning.
- f) Low oil pressure warning.
- g) Low coolant level warning.
- h) Low fuel pressure warning.
- i) High exhaust temperature warning.
- j) High turbo charger temperature warning.

3.6.3.2 The diesel alternator protection must include warnings and trips including but not limited to:

- a) Over voltage.
- b) Under voltage.
- c) Over speed/frequency.
- d) Under speed/frequency.
- e) Over current and earth fault.
- f) Differential.
- g) Reverse power
- h) AVR alarms.
- i) Exciter alarms.
- j) Stator Winding and Bearing Temperature alarms.

3.6.3.3 The Contractor must provide all generator characteristics and data including capability curves, negative sequence withstand curves, thermal damage curve and generator short circuit decrement curve to assist with the settings of the above protection elements.

3.6.3.4 The AC over/under voltage monitoring system, as noted in 3.6.3.2 above, must initiate shutdowns of the alternator set when alternator output voltage exceeds 100% of the operator-set voltage level for more than ten (10) seconds, or with no intentional delay when voltage exceeds 130%. Under voltage shutdown must occur when the output voltage of the alternator is less than 85% for more than ten (10) seconds.

3.7 Nameplate Requirements

3.7.1 Each Genset must be supplied with manufacturer's standard nameplate size. As a minimum, nameplates must comply with ABS Rules 2022 (Part 4, Chapter 8, Section 3, 3.11.8 Nameplate Data)

3.7.2 Equipment nameplates must include, at a minimum, the following:

- Manufacturer's name
- Purchase order number
- Equipment tag number
- Service description
- Ratings

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- Weight (operating/empty)
- Year of manufacture

3.7.3 Alternator specific nameplates must include, at a minimum, the following:

- Manufacturer's name
- Model
- Type
- Serial number
- Operating voltage
- Set point (where applicable)
- IP rating
- Size and ratings

3.7.4 Nameplates, rating plates and tag plates must be 316L stainless steel and secured with stainless steel rivets or screws.

3.7.5 Nameplate text must be engraved and painted with lettering five (5) mm or larger.

4.0 FACTORY ACCEPTANCE TESTS (FAT)

4.1 The Contractor must arrange for Factory Acceptance testing of each new Genset prior to having them delivered to Canada. The Contractor must ensure that a Factory Acceptance Trials (FAT) plan is provided for submission and review by Canada a minimum of four (4) weeks prior to the FAT being performed.

4.2 The results of the FAT test report(s) must be provided by the Contractor and must be signed off by the attending Class surveyor with copies provided to Canada. The results of the FAT tests and the accompanied test report are to be to the satisfaction of both attending Class surveyor and Canada, before the new diesel alternator packages are prepared for shipment and delivery.

4.3 Canada reserves the right to provide personnel to visit the Contractors facilities to attend the FAT(s). These visits will be at Canada's expense. For such cases, the Contractor must provide a minimum thirty (30) days' notice for trials both at Contractor's premises abroad (if applicable) and for any trials at the Contractor's OEMs premises in North America.

4.4 The FATs must be in accordance with the Contractors established practices and must be approved and witnessed by Class.

4.5 The Genset FATs must include all normal run-in requirements of a new engine as defined by the Contractor and incremental load trials up to and including a 110% load run being measured by a load bank or other approved means.

4.6 The FAT must include determination of fuel oil and lube oil consumption rates.

4.7 As a minimum requirement, the FAT must include:

- a) The provision of the respective reports including test results and certifications of factory

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tests on all systems and sub-systems of the complete supply. This must include but not limited to:

- i. Operation of all alarms, trips safety protection devices and confirmation of operation, and their indication on the diesel alternator controllers (local / remote).
 - ii. Operation of all status indications and their indication on the diesel alternator controllers (local / remote).
 - iii. Operation of the diesel alternator in all operating modes, where possible.
 - iv. Load tests at one quarter/one half/three quarters and full load, for a minimum of four (4) hours per test.
 - v. Drop and recovery load tests.
 - vi. Over speed tests.
- b) Alternator testing must conform to TP127 and ABS approved standards. The alternator(s) must have the following tests performed and recorded:
- i. Visual and mechanical checks;
 - ii. Measurement of ohmic resistance of stator winding (cold);
 - iii. Measurement of short circuit impedance and load loss;
 - iv. No-load test, measurement of no load loss and current;
 - v. Check of ratio and polarity of built in current transformers;
 - vi. Sustained three phase short circuit tests;
 - vii. Check of phase sequence, direction of rotation and terminal markings;
 - viii. Dielectric routine tests, Insulation resistance test of stator winding;
 - ix. Withstand voltage test of machine windings and accessories (temperature detectors, heaters);
 - x. Vibration measurement;
 - xi. Measurement of terminal voltage
 - xii. Verification of all protection devices;
 - xiii. Functional check of accessories and auxiliaries (e.g., temperature detectors in windings and bearings, vibration monitoring, heaters, leakage detectors, etc.);
 - xiv. Check of rating plate, nameplate, additional markings, labels and check outputs from monitoring systems.

5.0 SOFTWARE

- 5.1 All Genset controllers, governor, AVR software, programs, communication leads, and software dongles required for the operation, general maintenance and overhauling of the offered engines/alternators must be supplied as part of the Genset supply. All software must be licensed to Canada for 10 years from the date of commissioning of the new units and must be PC compatible.

6.0 SPARE PARTS

- 6.1 OEM recommended on-board voyage spares for 3 years along with all necessary tools and

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associated items required for their installation must be provided with delivery of the new Gensets. At a minimum, this listing must be based on the Contractor's recommendations and the recommendations as found Lloyd's Registry of Shipping document "*Guidance on Spare Gear.*" These on-board voyage spares and related equipment must be included with the new Genset units and be effectively packaged, crated and shipped along with the new Genset units to the CCG warehouse in Dartmouth, NS delivery address. All costs associated with these spares and associated components must be included with the Contractor's firm pricing submission for the supply of the new Genset units.

<https://www.lr.org/en/guidance-information-on-spare-gear>

- 6.2 Spare parts provided must be suitably packed and crated for long term storage (24 months), with suitable preservative coatings applied as necessary. Clear marking on the outside of packaging materials must identify each part so that the parts need not be unpacked for identification.
- 6.3 The Contractor must guarantee the ability to supply all required Genset spares and components for a minimum of ten (10) years.

7.0 WARRANTY

- 7.1 The Gensets and all associated equipment supplied must carry a full extended warranty of 36 months after acceptance of the commissioning or 60 months after acceptance of the delivery by Canada, whichever comes first, or the length of the Contractor's or manufacturer's standard warranty period, whichever is longer. This extended warranty must include coverage on the new Gensets and all supplied spares, special tools, software and any other components provided with the requirement.
- 7.2 The extended warranty must, at a minimum, be equivalent in coverage to the manufacturer's standard warranty. This warranty must include all required labour, parts, tools and material costs to cover any faulty parts or components due to manufacturing, poor workmanship during and after the assembly or any issues arising from the installation and commissioning of the new Gensets. This warranty must remain in full force from the date of commissioning to Canada and the Contractor must agree to carry all, complete costs related to the required fulfilment of warranty obligations.
- 7.3 The Contractor must be capable of providing fully authorized OEM FSR technicians within a response time of twenty-four (24) hours to a service call aboard the Vessel when operational, and dockside to the following locations:
 - a) Initial requirement:

Within the Atlantic Canadian region (Nova Scotia, Newfoundland & Labrador, New Brunswick and Prince Edward Island - A copy of the CCG Regional Operation map is available upon request).
 - b) Optional requirement:

Within the Central Canada Great Lakes region - A copy of the CCG Regional Operation map is available upon request).

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8.0 DOCUMENTATION

8.1 Manuals, Catalogues and Electrical Drawings

- 8.1.1 Four (4) complete hard copy sets of the instruction, operation, maintenance, parts lists and spare parts manuals/catalogs and Record Books of Engine Parameters must be provided to Canada in English with delivery of the new Gensets. One (1) Complete copy must be provided in French (Five (5) copies total).
- 8.1.2 Four electronic (4) compiled PDF copies on CD/DVD must also be provided in English with the delivery of the new Gensets. One (1) electronic copy must be provided in French (Five (5) copies total).
- 8.1.3 English and French versions of the following documents must be provided with the delivery of the new Genset units:
- a) Engine and alternator installation Guide/Manual
 - b) Genset Operation Manual
 - c) Maintenance Manual/Plan (Further details Below in Section 9.0)
 - d) Troubleshooting Manual
 - e) Workshop and Spare Parts Manuals and catalogues
 - f) Electric diagram
 - g) A comprehensive and detailed listing (i.e., operating voltages and amperage requirements etc.) of each diesel alternator's alarm, set operating and operating points to allow for modifications to be made to the existing Alarm Monitoring System to accept the new I/O inputs.
 - h) A detailed listing of all of all of the authorized dealers and distribution centres in North America capable of supporting the type and model of the diesel engine being offered.
- 8.1.4 The Contractor must also provide Operating and Maintenance Manuals for all additional equipment and major components supplied under this Contract (i.e., Governors, AVR's, PLC's, Diesel Alternator Controllers, etc.) as detailed below in section 9.0 – Maintenance Procedure Requirements. The information required from the Contractor must, at a minimum, conform to the standard requirements detailed below:

A. Index:

- i. An index which conveniently and logically sets out the format of the Operating and Maintenance Manuals. Part of this index must be a contents tick sheet. All items must be listed regardless of actual document contents. Items already included must have a tick in the appropriate box.

B. Design:

- ii. A design and technical section which must include:
 - a) Detailed descriptions of equipment components and systems including detailed

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drawings.

- b) Technical data for all packages as installed.
- c) Design and material limits for loadings such as pressure, temperatures, voltage, current, operating limits, settings, etc.
- d) Grades of lubricant and recommended frequency of lubrication.
- e) Test and performance data.
- f) Details of electrical circuits, accompanied by schematic and logic diagrams, indicating the physical location of the equipment parts.
- g) A list of alarms detailing alarm initiator location and setting for alarm operation and re-set.

C. Installation:

- iii. A general description of the installation in regard to location and function. The description must include all process parameters associated with the installation and is to be supported by general arrangement drawings.

D. Procedures:

- iv. The operating procedures must be set out in step-by-step instructions with each step numbered in correct logical sequence and include;
 - a) Pre-start check lists covering all the individual plant systems.
 - b) Starting procedures.
 - c) In service checks and limits including routine test procedures.
 - d) Shutting down procedures.

E. Operation:

- v. Manuals must include detailed Operating Instructions and, as a minimum, include starting, synchronizing, stopping, protection of circuits, automatic controls, battery charging, safety considerations, method of adjustment of speed, output voltage, control timers, etc.
- vi. Performance parameters of the alternator must be detailed for the operator's guidance and, as a minimum, include output voltage, frequency, load, engine temperature and oil pressure nominal values and acceptable limits.
- vii. Operating instructions are required for all items of equipment for start-up, normal operation, shutdown, standby, emergency action, and on load and off load testing procedures, and must contain the operating procedures of the systems, in addition to the emergency and abnormal conditions procedures and is to include the following:
 - a) Operating limits, normal, abnormal and hazards.
 - b) Procedures detailed under the heading of "Emergency Action" must include:
 - c) Actions upon receipt of alarm/alarm condition/appropriate action.
 - d) Emergency procedures for each major fault situation.

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- e) Fault conditions.
- f) Diagnostic procedures.
- g) Initial actions.
- h) Follow up action and operation.
- i) Loss of electrical supplies associated with important auxiliaries, controls and instrumentation.

F. Maintenance:

- a) As further detailed in Section 9.0 – Maintenance Procedure Requirements – of this TSOR, maintenance plans and instructions must be prepared with the objective of providing sufficient detailed technical information and step-by-step instructions to enable the efficient overhaul and replacement of all parts carried out by the ship's engineers. Time-based schedules for maintenance to be affected on a daily, weekly, monthly, etc. and on hourly run basis must be included for the Genset units overall and all major unit components including injectors, pumps, main bearings, turbo charger, cylinder heads, pistons, and liners.
- b) Guidelines for the selection of fuel oil, lubricating oil, and use of water treatment additives if applicable.
- c) Provide guidance in the tracing of faults and their rectification and permit the ordering of replacement parts. Separate maintenance instructions must be prepared for each item of plant and must be set out in step-by-step instructions with each step numbered in correct logical sequence and including;
- d) Maintenance programs for regular inspections, preventative maintenance, and overhauls, described on the basis of frequency (i.e., daily, weekly, monthly, three monthly, annual and hours of operation).
- e) Special diagrams and illustrations.
- f) Parts lists presented in a logical sequence (i.e., main assembly, sub-assembly, and components) with the components listed under their respective sub-assemblies.
- g) Lubrication schedule showing requirements and specifications for lubricants for the diesel alternator.
- h) Cleaning and conservation procedures.
- i) List of special tools and equipment required.
- j) Checklist of operations prior to dismantling.
- k) Dismantling sequence, with particulars of methods used.
- l) Inspection of components and checking of permissible tolerances.
- m) Reconditioning, replacement, and adjustment procedures.
- n) Reassembly sequence, with particulars of methods to be adopted.
- o) Recommended spares list

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G. Trouble Shooting:

- viii. A trouble shooting program based on symptoms. The program must include details of the points at which measurements are to be taken, details of the normal readings at those points and the possible reasons for abnormal readings.

H. Commissioning:

- ix. Commissioning or re-commissioning procedures set out in step-by-step instructions and including:
 - a) Controller settings and readings for normal operations.
 - b) Actuator settings and readings for normal operations.
 - c) AVR settings and readings for normal operations.
 - d) List for checking of settings prior to re-commissioning.
 - e) Procedures for preparing for service, equipment which requires tuning or other adjustment at re-commissioning after a major overhaul.

I. Test Documentation:

- x. Manuals must include an Appendix for insertion of:
 - a) Factory Acceptance Testing (FAT).
 - b) All commissioning reports, site calibration documents, data recorder logs / scope traces and test sheets to be included in this section.

J. Certificates and Warrantees:

- a) Manufacturers' written warranties and guarantees.
- b) Product type test certificates.
- c) Classification (ABS) required certifications
- d) Electrical Certificates of Compliance.

8.2 Data sheets

8.2.1 The Contractor must provide a complete set of data sheets as described below in English and French versions with delivery of the new Genset Units. All data sheets and related documentation must comply with ABS standards.

8.2.2 Engine Data to be provided:

- a) Manufacturer
- b) Model
- c) Number of Cylinders
- d) RPM
- e) Bore x stroke
- f) BMEP at full rated load

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- g) Piston speed, FPM
- h) Make and model and descriptive literature of the electric governor
- i) Fuel consumption rate curves at various loads
- j) Gross engine horsepower to produce alternator continuous rating (including all parasitic loads) HP

8.2.3 Alternator Data to be provided:

- a) Manufacturer
- b) Model
- c) Rated kVA
- d) Rated kW
- e) Voltage
- f) Temperature rise above 50°C ambient:
- g) Stator by thermometer
 - i) Field by resistance
 - ii) Class of insulation
- h) Alternator efficiency including excitation losses at 0.8 power factor:
 - i) Full load
 - ii) $\frac{3}{4}$ load
 - iii) $\frac{1}{2}$ load

8.2.4 Alternator Unit Control Data:

- a) Actual electrical diagrams including schematic diagrams, and interconnection wiring diagrams for all equipment must be provided. Standard pre-printed sheets are not acceptable.
- b) Legends for all devices on all diagrams.
- c) Sequence of operation explanations for all portions of all schematic wiring diagrams.

8.3 Drawings

8.3.1 Metric units of measurement (System International) must be used on all contract documentation. Angular measurements must be in degrees with 90° degrees comprising one right angle. The following drawings and documentation must be submitted in English:

- a) Outline drawing of each diesel alternator skid package showing major dimensions and weights, hold down arrangements of the diesel alternator package, and cable access for all power, control, and communications cabling.
- b) External layout drawing of each new Genset unit clearly displaying all major components.
- c) Internal layout drawing of each Genset unit clearly showing all major components.
- d) Control system overview drawing showing details of all main components and monitoring, control, and communication interfaces.
- e) Technical data, information on the diesel alternators, all main components, and ancillaries

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and the like and their operating mechanisms.

- f) Technical data on the alternator including capability curves and all reactance and rating information.
- g) Technical data on all control system components, protective devices etc.

II. With the New Genset Units:

- a) Primary engineering drawings showing dimensioned outlines and dimensioned hold down arrangements for the skid of the alternator package and peripherals.
- b) Factory certified dimensional drawings, complete with parts list, full dimensions, weights, and details of holding down arrangements, and cable entry points.
- c) Calculations for coolers, and exhausts.
- d) Detail of connection arrangements to allow removal of the engine and alternator from the skid, complete with details of any blanking-off mechanisms required when the engine and the alternator is removed for major servicing.
- e) General arrangement drawings of all equipment, including control panels.
- f) Control System logic diagrams, functional description for the diesel alternator control systems detailing local and remote monitoring and control and interfacing with other sub-systems.
- g) Control System data maps and set point methods in order to monitor and operate the generation system.
- h) Complete Control System schematics and drawings.
- i) Connection drawings, showing terminations and labelling.

8.3.2 The Contractor is responsible for getting ABS/class approvals for all drawings and related documentation. All associated costs and fees must be included in the contractor's pricing for the supply of the new genset units.

9.0 MAINTENANCE PROCEDURE REQUIREMENTS

9.1 In addition to all required documentation referenced above in section 8.0 of this TSOR, the Contractor must provide a copy of the manufacturers (OEM) recommended maintenance schedule for the type and model of the Gensets offered. The schedule must be Time-Based and must detail the maintenance required to be performed at regular, scheduled time intervals based on Class requirements.

9.2 The maintenance schedule must be organized for a preventive maintenance management (PMM) program. The intent of this PMM program is to minimize operating costs through cost

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avoidances resulting from reductions in unscheduled downtime and failures.

- 9.3 The PMM must be based on the OEM's maintenance requirements and the schedule must be set up so that the maintenance intervals define the maintenance requirements of the equipment at multiples of the original requirement. Each level and/or individual item(s) in each level should be shifted ahead or back depending upon the specific maintenance practices, operation, and the application required. These maintenance schedules must also include structured, well detailed information regarding the necessary time intervals to inspect, overhaul and renew all minor components such as fuel injectors, valve clearances, filters, and pumps as well as all major components such as main bearings, cylinder heads, pistons, and turbocharger. As a minimum the maintenance schedule must address the following intervals:

- Daily Inspections
- 250 Hours (monthly)
- 500 Hours
- 1000 Hours
- 2000 Hours
- Annually (12 months)
- 3000 Hours
- 4000 Hours
- 6000 Hours or 5 years
- Overhaul of the units, and all major components

10.0 DELIVERY REQUIREMENTS

10.1 Initial Requirement

- 10.1.1 The Contractor must suitably crate and arrange to deliver the two (2) Gensets complete with all agreed upon associated spares to the following location:

CCGS Earl Grey
Stores 05C, Warehouse Door #1
13 Akerley Blvd
Dartmouth, NS, B3B 1J6

- 10.1.2 The entire supply as detailed in this specification must be delivered to the above noted address between May 1st, 2024 – August 1st, 2024.

10.2 Optional Requirement

- 10.2.1 If the option is exercised, the Contractor must suitably crate and arrange to deliver the two (2) Gensets complete with all agreed upon associated spares to the following location:

CCGS Risley
CCG Base Parry Sound
28 Waubeek St.
Parry Sound, ON P2A 1B9

- 10.2.2 The optional requirement as detailed in this specification must be delivered to the above noted address no later than 40 weeks following the Contract Amendment, unless agreed otherwise.

10.3 General Delivery Requirements

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- 10.3.1 On delivery to the above facilities, the Gensets must be inspected for any shipping damages by CCG with a contractor representative present. This inspection will require the opening of crates and or shipping boxes but will not require the opening of any hermetically sealed units unless damage to the packaging can be readily seen.
- 10.3.2 The Gensets must be delivered with all open gland entries fitted with temporary blanking plugs to maintain the ingress protection rating during transportation and storage and each package must arrive preserved for long term storage, with suitable preservative coatings applied as necessary for complete external protection during long term storage. Long term storage is defined as being a minimum two (2) years or twenty-four (24) months from the time of receipt by Canada.

11.0 FIELD SERVICE REPRESENTATIVE CAPABILITY

- 11.1 The Contractor must have the ability to provide fully authorized OEM FSR technicians to the vessels and delivery addresses detailed in Sections 7.0 and 10.0 to perform on-site services. This includes the ability to oversee commissioning/testing of the units, crew training regarding unit operation, regular crew maintenance and troubleshooting and provide technical oversight for unit overhauls.
- 11.2 The FSR technicians must have the capability to perform normal inspections, overhauls, repairs, troubleshooting, provide thorough documentation support and must maintain a 24/7 Contact number.