

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

**Bid Receiving - PWGSC / Réception des  
soumissions - TPSGC**  
**11 Laurier St. / 11, rue Laurier**  
**Place du Portage, Phase III**  
**Core 0A1 / Noyau 0A1**  
**Gatineau, Québec K1A 0S5**  
**Bid Fax: (819) 997-9776**

**REQUEST FOR PROPOSAL  
DEMANDE DE PROPOSITION**

**Proposal To: Public Works and Government  
Services Canada**

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

**Proposition aux: Travaux Publics et Services  
Gouvernementaux Canada**

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

**Comments - Commentaires**

<b>Title - Sujet</b> SINGLE CYLINDER RESEARCH ENGINE		
<b>Solicitation No. - N° de l'invitation</b> 31184-140691/A	<b>Date</b> 2014-10-27	
<b>Client Reference No. - N° de référence du client</b> 31184-140691		
<b>GETS Reference No. - N° de référence de SEAG</b> PW-\$\$HS-620-66001		
<b>File No. - N° de dossier</b> hs620.31184-140691	<b>CCC No./N° CCC - FMS No./N° VME</b>	
<b>Solicitation Closes - L'invitation prend fin</b> <b>at - à 02:00 PM</b> <b>on - le 2014-12-08</b>		<b>Time Zone</b> <b>Fuseau horaire</b> Eastern Daylight Saving Time EDT
<b>F.O.B. - F.A.B.</b> <b>Plant-Usine:</b> <input type="checkbox"/> <b>Destination:</b> <input checked="" type="checkbox"/> <b>Other-Autre:</b> <input type="checkbox"/>		
<b>Address Enquiries to: - Adresser toutes questions à:</b> Shirwa, Marian		<b>Buyer Id - Id de l'acheteur</b> hs620
<b>Telephone No. - N° de téléphone</b> (819) 956-3994 ( )		<b>FAX No. - N° de FAX</b> ( ) -
<b>Destination - of Goods, Services, and Construction:</b> <b>Destination - des biens, services et construction:</b> NATIONAL RESEARCH COUNCIL CANADA BLDG M-9 1200 MONTREAL RD OTTAWA Ontario K1A0R6 Canada		

**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**

Industrial Vehicles & Machinery Products Division  
11 Laurier St./11, rue Laurier  
7B1, Place du Portage, Phase III  
Gatineau  
Québec  
K1A 0S5

<b>Delivery Required - Livraison exigée</b> See Herein	<b>Delivery Offered - Livraison proposée</b>
<b>Vendor/Firm Name and Address</b> <b>Raison sociale et adresse du fournisseur/de l'entrepreneur</b>	
<b>Telephone No. - N° de téléphone</b> <b>Facsimile No. - N° de télécopieur</b>	
<b>Name and title of person authorized to sign on behalf of Vendor/Firm</b> <b>(type or print)</b> <b>Nom et titre de la personne autorisée à signer au nom du fournisseur/ de l'entrepreneur (taper ou écrire en caractères d'imprimerie)</b>	
<b>Signature</b>	<b>Date</b>

Solicitation No. - N° de l'invitation

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Amd. No. - N° de la modif.

Buyer ID - Id de l'acheteur

hs620

Client Ref. No. - N° de réf. du client

31184-140691

File No. - N° du dossier

hs62031184-140691

CCC No./N° CCC - FMS No/ N° VME

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## **PART 1 - GENERAL INFORMATION**

### **1. Security Requirement**

There is no security requirement associated with this bid solicitation.

### **2. Requirement - Bid**

The National Research Council Canada has a requirement to purchase a flexible, single-cylinder research engine platform, in accordance with the Annex A – Statement of Requirement, dated October 22, 2014, and as described at Annex B - Pricing.

### **3. Trade Agreements**

The requirement is subject to the provisions of the North American Free Trade Agreement, the Canada-Columbia Free Trade Agreement, the Canada-Peru Free Trade Agreement, the Canada-Panama Free Trade Agreement and the Agreement on Internal Trade.

### **4. Debriefings**

Bidders may request a debriefing on the results of the bid solicitation. Bidders should make the request to the Contracting Authority within **fifteen (15)** working days of receipt of notification that their bid was unsuccessful. The debriefing may be provided in writing, by telephone or in person.

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**PART 2 - BIDDER INSTRUCTIONS**

**1. Standard Instructions, Clauses and Conditions**

All instructions, clauses and conditions identified in the bid solicitation by number, date and title are set out in the Standard Acquisition Clauses and Conditions Manual issued by Public Works and Government Services Canada (PWGSC).

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

The 2003 (2014-06-26) Standard Instructions - Goods or Services - Competitive Requirements, are incorporated by reference into and form part of the bid solicitation.

**Subsection 05.4** of 2003, Standard Instructions - Goods or Services - Competitive Requirements, is amended as follows:

**Delete:** Bids will remain open for acceptance for a period of not less than **sixty (60) days** from the closing date of the bid solicitation

**Insert:** Bids will remain open for acceptance for a period of not less than **ninety (90) calendar days** from the closing date of the bid solicitation

**2. Submission of Bids**

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

**3. Enquiries - Bid Solicitation**

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

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

**4. Applicable Laws - Bid**

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

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

**5. Environmental Considerations**

Canada is committed to greening its supply chain. In April 2006, Canada issued a policy directing federal departments and agencies to take the necessary steps to acquire products and services that have a lower impact on the environment than those traditionally acquired.

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Environmental performance considerations include, among other things: the reduction of greenhouse gas emissions and air contaminants; improved energy and water efficiency; reduced waste and support reuse and recycling; the use of renewable resources; reduced hazardous waste; and reduced toxic and hazardous substances. In accordance with the Policy on Green Procurement, for this solicitation:

The successful bidder will be requested, after contract award, to provide all correspondence including (but not limited to) documents, reports and invoices in electronic format unless otherwise specified by the Contracting Authority, the Technical Authority or the Procurement Authority, thereby reducing printed material.

Bidders should recycle (shred) unneeded copies of non-classified/secure documents (taking into consideration the Security Requirements).

Product components used in performing the services should be recyclable and/or reusable, whenever possible.

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**PART 3 - BID PREPARATION INSTRUCTIONS**

**1. Bid Preparation Instructions**

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

First page of the Request for Proposal signed by the bidder or an authorized representative of the Bidder (1 signed copy)

Section I: Technical Bid (1 hard copy)

Section II: Financial Bid (1 hard copy)

Section III: Certifications (1 hard copy)

Section IV: Additional Information (1 hard copy)

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

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

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

- 1) use 8.5 x 11 inch (216 mm x 279 mm) paper containing fibre certified as originating from a sustainably-managed forest and containing minimum 30% recycled content; and
- 2) use an environmentally-preferable format including black and white printing instead of colour printing, printing double sided/duplex, using staples or clips instead of cerlox, duotangs or binders.

**Section I: Technical Bid**

In their technical bid, bidders should explain and demonstrate how they propose to meet the requirements and how they will carry out the Work.

**Section II: Financial Bid**

**1. Pricing**

Bidders must submit their bid in accordance with the Basis of Payment specified in Part 6.

Prices should appear in Annex B - Pricing only.

Bidders must submit firm prices, in Canadian dollars, Delivered Duty Paid at destination, Incoterms 2000, Canadian Custom Duties and Excise Taxes included where applicable and Applicable Taxes must be shown separately.



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**2. SACC Manual Clauses**

**2.1 Exchange Rate Fluctuation Risk Mitigation**

1. The Bidder may request Canada to assume the risks and benefits of exchange rate fluctuations. If the Bidder claims for an exchange rate adjustment, this request must be clearly indicated in the bid at time of bidding. The Bidder must submit form [PWGSC-TPSGC 450](#) , Claim for Exchange Rate Adjustments with its bid, indicating the Foreign Currency Component (FCC) in Canadian dollars for each line item for which an exchange rate adjustment is required.
2. The FCC is defined as the portion of the price or rate that will be directly affected by exchange rate fluctuations. The FCC should include all related taxes, duties and other costs paid by the Bidder and which are to be included in the adjustment amount.
3. The total price paid by Canada on each invoice will be adjusted at the time of payment, based on the FCC and the exchange rate fluctuation provision in the contract. The exchange rate adjustment will only be applied where the exchange rate fluctuation is greater than 2% (increase or decrease).
4. At time of bidding, the Bidder must complete columns (1) to (4) on form [PWGSC-TPSGC 450](#) , for each line item where they want to invoke the exchange rate fluctuation provision. Where bids are evaluated in Canadian dollars, the dollar values provided in column (3) should also be in Canadian dollars, so that the adjustment amount is in the same currency as the payment.
5. Alternate rates or calculations proposed by the Bidder will not be accepted for the purposes of this exchange rate fluctuation provision.

**Section III: Certifications**

**1. Certifications**

Bidders must submit the certifications required under Part 5.

**Section IV: Additional Information**

**1. Additional Information**

Canada requests that bidders submit the following information:

**1.1 Delivery**

While delivery is requested by March 31, 2015, Bidders should indicate the best delivery that could be offered is as follows:

**Item 001** – Flexible, single-cylinder research engine platform will be delivered within \_\_\_\_\_ weeks/calendar days from the effective date of the contract.

**1.2 Supplier's Representatives**

Canada requests that Bidders provide information for the contact person responsible for:

**General enquiries**

Name: \_\_\_\_\_  
Telephone No: \_\_\_\_\_  
Facsimile No: \_\_\_\_\_  
E-mail address: \_\_\_\_\_



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**Delivery follow-up**

Name: \_\_\_\_\_

Telephone No: \_\_\_\_\_

Facsimile No: \_\_\_\_\_

E-mail address: \_\_\_\_\_

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**PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION**

**1. Evaluation Procedures**

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

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

**1.1 Mandatory Technical Evaluation Criteria**

Bidders must meet, demonstrate and provide all supporting document to support each requirement detailed in Annex A – Statement of Requirement.

**1.2 Mandatory Financial Evaluation Criteria**

**1.2.1** Bidders must provide with their bid all financial information requested in the bid solicitation and at Annex B – Pricing.

**1.2.2** The prices of the bid must be in Canadian dollars, DDP Delivered Duty Paid at destination, Incoterms 2000, Canadian Custom Duties and Excise Taxes included where applicable, and Applicable Taxes are extra.

**2. Basis of Selection**

A bid must comply with all requirements of the bid solicitation to be declared responsive. The responsive bid with the lowest evaluated price per item will be recommended for award of a contract.

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**PART 5 - CERTIFICATIONS**

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

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

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

**1. Certifications Required Precedent to Contract Award**

**1.1 Integrity Provisions – Associated Information**

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

**1.2 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 ([http://www.labour.gc.ca/eng/standards\\_equity/eq/emp/fcp/list/inelig.shtml](http://www.labour.gc.ca/eng/standards_equity/eq/emp/fcp/list/inelig.shtml)) available from [Employment and Social Development Canada \(ESDC\) - Labour's](#) website.

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.

**2. Additional Certifications Precedent to Contract Award**

The certifications listed below should be completed and submitted with the bid, but may be submitted afterwards. If any of these required certifications 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 comply with the request of the Contracting Authority and to provide the certifications within the time frame provided will render the bid non-responsive.

**2.1 Product Conformance**

The Bidder certifies that all item/equipment proposed conform, and will continue to conform throughout the duration of the contract, to all technical specifications of the purchase description(s).

This certification does not relieve the bid from meeting all mandatory technical evaluation criteria detailed in Part 4.

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Bidder's authorized representative signature

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Date

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**PART 6 - RESULTING CONTRACT CLAUSES**

**1. Security Requirement**

There is no security requirement applicable to this Contract.

**2. Requirement - Contract**

The Contractor must deliver one (1) flexible, single-cylinder research engine platform, in accordance with the Annex A – Statement of Requirement, dated October 22, 2014, and as described at Annex B - Pricing.

**2.1 Technical Changes, Substitutes and Alternatives**

Any technical changes, equivalent products and alternatives proposed by the Contractor must be evaluated for acceptance by the Technical Authority. Any equivalent products and alternatives must be equivalent in form, fit, function and performance. Equivalent products and alternatives that are offered as equivalent will only be acceptable once they are approved by the Technical Authority as an equivalent. A contract amendment or a completed Design Change/Deviation form will be issued.

Should the Technical Authority not accept the equivalent product or the alternative and the Contractor is unable to meet the technical requirement, Canada may terminate the contract for default in accordance with the general conditions stated in the contract.

**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>) issued by Public Works and Government Services Canada (PWGSC).

**3.1 General Conditions**

2010A (2014-06-26) General Conditions - Goods (Medium Complexity) apply to and form part of the Contract.

**4. Term of Contract**

**4.1 Complete Delivery**

Delivery of the vehicle/equipment must be made as follows:

Item 001 – one (1) flexible, single-cylinder research engine platform, must be received **within (to be inserted by PWGSC)**\_\_\_\_\_ weeks/calendar days from the effective date of the contract.

**5. Authorities**

**5.1 Contracting Authority**

The Contracting Authority for the Contract is:

Marian Shirwa  
Supply Specialist  
Public Works and Government Services Canada  
Acquisitions Branch  
Logistics, Electrical, Fuel and Transportation Directorate  
"HS" Division  
Place du Portage, Phase III, 7B1  
11 Laurier Street  
Gatineau, QC K1A 0S5  
Telephone: 819-956-3994 Facsimile: 819-956-5227

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E-mail address: marian.shirwa@pwgsc-tpsgc.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.

**5.2 Procurement Authority**

The Procurement Authority for the contract is:

Name: **to be inserted by PWGSC**

Address: \_\_\_\_\_

Telephone: \_\_\_\_\_

Facsimile: \_\_\_\_\_

E-mail address: \_\_\_\_\_

The Procurement Authority is the representative of the department or agency for whom the Work is being carried out under the Contract. The Procurement Authority is responsible for the implementation of tools and processes required for the administration of the Contract. The Contractor may discuss administrative matters identified in the Contract with the Procurement Authority however the Procurement Authority has no authority to authorize changes to the scope of the Work. Changes to the scope of Work can only be made through a contract amendment issued by the Contracting Authority.

**5.3 Technical Authority**

The Technical Authority for the Contract is:

Name: **to be inserted by PWGSC**

Address: \_\_\_\_\_

Telephone: \_\_\_\_\_

Facsimile: \_\_\_\_\_

E-mail address: \_\_\_\_\_

The Technical Authority is the representative of the department or agency for whom the Work is being carried out under the Contract and is responsible for all matters concerning the technical content of the Work under the Contract. Technical matters may be discussed with the 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.

**5.4 Contractor's Representatives**

**General enquiries**

Name: **to be inserted by PWGSC**

Telephone No: \_\_\_\_\_

Facsimile No: \_\_\_\_\_

E-mail address: \_\_\_\_\_

**Delivery follow-up**

Name: **to be inserted by PWGSC**

Telephone No: \_\_\_\_\_

Facsimile No: \_\_\_\_\_

E-mail address: \_\_\_\_\_

**6. Payment**

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**6.1 Basis of Payment - Firm Price**

In consideration of the Contractor satisfactorily completing all of its obligations under the Contract, the Contractor will be paid firm prices, in Canadian dollars, Delivered Duty Paid at destination, Incoterms 2000, Canadian Custom Duties, Excise Taxes included where applicable and Applicable Taxes extra.

**6.2 SACC Manual Clauses**

SACC Reference	Title	Date
C2000C	Taxes - Foreign-based Contractor	2007-11-30
C6000C	Limitation of Price	2011-05-16
H1000C	Single Payment	2008-05-12

**6.3 Exchange Rate Fluctuation Adjustment**

1. The foreign currency component (FCC) is defined as the portion of the price or rate that will be directly affected by exchange rate fluctuation. The FCC should include all related taxes, duties and other costs paid by the Bidder and which are to be included in the adjustment amount.

2. For each line item where a FCC is identified, Canada assumes the risks and benefits for exchange rate fluctuation, as shown in the Basis of Payment. For such items, the exchange rate fluctuation amount is determined in accordance with the provision of this clause.

3. The total price paid by Canada on each invoice will be adjusted at the time of payment, based on the FCC and the exchange rate fluctuation provisions in the contract. The exchange rate adjustment amount will be calculated in accordance with the following formula:

$$\text{Adjustment} = \text{FCC} \times \text{Qty} \times (i_1 - i_0) / i_0$$

where formula variables correspond to:

**FCC**

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Foreign Currency Component (per unit)

$i_0$

Initial exchange rate (CAN\$ per unit of foreign currency [e.g. US\$1])

$i_1$

exchange rate for adjustments (CAN\$ per unit of foreign currency [e.g. US\$1])

**Qty**


quantity of units

4. The initial exchange rate is typically set as the noon rate as published by the Bank of Canada on the solicitation closing date.

5. For goods, the exchange rate for adjustment will be the noon rate as published by the Bank of Canada on the date the goods were delivered. For services, the exchange rate for adjustment will be the noon rate on the last business day of the month for which the services were performed. For advance payments, the exchange rate for adjustment will be the noon rate on the date the payment was due. The most recent noon rate will be used for non-business days.

6. The Contractor must indicate the total exchange rate adjustment amount (either upward, downward or no change) as a separate item on each invoice or claim for payment submitted under the Contract.

Where an adjustment applies, the Contractor must submit with their invoice form [PWGSC-TPSGC](#)

[450](#)  Claim for Exchange Rate Adjustments.

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7. The exchange rate adjustment will only be applied where the exchange rate fluctuation is greater than 2% (increase or decrease), calculated in accordance with column 8 of form [PWGSC-TPSGC 450](#) (i.e.  $[i_1 - i_0] / i_0$ ).

8. Canada reserves the right to audit any revision to costs and prices under this clause.

**7. Invoicing Instructions**

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 on the invoice is completed.

2. The contractor is requested to provide invoices in electronic format unless otherwise specified by the Contracting Authority or Procurement Authority, thereby reducing printed material.

3. Invoices must be distributed as follows:

(a) The original must be forwarded or e-mail to the Procurement Authority identified under the section entitled "Authorities" of the Contract for acceptance and payment.

(b) One (1) copy must be forwarded or e-mail to the Contracting Authority identified under the section entitled "Authorities" of the Contract.

**8. Certifications**

**8.1 Compliance**

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

**9. Applicable Laws - Contract**

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

**10. 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) 2010A (2014-06-26) General Conditions - Goods (Medium Complexity);
- (c) the Contractor's bid dated to be inserted by PWGSC, as amended to be inserted by PWGSC.

**11. SACC Manual Clauses**

SACC Reference	Title	Date
D9002C	Incomplete Assemblies	2007-11-30
G1005C	Insurance	2008-05-12

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**12. Inspection and Acceptance**

The Technical Authority or his representative is the Inspection Authority. All reports, deliverable items, documents, goods and all services rendered under the Contract are subject to inspection by the Inspection Authority or representative. Should any report, document, good or service not be in accordance with the requirements and to the satisfaction of the Inspection Authority, as submitted, the Inspection Authority will have the right to reject it or require its correction at the sole expense of the Contractor before recommending payment.

**13. Shipping Instructions - Delivery and Destination**

1. The Contractor must ship the goods prepaid DDP - Delivered Duty Paid (... named place of destination). Unless otherwise directed, delivery must be made by the most economical means. Shipping charges must be shown as a separate item on the Contractor's invoice. The Contractor is responsible for all delivery charges, administration, costs and risks of transport and customs clearance, including the payment of customs duties and Applicable Taxes.

2. The Contractor must deliver the goods to to be inserted by PWGSC, by appointment only. The Contractor or its carrier must arrange delivery appointments by contacting to be inserted by PWGSC. The consignee may refuse shipments when prior arrangements have not been made.

**14. Environmental Considerations**

Canada is committed to greening its supply chain. In April 2006, Canada issued a policy directing federal departments and agencies to take the necessary steps to acquire products and services that have a lower impact on the environment than those traditionally acquired. Environmental performance considerations include, among other things: the reduction of greenhouse gas emissions and air contaminants; improved energy and water efficiency; reduced waste and support reuse and recycling; the use of renewable resources; reduced hazardous waste; and reduced toxic and hazardous substances. In accordance with the Policy on Green Procurement:

The Contractor is requested to provide all correspondence including (but not limited to) documents and reports in electronic format unless otherwise specified by the Contracting Authority, thereby reducing printed material. The Contractor should recycle (shred) unneeded copies of non-classified/secure documents (taking into consideration the Security Requirements).

Product components used in performing the services should be recyclable and/or reusable, whenever possible.



**31184-140691/A**

**Title: Single Cylinder Research Engine**

Dated October 22, 2014

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**Annex A**

**Statement of Work for Single-Cylinder Research Engine**

**INTRODUCTION**

**Objective** – The objective of this requirement is for the purchase of a flexible, single-cylinder research engine platform for use with the National Research Council Canada.

**Background**

The National Research Council Canada has a requirement for a flexible, single-cylinder research engine platform that must be supplied with the following engine cylinder head, components and associated sub-systems:

- Flexible single-cylinder diesel engine platform that is able to accept a range of commercially-available cylinder heads, liners and cam drives
- The engine platform will feature fully balanced primary and secondary forces so maximum engine speed is not limited by balance mechanisms
- The engine platform must be supplied with a General Motors, 2.0 liter diesel cylinder head, dual overhead camshafts with 4 valves OR EQUIVALENT
- The engine power is must be between 24KW and 30kW @ 4000 rpm and will produce at least 84 N-m of torque between 1750 and 3000 rpm
- The cylinder head must be supplied with the stock high-pressure pump, common-rail and fuel injectors
- NRC will supply the computer control hardware to drive the fuel injection system

**REQUIREMENTS**

**The flexible, single-cylinder research engine platform must meet the following requirements:**

- Engine platform must be designed to tolerate peak cylinder pressures of 300 bar;
- Engine platform must be convertible between diesel and spark-ignition operation;
- Engine platform must be supplied with mount for AVL shaft encoder. (Engine head will be modified by NRC to accept a cylinder pressure transducer in order to measure real-time combustion data.);
- Replacement parts must be available for critical components of the engine platform to minimize testing downtime

Engine Sub-System Specifications

- Dry sump oil system, which includes the oil pump, scavenge pump, tank and control of pressure and temperature, must be supplied to enable tighter control of oil temperature and reduce engine parasitic losses
- Remote cooling system, including coolant pump, scavenge pump, temperature and pressure control, will be supplied
- Must have the ability to warm up research engine without engine rotation

General

- The single-cylinder research engine must fit our current engine test cell installation. The supplier will provide recommendations for an appropriate engine output shaft and coupling to allow the single-cylinder research engine to be mounted to our dynamometer and motoring electric motor.
- The supplier must provide a minimum of one year warranty for all components.

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**DOCUMENTATION**

The supplier must provide an engine manual that includes the following:

- Maintenance instructions;
- Parts list
  1. The list shall include the following elements:
    - i Part description;
    - ii Original Equipment Manufacturer Part number;
    - iii Suggested quantity;
- Engineering drawings.

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**Annex B – Pricing**

**Item 001 – Single Cylinder Research Engine**

The Contractor must deliver one (1) **Single Cylinder Research Engine**, in accordance with the Annex A – Statement of Work, dated October 22, 2014.

The **Cylinder Research Engine** and ancillary items must be delivered to:

(to be inserted by PWGSC).

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

The contact person at destination is: (to be inserted by PWGSC).

Firm lot price of \$\_\_\_\_\_ per item/equipment and ancillary items, Delivered Duty Paid (... named place of destination), in accordance with Part 6, Basis of Payment.