



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

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

**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**

**Vendor/Firm Name and Address**

**Raison sociale et adresse du  
fournisseur/de l'entrepreneur**

**Issuing Office - Bureau de distribution**

Scientific, Medical and Photographic Division / Division de  
l'équipement scientifique, des produits photographiques et  
pharmaceutiques  
11 Laurier St./ 11 rue, Laurier  
6B1, Place du Portage  
Gatineau, Québec K1A 0S5

<b>Title - Sujet</b> Thermal Gravimetric Analyzer	
<b>Solicitation No. - N° de l'invitation</b> 23375-170854/A	<b>Date</b> 2016-12-03
<b>Client Reference No. - N° de référence du client</b> 23375-170854	
<b>GETS Reference No. - N° de référence de SEAG</b> PW-\$\$PV-899-72011	
<b>File No. - N° de dossier</b> pv899.23375-170854	<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 2017-01-17</b>	<b>Time Zone</b> <b>Fuseau horaire</b> Eastern Standard Time EST
<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> Gauthier, Martin	<b>Buyer Id - Id de l'acheteur</b> pv899
<b>Telephone No. - N° de téléphone</b> (613) 404-8642 ( )	<b>FAX No. - N° de FAX</b> (819) 956-3814
<b>Destination - of Goods, Services, and Construction:</b> <b>Destination - des biens, services et construction:</b> DEPARTMENT OF NATURAL RESOURCES 1 HAANEL DR. Canmet ENERGY Dennis Lu 613-996-2760 OTTAWA Ontario K1A1M1 Canada	

**Instructions: See Herein**

**Instructions: Voir aux présentes**

<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>

## TABLE OF CONTENTS

<b>PART 1 - GENERAL INFORMATION .....</b>	<b>2</b>
1.1 REQUIREMENT .....	2
1.2 DEBRIEFINGS .....	2
1.3 TRADE AGREEMENTS .....	2
<b>PART 2 - BIDDER INSTRUCTIONS .....</b>	<b>2</b>
2.1 STANDARD INSTRUCTIONS, CLAUSES AND CONDITIONS .....	2
2.2 SUBMISSION OF BIDS.....	3
2.4 APPLICABLE LAWS.....	3
<b>PART 3 - BID PREPARATION INSTRUCTIONS.....</b>	<b>4</b>
3.1 BID PREPARATION INSTRUCTIONS .....	4
<b>PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION .....</b>	<b>5</b>
4.1 EVALUATION PROCEDURES.....	5
4.2 BASIS OF SELECTION.....	6
<b>PART 5 – CERTIFICATIONS AND ADDITIONAL INFORMATION .....</b>	<b>6</b>
5.1 CERTIFICATIONS REQUIRED WITH THE BID.....	6
5.2 CERTIFICATIONS PRECEDENT TO CONTRACT AWARD AND ADDITIONAL INFORMATION .....	6
<b>PART 6 - RESULTING CONTRACT CLAUSES .....</b>	<b>7</b>
6.1 SECURITY REQUIREMENTS .....	7
6.2 REQUIREMENT .....	7
6.3 STANDARD CLAUSES AND CONDITIONS.....	7
6.4. TERM OF CONTRACT .....	7
6.5 AUTHORITIES .....	8
6.5.3 ACCOUNTS PAYABLE CONTACT .....	8
6.6 PAYMENT .....	9
6.7 INVOICING INSTRUCTIONS .....	9
6.8 CERTIFICATIONS AND ADDITIONAL INFORMATION.....	10
6.9 APPLICABLE LAWS.....	10
6.11 SACC <i>MANUAL</i> CLAUSES .....	10
6.12 SHIPPING INSTRUCTIONS .....	10
<b>ANNEX "A" .....</b>	<b>11</b>
PART 1 - REQUIREMENT.....	11
PART 2.1 - MANDATORY TECHNICAL EVALUATION CRITERIA .....	12
PRICING TABLES .....	14
<b>ANNEX "C" .....</b>	<b>15</b>
COMPLETE LIST OF DIRECTORS .....	15

---

## PART 1 - GENERAL INFORMATION

### 1.1 Requirement

The requirement is detailed under Annex "A".

### 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 Trade Agreements

"The requirement is subject to the provisions of the North American Free Trade Agreement (NAFTA), and the Agreement on Internal Trade (AIT)."

## 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>) 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 (2016-04-04) 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 B1000T (2016-04-04) Condition of Material

---

## 2.2 Submission of Bids

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

### **Bid Receiving - PWGSC**

Place du Portage, Phase III, Tower B  
11 Laurier Street  
Gatineau, Quebec  
For couriers: J8X 4A6  
For regular mail: K1A 0S5

Telephone: (819) 956-3370  
Fax No.: (819) 997-9776

The above address is for the sole purpose of bid submission. No other communications are to be forwarded to this address.

No proposal shall be sent directly to the PWGSC Contracting Authority. Proposals sent directly to the PWGSC Contracting Authority will not be considered.

## 2.3 Enquiries - Bid Solicitation

All enquiries must be submitted in writing to the Contracting Authority 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.

## 2.4 Applicable Laws

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

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

---

## PART 3 - BID PREPARATION INSTRUCTIONS

### 3.1 Bid Preparation Instructions

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

- Section I: Technical Bid (two (2) copies)
- Section II: Financial Bid (one (1) copy)
- Section III: Certifications (one (1) copy)

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

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

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

In April 2006, Canada issued a policy directing federal departments and agencies to take the necessary steps to incorporate environmental considerations into the procurement process [Policy on Green Procurement](http://www.tpsgc-pwgsc.gc.ca/ecologisation-greening/achats-procurement/politique-policy-eng.html) (<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 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 demonstrate their understanding of the requirements contained in the bid solicitation and explain how they will meet these requirements. Bidders should demonstrate their capability in a thorough, concise and clear manner for carrying out the work.

The technical bid consists of the following:

- (a) **Supporting Technical documentation:** Technical brochures or technical data to demonstrate compliance to the requirement as described in Annex "A".
- (b) **List of Products:** Bidders must include a complete product list identifying: the product name; the name of manufacturer; the model and part number of each component which make up the system. Bidders must also state the point of manufacture and shipping of goods or where service is to be performed: The bidder is requested to use the form provided in Annex "A".
- (c) **Installation Plan:** Bidders should include an installation plan (including the installation schedule), which must demonstrate that the Bidder's installation plan meets all the mandatory requirements for installation described Annex "A".

- (d) **Training Plan:** Bidders should include a training plan, which must demonstrate that the Bidder's training plan meets all the mandatory requirements for training described in Annex "A". The training plan must include, at a minimum, a description of the course materials that will be provided to participants; the training schedule; and the duration of the training.

## Section II: Financial Bid

- (a) **Pricing:** Bidders must submit their financial bid in accordance with the Basis of Payment including Annex "B" – 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 option years. 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.
- (c) **Blank Prices:** 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.

### 3.1.1 Exchange Rate Fluctuation

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

### 3.1.2 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

##### 4.1.1.1 Mandatory Technical Evaluation Criteria

The mandatory technical evaluation criteria are detailed in Annex "A", Part 2.1.

#### 4.1.2 Financial Evaluation

The financial evaluation will be conducted by calculating the Total Aggregated Bid Price in accordance with the pricing tables provided in Annex "B" - Pricing Tables.

## **Evaluation of Price - Bid**

The price of the bid will be evaluated in Canadian dollars, Applicable Taxes excluded, DDP (Ottawa, Ontario), Incoterms® 2000, Canadian customs duties and excise taxes included.

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.

### **4.2 Basis of Selection**

#### **4.2.1 SACC Manual Clause [A0031T](#) (2010-08-16) - Basis of Selection - Mandatory Technical Criteria**

## **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**

In accordance with the *Ineligibility and Suspension Policy* (<http://www.tpsgc-pwgsc.gc.ca/ci-if/politique-policy-eng.html>), the Bidder must provide with its bid the required documentation, as applicable, to be given further consideration in the procurement process.

### **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 Integrity Provisions – Required Documentation**

In accordance with the *Ineligibility and Suspension Policy* (<http://www.tpsgc-pwgsc.gc.ca/ci-if/politique-policy-eng.html>), the Bidder must provide the required documentation, as applicable, to be given further consideration in the procurement process.

## 5.2.2 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 available at the bottom of the page of the [Employment and Social Development Canada \(ESDC\) - Labour's](http://www.esdc.gc.ca/en/jobs/workplace/human_rights/employment_equity/federal_contractor_program.page?&_ga=1.229006812.1158694905.1413548969) website ([http://www.esdc.gc.ca/en/jobs/workplace/human\\_rights/employment\\_equity/federal\\_contractor\\_program.page?&\\_ga=1.229006812.1158694905.1413548969](http://www.esdc.gc.ca/en/jobs/workplace/human_rights/employment_equity/federal_contractor_program.page?&_ga=1.229006812.1158694905.1413548969)).

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.

## 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

The Contractor must provide the items detailed under the "Requirement" at Annex "A".

### 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 \(2016-04-04\)](#), General Conditions - Goods (Medium Complexity), apply to and form part of the Contract.

### 6.4. Term of Contract

#### 6.4.1 Delivery Date

All the deliverables must be received on or before March 31<sup>st</sup>, 2017.



---

## 6.5 Authorities

### 6.5.1 Contracting Authority

The Contracting Authority for the Contract is:

Martin Gauthier  
Public Services and Procurement Canada  
Acquisitions Branch  
Commercial Consumer Products Directorate  
11 Laurier Street, 6A2, Phase III  
Place du Portage, Gatineau, Quebec, K1A 0S5

Telephone: 613-404-8642  
Facsimile: 819-956-3814  
E-mail address: [martin.gauthier@pwgsc.gc.ca](mailto:martin.gauthier@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:

Name: \_\_\_\_\_  
Title: \_\_\_\_\_  
Organization: \_\_\_\_\_  
Address: \_\_\_\_\_

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

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.

### 6.5.3 Accounts Payable Contact *(to be filled in only at contract award)*

Name: \_\_\_\_\_  
Telephone: \_\_\_\_\_  
E-mail address: \_\_\_\_\_

#### 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: \_\_\_\_\_

#### 6.6 Payment

##### 6.6.1 Basis of Payment

In consideration of the Contractor satisfactorily completing all of its obligations under the Contract, the Contractor will be paid a firm price including installation and Training as specified in contract for a cost of \$\_\_\_\_\_ **(to be filled in only at contract award)**. Customs duties are included and Applicable Taxes are 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.

##### 6.6.2 Limitation of Expenditure

SACC Manual clause C2000C (2007-11-30) Taxes - Foreign-Based Contractor  
SACC Manual clause C2605C (2008-05-12) Canadian Customs Duty and Sales Tax  
SACC Manual clause C2608C (2012-07-06) Canadian Customs Documentation  
SACC Manual clause H1000C (2008-05-12) Single Payment

#### 6.7 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 in the invoice is completed.
2. Invoices must be distributed as follows:
  - (a) The original and one (1) copy must be forwarded to the address shown on page 1 of the Contract for certification and payment.
  - (b) One (1) copy must be forwarded to the Contracting Authority identified under the section entitled "Authorities" of the Contract.
  - (c) one (1) copy must be forwarded to the consignee.

---

## 6.8 Certifications and Additional Information

### 6.8.1 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 Applicable Laws

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

### 6.10 Priority of Documents

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

- (a) the Articles of Agreement;
- (b) the general conditions 2010A (2016-04-04) General Conditions - Goods (Medium Complexity);
- (c) Annex "A", Requirement;
- (d) Annex "B", Pricing Tables.
- (e) the Contractor's bid dated \_\_\_\_\_ (*insert date of bid*)

### 6.11 SACC Manual Clauses

SACC Manual clause [A9068C](#) (2010-01-11) Government Site Regulations  
SACC Manual clause [A2000C](#) (2006-06-16) Foreign Nationals (Canadian Contractor)  
SACC Manual clause [A2001C](#) (2006-06-16) Foreign Nationals (Foreign Contractor)  
SACC Manual clause [G1005C](#) (2008-05-12) Insurance

### 6.12 Shipping Instructions

#### 6.12.1 Shipping Instructions - Delivery at Destination

1. Goods must be consigned to the destination specified in the Contract and delivered:  
  
Delivered Duty Paid (DDP) (Ottawa, Ontario) Incoterms 2000 for shipments from a commercial contractor.
2. The Contractor will be responsible for all delivery charges, administration, costs and risk of transport and customs clearance, including the payment of customs duties and taxes.

Solicitation No. - N° de l'invitation  
23375-170854/A  
Client Ref. No. - N° de réf. du client  
23375-170854

Amd. No. - N° de la modif.  
File No. - N° du dossier  
pv899. 23375-170854

Buyer ID - Id de l'acheteur  
pv899  
CCC No./N° CCC - FMS No./N° VME

---

## **ANNEX "A"**

### **Part 1 - REQUIREMENT**

Natural Resource Canada has a requirement for the supply and installation of one (1) automatic Thermal Gravimetric Analyser (TGA) system with training for up to three (3) users, which must meet all of the mandatory technical requirements as specified below and the mandatory evaluation criteria as specified at Part 2.1 - Mandatory Technical Evaluation Criteria. The requirement (must include all of the following:

The requirement must work and operate at all times in accordance with the following mandatory technical requirements and the mandatory evaluation criteria as specified below at Part 2.1 - Mandatory Technical Evaluation Criteria.

## Part 2.1 - MANDATORY TECHNICAL EVALUATION CRITERIA

The following requirements are the mandatory technical evaluation criteria which will be evaluated during the Bid Evaluation. In addition the Contractor will be required to meet all of the mandatory technical requirements for the duration of the Contract

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

### Thermal Gravimetric Analyser - General Requirements and Specifications

Clean Fossil Fuels requires a TGA system to perform Research & Development (R&D) work on samples of fossil fuels (mainly solid fuels), sorbents, catalysts and oxygen carriers under various reactive, corrosive and inert gas atmospheres. Such a system with its integrated software package will enable the monitoring/characterization of key transitions of weight loss and sample temperature, calculate derivative weight loss profiles during the heating of above mentioned samples from ambient to ~1200°C, perform peak deconvolution/curve fitting, determine sample reactivity for kinetic analysis under various testing conditions.

Item #	MANDATORY TECHNICAL EVALUATION CRITERIA	REFERENCE TO SUBSTANTIATION IN THE TECHNICAL BID.
1.0	The TGA must have the following:	
1.0a	High-resolution balance ( $\leq 0.1 \mu\text{g}$ )	
1.0b	Low noise and high stability ( $\leq 0.1 \mu\text{g}$ or $\pm 0.001\%$ )	
1.0c	Low isothermal and dynamic (gas buoyancy effect) drifts ( $< 10 \mu\text{g}$ for the full temperature range of ambient - 1200°C)	
1.0d	Capacity for at least two sample weight ranges: the first range $\leq 200\text{mg}$ and the maximum weight of the second range is between 1- 2 g)	
1.0e	Be vacuum-tight ( $10^{-2}$ mbar or better)	
1.0f	It must produce corrected baseline flatness and sensitivity ( $\leq 0.1 \mu\text{g}$ or $\pm 0.001\%$ ) over the temperature range from ambient to 1200°C	
1.0g	The system must include the device for automated temperature calibration	
2.0	The TGA system must be equipped with an auto-sampling system.	
2.0a	Auto loading sampler with $\geq 20$ -position auto-sampler with a contamination-free sealed pan punching system	
2.0b	It must provide a sampling kit to be coupled with a mass spectrometer (MS) or Fourier transform infrared spectroscopy (FTIR) analyser in appropriate flow rate and heated temperature ( $\geq 220^\circ\text{C}$ )	

<b>3.0</b>	The high-performance TGA furnace must have a temperature range of ambient to 1200°C and be capable of perform heating and cooling ramps over the entire temperature range.	
3.0a	The TGA furnace must be capable of a maximum linear heating rate of > 100°C/min throughout the entire temperature range, and ballistic heating rates of > 600°C/min	
3.0b	Cooling rate from maximum temperature (1200°C) to 50°C in 12 minutes or less	
3.0c	Must be able to maintain isotherms at temperatures $\geq 800^{\circ}\text{C}$ (with $\pm 0.002\%$ ) for at least 10 hours	
3.0d	The TGA furnace must be capable of achieving at temperature accuracy of $\pm 1^{\circ}\text{C}$	
3.0f	The TGA furnace must be capable of achieving a temperature precision of $\pm 0.1^{\circ}\text{C}$	
	Power input: 110 V, 60 Hz	
<b>4.0</b>	TGA system must have the capability to monitor and control the flow of one purge gas and at least two reactive gases using Mass Flow Controllers (MFC). The gas delivery system must be able for switching reactive gases automatically.	
4.0a	The TGA must be able to resist corrosive damage from reactive atmospheres including both oxidizing ( $p\text{O}_2 \leq 10^{-1}$ bar) and reducing gas ( $p\text{O}_2 \geq 10^{-10}$ bar), and corrosive gas (i.e., $\text{O}_2$ , $\text{SO}_2$ , $\text{NO}_x$ , $\text{HCl}$ , $\text{CO}_2$ , $\text{CO}$ , $\text{H}_2$ etc.)	
<b>5.0</b>	The TGA must be supplied with a software package for operation of the unit and data acquisition. This software must be Windows 7 compatible.	
5.0a	Data analysis and interpretation software must be capable of: <ul style="list-style-type: none"> <li>• Providing raw data of actual sample weight and sample temperature, and flow rates which could be exported to Microsoft Excel</li> <li>• Generating derivative profiles and providing transition temperatures</li> <li>• Peak deconvolution providing percent weight loss and compound evolution rate</li> </ul>	
<b>6.0</b>	TGA system must be delivered and installed on-site with training for up to three users.	
6.0a	One paper copy and one electronic copy of the installation, operation and maintenance manuals must be provided in English	

Solicitation No. - N° de l'invitation  
23375-170854/A  
Client Ref. No. - N° de réf. du client  
23375-170854

Amd. No. - N° de la modif.  
File No. - N° du dossier  
pv899. 23375-170854

Buyer ID - Id de l'acheteur  
pv899  
CCC No./N° CCC - FMS No./N° VME

---

## ANNEX "B"

### PRICING TABLES

The Bidder must provide all of the pricing requested in the following Tables in accordance with **Article 6.6.1 - Basis of Payment.**

**Table 1: Initial Requirement:**

Item	Description	Number of Units	Unit of Issue	Firm Unit Price
1	Thermal Gravimetric Analyzer (TGA) system including installation and training for three users.	1	Each	\$
	Total:			

Solicitation No. - N° de l'invitation  
23375-170854/A  
Client Ref. No. - N° de réf. du client  
23375-170854

Amd. No. - N° de la modif.  
File No. - N° du dossier  
pv899. 23375-170854

Buyer ID - Id de l'acheteur  
pv899  
CCC No./N° CCC - FMS No./N° VME

**ANNEX "C"**

**COMPLETE LIST OF DIRECTORS**  
**(As per Standard Instructions, Clauses and Conditions Part 2)**

Name	Position
<hr/>	<hr/>
<hr/>	<hr/>
<hr/>	<hr/>
<hr/>	<hr/>
<hr/>	<hr/>