



**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**

<b>Title - Sujet</b> INDUCTION HEATING SYSTEM	
<b>Solicitation No. - N° de l'invitation</b> 31184-156832/A	<b>Date</b> 2015-12-18
<b>Client Reference No. - N° de référence du client</b> 31184-156832	
<b>GETS Reference No. - N° de référence de SEAG</b> PW-\$\$HL-659-68675	
<b>File No. - N° de dossier</b> hl659.31184-156832	<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 2016-02-01</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> Van Tassel, Stella	<b>Buyer Id - Id de l'acheteur</b> hl659
<b>Telephone No. - N° de téléphone</b> (873) 469-3346 ( )	<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-13 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**

Fuel & Construction Products Division  
11 Laurier St./11, rue Laurier  
7A2, 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>

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### Annexes

#### **ANNEX A – Statement of Requirement**

#### **APPENDIX A - Purchase Description & Compliancy Matrix – Induction Heating System**

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## **PART 1 - GENERAL INFORMATION**

### **1.1 Statement of Requirement - Bid**

To supply and deliver one (1) Induction Heating System and related components as detailed in Annex A – Statement of Requirement and Appendix A – Purchase Description & Compliancy Matrix.

### **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 (2015-07-03) 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

#### 2.1.2 SACC Manual Clauses

The following terms and conditions are incorporated herein

SACC Reference	Section	Date
B1000T	Condition of Material - Bid	2014-06-26

### 2.2 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.

### 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

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choice. If no change is made, it acknowledges that the applicable laws specified are acceptable to the bidders.

**2.5 Best Delivery Date - Bid**

While delivery is requested by March 31, 2016 or earlier, the best delivery that could be offered is \_\_\_\_\_ . (*Bidder to complete*)

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## 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 Criteria Bid (One (1) hard copy)

Section II: Financial Bid (One (1) hard copy)

Section III: Certifications (One (1) hard copy)

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

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

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

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

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

#### Section I: Technical Bid

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

**3.1.1** Bidders must submit a full Technical Proposal in accordance with the criteria listed in Annex A – Statement of Requirement and Appendix A - Purchase Description & Compliancy Matrix – Induction Heating System. The Technical Proposal will form the basis of evaluation and therefore must be complete. Bidders must provide the Technical Proposal with their bid. Failure to provide a Technical Proposal with the bid will render the proposal non-responsive.

#### Section II: Financial Bid

Bidders must submit their financial bid in accordance with the Annex B – Pricing Table and the Basis of Payment. The total amount of Applicable Taxes must be shown separately.

#### 3.1.2 SACC Manual Clauses

The following terms and conditions are incorporated herein

SACC Reference	Section	Date
C3011T	Exchange Rate Fluctuation	2013-11-06

### 3.2 Progress Payments

Progress payments will not be considered unless specifically offered by PWGSC in this document.

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**Section III: Certifications**

Bidders must submit the certifications 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; and
- (b) An evaluation team composed of representatives of Canada will evaluate the bids.

#### **4.1.1 Technical Evaluation**

All bids must be completed in full and provide all of the information requested in the bid solicitation to enable full and complete evaluation.

##### **4.1.1.1 Mandatory Technical Evaluation Criteria**

The following MANDATORY factors will be taken into consideration in the evaluation of each bid:

- a) Bidders must demonstrate that they have a minimum of 10 years in the manufacture of induction heating equipment; and
- b) Bidders must provide documentation with their bid showing how they meet the technical requirements detailed in Annex "A" – Statement of Requirement and Appendix A - Purchase Description & Compliancy Matrix.

Bids not meeting these mandatory technical criteria will be given no further consideration.

### **4.1.2 Financial Evaluation**

#### **4.1.2.1 Mandatory Financial Criteria**

The following MANDATORY factors will be taken into consideration in the evaluation of each bid:

- a) Bidders must bid firm unit prices in Canadian funds, Applicable Taxes excluded, DDP Delivered Duty Paid to destination(s) Incoterms 2000, Customs Duties included; and
- b) Bidders must provide their pricing using the attached Annex B – Pricing Table

### **4.2 Basis of Selection – Mandatory Technical Criteria**

A bid must comply with the requirements of the bid solicitation and meet all mandatory technical evaluation criteria to be declared responsive. The responsive bid with the lowest evaluated price will be recommended for award of a contract.

## 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.

### 5.1 Certification Required with the Bid

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

#### 5.1.1 Declaration of Convicted Offences

As applicable pursuant to subsection Declaration of Convicted Offences of section 01 of the Standard Instructions, the Bidder must provide its bid, a completed [Declaration Form](#), 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 – List of Names

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.

Bidders bidding as sole proprietorship, as well as those bidding as a joint venture, must provide the name of the owner(s).

Bidders bidding as societies, firms or partnerships do not need to provide lists of names.

#### 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](http://www.labour.gc.ca/eng/standards_equity/eq/emp/fcp/list/inelig.shtml)" 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.

#### 5.2.3 Certificate of Conformance

The Bidder certifies herein that the products offered conform and will continue to conform to the specifications in the Annex "A" – Statement of Requirement and Appendix A -Purchase Description & Compliancy Matrix during the period of the Contract.

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\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

## 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 this Contract.

### 6.2 Statement of Requirement - Contract

The Contractor must provide the items detailed in the Line Items Details in accordance with Annex A – Statement of Requirement and Appendix A - Purchase Description & Compliancy Matrix – Induction Heating System and components.

### 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>) issued by Public Works and Government Services Canada.

#### 6.3.1 General Conditions

2010A (2015-09-03) General Conditions - Goods (Medium Complexity), apply to and form part of the Contract.

### 6.4 Term of Contract

#### 6.4.1 Delivery Date - *(To be inserted by the Contracting Authority at contract award)*

All the deliverables must be received on or before \_\_\_\_\_.

#### 6.4.2 Adherence to Delivery Schedule

The Contractor will promptly give notice to the Department of Public Works and Government Services of its inability to meet the contract delivery schedule and will request therein an extension of time stating its proposed revised delivery schedule and offering consideration for such revisions. Until such notice is received and the revised delivery schedule agreed to by the Department of Public Works and Government Services, the Minister may, pursuant to the General Conditions, on the business day following the due date of delivery of any outstanding materials, **terminate the whole or part of the contract for default.**

### 6.5 Authorities

#### 6.5.1 Contracting Authority

The Contracting Authority for the Contract is:  
Stella Van Tassel  
Public Works and Government Services Canada  
Acquisitions Branch, Commercial Acquisition & Supply Management Sector  
Logistics, Electrical, Fuel & Transportation Directorate  
Fuel & Construction Products Division (HL)  
11 Laurier Street, 7A2, Place du Portage, Phase III  
Gatineau, QC K1A 0S5  
Telephone: 873-469-3346 Facsimile: 819-956-5227  
E-mail address: stella.vantassel@tpsgc-pwgsc.gc.ca

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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 completed by the Contracting Authority at contract award)*

The Technical Authority for the Contract is:

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

Title: \_\_\_\_\_

Organization: \_\_\_\_\_

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

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

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

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.

### 6.5.3 Contractor's Representative

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

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

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

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

## 6.6 Payment

### 6.6.1 Basis of Payment - Firm Unit Prices

In consideration of the Contractor satisfactorily completing all of its obligations under the Contract, the Contractor will be paid firm unit prices as specified in Annex B – Pricing Tables, for a cost of \$\_\_\_\_\_ CAD. Customs duties are included and Applicable Taxes are extra. *(To be completed by the Contracting Authority at contract award)*

### 6.6.2 Limitation of Price

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.

### 6.6.3 Terms of Payment

SACC Manual clause H1000C (2008-05-12) Single Payment.

## 6.7 Invoicing Instructions

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. Suppliers are requested to provide invoices in electronic format unless otherwise specified by the Contracting Authority or Project Authority, thereby reducing printed material.

Invoices must be distributed as follows:

- a) The original and one copy must be sent to the following address for certification and payment:

**National Research Council Canada  
ASPM Material Management  
Bldg. M-22  
Montreal Rd, Ottawa, ON K1A 0R6**

- (b) One (1) copy must be forwarded by email to the Contracting Authority identified under section 4 - Authorities of the Contract.

## 6.8 Certifications

### 6.8.1 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.

## 6.9 Applicable Laws *(To be completed by the Contracting Authority at contract award)*

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

## 6.10 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) the general conditions 2010A (2015-09-03) Goods (Medium Complexity);  
(c) Annex A – Statement of Requirement;  
(d) Appendix A - Purchase Description & Compliancy Matrix;  
(e) Annex B – Pricing Table; and  
(f) the Contractor's bid dated \_\_\_\_\_, as clarified on \_\_\_\_\_ or \_\_\_\_\_, as amended on \_\_\_\_\_ *(To be completed by the Contracting Authority at contract award)*

## 6.11 SACC Manual Clauses

The following terms and conditions are incorporated herein:

SACC Reference	Section	Date
G1005C	Insurance	2008-05-12

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### **6.12 Inspection and Acceptance**

The Technical Authority 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 of the Statement of Work 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.

### **6.13 Shipping Instructions - Delivery at Destination**

Goods must be consigned to the destination specified in the Contract and delivered DDP Delivered Duty Paid to Natural Research Council Canada at 1200 Montreal Rd, Bldg M-22, Ottawa, Ontario, K1A 0R6 Incoterms 2000 for shipments from commercial contractor.

# ANNEX A

## STATEMENT OF REQUIREMENT

### Solid-State Induction Heating System

#### 1. Background

The Aerospace Portfolio of the National Research Council (NRC), Ottawa, ON, has a requirement for a solid-state, radio frequency (RF) induction heating system with a deliverable output power in the 7.5 to 10kW range for mechanical testing of advanced materials for civil and military gas turbine engine applications.

#### 2. Requirement

The induction heating system is to comprise of solid-state power supply and separate remote heating station for installation of the work coil. The induction power supply is to have microprocessor controlled continuous auto tuning capability for matching the resonant frequency of the inductor to ensure efficient work piece heating and must operate in a series resonance mode, under current control, and must be capable of operating with a broad range of inductors. The induction power supply must also have a multi tap RF transformer with tap ratios selectable by the operator. The induction power supply and remote heating station are to be connected by means of a flexible power cable. The power supply and remote heating station and work coil are to be water cooled. The remote heating station must allow for fitting of customer supplied work piece heating coils and must have the capability for changing the value of the resonating capacitors. Detailed mandatory specifications for the power supply and remote heating station are available in Appendix A – Purchase Description and Compliancy Matrix.

#### 3. Mandatory Technical Specifications

##### 3.1 Induction Power Supply

3.1.1 Mandatory technical specifications listed under Item 1 of Appendix A – Purchase Description and Compliancy Matrix.

##### 3.2 Remote Heat Station

3.2.2 Mandatory technical specifications listed under Item 2 of Appendix A – Purchase Description and Compliancy Matrix.

#### 4. Standards

4.1 The equipment must be in conformance with CE (Conformité Européene) standards or better (CSA or UL).

4.2 Control of heater functions via serial data port must meet RS232 or RS485 standards.

#### 5. Training Requirements - Optional

The Contractor may be required to:

5.1 Provide a maximum of one day on-site technical training, including any training material, for a maximum of three participants, at NRC Ottawa, ON.

#### 6. Support Requirements

The Contractor must:

6.1 The Contractor must have an authorized service center within North America with qualified service personnel for servicing of the equipment.

6.2 Provide 1-year on-site technical assistance;

6.3 Provide over the phone service response of no greater than 24 hours, five days in a week, Monday through Friday, excluding statutory holidays. If the issue cannot be resolved over the phone, qualified service personnel must be able to arrive on-site within 10 business days, excluding statutory holidays, of any equipment failure that renders the instrument unusable;

6.4 Provide one (1) operation and maintenance manual in English (a bilingual English/French manual is also acceptable).

## **7. Delivery**

The Contractor must deliver the Induction Heating System to National Research Council Canada at 1200 Montreal RD, Bldg M-22, Ottawa, ON.

## **8. National Research Council's Responsibilities**

National Research Council will be responsible for the following:

8.1 Providing any electrical and mechanical work necessary for installation of the equipment will be done by NRC;

8.2 Providing the water cooling supply to the induction heating equipment; and

8.3 Providing the work piece heating coil.

# APPENDIX "A"

## Purchase Description & Compliance Matrix

### Induction Heating System

The proposed system must meet the mandatory requirements stated below.

Item #	Description	Requirement/Specification Description	Compliant (YES/NO)
1	Induction Power Supply		
a.	Size	Not to exceed 432mm wide, 300mm in height and 650mm in depth.	
b.	Power Supply Output	Must be capable of delivering 100% RF power at the work coil based on Line Voltage specified in Item 1k). 100% solid-state electronics, no vacuum tubes.	
c.	Deliverable RF Power Output	7.5kW to 10kW.	
d.	Duty Cycle	100% duty cycle at 100% rated power.	
e.	RF Inductor Auto Tuning	Continuous tuning the RF circuit automatically for matching the resonant frequency of the inductor.	
f.	RF Inductor Auto Tuning Time	Less than 10ms.	
g.	RF Rise Time	Less than 10ms.	
h.	Power Supply Resonance Mode	Series.	
i.	Power Supply Control Mode	Current control.	
j.	Resonant Frequency Range	Within 50kHz to 485kHz. Alternate frequency ranges within these upper and lower bounds will be considered.	
k.	Line Voltage	Three-phase, 480VAC, 50/60Hz, maximum 30amps.	

i.	Line Voltage Tolerance	Power supply must be stable with a $\pm 10\%$ fluctuation in incoming AC power.	
m.	Power Factor	0.74 or higher.	
n.	Standards	Conformance with Conformité Européenne (CE) standards or better (CSA or UL).	
o.	Contact Outputs	Isolated, low voltage (24VDC or less).	
p.	Contact Output Functions	Minimum functionality includes Heat On, Fault and Ready status.	
q.	Contact Inputs	Isolated, low voltage (24VDC or less).	
r.	Contact Input Functions	Minimum functionality includes Start Heating, Stop Heating and Emergency Stop.	
s.	Analog Inputs	0-10VDC analog input to proportionally control Power Supply output to the work coil.	
t.	Communications	Control of heater functions via serial data port meeting RS232 or RS485 standards.	
u.	Front Panel Controls	Integrated front panel controls necessary to manually start and stop the induction heater.	
v.	Front Panel Display	Integrated front panel visual display on which at a minimum, the resonant frequency, power supply voltage (absolute value or percentage), power supply current (absolute value or percentage), RF power (absolute or percentage), and diagnostic fault information codes can be displayed. It is acceptable to have a single line (or value) display so long as the operator can change the parameter displayed by means of a front panel parameter display control.	
w.	Cooling	Water cooled.	
x.	Low Cooling Flow Detection	Power supply must be able to detect when there is insufficient cooling water flow to prevent operation of the power supply.	
y.	Power Supply Output Voltage	Operator selected by transformer taps.	
z.	Number of Transform Tap Ratios	Minimum of 10.	
<b>2</b>	<b>Remote Heat Station</b>		
a.	Size	Not to exceed 250mm in height, 320mm in width and 420mm in length.	
b.	RF Power Supply Cable	Flexible cable.	
c.	RF Input Cable Length	3m to 6m.	
d.	RF Input Cable Minimum Bend	200mm	

	Radius	
e.	Capacitance	Total capacitance of 0.75 uF.
f.	Alternate Capacitors	Capability for fitting resonating capacitors for total capacitances between 0.15uF and 0.75uF.
g.	Cooling	Water cooled.
h.	Low Cooling Flow Detection	Power supply must be able to detect when there is insufficient cooling water flow and prevent operation of the power supply.
i.	Inductor (Working Coil)	Working coil is operator replaceable and/or interchangeable.
j.	Inductor (Working Coil) Attachment	Working coil attaches to remote heating station via standard brass compression fittings for tubing, such as Swagelok or equivalent.
k.	Weight	Not to exceed 30kg.

## ANNEX B – PRICING TABLE

### Induction Heating System and Components (Firm Quantity)

The Bidder must provide a unit cost for a quantity of one (1) Induction Power Supply and one (1) Remote Heat Station in accordance with Annex “A” – Statement of Requirement and Appendix A – Purchase Description – Induction Heating System and components.

A	B	C	D
Item	Description	Quantity	Firm Price per unit <i>(Bidder to complete)</i>
1.	Induction Power Supply*	1	\$ _____
2.	Remote Heat Station*	1	\$ _____
3.	Optional – A maximum of one day on-site technical training, including any training material, for a maximum of three participants, to be given at NRC Ottawa, ON*	1	\$ _____
<b>Total Cost (excluding applicable taxes)</b>			\$ _____

**\*Pricing for items above must include** costs for delivery (and travel for item 3) to 1200 Montreal RD, Ottawa, ON as well as one (1) year warranty, as outlined in Annex “A” – Statement of Requirement.