



**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

Title - Sujet Battery Emulation System	
Solicitation No. - N° de l'invitation 31184-196541/A	Date 2019-11-22
Client Reference No. - N° de référence du client 31184-196541	
GETS Reference No. - N° de référence de SEAG PW-\$\$PV-956-78059	
File No. - N° de dossier pv956.31184-196541	CCC No./N° CCC - FMS No./N° VME
Solicitation Closes - L'invitation prend fin at - à 02:00 PM on - le 2020-01-03	Time Zone Fuseau horaire Eastern Standard Time EST
F.O.B. - F.A.B. Plant-Usine: <input type="checkbox"/> Destination: <input checked="" type="checkbox"/> Other-Autre: <input type="checkbox"/>	
Address Enquiries to: - Adresser toutes questions à: Courteau, Robert	Buyer Id - Id de l'acheteur pv956
Telephone No. - N° de téléphone (343) 550-1614 ()	FAX No. - N° de FAX () -
Destination - of Goods, Services, and Construction: Destination - des biens, services et construction: NATIONAL RESEARCH COUNCIL CANADA BLDG M-10 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

Scientific, Medical and Photographic Division / Division de l'équipement scientifique, des produits photographiques et pharmaceutiques
L'Esplanade Laurier
140 O'Connor Street,
East Tower, 7th Floor
Ottawa
Ontario
K1A 0S5

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

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PART 1 - GENERAL INFORMATION

1.1 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 World Trade Organization Agreement on Government Procurement (WTO-AGP), the North American Free Trade Agreement (NAFTA), and the Canadian Free Trade Agreement (CFTA).

1.4 epost Connect service

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

PART 2 - BIDDER INSTRUCTIONS

2.1 Standard Instructions, Clauses and Conditions

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

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

The [2003](#) (2017-04-27) Standard Instructions - Goods or Services - Competitive Requirements, are incorporated by reference into and form part of the bid solicitation.

The 2003 standard instructions is amended as follows:

- Section 08, entitled Transmission by facsimile or by epost Connect, is amended as follows:
 - subsection 2. is deleted entirely and replaced with the following:
 2. epost Connect
 - a. Unless specified otherwise in the bid solicitation, bids may be submitted by using the [epost Connect service](#) provided by Canada Post Corporation.
 - i. PWGSC, National Capital Region: The only acceptable email address to use with epost Connect for responses to bid solicitations issued by PWGSC headquarters is:

tpsgc.dgareceptiondessoumissions-abbidreceiving.pwgsc@tpsgc-pwgsc.gc.ca

or, if applicable, the email address identified in the bid solicitation.

- ii. PWGSC regional offices: The only acceptable email address to use with epost Connect for responses to bid solicitations issued by PWGSC regional offices is identified in the bid solicitation.
- b. To submit a bid using epost Connect service, the Bidder must either:
 - i. send directly its bid only to the specified PWGSC Bid Receiving Unit, using its own licensing agreement for epost Connect provided by Canada Post Corporation; or
 - ii. send as early as possible, and in any case, at least six business days prior to the solicitation closing date and time, (in order to ensure a response), an email that includes the bid solicitation number to the specified PWGSC Bid Receiving Unit requesting to open an epost Connect conversation. Requests to open an epost Connect conversation received after that time may not be answered.
- c. If the Bidder sends an email requesting epost Connect service to the specified Bid Receiving Unit in the bid solicitation, an officer of the Bid Receiving Unit will then initiate an epost Connect conversation. The epost Connect conversation will create an email notification from Canada Post Corporation prompting the Bidder to access and action the message within the conversation. The Bidder will then be able to transmit its bid afterward at any time prior to the solicitation closing date and time.
- d. If the Bidder is using its own licensing agreement to send its bid, the Bidder must keep the epost Connect conversation open until at least 30 business days after the solicitation closing date and time.
- e. The bid solicitation number should be identified in the epost Connect message field of all electronic transfers.
- f. It should be noted that the use of epost Connect service requires a Canadian mailing address. Should a bidder not have a Canadian mailing address, they may use the Bid Receiving Unit address specified in the solicitation in order to register for the epost Connect service.
- g. For bids transmitted by epost Connect service, Canada will not be responsible for any failure attributable to the transmission or receipt of the bid including, but not limited to, the following:
 - i. receipt of a garbled, corrupted or incomplete bid;
 - ii. availability or condition of the epost Connect service;
 - iii. incompatibility between the sending and receiving equipment;
 - iv. delay in transmission or receipt of the bid;
 - v. failure of the Bidder to properly identify the bid;
 - vi. illegibility of the bid;
 - vii. security of bid data; or,
 - viii. inability to create an electronic conversation through the epost Connect service.
- h. The Bid Receiving Unit will send an acknowledgement of the receipt of bid document(s) via the epost Connect conversation, regardless of whether the conversation was initiated by the supplier using its own license or the Bid Receiving Unit. This acknowledgement will confirm only the receipt of bid document(s) and will not confirm if the attachments may be opened nor if the content is readable.
- i. Bidders must ensure that they are using the correct email address for the Bid Receiving Unit when initiating a conversation in epost Connect or communicating with the Bid Receiving Unit and should not rely on the accuracy of copying and pasting the email address into the epost Connect system.
- j. A bid transmitted by epost Connect service constitutes the formal bid of the Bidder and must be submitted in accordance with section 05.

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) 420-7201
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.

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 (2 hard copies)

Section II: Financial Bid (1 hard copy)

Section III: Certifications (1 hard copy)

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

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

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 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

Bidders must submit their financial bid in accordance with the Basis of Payment.

Section III: Certifications

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

3.2 Electronic Payment of Invoices – Bid

If you are willing to accept payment of invoices by Electronic Payment Instruments, complete Attachment 1, Form 2 Electronic Payment Instruments, to identify which ones are accepted.

If Attachment 1, Form 2, Electronic Payment Instruments is not completed, it will be considered as if Electronic Payment Instruments are not being accepted for payment of invoices.

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

3.3 Exchange Rate Fluctuation

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

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.

4.1.2 Financial Evaluation

The financial evaluation will be conducted by calculating the Total Overall 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 Destination, Incoterms® 2010, 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 SACC Manual Clauses

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

5.2 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) (<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).

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.

Solicitation No. - N° de l'invitation
31184-196541/A
Client Ref. No. - N° de réf. du client
31184-196541

Amd. No. - N° de la modif.
File No. - N° du dossier
pv956. 31184-196541

Buyer ID - Id de l'acheteur
pv956
CCC No./N° CCC - FMS No./N° VME

6.1 Security Requirements

There is no security requirement applicable to the Contract.

6.2 Requirement

6.2.1 Initial Requirement

The Contractor must provide 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.

6.3.2 Supplemental General Conditions

4001 (2015-04-01) Hardware Purchase, Lease and Maintenance

apply to and form part of the Contract.

6.4 Term of Contract

6.4.1 Period of the Contract

The period of the Contract is from the date of Contract Award to exactly one year from said date, inclusive.

6.4.2 Delivery Date

All deliverables would **ideally** be received by January 31st 2020, and **must** be received by February 21st 2020.

6.4.3 Delivery Points

Delivery of the requirement will be made to delivery point:

National Research Council Canada
Bldg M10, 1200 Montreal Road
Ottawa, ON
K1A 0R6

Solicitation No. - N° de l'invitation
31184-196541/A
Client Ref. No. - N° de réf. du client
31184-196541

Amd. No. - N° de la modif.
File No. - N° du dossier
pv956. 31184-196541

Buyer ID - Id de l'acheteur
pv956
CCC No./N° CCC - FMS No./N° VME

6.5 Authorities

6.5.1 Contracting Authority

The Contracting Authority for the Contract is:

Robert Courteau
Supply Specialist
Public Works and Government Services Canada
Commercial Consumer Products Directorate
Room 7-153, 140 O'Connor Street, Ottawa, Ontario, K1A 0R5

Telephone: 343-550-1614
E-mail: robert.courteau@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.

6.5.2 Technical Authority

The Technical Authority for the Contract is:

(to be filled in only at contract award)

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)

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

6.5.4.1 General enquiries

Name: _____

Tel. No. _____ ext: _____

E-mail address: _____

6.5.4.2 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, as specified in Annex B – Pricing Tables 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 SACC Manual Clauses

SACC Manual clause [A0222T](#) (2014-06-26) Evaluation of Price - Canadian / Foreign Bidders
SACC Manual clause [A9068C](#) (2010-01-11) Government Site Regulations
SACC Manual clause [C2000C](#) (2007-11-30) Taxes - Foreign-Based Contractor
SACC Manual clause [H1000C](#) (2008-05-12) Single Payment

6.6.3 Electronic Payment of Invoices – Contract (See: Attachment 1, Form 2)

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

- a. Direct Deposit (Domestic and International);
- b. Electronic Data Interchange (EDI);
- c. Wire Transfer (International Only);

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) One (1) copy must be forwarded to the Contracting Authority identified under the section entitled "Authorities" of the Contract.
 - (b) one (1) copy must be forwarded to the consignee.
 - (c) Invoices and order confirmations can be sent via e-mail to:

(inserted at Contract Award)
 - (d) To facilitate the payment process, it is important that the Contractor quote the contract number on all the invoices, shipping bills and packing slips. Failure to do so will delay payment and the date used for calculating interest on overdue accounts.

6.8 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 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 supplemental general conditions:
 - a. 4001 (2015-04-01) Hardware Purchase, Lease and Maintenance;
- (c) the general conditions 2010A (2016-04-04) General Conditions - Goods (Medium Complexity);
- (d) Annex A, Requirement;
- (e) Annex B, Pricing Tables; and
- (f) the Contractor's bid dated _____.

6.11 SACC Manual Clauses

SACC Manual clause [G1005C](#) (2016-01-28) Insurance
SACC Manual clause [B1501C](#) (2018-06-21) Electrical Equipment
SACC Manual clause [D2000C](#) (2007-11-30) Marking
SACC Manual clause [D2001C](#) (2007-11-30) Labeling

6.12 Shipping Instructions - Delivery at Destination

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

Delivered Duty Paid DDP Ottawa, Canada Incoterms 2010 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.

ANNEX A

REQUIREMENT

Statement of Technical Requirements (STR): Battery Emulator System

1.0 *Scope*

1.1. Objective:

The National Research Council (NRC) Aerospace Research Center (ARC) is soliciting bids in accordance with the terms and conditions listed herein. ARC has a requirement for a High Power Battery Emulation System. Refer to the technical requirements for details.

1.2. Background:

In the current times of intensive research and development in electrification of aircraft propulsion systems, the NRC is in preparation to conduct advanced on-ground research in Hybrid-Electric aircraft propulsion systems. In order to conduct such research the NRC requires a technologically advanced Battery Emulator System. This system will be used to simulate batteries (Energy Storage) to provide electric power to high power-density axial flux motors through specialized inverters at multiple DC [Direct Current] voltages as well as for testing batteries.

2.0 General Requirements

1. The Contractor is responsible for all packaging, crating and transportation.
2. The Contractor is responsible to deliver the equipment to 1200 Montreal Rd. Building M-10, Ottawa, Ontario, Canada, K1A 0R6
3. The Contractor is responsible for installation review and commissioning support of the equipment; this includes support for initial startup and acceptance tests. The review, commissioning support can be done on-site or remotely by mutual written agreement between the NRC and the Contractor. The acceptance of the battery emulator will be provided by the NRC in writing to the Contractor after all the testing has been completed to the satisfaction of the NRC, in accordance with the mandatory technical requirements described in section 3 of this document and after all the conditions of the section 2 (General Requirements) of this document will be met.
4. The Contractor must provide training for four NRC users. In this training, the Contractor must present the key operational functionalities of the battery emulator, the safety precautions and procedures, as well as the procedures for on-site trouble-shooting to be done by the NRC technical staff. The training must be scheduled no later than 5 days after the final commissioning and must be provided no later than 10 days after the final commissioning date, unless otherwise required by the NRC in written. The training can be performed on-site or remotely by mutual written agreement between the NRC and the Contractor. The Contractor must provide an electronic copy of the training material to each of the participants 3 days prior to the training date.
5. The Contractor must provide assistance in case of failure of the battery emulator within 48 hours. The Contractor must provide, upon delivery of the battery emulator, the contact information for their service centre and a list of the key contact personnel, including the names and phone numbers of Supervisors, Managers and key technical contacts.
6. The Contractor must provide remote assistance to the NRC end users in case of technical questions about the battery emulator hardware and software without additional cost to the NRC for a minimum period of one year.
7. The Contractor must provide 2 Hardcopies and one Electronic copy of the manuals of the battery emulator in English at the time of delivery. The manuals must cover installation, commissioning, operation, programming and troubleshooting of the battery emulator.

8. The Contractor will have access to the facility during normal working hours (8:30 to 16:30 Local time) after satisfactory security check previously arranged.
9. The Contractor must deliver the battery emulator with all required software to control and execute automated testing for all operational modes of the battery emulator. The software must be installed in the battery emulator prior to delivery. The Contractor must also provide one separate backup copy of the software at the time of delivery. The software provided must be the most current software version available for the battery emulator.
10. The Contractor must provide all the software updates for the battery emulator for the following two (2) years starting from the date of delivery at no additional cost to the NRC.
11. The Contractor must provide a full calibration certificate of the battery emulator at the time of delivery, with a validity period of at least one year. The Calibration Certificate must not be older than 3 weeks from the date of shipment of the unit.
12. The Contractor must cover the battery emulator hardware and software with a warranty valid for a minimum of one year for parts and labor.
13. The Contractor is the sole responsible for the cost of the battery emulator CSA [Canadian Standards Association] certification. Under no circumstances the NRC will accept additional cost for the CSA certification process.
14. All deliverables would **ideally** be received by January 31st 2020, and **must** be received by February 21st 2020.

3.0 Technical Requirements:

The Contractor must supply a Battery Emulator that meets the following mandatory technical requirements to be declared responsive.

1. The Battery Emulator must be an existing, commercially-available system with all its components contained in a single cabinet; including all functionalities for power conversion, cooling, controls, measurement, operational data display, research data display, data logging, safety, programmable protections, external communication interface and software to operate the battery emulator and manage the research data.
2. The battery emulator must supply a minimum power of 100kW [kilowatts] in a single output.
3. The battery emulator must have a grid connection with the following specifications: 3 phase plus ground, 480 or 600 V [Volts] AC [Alternative Current], frequency of 60Hz [Hertz], bi-directional.
4. The battery emulator must deliver a DC output voltage from 50 V to 1000 V (or higher); selected by the user within this range.
5. The battery emulator must supply a current of 300 A [Amperes] DC or higher.
6. The battery emulator must be capable of emulating a lithium-Ion battery within the voltage range specified in requirement number 4, regulating the voltage while sinking or providing current as required by the testing activity.
7. The battery emulator must be capable of receiving the back EMF [Electromotive Force] coming from the DC motors without damage to itself; behaving as a regenerative DC load with an efficiency equal or better than 75% [percent] and putting the discharged power back to the AC power grid; without producing perturbations to the AC power grid.
8. The battery emulator must be capable of performing automatic battery testing under international standards of IEC [International Electrotechnical Commission] and ISO [International Organization for Standardization] standard 12405-1.
9. The battery emulator must have high accuracy measurements for DC voltage, DC current and DC power with a maximum error of $\pm 0.2\%$ of the measured value; and must also be capable of storing, displaying and exporting the measured data to an external PC [Personal Computer].
10. The Battery emulator must display graphically, in multiple colours, the real-time measurements values and the trends of the measured values in a time scale defined by the user.
11. The battery emulator must have built-in [integrated inside the enclosure of the battery emulator] safety features that must include, at a minimum, user programmable alarms and protections for

-
- abnormal voltage, abnormal current, abnormal power, abnormal temperature, as well as built-in self-check routines of the battery emulator normal operation. All abnormal conditions and warnings must be detected and immediately reported to the user through the screen and/or dedicated lights and audible alarms and logged in the battery emulator memory.
12. The battery emulator must have built-in discrete and analog inputs and outputs to connect with external equipment.
 13. The Battery emulator must have a dedicated manual emergency shutdown pushbutton which must be installed in the main control panel of the battery emulator and at least one discrete input for a remote wired emergency shutdown coming from an external device.
 14. The battery emulator must have programmable slew rates and must respond to a current change from 10% to 80% in 3ms [milliseconds] or less.
 15. The battery emulator must be capable of accepting future upgrades to deliver higher power levels without the need of being returned to the manufacturer to reach 300kW or higher.
 16. The battery emulator must have a built-in Ethernet communications interface and must have compatibility to be controlled through LabView® software.
 17. The battery emulator must have CSA [Canadian Standards Association] certification. The CSA Certification Mark must be clearly visible on the outside of the enclosure of the battery emulator. A document that certifies the CSA certification of the battery emulator must be provided by the Contractor to the NRC as part of the supporting documentation for the bidding process. This certificate of compliance must include the manufacturer and model number of the battery emulator system.
 18. As part of the supporting documentation for the bidding process, the Contractor must provide drawings, electrical schematics and a complete list of the electrical requirements to the NRC for installation of the battery emulator.

Support Provided by Canada:

- NRC will be responsible for preparing the site and completing the electrical connections from the Battery Emulator System to the NRC electrical grid.

Annex A – Part 2.1

Technical Evaluation Criteria

The Contractor will be evaluated against the following mandatory requirements. The Contractor must complete the table below 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.

Mandatory	Description	Reference in Contractor Proposal: (Page numbers)
M1	The Battery Emulator must be an existing, commercially-available system with all its components contained in a single cabinet; including all functionalities for power conversion, cooling, controls, measurement, operational data display, research data display, data logging, safety, programmable protections, external communication interface and software to operate the battery emulator and manage the research data.	
M2	The battery emulator must supply a minimum power of 100kW [kilowatts] in a single output.	
M3	The battery emulator must have a grid connection with the following specifications: 3 phase plus ground, 480 or 600 V [Volts] AC [Alternative Current], or 600 V AC; frequency of 60Hz [Hertz], bi-directional.	
M4	The battery emulator must deliver a DC output voltage from 50 V to 1000 V (or higher); selected by the user within this range.	
M5	The battery emulator must supply a current of 300 A [Amperes] DC or higher.	
M6	The battery emulator must be capable of emulating a lithium-Ion battery within the voltage range specified in requirement number 4, regulating the voltage while sinking or providing current as required by the testing activity.	
M7	The battery emulator must be capable of receiving the back EMF [Electromotive Force] coming from the DC motors without damage to itself; behaving as a regenerative DC load with an efficiency equal to or better than 75% [percent] and putting the discharged power back to the AC power grid; without producing perturbations to the AC power grid.	
M8	The battery emulator must be capable of performing automatic battery testing under international standards of IEC [International Electrotechnical Commission] and ISO [International Organization for Standardization] standard 12405-1.	
M9	The battery emulator must have high accuracy measurements for DC voltage, DC current and DC power with a maximum error of $\pm 0.2\%$ of the measured value; and must also be capable of storing, displaying and exporting the measured data to an external PC [Personal Computer].	
M10	The Battery emulator must display graphically, in multiple colours, the real-time measurements values and the trends of the measured values in a time scale defined by the user.	
M11	The battery emulator must have built-in [integrated inside the enclosure of the battery emulator] safety features that must include, at a minimum, user programmable alarms and protections for abnormal	

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	voltage, abnormal current, abnormal power, abnormal temperature, as well as built-in self-check routines of the battery emulator normal operation. All abnormal conditions and warnings must be detected and immediately reported to the user through the screen and/or dedicated lights and audible alarms and logged in the battery emulator memory.	
M12	The battery emulator must have built-in discrete and analog inputs and outputs to connect with external equipment.	
M13	The Battery emulator must have a dedicated manual emergency shutdown pushbutton which must be installed in the main control panel of the battery emulator and at least one discrete input for a remote wired emergency shutdown coming from an external device.	
M14	The battery emulator must have programmable slew rates and must respond to a current change from 10% to 80% in 3ms [milliseconds] or less.	
M15	The battery emulator must be capable of accepting future upgrades to deliver higher power levels without the need of being returned to the manufacturer to reach 300kW or higher.	
M16	The battery emulator must have a built-in Ethernet communications interface and must have compatibility to be controlled through LabView® software.	
M17	The battery emulator must have CSA [Canadian Standards Association] certification. The CSA Certification Mark must be clearly visible on the outside of the enclosure of the battery emulator. A document that certifies the CSA certification of the battery emulator must be provided by the Contractor to the NRC as part of the supporting documentation for the bidding process. This certificate of compliance must include the manufacturer and model number of the battery emulator system.	
M18	As part of the supporting documentation for the bidding process, the Contractor must provide drawings, electrical schematics and a complete list of the electrical requirements to the NRC for installation of the battery emulator.	

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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.**

Item	Description	Price (CAD)	Quantity	Total Price
1	High Power Battery Emulation System, as per Annex A	\$	1	\$
2	Installation	\$	1	\$
3	Freight	\$	1	\$
Total Overall Price (CAD)				\$

ATTACHMENT 1

CERTIFICATIONS AND ADDITIONAL INFORMATION

The Contractor must provide the required certification(s) and additional information to be awarded a contract.

The certification(s) provided by the Contractor to Canada are subject to verification by Canada at all times. Unless specified otherwise, Canada will declare a contractor in default if any certification made by the Contractor is found to be untrue whether made knowingly or unknowingly, during the contract period.

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

The Contractor must submit the following duly completed certifications as part of the contract.

1. Integrity Provisions

1.1 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 Contractor must provide the required documentation, as applicable.

1.2 Complete List of Names of Board of Directors

In accordance with the *Ineligibility and Suspension Policy* (see Section 17 at <http://www.tpsgc-pwgsc.gc.ca/ci-if/politique-policy-eng.html>) and General Conditions (SACC 2010A, Section 29), the Contractor must provide a list of the names of its Board of Directors (see Form 1), which will be used to verify conformance to the Integrity Provisions.

2. Product Conformance

The Contractor certifies that all goods proposed conform, and will continue to conform, throughout the period of the contract, to the requirement detailed under Annex A.

Contractor's authorized representative signature

Date

3. Price Certification

The Contractor certifies that the price quoted is not in excess of the lowest price charged anyone else, including the Contractor's most favoured customer, for the like quality and quantity of the goods, services or both.

Contractor's authorized representative signature

Date

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4. Federal Contractors Program for Employment Equity

The Contractor certifies that the Contractor, and any of the Contractor's members if the Contractor 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 website ([http://www.esdc.gc.ca/en/jobs/workplace/human_rights/employment_equity/federal_contractor_p
rogram.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)).

Form 1 COMPLETE LIST OF DIRECTORS (As per Standard Instructions, Clauses and Conditions Part 2)

Name	Position
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Form 2 ELECTRONIC PAYMENT INSTRUMENTS

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

- Direct Deposit (Domestic and International);
- Electronic Data Interchange (EDI);
- Wire Transfer (International Only);