



**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 electricity reference standards uni	
Solicitation No. - N° de l'invitation U6309-221441/A	Date 2021-11-14
Client Reference No. - N° de référence du client U6309-221441	
GETS Reference No. - N° de référence de SEAG PW-\$\$HN-445-80570	
File No. - N° de dossier hn445.U6309-221441	CCC No./N° CCC - FMS No./N° VME
Solicitation Closes - L'invitation prend fin at - à 02:00 PM Eastern Standard Time EST on - le 2021-11-30 Heure Normale du l'Est HNE	
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: Ladouceur, Joanne M.	Buyer Id - Id de l'acheteur hn445
Telephone No. - N° de téléphone (613) 296-4282 ()	FAX No. - N° de FAX () -
Destination - of Goods, Services, and Construction: Destination - des biens, services et construction: Specified Herein Précisé dans les présentes	

Instructions: See Herein

Instructions: Voir aux présentes

Vendor/Firm Name and Address

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

Issuing Office - Bureau de distribution

Electrical & Electronics Products Division
L'Esplanade Laurier
East Tower, 4th floor,
Ottawa
Ontario
K1A 0S5

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

Destination Code - Code destinataire	Destination Address - Adresse de la destination	Invoice Code - Code bur.-comptable	Invoice Address - Adresse de facturation
D - 1	Measurement Canada 151 Tunney's Pasture Drwy. Ottawa ON K1A 0C9	I - 1	Measurement Canada 151 Tunney's Pasture Drwy. Ottawa ON K1A 0C9



Item Article	Description	Dest. Code Dest.	Inv. Code Fact.	Qty Qté	U. of I. U. de D.	Unit Price/Prix unitaire FOB/FAM Destination	Plant/Usine	Delivery Req. Livraison Req.	Del. Offered Liv. offerte
1	electricity reference standards un it See Annex A	D - 1	I - 1	1	Each	\$	XXXXXXXXXXXXXX	See Herein – Voir ci-inclus	
2	electricity reference standards un it See Annex A	D - 1	I - 1	1	Each	\$	XXXXXXXXXXXXXX	See Herein – Voir ci-inclus	
3	electricity reference standards un it See Annex A	D - 1	I - 1	1	Each	\$	XXXXXXXXXXXXXX	See Herein – Voir ci-inclus	
4	electricity reference standards un it See Annex A	D - 1	I - 1	1	Each	\$	XXXXXXXXXXXXXX	See Herein – Voir ci-inclus	
5	electricity reference standards un it See Annex A	D - 1	I - 1	1	Each	\$	XXXXXXXXXXXXXX	See Herein – Voir ci-inclus	
6	electricity reference standards un it See Annex A	D - 1	I - 1	1	Each	\$	XXXXXXXXXXXXXX	See Herein – Voir ci-inclus	

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PART 1 - GENERAL INFORMATION

1.1 Security Requirements

There is no security requirement associated with the requirement.

1.2 Requirement

The contractor must provide the goods and/or services in accordance with the technical requirements and in the quantities stated herein at pages 2-3.

1.2.1 Delivery Requirement

Delivery is requested to be completed by March 31, 2022.

1.3 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.

1.4 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](#) (2020-05-28) Standard Instructions - Goods or Services - Competitive Requirements, are incorporated by reference into and form part of the bid solicitation.

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

Delete: 60 days

Insert: 90 days

2.1.1 SACC Manual Clauses

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

2.2 Submission of Bids

Bids must be submitted only to the Public Works and Government Services Canada (PWGSC) Bid Receiving Unit by the date, time and place indicated on page 1 of the bid solicitation. Do not send proposal directly to the Contracting Officer. Email proposals not accepted.

PWGSC Bids Receiving Unit
11 Laurier Street, Place du Portage, Phase 3, Core 0B2,
Gatineau, Québec, K1A 0S5
Tel.: 819-420-7201 Fax: 819-997-9776
tpsgc.dgareceptiondessomissions-abbidreceiving.pwgsc@tpsgc-pwgsc.gc.ca

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

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.

2.5 Bid Challenge and Recourse Mechanisms

(a) Several mechanisms are available to potential suppliers to challenge aspects of the procurement process up to and including contract award.

(b) Canada encourages suppliers to first bring their concerns to the attention of the Contracting Authority. Canada's Buy and Sell website, under the heading "Bid Challenge and Recourse Mechanisms" contains information on potential complaint bodies such as:

- Office of the Procurement Ombudsman (OPO)
- Canadian International Trade Tribunal (CITT)

(c) Suppliers should note that there are **strict deadlines** for filing complaints, and the time periods vary depending on the complaint body in question. Suppliers should therefore act quickly when they want to challenge any aspect of the procurement process.

PART 3 - BID PREPARATION INSTRUCTIONS

3.1 Bid Preparation Instructions

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

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.

Canada requests that bidders follow the format instructions described below in the preparation of hard copy 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](https://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=32573) (<https://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=32573>). 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.

3.1.1 Exchange Rate Fluctuation

The requirement does not offer exchange rate fluctuation risk mitigation. Requests for exchange rate fluctuation risk mitigation will not be considered. All bids including such provision will render the bid non-responsive.

PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION

4.1 Evaluation Procedures

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

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

4.1.1 Technical Evaluation

4.1.1.1 Mandatory Technical Criteria

The following Mandatory requirements must be submitted with the bid for evaluation

- Technical compliance (description at Annex A.)

4.1.2 Financial Evaluation

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

Compliance with Pricing Basis;

Solicitation No. - N° de l'invitation
U6309-221441/A
Client Ref. No. - N° de réf. du client
U6309-221441

Amd. No. - N° de la modif.
File No. - N° du dossier
hn445.U6309-221441

Buyer ID - Id de l'acheteur
hn445
CCC No./N° CCC - FMS No./N° VME

The bid price will be determined by processing items in the line item detail section as follows:
Sum of all items total price (unit price x qty.)

4.1.2.1 Pricing Basis

The bidder must quote firm unit prices in Canadian dollars, DDP Delivered Duty Paid (Ottawa, Ontario), Applicable Taxes extra, as applicable. Freight charges to destination and all applicable Custom duties and Excise taxes must be included.

4.2. Basis of Selection

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 on an aggregate basis will be recommended for award of a contract.

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 section titled Information to be provided when bidding, contracting or entering into a real property agreement of 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 General Environmental Criteria Certification

The Bidder must select and complete one of the following two certification statements.

- a) The Bidder certifies that the Bidder is registered or meets ISO 14001.

Bidders' Authorized Representative Signature

Date

or

- b) The Bidder certifies that the Bidder meets and will continue to meet throughout the duration of the contract, a minimum of four (4) out of six (6) criteria identified in the table below.

Green Practices within the Bidders' organization	Insert a checkmark for each criterion that is met
Promotes a paperless environment through directives, procedures and/or programs	
All documents are printed double sided and in black and white for day to day business activity unless otherwise specified by your client	
Paper used for day to day business activity has a minimum of 30% recycled content and has a sustainable forestry management certification	
Utilizes environmentally preferable inks and purchase remanufactured ink cartridges or ink cartridges that can be returned to the manufacturer for reuse and recycling for day to day business activity.	
Recycling bins for paper, newsprint, plastic and aluminum containers available and emptied regularly in accordance with local recycling program.	
A minimum of 50% of office equipment has an energy efficient certification.	

Bidders' Authorized Representative Signature

Date

5.2.3 Federal Contractors Program for Employment Equity - Bid Certification

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

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

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

- 6.1.1 There is no security requirement applicable to the Contract.

6.2 Requirement

The contractor must provide the goods and/or services in accordance with the technical requirements and in the quantities stated herein at pages 2-3.

6.2.1 SACC Manual Clauses

SACC Reference	Section	Date
B1501C	Electrical Equipment	2018-06-21
B7500C	Excess Goods	2006-06-16

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](#) (2020-05-28), General Conditions - Goods (Medium Complexity), apply to and form part of the Contract.

2010A 32 Anti-forced labour requirements

1. The Contractor represents and warrants that the Work is not mined, manufactured or produced wholly or in part by forced labour. Regardless of who acts as an importer, the Contractor must not during the performance of the Contract, directly or indirectly, deliver Work to Canada or import Work into Canada the importation of which is prohibited pursuant to ss. 136(1) of the *Customs Tariff Act* and tariff item No. 9897.00.00 of the [Customs Tariff – Schedule](#) (as amended from time to time), because it is mined, manufactured or produced wholly or in part by forced labour.
2. If a tariff classification determination is made under the *Customs Act* that the importation of the Work, or any part of the Work, is prohibited, the Contractor must immediately inform the Contracting Authority in writing. Canada may terminate the Contract for default in accordance with section 2010A 23 - Default by the Contractor if the Work or any part of the Work is classified under tariff item no. 9897.00.00 of the [Customs Tariff – Schedule](#) as mined, manufactured or produced wholly or in part by forced labour. If the Contractor is aware that the Work, or any part of the Work, is being or has been investigated regarding whether it is prohibited from entry pursuant to tariff item No. 9897.00.00, the Contractor must immediately inform the Contracting Authority in writing of that investigation.
3. Canada may terminate the Contract for default in accordance with section 2010A 23 - Default by the Contractor if it has reasonable grounds to believe the Work was mined, manufactured or produced in whole or in part by forced labour or linked to human trafficking. Reasonable grounds for making such a determination may include:
 - a. Findings or Withhold Release Orders issued by the United States Customs and Border Protection, under the US [Trade Facilitation and Trade Enforcement Act](#) (TFTEA) of 2015; or
 - b. Credible evidence from a reliable source, including but not limited to non-governmental organizations.
4. Canada may terminate the Contract for default in accordance with section 2010A 23 - Default by the Contractor if the Contractor has, in the past three years, been convicted of any of the following offences under the [Criminal Code](#) or the [Immigration and Refugee Protection Act](#):

Criminal Code

 - i. section 279.01 (Trafficking in persons);
 - ii. section 279.011 (Trafficking of a person under the age of eighteen years);
 - iii. subsection 279.02(1) (Material benefit - trafficking);
 - iv. subsection 279.02(2) (Material benefit - trafficking of person under 18 years);

-
- v. subsection 279.03(1) (Withholding or destroying documents - trafficking);
- vi. subsection 279.03(2) (Withholding or destroying documents - trafficking of person under 18 years);
or
- Immigration and Refugee Protection Act*
- vii. section 118 (Trafficking in persons).
5. Canada may terminate the Contract for default in accordance with section 2010A 23 - Default by the Contractor if the Contractor has, in the past three years, been convicted of an offence in a jurisdiction other than Canada that, in Canada's opinion, is similar to any of the offences identified in paragraphs 4(i) to (vii).
6. For purposes of determining whether a foreign offence is similar to a listed offence, PWGSC will take into account the following factors:
- i. in the case of a conviction, whether the court acted within its jurisdiction;
 - ii. whether the supplier was afforded the right to appear during the court's proceedings or to submit to the court's jurisdiction;
 - iii. whether the court's decision was obtained by fraud; or
 - iv. whether the supplier was entitled to present to the court every defence that the supplier would have been entitled to present had the proceeding been tried in Canada.
7. Where Canada intends to terminate the Contract under this section, Canada will inform the Contractor and provide the Contractor an opportunity to make written representations before making a final decision. Written representations must be submitted within 30 days from receiving a notice of concern unless Canada establishes a different deadline.

6.3.3 Supplemental General Conditions

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

6.4. Term of Contract

6.4.1 Delivery Date

All the deliverables must be received on or before March 31, 2022.

6.5 Authorities

6.5.1 Contracting Authority

The Contracting Authority for the Contract is:

Joanne Ladouceur (M) – Supply Specialist
Public Works and Government Services Canada - Acquisitions Branch
Industrial Products and Vehicles Procurement Directorate - "HN" Division
4th Floor East Tower, L'Esplanade Laurier Bldg,
140 O'Connor St. Ottawa ON K1A 0R5
Telephone: 613-296-4282
E-mail address: joanne.m.ladouceur@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 Contractor's Representative

Name and telephone number of the person responsible for:

General enquiries

Name: _____
Telephone: _____
E-mail: _____

Delivery follow-up

Name: _____
Telephone: _____
E-mail: _____

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 unit prices, as specified in the contract. Customs duties and Applicable Taxes are included.

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 Price

SACC Manual clause [C6000C](#) (2017-08-17) Limitation of Price

6.6.3 Single Payment

SACC Manual clause [H1000C](#) (2008-05-12) Single Payment

6.6.4 Exchange Rate Fluctuation

The requirement does not offer exchange rate fluctuation risk mitigation. Requests for exchange rate fluctuation risk mitigation will not be considered. All bids including such provision will render the bid non-responsive.

6.6.5 SACC Manual Clauses

SACC Reference	Section	Date
G1005C	Insurance	2016-01-28

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.

Each invoice must be supported by:

- i. a copy of the invoices, receipts, vouchers for all direct expenses, and all travel and living expenses;
2. Invoices must be distributed as follows:
- (a) one copy must be forwarded to the consignee.
 - (b) The original and one copy must be forwarded to the following address for certification and payment.
Measurement Canada
151 Tunney's Pasture Driveway
Ottawa ON K1A 0C9
 - (c) One copy must be emailed to the Contracting Authority identified under the section entitled "Authorities" of the Contract.

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 supplemental general conditions 2010A-32
- (c) the general conditions 2010A (2020-05-28);
- (d) Annex A, Requirement;
- (e) the Contractor's bid dated _____ (*insert date of bid*) (*If the bid was clarified or amended, insert at the time of contract award: “, as clarified on _____” or “, as amended on _____” and insert date(s) of clarification(s) or amendment(s)*)

6.11 SACC Manual Clauses (Delivery)

SACC Reference	Section	Date
<u>D9002C</u>	Incomplete Assemblies	2007-11-30

6.11.1 Shipping Instructions - Delivery at Destination

Goods must be consigned to the destination specified in the Contract and Delivered Duty Paid –DDP– (Ottawa, Ontario) Incoterms 2000 for shipments from a commercial contractor.

ANNEX "A"

REQUIREMENT

SPECIFICATIONS OF THE DEVICE

GENERAL DESCRIPTION

Note: The word device in these specifications refers to the electricity standard with accuracy class 0.02% required in this procurement.

The device must be single phase multifunction electricity standard meter, that can accurately measure, at least, *watt hour (Wh)*, *var hour (varh)*, *volt-ampere-hour RMS (VAh RMS)*, *volt-ampere-hour AVERAGE (VAh AVG)*, *volt-hour (Vh)*, *ampere-hour (Ah)*, *volt-squared-hour (V^2h)*, *ampere-squared-hour (A^2h)* using *fundamental only measurement method* and using broad band measurement method.

The device must be able to accurately measure, at least, *watt hour (Wh)*, *var hour (varh)*, *volt-ampere-hour RMS (VAh RMS)*, *volt-ampere-hour AVERAGE (VAh AVG)*, *volt-hour (Vh)*, *ampere-hour (Ah)*, *volt-squared-hour (V^2h)*, *ampere-squared-hour (A^2h)* using broad band measurement method that uses fundamental frequency components and harmonic components of the power generation source frequency present in the measured circuit.

The two measurement methods are defined in section MEASUREMENT METHOD AND MEASUREMENT CAPABILITIES below.

The device must be portable, have a weight of less than 5 kilogram (5kg).

The dimensions of the device must be less than 70 centimeters (70 cm) if the he width (W) height (H) and depth (D) are added ($W+H+D < 70$ cm).

Worst case error of the device when measuring *watt hour (Wh)*, *var hour (varh)*, *volt-ampere-hour RMS (VAh RMS)*, *volt-ampere-hour AVERAGE (VAh AVG)*, *volt-hour (Vh)*, *ampere-hour (Ah)*, *volt-squared-hour (V^2h)*, *ampere-squared-hour (A^2h)* using fundamental only measurement method must be 0.02% or better.

Worst case error of the device when measuring *watt hour (Wh)*, *var hour (varh)*, *volt-ampere-hour RMS (VAh RMS)*, *volt-ampere-hour AVERAGE (VAh AVG)*, *volt-hour (Vh)*, *ampere-hour (Ah)*, *volt-squared-hour (V^2h)*, *ampere-squared-hour (A^2h)* using broad band measurement method that uses fundamental frequency components and harmonic components of the power generation source frequency present in the measured circuit must be 0.02% or better.

The performance above has to be confirmed at least by providing a certificate of calibration by a ISO 17025 accredited laboratory using a reference standard traceable to recognized National metrology Institute (NMI).

WORSE CASE ERROR

The percent error (%) calculated as:

$$\% \text{ error} = \frac{\text{Indication of Device} - \text{Indication of the Reference Standard Treceable to NMI}}{\text{Indication of the reference Standard Treceable to NMI}} \times 100$$

Worst case percent error for watt hour (Wh)	
Phase shift between voltage and current: 0°, 60° and 300°	
	Current: from 20 mA to 75 A
Voltage: from 62V to 600V	
	0.02%

Worst case percent error for var hour (varh)	
Phase shift between voltage and current: 90°, 30° and 330°	
	Current: from 20 mA to 75 A
Voltage: from 62V to 600V	
	0.02%

Worst case percent error for volt-ampere-hour RMS (VAh RMS)	
Phase shift between voltage and current: 30° and 60°	
	Current: from 20 mA to 75 A
Voltage: from 62V to 600V	
	0.02%

Worst case percent error for volt-ampere-hour AVERAGE (VAh AVG)	
Phase shift between voltage and current: 30° and 60°	
	Current: from 20 mA to 75 A
Voltage: from 62V to 600V	
	0.02%

Worst case percent error for volt-hour (Vh)	
At: 120V, 240V, 347V, 480V and 600V	
	0.02%

Worst case percent error for ampere-hour (Ah)	
At: 0.25A, 0.5A, 2.5A, 5A, 25A, 33.3 and 50A	
	0.02%

Worst case percent error for volt-squared-hour (V²h)	
At: 65.5V, 72.5V, 114V and 126V	

0.02%

Worst case percent error for ampere-squared-hour (A²h)
--

At: 0.25A and 5A

0.02%

Uncertainty measurement of the device must be established in accordance with ISO/IEC guide 98-3 'Uncertainty of measurement- Part 3: Guide to the expression of uncertainty in measurement.' <https://www.iso.org/standard/50461.html>

MEASUREMENT METHOD AND MEASUREMENT CAPABILITIES

The device must be capable of measuring *watt hour (Wh)*, *var hour (varh)*, *volt-ampere-hour RMS (VAh RMS)*, *volt-ampere-hour AVERAGE (VAh AVG)*, *volt-hour (Vh)*, *ampere-hour (Ah)*, *volt-squared-hour (V²h)*, *ampere-squared-hour (A²h)* using fundamental only measurement method.

Fundamental only measurement method is defined as calculating and measuring energy quantity by based only on the fundamental frequency components of power generation. The device must calculate the energy using the following formula:

$$\text{watt hour} = \frac{1}{kT} \int_{\tau}^{\tau+kT} p_1 dt$$

Where T=1/60

k is an integral value 1, 2, 3, 4, ...

p_1 is the power calculated based on the fundamental frequency component of power generation.

$$p_1 = V_1 \cdot I_1 \cdot \cos(\theta_1)$$

V_1 = RMS value of the fundamental component of the voltage

I_1 = RMS value of the fundamental component of the current

θ_1 = is the phase shift between fundamental components of the voltage and current

$$\text{var hour} = \frac{1}{kT} \int_{\tau}^{\tau+kT} \text{var}_1 dt$$

var_1 is the reactive power calculated based on the fundamental frequency component of power generation.

$$\text{var}_1 = V_1 \cdot I_1 \cdot \sin(\theta_1)$$

$$VA \text{ hour RMS} = \frac{1}{kT} \int_{\tau}^{\tau+kT} VA_1 dt$$

VA_1 is the apparent power calculated based on the fundamental frequency component of power generation.

$$VA_1 = \sqrt{p_1^2 + var_1^2}$$

$$\text{volt hour} = \frac{1}{kT} \int_{\tau}^{\tau+kT} V_1 dt$$

$$\text{ampere hour} = \frac{1}{kT} \int_{\tau}^{\tau+kT} I_1 dt$$

The device must be capable of measuring *watt hour (Wh)*, *var hour (varh)*, *volt-ampere-hour RMS (VAh RMS)*, *volt-ampere-hour AVERAGE (VAh AVG)*, *volt-hour (Vh)*, *ampere-hour (Ah)*, *volt-squared-hour (V²h)*, *ampere-squared-hour (A²h)* using broad band measurement method.

The broad band measurement method is defined as calculating and measuring energy quantity by based on the fundamental frequency components and harmonic components of the frequency of the power generation. The device must calculate the energy using the following formula:

$$\text{watt hour} = \frac{1}{kT} \int_{\tau}^{\tau+kT} p dt$$

Where $T=1/60$

k is an integral value 1, 2, 3, 4, ...

p is the power calculated based on the fundamental frequency components and harmonic components of power generation.

$$p = v \cdot i$$

$$v = \sqrt{2} \cdot V \cdot \sin(\omega \cdot t)$$

$$i = \sqrt{2} \cdot I \cdot \sin(\omega \cdot t - \theta)$$

V = RMS value of the voltage

I = RMS value of the current

θ = is the phase shift between the voltage and current

ω = is the angular frequency $2\pi f$

f = is the frequency (60Hz)

$$\text{volt hour} = \frac{1}{kT} \int_{\tau}^{\tau+kT} V dt$$

$$\text{ampere hour} = \frac{1}{kT} \int_{\tau}^{\tau+kT} I dt$$

var hour = is measured using the methods recognized by NEMA C12.24 TR-2011

'Definitions for Calculations of VA, VAh, VAR, and VARh for Poly-Phase Electricity Meters'.

VA hour = is measured using the methods recognized by NEMA C12.24 TR-2011

'Definitions for Calculations of VA, VAh, VAR, and VARh for Poly-Phase Electricity Meters'.

The device must be capable of measuring *watt hour (Wh)*, *var hour (varh)*, *volt-ampere-hour RMS (VAh RMS)*, *volt-ampere-hour AVERAGE (VAh AVG)*, *volt-hour (Vh)*, *ampere-hour (Ah)*, *volt-squared-hour (V²h)*, *ampere-squared-hour (A²h)* within uncertainty of 0.02% or better.

The device must be stable and the uncertainty of measurement for the same quantity, same amount and in the same conditions must not drift more than 0.02% over one year.

Current measurement must be auto-ranging from as minimum 20 mA (0.02A) up to 75A and with a resolution of 1 mA (0.001A).

Voltage measurement must be auto-ranging from as minimum 62V up to 600V and with a resolution of 1 mV (0.001V).

The measurement of the phase angle between the voltage and current waveforms must be from 0° to 359° degrees and with a resolution of 1° degree.

ENVIRONMENTAL OPERATION

The device must be capable of operating and measure within accuracy of 0.02% or better from at least -20°C up to at least +53° C.

The device must be capable of operating and measure within accuracy of 0.02% under non-condensing humidity from 0% to a minimum of 95%.

INPUTS AND OUTPUTS

The device must have pulse outputs of BNC type and compatible with pull-up BNC input with resistor value of 150 Ohms or 1K Ohms or 10K Ohms or 100K Ohms.

The device must have capabilities to emit a pulse each time a programmable amount of watt hour (*Wh*) energy has been accumulated or measured by the device (*Wh per pulse*).

The device must have capabilities to emit a pulse each time a programmable amount of var hour (*varh*) energy has been accumulated or measured by the device (*varh per pulse*).

The device must have capabilities to emit a pulse each time a programmable amount of volt-ampere-hour RMS (*VAh RMS*), energy has been accumulated or measured by the device (*VAh RMS per pulse*).

The device must have capabilities to emit a pulse each time a programmable amount of volt-ampere-hour AVERAGE (*VAh AVG*), energy has been accumulated or measured by the device (*VAh AVG per pulse*).

The device must have capabilities to emit a pulse each time a programmable amount of volt-hour (*Vh*), energy has been accumulated or measured by the device (*Vh per pulse*).

The device must have capabilities to emit a pulse each time a programmable amount of ampere-hour (*Ah*), energy has been accumulated or measured by the device (*Ah per pulse*).

The device must have capabilities to emit a pulse each time a programmable amount of ampere-squared-hour (*A²h*) energy has been accumulated or measured by the device (*A²h per pulse*).

The device must have capabilities to emit a pulse each time a programmable amount of volt-squared-hour (*V²h*) energy has been accumulated or measured by the device (*V²h per pulse*).

The device must allow to program the amount of energy per pulse with a resolution of 0.00001 for *Wh*, *varh*, *VAh RMS* and *VAh AVG*.

The device must allow to program the amount of energy per pulse with a resolution of 0.00001 for *volt-hour (Vh)*, *ampere-hour (Ah)* and *ampere-squared-hour (A²h)*.

The device must have one or more pulse inputs of BNC type that can accept pulses from electricity meter being tested for accuracy. The weight of each pulse must be programmable with a resolution of *0.00001 watt hour (Wh)*, *0.00001 var hour (varh)*, *0.00001 volt-ampere-hour RMS (VAh RMS)*, *0.00001 volt-ampere-hour AVERAGE (VAh AVG)*, *0.00001 volt-hour (Vh)*, *0.00001 ampere-hour (Ah)*, *0.00001 volt-squared-hour (V²h)* or *0.00001 ampere-squared-hour (A²h)*.

The pulse input(s) must be 128 Ohm or 1k Ohm pull up to 5 V, with a maximum external pullup of +27V.

The device must be capable of accepting 115V ±10% as power supply

The voltage input must be fused.

INPUT GATING AND AUTOMATIC PERCENT ERROR CALCULATION

The device must have one or more pulse inputs of BNC type that can gate pulses received from electricity meter being tested for accuracy to initiate or finalize the count of the pulses received on that input or those inputs.

The input gate rate of 200 nano second (nSec) pulse width minimum up to a maximum of 20 Hz repetition is preferred.

The device must have capabilities to simultaneously count pulses received to its pulse input(s) and determine the total amount of energy accumulated by the device during period of time needed to receive determined and programmable amount of pulses to its pulse input(s).

The device must have capabilities to calculate by it self (automatic calculation) the percent error based on the determined number of pulses received to its input(s), the weight of each pulse and the amount of energy accumulated by the device during period of time needed to receive the determined number of pulses.

The device must have means to read the parameters and measurement data using a computer via serial communication protocol or ethernet protocol.

SAFETY

The device must be CSA or UL certified for safety.

OTHER REQUIREMENTS

The device must be delivered with current cables compatible with its current inputs.

The device must be delivered with voltage cables compatible with its voltage inputs.

The device must be delivered with a power supply cable.

The device must be delivered with a detailed operation manual.

The device must be delivered with a certificate of warranty of at least one year.

Solicitation No. - N° de l'invitation
U6309-221441/A
Client Ref. No. - N° de réf. du client
U6309-221441

Amd. No. - N° de la modif.
File No. - N° du dossier
hn445.U6309-221441

Buyer ID - Id de l'acheteur
hn445
CCC No./N° CCC - FMS No./N° VME

REQUIREMENT/ OBJECTIVE:

The objective for Measurement Canada is to acquire six (6) electricity standards that will be used in the field by the inspectors to calibrate electricity consoles used in the verification of accuracy of electricity meters. These standards may also be used to verify the accuracy of the meters during dispute investigations.

The standards are required to measure electricity by measuring only the fundamental components of electricity and filtering out the harmonic components. This is a new feature not currently available in existing devices owned by MC.

In addition to the new features the devices should also be capable of providing measurements to support existing measurement methods.

The required devices are standards and therefore require high accuracies of 0.02% or better.

The devices shall be delivered at Measurement Canada in 20 weeks or less. After signing the contract.

ADDRESSES

Destination Address:

Invoicing Address:

Measurement Canada

151 Tunney's Pasture Driveway

Ottawa ON K1A 0C9