



RETURN BIDS TO:

RETOURNER LES SOUMISSIONS À:

Réception des soumissions - TPSGC / Bid Receiving -
PWGSC

Voir dans le document/

See herein

NA

Québec

NA

**SOLICITATION AMENDMENT
MODIFICATION DE L'INVITATION**

The referenced document is hereby revised; unless otherwise
indicated, all other terms and conditions of the Solicitation
remain the same.

Ce document est par la présente révisé; sauf indication contraire,
les modalités de l'invitation demeurent les mêmes.

Comments - Commentaires

Vendor/Firm Name and Address

Raison sociale et adresse du
fournisseur/de l'entrepreneur

Issuing Office - Bureau de distribution

TPSGC/PWGSC
601-1550, Avenue d'Estimauville
Québec
Québec
G1J 0C7

Title - Sujet Electrical Power Data Loggers (EPDL)	
Solicitation No. - N° de l'invitation 23332-201000/A	Amendment No. - N° modif. 003
Client Reference No. - N° de référence du client 23332-201000	Date 2020-07-29
GETS Reference No. - N° de référence de SEAG PW-\$QCL-053-17928	
File No. - N° de dossier QCL-0-43002 (053)	CCC No./N° CCC - FMS No./N° VME
Solicitation Closes - L'invitation prend fin at - à 02:00 PM on - le 2020-08-11	Time Zone Fuseau horaire Heure Avancée de l'Est HAE
F.O.B. - F.A.B. Specified Herein - Précisé dans les présentes Plant-Usine: <input type="checkbox"/> Destination: <input type="checkbox"/> Other-Autre: <input checked="" type="checkbox"/>	
Address Enquiries to: - Adresser toutes questions à: Godin, Joanne	Buyer Id - Id de l'acheteur qcl053
Telephone No. - N° de téléphone (581) 397-6683 ()	FAX No. - N° de FAX (418) 648-2209
Destination - of Goods, Services, and Construction: Destination - des biens, services et construction:	

Instructions: See Herein

Instructions: Voir aux présentes

Delivery Required - Livraison exigée	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

AMENDMENT 003 TO THE SOLICITATION Electrical Power Data Loggers (EPDL)

SECTION A – QUESTIONS AND ANSWERS

Question 5

Reference: ANNEX "A" – REQUIREMENT amendment 001, 4.1 Electrical Power Data Loggers (EPDL):

Voltage Range	0-1,000V (1000V CAT III and 600V CAT IV);single phase and 3-phase systems
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Is this deviation accepted?:

The unit (EPDL) has voltage range of 10-1,000V.

Answer 5

Yes, 10-1,000V is an acceptable voltage range. See the change in section B.

Question 6

Reference: ANNEX "A" – REQUIREMENT amendment 001, 4.1 Electrical Power Data Loggers (EPDL):

Amperage Range	0-10,000A AC
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Is this deviation accepted?:

The unit (EPDL) has amperage range of 0.2-10,000A AC.

Answer 6

Yes, 0.2-10000A is an acceptable amperage range. See the change in section B.

Question 7

Reference: ANNEX "A" – REQUIREMENT amendment 001, 4.1 Electrical Power Data Loggers (EPDL):

Operating temperature range and relative humidity (RH)	10°C to 50°C, up to 85% RH
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Is this deviation accepted?:

The unit (EPDL) has temperature range of 10°C to 42.5°C up to 85% RH.

Answer 7

Yes, a temperature range of 10°C to 42.5°C up to 85% RH is acceptable. However, this is not precise enough to be responsive as a range for relative humidity (RH) is needed (confirmation required on lower operating level. See the changes in section B.

Question 8, 9 and 10

Reference: ANNEX "A" – REQUIREMENT amendment 001:

4.3 Additional deliverables:

Additional deliverables to be provided upon delivery:

ITEM	NIST* Calibration Assembly Pairing	QTY
4.3.1	-1 x EPDL -3 x maximum <u>70 mm (2.75 inch)</u> diameter current probe (Item 4.2.3) -4 x potential probe (Item 4.2.6) -1 x power adapter (Item 4.2.7)	63 NIST* Calibration Certificates for this type of assembly
4.3.2	6 additional sets of three current probes with a maximum diameter of <u>70 mm (2.75 inches)</u> (Item 4.2.3)	6 NIST* calibration certificates for this type of set
4.3.3	-1 x EPDL -3 x maximum <u>197 mm (7.75 inch)</u> diameter current probe (Item 4.2.4) -4 x potential probe (Item 4.2.6) -1 x power adapter (Item 4.2.7)	4 NIST* Calibration Certificates for this type of assembly
4.3.4	-1 x EPDL -3 x maximum <u>292 mm (11.5 inch)</u> diameter current probe (ref 4.2.5) -4 x potential probe (Item 4.2.6) -1 x power adapter (Item 4.2.7)	2 NIST* Calibration Certificates for this type of assembly

*NIST : "National Institute of Standards and Technology"

Question 8

Please confirm :

For item 4.3.2 : The 6 *additional sets of the probe (70mm)* as mentioned are not sold in sets. As for NIST calibration, it should be calibrated to the meter it will be used with; if we were to calibrate with a standard lab meter there is no guarantee it will be accurate once paired with a meter in the field. Therefore item 4.3.1 will be 69 which includes three 70 mm (2.75 inch) diameter current probe will be NIST calibrated together.

Answer 8

Correct. Each set of probes are calibrated to a specific meter. See the change in section B.

Question 9

Please confirm :

For item 4.3.3: Four of item 4.3.1 will include three each 197 mm (7.75 inch) diameter current probe and an additional NIST certificate for these sensors and meter.

Answer 9

Correct. Four of the EPDLs from item 4.1 are used for this certification (thus 4 EPDL assemblies will have a NIST certificate for a 70 mm probe and a 197 mm probe). See the change in section B.

Question 10

Please confirm :

For item 4.2.4: Two of item 4.3.1 will include three each 292 mm (11.5 inch) diameter current probe and an additional NIST certificate for these sensors and meter.

Answer 10

Correct. Two of the EPDLs from 4.1 are be used for this certification (thus 2 EPDL assemblies will have a NIST certificate for a 70 mm probe and a 292 mm probe). See the change in section B.

Question 11

We're confused about the Accuracy of Measurements requirement under section 4.1 of your EPDL RFP Amendment 001: Specified accuracies of $\pm 0.2\%$ voltage and $\pm 1.0\%$ current will yield a minimum $\pm 1.2\%$ accuracy for power; however $\pm 0.5\%/\pm 1.0\%/\pm 0.5\%$ is specified for the various power measurements.

Could you please clarify?

Answer 11

The specified accuracy for the amperage measurement should be $\pm 0.2\%$. This accuracy is independent of the current probe. We have also amended section 4.2 adding the accepted amperage measurement accuracy for the respective current probes. See the changes in section B.

Question 12

For the EPDL, section 4.1, can you confirm if an LCD display is required or not?

Answer 12

An LCD display is not required.

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SECTION B – MODIFICATIONS

Please take note of the following changes to this tender notice.

(Changes are in blue)

Change 1

Replace ANNEX "A" – REQUIREMENT amendment 001 with the amended version attached to this document.

Change 2

Replace ANNEX "B" – BASIS OF PAYMENT amendment 001 with the amended version attached to this document

Change 3

Replace ANNEX "C" – MANDATORY TECHNICAL CRITERIA amendment 001 with the amended version attached to this document.

ALL OTHER TERMS AND CONDITIONS REMAIN THE SAME.

ANNEX "A" – REQUIREMENT amendment 002

1. TITLE

ELECTRICAL POWER DATA LOGGER EQUIPMENT FOR THE HALIFAX-CLASS FRIGATE PLATFORM

2. BACKGROUND

Defence Research and Development Canada (DRDC) Atlantic, seeks to develop energy initiatives and technologies with the specific goal of increasing energy efficiency while decreasing the energy intensity of Royal Canadian Navy (RCN) platforms. The DRDC "Ship Exploitation of Energy Data (SPEED)" project activity aims to do this through understanding baseline energy use, developing and validating ship energy models, and enabling energy efficient operations by applying data analytics to ship platform power and energy data. SPEED is a collaborative project between various ministries to leverage the knowledge and experience from the Department of National Defence (DND), Natural Resources Canada (NRCan), the National Research Council (NRC) and the Naval Engineering Test Establishment (NETE). As such, the NRCan, CanmetENERGY Research lab in Varennes, with their knowledge and expertise in energy audits and energy modeling has been tasked by DRDC Atlantic to develop an energy metering plan and procure the required electrical meters to conduct an energy audit of an RCN ship platform to support the eventual development and validation of an energy model. The electrical metering is necessary to derive a rigorous and authoritative understanding of the electrical load distribution on the Halifax-Class frigate platform through electrical load measurements. As a result, NRCan is seeking a commercial off the shelf electrical power data loggers, and accessories, for data collection during ship operations.

3. ACRONYMS

AC	Alternating Current
DRDC	Defence Research and Development Canada
EPDL	Electrical Power Data Logger
RCN	Royal Canadian Navy
RMS	Root Mean Square
SOR	Statement of Requirement
SPEED	Ship Platform Exploitation of Energy Datasets
TA	Technical Authority
NIST	National Institute of Standards and Technology

4. REQUIREMENTS

4.1 Electrical Power Data Loggers (EPDL)

Required quantity: 69

The Contractor must provide the requirement with the following specifications:

Specifications	Value
Measurement Parameters	V, I, VA, VAR, W, Wh, VAh, VARh, Power Factor, Frequency
Accuracy of measurement parameters at 50/60 Hz	Single Phase RMS V @50/60Hz: $\pm 0.2\%$ Reading ± 0.2 V Phase to Phase RMS V @ 50/60 Hz: $\pm 0.2\%$ Reading ± 0.4 V Amperage: $\pm 0.2\%$ (independent of current probe) Active Power (P): $\pm 0.5\%$ Reading, $\pm 0.005\%$ Nominal P (at Power Factor = 1) Reactive Power (Q): $\pm 1\%$ Reading, $\pm 0.01\%$ Nominal Q (at Power Factor =1) Apparent Power (S): $\pm 0.5\%$ Reading, $\pm 0.005\%$ Nominal S Power Factor: ± 0.1 Active Energy (EP): $\pm 0.5\%$ Reading (at Power Factor=1) Reactive Energy (EQ): $\pm 2\%$ Reading (at Power Factor =1) Apparent Energy (ES): $\pm 0.5\%$ Reading Frequency: ± 0.1 Hz
Voltage Measurement Range	$\leq 20 - \geq 1,000$V (1000V CAT III and 600V CAT IV);single phase and 3-phase systems (Phase to Neutral or Phase to Phase)
Amperage Measurement Range	$\leq 0.5 - \geq 10,000$A AC
Data interval	User selectable measurement intervals from 1 second to 60 minutes
Time-stamp	Real-time clock for time stamped data
Mount type	Magnetic
Physical dimensions (does not include power adaptor, current probe leads or potential probe leads)	-The EPDL will be mounted on the top part of the electrical panel to be measured The EPDL will be installed within the enclosure of the panel -Due to confined space and orientation (see 6. Physical dimensions of a typical electrical panel), physical dimensions of the EPDL must be: - <u>Maximum</u> 260 mm X 160 mm (length by width OR width by length) X <u>maximum</u> 45 mm depth (protrusion from the face of the electrical panel).
Data memory	On-board and/or swappable SD- or SDHC-card memory storage Minimum 8 GB memory capacity
Data format	ASCII or CSV
Communication	USB or Ethernet port
EPDL Power	Power provided by adapter (see 4.2.7) with battery backup (minimum 30 minute storage capacity)
Configuration, data collection and viewing interface	Data collection, logger configuration and data viewing must be done through a stand-alone software program compatible with Windows 7 and newer Windows operating systems.
Installation	Standalone unit which can be installed within electrical panel with minimal modification, self-protected (does not require addition of breakers to panels), does not require to bring or produce different voltage within the panel, does not require design of a power supply

Compliance	IEC 61010-1 and IEC 61010-2-030 Canadian Electrical Association Standards
Minimum Operating temperature	≤10°C at minimum and maximum operating relative humidity
Maximum Operating temperature	≥40°C at minimum and maximum operating relative humidity
Minimum operating relative humidity	≤10% at minimum and maximum operating temperature
Maximum operating relative humidity	≥85% at minimum and maximum operating temperature
Minimum storage temperature	≤-20°C at minimum and maximum storage relative humidity
Maximum storage temperature	≥50°C at minimum and maximum storage relative humidity
Minimum storage relative humidity	0% at minimum and maximum storage temperature
Maximum storage relative humidity	75% at minimum and maximum storage temperature

4.2 Accessories

The Contractor must provide the following accessories with the following specifications:

Item	Description	Required quantity
4.2.1	CD, DVD or USB including on each one of them the Operation and Technical Manuals of the electrical power data loggers, in Adobe PDF format, in English.	6
4.2.2	CD, DVD or USB including on each one of them the EPDL software of the electrical power data loggers, in English.	6
4.2.3	Flexible current probe with clamping diameter of <u>maximum 70mm (2.75 inches)</u> (calibrated). Current probe lead length of at least 3 m (10 ft). (200mA to 3,000A range, 10,000A peak, Accuracy ± 4.5%).	207 (69 three-phase circuits*)
4.2.4	Flexible current probe with clamping diameter of <u>maximum 197 mm (7.75 inches)</u> (calibrated). Current probe lead length of at least 3 m (10 ft). (200mA to 10,000A range, 12,000A peak, Accuracy ± 6%).	Total: 12 (4 three-phase circuits*)
4.2.5	Flexible current probe with clamping diameter of <u>maximum 292 mm (11.5 inches)</u> (calibrated). Current probe lead length of at least 3 m (10 ft). (200mA to 10,000A range, 12,000A peak, Accuracy ± 6%).	Total: 6 (2 three-phase circuits*)
4.2.6	Potential Probes which are each identified by a colour marker with a lead length of at least 3 m (10 ft) and with Alligator Clip {Rated for 600 V CAT IV, 10A} 4 colours per set: 4.2.6.1 Cable with alligator clip and black colour marker (69) 4.2.6.2 Cable with alligator clip and blue colour marker (69) 4.2.6.3 Cable with alligator clip and red colour marker (69) 4.2.6.4 Cable with alligator clip and white colour marker (69)	69 Sets of 4 cables
4.2.7	EPDL Power adapter** with the following range of use: 110 to 277 Vac Phase to Neutral 110 to 480 Vac Phase to Phase	69

	Maximum input voltage: Permanent 530 Vac, Transient: 550 Vac Minimum input : 85 V	
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* One current probe per phase, 3 phases per circuit must have a current probe.

**Power adapter is required in order to accommodate powering the EPDL from phase power versus an external supply.

4.3 Calibration Certificates

Additional deliverables to be provided upon delivery:

ITEM	NIST* Calibration Assembly Pairing	QTY
4.3.1	-1 x EPDL -3 x maximum <u>70 mm (2.75 inch)</u> diameter current probe (Item 4.2.3) -4 x potential probe (Item 4.2.6) -1 x power adapter (Item 4.2.7)	69 NIST* Calibration Certificates for this type of assembly
4.3.2	6 additional sets of three current probes with a maximum diameter of 70 mm (2.75 inches) (Item 4.2.3)	6 NIST* calibration certificates for this type of set
4.3.2	-1 x EPDL -3 x maximum <u>197 mm (7.75 inch)</u> diameter current probe (Item 4.2.4) -4 x potential probe (Item 4.2.6) -1 x power adapter (Item 4.2.7)	4 NIST* Calibration Certificates for this type of assembly**
4.3.3	-1 x EPDL -3 x maximum <u>292 mm (11.5 inch)</u> diameter current probe (ref 4.2.5) -4 x potential probe (Item 4.2.6) -1 x power adapter (Item 4.2.7)	2 NIST* Calibration Certificates for this type of assembly***

*NIST : "National Institute of Standards and Technology"

**4 of the EPDLs from item 4.1 are used for this certification (thus 4 EPDL assemblies will have a NIST certificate for a 70 mm probe and a 197 mm probe).

***2 of the EPDLs from 4.1 are used for this certification (thus 2 EPDL assemblies will have a NIST certificate for a 70 mm probe and a 292 mm probe).

5. DELIVERY LOCATION

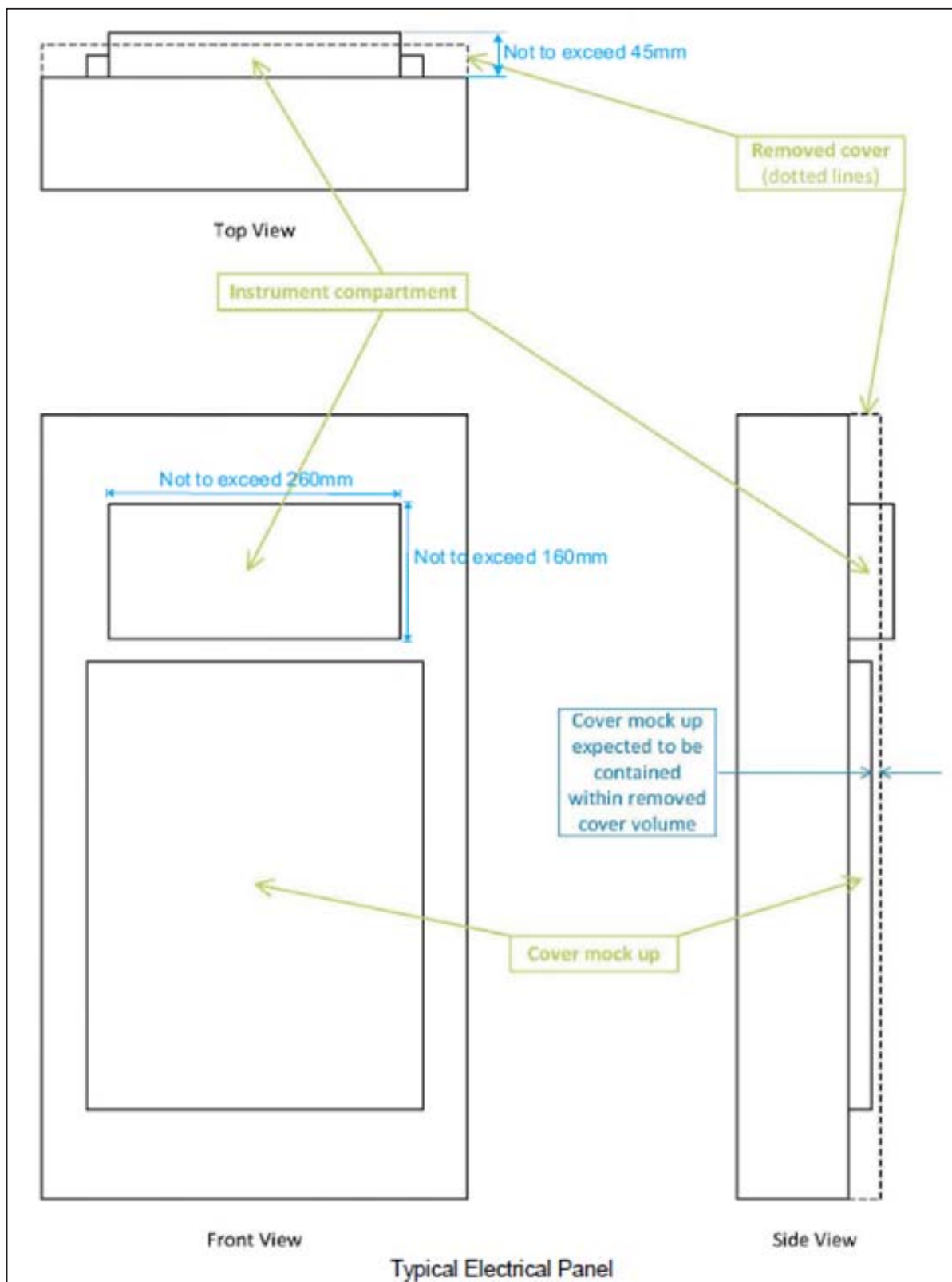
Natural Resources Canada
Government of Canada
1615 boul Lionel-Boulet,
Varennnes, QC J3X 1P7
Canada

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6. PHYSICAL DIMENSIONS OF A TYPICAL ELECTRICAL PANEL



ANNEX "B" – BASIS OF PAYMENT amendment 002

Art.	Description	Qty	UD	Firm Unit Price	Total Firm Price
1	Electrical Power Data Loggers (EPDL), in accordance with Annex "A" (Item 4.1): Brand : _____ Model : _____	69	EACH	_____ \$	_____ \$
2	EPDL Power adapter, in accordance with Annex "A" (Item 4.2.7).	69	EACH	_____ \$	_____ \$
3	Flexible current probe with clamping diameter of maximum 70 mm (2.75 inches) in accordance with Annex "A" (Item 4.2.3).	207	EACH	_____ \$	_____ \$
4	Flexible current probe with clamping diameter of maximum 197 mm (7.75 inches), in accordance with Annex "A" (Item 4.2.4).	12	EACH	_____ \$	_____ \$
5	Flexible current probe with clamping diameter of maximum 292 mm (11.5 inches), in accordance with Annex "A" (Item 4.2.5).	6	EACH	_____ \$	_____ \$
6	Potential Probes which are each identified by a colour marker with and in accordance with Annex "A" (Item 4.2.6).	69	LOT/4 cables set	_____ \$	_____ \$
7	Operation and Technical Manuals of the electrical power data loggers, in accordance with Annex "A" (Item 4.2.1).	6	EACH	_____ \$	_____ \$
8	EPDL software of the electrical power data logger, in accordance with Annex "A" (Item 4.2.2).	6	EACH	_____ \$	_____ \$
9	NIST Calibration Certificates (Item 4.3.1)	69	EACH	_____ \$	_____ \$
10	NIST Calibration Certificates (Item 4.3.2)	4	EACH	_____ \$	_____ \$

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11	NIST Calibration Certificates (Item 4.3.3)	2	EACH	_____ \$	_____ \$
12	DDP (Quebec, Quebec, Canada), including customs duties, handling and the delivery	1	LOT	_____ \$	_____ \$
TOTAL BID PRICE (TBP) =					_____ \$
Note: Prices in Canadian dollars excluding sales Taxes.					

ANNEX “C” – MANDATORY TECHNICAL CRITERIA amendment 002

At the closure date, bids will be evaluated on the following technical requirements at Annex “C” - Mandatory technical criteria.

IMPORTANT: the bidder should clearly demonstrate how the proposed equipment complies to each mandatory technical criteria. Simply stating that the criteria are met is not sufficient. Where it is necessary to refer to other documentation that is included in the proposal, bidders should include the precise location of the reference material including the title of the document, and the page and paragraph numbers. It is the bidder's responsibility to provide enough details to permit a complete evaluation.

Any proposal that does not clearly demonstrate compliance with each of the technical criteria listed in the Table of technical compliance will be considered non-responsive.

TABLE OF TECHNICAL COMPLIANCE	
Mandatory Technical Criteria :	Bidder's Specifications (should indicate the reference to the technical documentation included in Bid or indicate the exact information)
1. <u>Physical dimensions</u> Maximum 260 mm X 160 mm (length by width OR width by length) X maximum 45 mm depth (protrusion from the face of the electrical panel).	
2. <u>Voltage Measurement Range</u> The Electrical Power Data Loggers (EPDL) must have a voltage range of: <ul style="list-style-type: none"> • ≤20 – ≥1,000V (1000V CAT III and 600V CAT IV); single phase and 3-phase systems (Phase to Neutral or Phase to Phase) 	
3. <u>Amperage Measurement Range</u> The Electrical Power Data Loggers (EPDL) must have an amperage range of: <ul style="list-style-type: none"> • ≤0,5 – ≥10,000A AC 	
4. <u>Data Memory</u> The Electrical Power Data Loggers (EPDL) must be equipped with: <ul style="list-style-type: none"> • On-board and/or swappable SD- or SDHC-card memory storage • 8 GB memory capacity 	