



RETURN BIDS TO:
RETOURNER LES SOUMISSIONS À:
Réception des soumissions - TPSGC / Bid
Receiving - PWGSC
1550, Avenue d'Estimauville
1550, D'Estimauville Avenue
Québec
Québec
G1J 0C7

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 Picosecond Laser	
Solicitation No. - N° de l'invitation W7701-176246/A	Date 2016-12-22
Client Reference No. - N° de référence du client W7701-176246	
GETS Reference No. - N° de référence de SEAG PW-\$QCL-029-17007	
File No. - N° de dossier QCL-6-39310 (029)	CCC No./N° CCC - FMS No./N° VME
Solicitation Closes - L'invitation prend fin at - à 02:00 PM on - le 2017-02-02	Time Zone Fuseau horaire Heure Normale du l'Est HNE
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: Champoux, Nicolas	Buyer Id - Id de l'acheteur qc1029
Telephone No. - N° de téléphone (418) 649-2821 ()	FAX No. - N° de FAX (418) 648-2209
Destination - of Goods, Services, and Construction: Destination - des biens, services et construction: See herein	

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

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

Delivery Required - Livraison exigée Voir doc	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 Security Requirements

There is no security requirement associated with the requirement.

1.2 Requirement

TITLE

HIGH AVERAGE POWER AND HIGH PEAK POWER PICOSECOND LASER

BACKGROUND

Defence Research and Development Canada – Valcartier want to purchase one (1) picosecond laser system for studies of atmospheric propagation.

Laser sources with good beam quality and divergence are for defence applications. There are several technological configurations for picosecond laser systems with high peak power and high average power. As part of this project, the picosecond laser system must be compact, robust and the gain medium pumped by laser diodes. The picosecond laser system will be incorporated into an existing installation for the study of atmospheric propagation.

REQUIREMENTS

5.1 Picosecond laser system

Required quantity: 1

The Contractor must provide the requirement with the following specifications:

Specifications	Value
External dimensions of the laser box:	≤ 150 cm wide x 250 cm depth x 30 cm height
Weight of the laser box:	≤ 1500 kg
External dimensions of the laser power supply:	≤ 55 cm wide x 100 cm depth x 150 cm height
Central wavelength of the laser beam output:	1030 nm ± 5 nm
Minimum pulsewidth of the laser beam output:	≤ 2 ps (measured at full width at half maximum)
Maximum pulsewidth with positive chirp of the laser beam output:	≥ 10 ps (measured at full width at half maximum)
Maximum pulsewidth with negative chirp of the laser beam output:	≥ 10 ps (measured at full width at half maximum)
Energy per pulse of the laser beam output:	≥ 20 millijoule
Repetition rate of the output laser beam:	≥ 50 kHz
Maximum average laser power of the output laser beam:	≥ 1000 W
Maximum peak power of the output laser beam:	≥ 10 GW
Spatial profile of the output laser beam:	$M^2 \leq 1.5$
Beam diameter (at the output of the collimator):	25 mm ± 5 mm (measured at full width at 1/e)
Laser pulse energy stability of the output beam:	≤ 3% rms
Cooling of the laser system:	Water cooling

Length of the umbilical cable between the laser box and the laser power supply:	between 1.5 m and 5 m
Cable used to control the laser system:	USB cable, Ethernet cable or RS232 cable
Computer operating system for controlling the laser system:	Windows 7 or Windows 10
Previous projects:	<p>Bidders must submit with their bid, the following information for at least two (2) projects in the last five (5) years:</p> <ul style="list-style-type: none">- The picosecond laser models sold having an average power exceeding 100 W;- The date of sale; and- User information, which should include organization name, contact, telephone, and/or e-mail address. <p>The user may be contacted to confirm the accuracy of the information. If the user is unavailable or the listed information does not match the above requirements, the bid will be declared non-responsive.</p>

DELIVERY DATES

All deliverables must be received on or before seventy (70) weeks after contract award.

ADDITIONAL INFORMATIONS

Bidders must provide prices FCA Free Carrier Montreal airport (Incoterms 2000). Bids will be assessed on a FCA (Incoterms 2000) basis.

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.

PART 2 - BIDDER INSTRUCTIONS

2.1 Standard Instructions, Clauses and Conditions

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

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

The 2003 (2016-04-04) Standard Instructions - Goods or Services - Competitive Requirements, are incorporated by reference into and form part of the bid solicitation.

2.1.1 SACC Manual Clauses

B1000T (2014-06-24), Condition of Material - Bid

2.2 Submission of Bids

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

Bids transmitted by facsimile (418-648-2209) to PWGSC will be accepted.

2.3 Enquiries - Bid Solicitation

All enquiries must be submitted in writing to the Contracting Authority no later than five (5) business 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 Improvement of Requirement During Solicitation Period

Should bidders consider that the specifications or Statement of Work contained in the bid solicitation could be improved technically or technologically, bidders are invited to make suggestions, in writing, to the Contracting Authority named in the bid solicitation. Bidders must clearly outline the suggested improvement as well as the reason for the suggestion. Suggestions that do not restrict the level of competition nor favour a particular bidder will be given consideration provided they are submitted to the Contracting Authority at least five (5) business days before the bid closing date. Canada will have the right to accept or reject any or all suggestions.

2.5 Applicable Laws

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

Solicitation No. - N° de l'invitation

W7701-176246/A

Client Ref. No. - N° de réf. du client

W7701-176246

Amd. No. - N° de la modif.

File No. - N° du dossier
QCL-6-39310

Buyer ID - Id de l'acheteur

qc1029

CCC No./N° CCC - FMS No./N° VME

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 (3 hard copies)

Section II: Financial Bid (1 hard copy)

Section III: Certifications and Additional Information (1 hard copy)

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

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

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

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

- 1) use 8.5 x 11 inch (216 mm x 279 mm) paper containing fibre certified as originating from a sustainably-managed forest and containing minimum 30% recycled content; and
- 2) use an environmentally-preferable format including black and white printing instead of 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 demonstrate their understanding of the requirements contained in the bid solicitation and explain how they will meet these requirements. Bidders should demonstrate their capability and describe their approach in a thorough, concise and clear manner for carrying out the work.

The technical bid should clearly address and in sufficient depth the points that are subject to the evaluation criteria against which the bid will be evaluated. Simply repeating the statement contained in the bid solicitation is not sufficient. In order to facilitate the evaluation of the bid, Canada requests that bidders address and present topics in the order of the evaluation criteria under the same headings. To avoid duplication, bidders may refer to different sections of their bids by identifying the specific paragraph and page number where the subject topic has already been addressed.

Customer Reference Contact Information:

The Bidder must provide customer references who must each confirm, if requested by PWGSC, the information required by the Mandatory Technical Evaluation Criteria.

For each customer reference, the Bidder must, at a minimum, provide the name and either the telephone number or e-mail address for a contact person. If only the telephone number is provided, it will be used to call to request the e-mail address and the reference check will be done by e-mail.

Bidders are also requested to include the title of the contact person. It is the sole responsibility of the Bidder to ensure that it provides a contact who is knowledgeable about the services the Bidder has provided to its customer and who is willing to act as a customer reference. Crown references will be accepted.

Section II: Financial Bid

Bidders must submit their financial bid in accordance with the Basis of Payment. The total amount of Applicable Taxes must be shown separately.

3.1.1 Exchange Rate Fluctuation

C3011T (2013-11-06), Exchange Rate Fluctuation

Section III: Certifications and Additional Information

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

PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION

4.1 Evaluation Procedures

- (a) Bids will be assessed in accordance with the entire requirement of the bid solicitation including the technical and financial evaluation criteria.
- (b) An evaluation team composed of representatives of Canada will evaluate the bids.

4.1.1 Technical Evaluation

4.1.1.1 Mandatory Technical Criteria (I. and II.)

- I. Any Bidder must include in his proposal the technical specification or any official document related to the proposed equipment in order to demonstrate that the proposed equipment meets **all the technical criteria** listed in the table below.

In order to demonstrate that these mandatory technical criteria are met, the Bidder must include technical data on the materials and technologies used for the different amplifier stages of the laser system.

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

	TECHNICAL CRITERIA	MET	NOT MET
M1	External dimensions of the laser box: ≤ 150 cm wide x 250 cm depth x 30 cm height		
M2	Weight of the laser box: ≤ 1500 kg		
M3	External dimensions of the laser power supply: ≤ 55 cm wide x 100 cm depth x 150 cm height		
M4	Central wavelength of the laser beam output: 1030 nm ± 5 nm		
M5	Minimum pulsewidth of the laser beam output: ≤ 2 ps (measured at full width at half maximum)		
M6	Maximum pulsewidth with positive chirp of the laser beam output: ≥ 10 ps (measured at full width at half maximum)		
M7	Maximum pulsewidth with negative chirp of the laser beam output: ≥ 10 ps (measured at full width at half maximum)		
M8	Energy per pulse of the laser beam output: ≥ 20 millijoule		
M9	Repetition rate of the output laser beam: ≥ 50 kHz		
M10	Maximum average laser power of the output laser beam: ≥ 1000 W		
M11	Maximum peak power of the output laser beam: ≥ 10 GW		

M12	Spatial profile of the output laser beam: $M^2 \leq 1.5$		
M13	Beam diameter (at the output of the collimator): 25 mm \pm 5 mm (measured at full width at 1/e)		
M14	Laser pulse energy stability of the output beam: $\leq 3\%$ rms		
M15	Cooling of the laser system: Water cooling		
M16	Length of the umbilical cable between the laser box and the laser power supply: between 1.5 m and 5 m		
M17	Cable used to control the laser system: USB cable, Ethernet cable or RS232 cable		
M18	Computer operating system for controlling the laser system: Windows 7 or Windows 10		

- II. The Bidder must have delivered at least two (2) picosecond laser systems with an average power of more than 100 W during the past five (5) years:

In order to demonstrate compliance with this criterion, Bidders must indicate in their proposal, for at least two (2) projects in the last five (5) years:

- a. The picosecond laser models sold having an average power superior to 100 W;
- b. The date of sale; and
- c. User information, which should include organization name, contact, telephone, and/or e-mail address.

The user may be contacted to confirm this information. If the above-mentioned user is unwilling or unable to confirm the information, the related project will be given no further consideration.

Any proposal that does not clearly demonstrate compliance with this criterion will be deemed non-responsive.

4.1.2 Reference Checks:

For reference checks, Canada will conduct the reference check in writing by e-mail. Canada will send all e-mail reference check requests to contacts supplied by all the Bidders *within a 48-hour period*. Bidder will not meet the mandatory experience requirement unless the response is received within 10 working days of the date that Canada's e-mail was sent.

On the third working day after sending out the reference check request, if Canada has not received a response, Canada will notify the Bidder by e-mail, to allow the Bidder to contact its reference directly to ensure that it responds to Canada within 8 working days. If the individual named by a Bidder is unavailable when required during the evaluation period, the Bidder may provide the name and e-mail address of an alternate contact person from the same customer. Bidders will only be provided with this opportunity once for each customer, and only if the originally named individual is unavailable to respond.

Wherever information provided by a reference differs from the information supplied by the Bidder, the information supplied by the reference will be the information evaluated.

A bidder will not meet the mandatory experience requirement if (1) the reference customer states he or she is unable or unwilling to provide the information requested, or (2) the customer reference is not a customer of the Bidder itself (for example, the customer cannot be the customer of an affiliate of the Bidder instead of being a customer of the Bidder itself). Nor will

points be allocated or a mandatory met if the customer is itself an affiliate or other entity that does not deal at arm's length with the Bidder.

Whether or not to conduct reference checks is discretionary. However, if PWGSC chooses to conduct reference checks for any given rated or mandatory requirement, it will check the references for that requirement for all bidders to be recommended for contract award.

4.1.3 Financial Evaluation

The price of the bid will be evaluated as follows:

- (i) Canadian-based bidders must submit firm prices, Canadian customs duties and excise taxes included, and Applicable Taxes excluded.
- (ii) 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 will be applied as a conversion factor to the bids submitted in foreign currency.
- (iii) **Bidders must provide prices FCA Free Carrier Montreal airport** (Incoterms 2000). Bids will be assessed on a FCA (Incoterms 2000) basis.

4.2 Basis of Selection

4.2.1 Basis of Selection - Mandatory Technical Criteria

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

PART 5 – CERTIFICATIONS 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. Canada will declare a bid non-responsive, or will declare a contractor in default if any certification made by the Bidder is found to be untrue, whether made knowingly or unknowingly, during the bid evaluation period or during the contract period.

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

5.1 Certifications Required with the Bid

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

5.1.1 Integrity Provisions - Declaration of Convicted Offences

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

5.2 Certifications Precedent to Contract Award and Additional Information

The certifications and additional information listed below should be submitted with the bid but may be submitted afterwards. If any of these required certifications or additional information is not completed and submitted as requested, the Contracting Authority will inform the Bidder of a time frame within which to provide the information. Failure to provide the certifications or the additional information listed below within the time frame specified will render the bid non-responsive.

5.2.1 Integrity Provisions – Required Documentation

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

5.2.2 Federal Contractors Program for Employment Equity - Bid Certification

By submitting a bid, the Bidder certifies that the Bidder, and any of the Bidder's members if the Bidder is a Joint Venture, is not named on the Federal Contractors Program (FCP) for employment equity "[FCP Limited Eligibility to Bid](http://www.labour.gc.ca/eng/standards_equity/eq/emp/fcp/list/inelig.shtml)" list (http://www.labour.gc.ca/eng/standards_equity/eq/emp/fcp/list/inelig.shtml) available from [Employment and Social Development Canada \(ESDC\) - Labour's website](http://www.labour.gc.ca/eng/standards_equity/eq/emp/fcp/list/inelig.shtml).

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](http://www.labour.gc.ca/eng/standards_equity/eq/emp/fcp/list/inelig.shtml)" list at the time of contract award.

Canada will also have the right to terminate the Contract for default if a Contractor, or any member of the Contractor if the Contractor is a Joint Venture, appears on the "FCP Limited Eligibility to Bid" list during the period of the Contract.

The Bidder must provide the Contracting Authority with a completed annex Federal Contractors Program for Employment Equity - Certification, before contract award. If the Bidder is a Joint Venture, the Bidder must provide the Contracting Authority with a completed annex Federal Contractors Program for Employment Equity - Certification, for each member of the Joint Venture.

5.2.3 Contractor's Representative

Administrative representative :

Name :

Telephone :

Facsimile :

Email :

Technical representative :

Name :

Telephone :

Facsimile :

Email :

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 this Contract.

6.2 Requirement

The Contractor must provide and deliver to Defence Research and Development Canada –Valcartier Research Centre, one (1) picosecond laser system and accessories, in accordance with 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>) issued by Public Works and Government Services Canada.

6.3.1 General Conditions

2010A (2016-04-04), General Conditions - Goods (Medium Complexity), apply to and form part of the Contract.

6.4 Term of Contract

6.4.1 Period of the Contract

The period of the Contract is from date of Contract to the end of the warranty period.

6.4.2 Delivery Dates

See item 7. of Annex A.

6.4.2 Delivery Address

See item 9. of Annex A.

6.5 Authorities

6.5.1 Contracting Authority

The Contracting Authority for the Contract is:

Nicolas Champoux
Supply Officer
Public Works and Government Services Canada
Acquisitions Branch
1550, D'Estimauville Avenue

Québec (Québec) G1J 0C7

Telephone: (418) 649-2821
Facsimile: (418) 648-2209
E-mail: nicolas.champoux@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 :

Name: _____
Title: _____
Organization: _____

Telephone : _____
Facsimile : _____
Email : _____

The Technical Authority named above is the representative of the department or agency for whom the Work is being carried out under the Contract and is responsible for all matters concerning the technical content of the Work under the Contract. Technical matters may be discussed with the Technical Authority, however the Technical Authority has no authority to authorize changes to the scope of the Work. Changes to the scope of the Work can only be made through a contract amendment issued by the Contracting Authority.

6.5.3 Contractor's Representative

Name : _____

Title : _____

Telephone : _____

Facsimile : _____

E-mail : _____

6.5.4 Contact at Customer Department

For all information related to invoicing and/or payments you may communicate with:

Customer Department : _____

Name : _____

Telephone : _____

Facsimile : _____

Email : _____

6.6 Payment

6.6.1 Basis of Payment - Firm Lot Price

In consideration of the Contractor satisfactorily completing all of its obligations under the Contract, the Contractor will be paid a firm lot price, as specified in Annex B. Customs duties are excluded 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 Terms of Payment

6.6.2.1 Multiple Payments

Canada will pay the Contractor upon completion and delivery of units in accordance with the payment provisions of the Contract if:

- a. an accurate and complete invoice and any other documents required by the Contract have been submitted in accordance with the invoicing instructions provided in the Contract;
- b. all such documents have been verified by Canada;
- c. the Work delivered has been accepted by Canada.

6.6.2.2 Schedule of Milestones

The schedule of milestones for which payments will be made in accordance with the Contract is as follows:

Milestone No.	Description of the Deliverables	Firm Amount	Delivery Date
6.1	<p>A report including the detailed conception design of the laser system, the relevant electric and cooling diagrams and all planned laser parameters. The technical report must clearly describe the technologies used for the production of the deliverables. The technical report must provide these technical data:</p> <ol style="list-style-type: none"> a. The gain media used for the laser amplification; b. The technologies used (laser diodes, flash lamp or pump laser) to pump the different amplification stages of the laser system; c. The technologies used to generate the picosecond pulse train; d. The water cooling systems; e. The configuration of each laser amplification stage; f. The technologies used to control the laser average output power; g. The control panel and/or software to control the turn-on, turn-off and laser parameters of the laser system; h. Required laser system maintenance; 	30% of the firm lot price	On or before 4 weeks after contract award.

i. Required cooling system maintenance.			
6.2	A report describing the manufacturing of the laser system main frame and the implementation of the first operational laser module into the laser frame	10% of the firm lot price	On or before 35 weeks after contract award.
6.3	Must deliver a functional picosecond laser system as described in Section 5.1, "Picosecond laser system"	30% of the firm lot price	On or before 52 weeks after contract award.
6.4	Must deliver a power controller, component support and maintenance, technical support, technical data and calibration certification as described in Section 5.2, "Accessories"	10% of the firm lot price	On or before 70 weeks after contract award.
6.5	Must deliver technical assistance for the initial installation and the initial start-up as described in Section 5.2, "Accessories"	20% of the firm lot price	On or before 70 weeks after contract award.

6.6.3 Shipping Instructions

1. Delivery will be FCA Free Carrier at **Montreal airport** Incoterms 2000. The Contractor must load the goods onto the carrier designated by the Department of National Defence (DND). Onward shipment from the delivery point to the consignee will be Canada's responsibility
2. Before shipping the goods, the Contractor must contact the following DND Inbound Logistics Coordination Center by facsimile or e-mail, to arrange for shipment, and provide the information detailed at paragraph 3.

(DND Inbound Logistics Coordination Center contact information will be inserted by Canada at contract award)

3. The Contractor must provide the following information to the DND Inbound Logistics contact when arranging for shipment:
 - a. the Contract number;
 - b. consignee address (if multiple addresses, items must be packaged and labeled separately with each consignee address);
 - c. description of each item;
 - d. the number of pieces and type of packaging (e.g. carton, crate, drum, skid);
 - e. actual weight and dimensions of each piece type, including gross weight;
 - f. copy of the commercial invoice (in accordance with clause C2608C, section 4, of the Standard Acquisition Clauses and Conditions Manual) or a copy of the Canada Border Services Agency form C11 Canada Customs Invoice (PDF 429KB) - (Help on File Formats);
 - g. Schedule B codes (for exports) and the Harmonized Tariff Schedule codes (for imports);

- h. North American Free Trade Agreement Certificate of Origin (in accordance with clause C2608C, section 2) for the U.S. and Mexico only;
 - i. full details of dangerous material, as required for the applicable mode of transportation, signed certificates for dangerous material as required for shipment by the International Maritime Dangerous Goods Code, or International Air Transport Association regulations or the applicable Canadian *Dangerous Goods Shipping Regulations* and a copy of the material safety data sheet.
4. Following receipt of this information by Canada, Canada will provide the appropriate shipping instructions, which may include the requirement for specific consignee address labelling, the marking of each piece with a Transportation Control Number and customs documentation.
5. The Contractor must not ship goods before receiving shipping instructions from the DND Inbound Logistics contact.
6. If the Contractor delivers the goods at a place and time that are not in accordance with the given delivery instructions or fail to fulfill reasonable delivery instructions given by Canada, the Contractor must reimburse Canada any additional expenses and costs incurred.
7. If Canada is responsible for delays in delivering the goods, ownership and risk will be transferred to Canada upon expiry of either thirty (30) days following the date on which a duly completed shipping application is received by Canada or by its appointed forwarding agent, or thirty (30) days following the delivery date specified in the Contract, whichever is later.

6.6.4 Customs Broker

Prior to shipping, the contractor must contact the following Customs broker. The goods provided under the Contract must be cleared by:

Department of National Defence (DND)
Canadian Material Support Group (Montreal Detachment)
Phone: 1-514-252-2777 Ext. 2877 or 1-855-210-5149
Email: DCBSCUSTOMSMTLDET@FORCES.GC.CA

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:

The original and one (1) copy must be forwarded to the address shown on page 1 of the Contract for certification and payment.

6.8 Certifications

- 6.8.1** Compliance with the certifications provided by the Contractor in its bid is a condition of the Contract and subject to verification by Canada during the term of the Contract. If the Contractor does not comply with any certification or it is determined that any certification made by the Contractor in its bid is untrue, whether made knowingly or unknowingly, Canada has the right, pursuant to the default provision of the Contract, to terminate the Contract for default.

6.9 Applicable Laws

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

6.10 Priority of Documents

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

- (a) the Articles of Agreement;
- (b) the general conditions 2010A (2016-04-04), General Conditions - Goods (Medium Complexity);
- (c) Annex A, Requirement;
- (d) Annex B, Basis of Payment;
- (e) the Contractor's bid dated _____ .

6.11 SACC Manual Clauses

G1005C (2016-01-28), Insurance

A9033T (2012-07-16, Financial Capability

ANNEX A

REQUIREMENT

1. TITLE

HIGH AVERAGE POWER AND HIGH PEAK POWER PICOSECOND LASER

2. BACKGROUND

Defence Research and Development Canada – Valcartier want to purchase one (1) picosecond laser system for studies of atmospheric propagation.

Laser sources with good beam quality and divergence are for defence applications. There are several technological configurations for picosecond laser systems with high peak power and high average power. As part of this project, the picosecond laser system must be compact, robust and the gain medium pumped by laser diodes. The picosecond laser system will be incorporated into an existing installation for the study of atmospheric propagation.

3. ACRONYMS

cm	centimetre
kg	kilogram
kHz	kilohertz
m	metre
mm	millimetre
GW	gigawatt (10 ⁹ watt)
M²	spatial beam quality
nm	nanometre
ps	picosecond (10 ⁻¹² second)
rms	root mean square
W	WATT

4. APPLICABLE DOCUMENTS & REFERENCES

None.

5. REQUIREMENTS

5.1 Picosecond laser system

Required quantity: 1

The Contractor must provide the requirement with the following specifications:

Specifications	Value
External dimensions of the laser box:	≤ 150 cm wide x 250 cm depth x 30 cm height
Weight of the laser box:	≤ 1500 kg
External dimensions of the laser power supply:	≤ 55 cm wide x 100 cm depth x 150 cm height

Central wavelength of the laser beam output:	1030 nm \pm 5 nm
Minimum pulsewidth of the laser beam output:	\leq 2 ps (measured at full width at half maximum)
Maximum pulsewidth with positive chirp of the laser beam output:	\geq 10 ps (measured at full width at half maximum)
Maximum pulsewidth with negative chirp of the laser beam output:	\geq 10 ps (measured at full width at half maximum)
Energy per pulse of the laser beam output:	\geq 20 millijoule
Repetition rate of the output laser beam:	\geq 50 kHz
Maximum average laser power of the output laser beam:	\geq 1000 W
Maximum peak power of the output laser beam:	\geq 10 GW
Spatial profile of the output laser beam:	$M^2 \leq 1.5$
Beam diameter (at the output of the collimator):	25 mm \pm 5 mm (measured at full width at 1/e)
Laser pulse energy stability of the output beam:	\leq 3% rms
Cooling of the laser system:	Water cooling
Length of the umbilical cable between the laser box and the laser power supply:	between 1.5 m and 5 m
Cable used to control the laser system:	USB cable, Ethernet cable or RS232 cable
Computer operating system for controlling the laser system:	Windows 7 or Windows 10
Previous projects:	<p>Bidders must submit with their bid, the following information for at least two (2) projects in the last five (5) years:</p> <ul style="list-style-type: none"> - The picosecond laser models sold having an average power exceeding 100 W; - The date of sale; and - User information, which should include organization name, contact, telephone, and/or e-mail address. <p>The user may be contacted to confirm the accuracy of the information. If the user is unavailable or the listed information does not match the above requirements, the bid will be declared non-responsive.</p>

5.2 Accessories

The Contractor must provide the following accessories for requirement 5.1:

Description	Required quantity
One average power laser controller at the laser output in order to vary the average laser power from 0% to 100%.	1
The laser system must include at least one year of support and maintenance for the components.	1
Technical support must be offered by telephone and/or Internet. The response time for service requests must be less than or equal to 48 hours.	1
The contractor should provide brochures or technical data when delivering the laser system.	1
The contractor must provide calibration certification when delivering the laser system.	1

The contractor must provide technical assistance off the DRDC-Valcartier site for the initial installation and the initial start of the picosecond laser system, within a distance of 100 km from the DRDC-Valcartier site. (see below the delivery location)	1
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6. DELIVERABLES

Number	Requirement Reference	Description of the Deliverables
6.1	5.1	A report including the detailed conception design of the laser system, the relevant electric and cooling diagrams and all planned laser parameters. The technical report must clearly describe the technologies used for the production of the deliverables. The technical report must provide these technical data: The gain media used for the laser amplification; The technologies used (laser diodes, flash lamp or pump laser) to pump the different amplification stages of the laser system; The technologies used to generate the picosecond pulse train; The water cooling systems; The configuration of each laser amplification stage; The technologies used to control the laser average output power; The control panel and/or software to control the turn-on, turn-off and laser parameters of the laser system; Required laser system maintenance; Required cooling system maintenance.
6.2	5.1	A report describing the manufacturing of the laser system main frame and the implementation of the first operational laser module into the laser frame
6.3	5.1	Must deliver a functional picosecond laser system as described in Section 5.1, "Picosecond laser system"
6.4	5.2	Must deliver a power controller, component support and maintenance, technical support, technical data and calibration certification as described in Section 5.2, "Accessories"
6.5	5.2	Must deliver technical assistance for the initial installation and the initial start-up as described in Section 5.2, "Accessories"

7. DATE OF DELIVERY

- Deliverable 6.1:** On or before 4 weeks after contract award.
Deliverable 6.1: On or before 35 weeks after contract award.
Deliverable 6.1: On or before 52 weeks after contract award.
Deliverable 6.1: On or before 70 weeks after contract award.
Deliverable 6.1: On or before 70 weeks after contract award.

8. LANGUAGE OF WORK

French or English.

9. FINAL DESTINATION OF GOODS

Solicitation No. - N° de l'invitation
W7701-176246/A
Client Ref. No. - N° de réf. du client
W7701-176246

Amd. No. - N° de la modif.
File No. - N° du dossier
QCL-6-39310

Buyer ID - Id de l'acheteur
qc1029
CCC No./N° CCC - FMS No./N° VME

Final destination for deliverables 6.1, 6.2, 6.3 and 6.4:

Defence Research and Development Canada – Valcartier Research Centre
Building 53
2459 de la Bravoure Road
Quebec City, QC
G3J 1X5
Canada

Final destination for deliverable 6.5:

Université Laval
2325 rue de l'Université
Quebec City, QC
G1V 0A6
Canada

ANNEX B

BASIS OF PAYMENT

1. Picosecond laser system

Item	Description	Qty	Firm Price	Currency
1	Picosecond laser system and accessories, in accordance with Annex A	1	_____ \$	
2	Shipping and delivery fees (if not included in 1.)		_____ \$	
Firm Lot Price			_____ \$*	

*Delivered **FCA Free Carrier Montreal airport, Incoterms 2000** for shipments from a commercial contractor.

ATTACHMENT 1

FEDERAL CONTRACTORS PROGRAM FOR EMPLOYMENT EQUITY – CERTIFICATION

I, the Bidder, by submitting the present information to the Contracting Authority, certify that the information provided is true as of the date indicated below. The certifications provided to Canada are subject to verification at all times. I understand that Canada will declare a bid non-responsive, or will declare a contractor in default, if a certification is found to be untrue, whether during the bid evaluation period or during the contract period. Canada will have the right to ask for additional information to verify the Bidder's certifications. Failure to comply with any request or requirement imposed by Canada may render the bid non-responsive or constitute a default under the Contract.

For further information on the Federal Contractors Program for Employment Equity visit Employment and Social Development Canada (ESDC)-Labour's website.

Date: _____ (YYYY/MM/DD) (If left blank, the date will be deemed to be the bid solicitation closing date.)

Complete both A and B.

A. Check only one of the following:

- A1. The Bidder certifies having no work force in Canada.
- A2. The Bidder certifies being a public sector employer.
- A3. The Bidder certifies being a federally regulated employer being subject to the Employment Equity Act.
- A4. The Bidder certifies having a combined work force in Canada of less than 100 employees (combined work force includes: permanent full-time, permanent part-time and temporary employees [temporary employees only includes those who have worked 12 weeks or more during a calendar year and who are not full-time students]).

A5. The Bidder has a combined workforce in Canada of 100 or more employees; and

- A5.1. The Bidder certifies already having a valid and current Agreement to Implement Employment Equity (AIEE) in place with ESDC-Labour.

OR

- A5.2. The Bidder certifies having submitted the Agreement to Implement Employment Equity (LAB1168) to ESDC-Labour. As this is a condition to contract award, proceed to completing the form Agreement to Implement Employment Equity (LAB1168), duly signing it, and transmit it to ESDC-Labour.

B. Check only one of the following:

- B1. The Bidder is not a Joint Venture.

OR

- B2. The Bidder is a Joint venture and each member of the Joint Venture must provide the Contracting Authority with a completed annex Federal Contractors Program for Employment Equity - Certification. (Refer to the Joint Venture section of the Standard Instructions)