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Public Works and Government Services / Travaux  
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Kingston Procurement  
Des Acquisitions Kingston  
86 Clarence Street, 2nd floor  
Kingston  
Ontario  
K7L 1X3  
Bid Fax: (613) 545-8067

**LETTER OF INTEREST**  
**LETTRE D'INTÉRÊT**

Comments - Commentaires

Vendor/Firm Name and Address  
Raison sociale et adresse du  
fournisseur/de l'entrepreneur

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Public Works and Government Services / Travaux publics  
et services gouvernementaux  
Kingston Procurement  
Des Acquisitions Kingston  
86 Clarence Street, 2nd floor  
Kingston  
Ontario  
K7L 1X3

<b>Title - Sujet</b> DIGITAL REGULATING SYSTEM UPDGRADE	
<b>Solicitation No. - N° de l'invitation</b> W0114-13Q334/A	<b>Date</b> 2013-05-24
<b>Client Reference No. - N° de référence du client</b> W0114-3-Q6334	<b>GETS Ref. No. - N° de réf. de SEAG</b> PW-\$KIN-655-6121
<b>File No. - N° de dossier</b> KIN-3-40041 (655)	<b>CCC No./N° CCC - FMS No./N° VME</b>
<b>Solicitation Closes - L'invitation prend fin at - à 02:00 PM on - le 2013-06-25</b>	<b>Time Zone</b> <b>Fuseau horaire</b> Eastern Daylight Saving Time EDT
<b>F.O.B. - F.A.B.</b> <b>Plant-Usine:</b> <input type="checkbox"/> <b>Destination:</b> <input checked="" type="checkbox"/> <b>Other-Autre:</b> <input type="checkbox"/>	
<b>Address Enquiries to: - Adresser toutes questions à:</b> Semple, Patrick	<b>Buyer Id - Id de l'acheteur</b> kin655
<b>Telephone No. - N° de téléphone</b> (613) 530-3117 ( )	<b>FAX No. - N° de FAX</b> (613) 545-8067
<b>Destination - of Goods, Services, and Construction:</b> <b>Destination - des biens, services et construction:</b> DEPARTMENT OF NATIONAL DEFENCE ILS RCVG 5 SOMME AVE KINGSTON Ontario K7K7B4 Canada	

Instructions: See Herein

Instructions: Voir aux présentes

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

<div>  <div>Public Works and Government Services Canada</div> </div>		Travaux publics et Services gouvernementaux Canada		Document No.W0114-13Q334/A		Part - Partie 1 of - de 2	
				See Part 2 for Clauses and Conditions Voir Partie 2 pour Clauses et Conditions			
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	Slow Poke	W0114	W0114	1	Each	\$ XXXXXXXXXXXXX	See Herein

**REQUEST FOR INFORMATION REGARDING**  
**THE UPGRADE OF THE DIGITAL REGULATING AND MONITORING SYSTEM FOR THE**  
**SLOWPOKE-2 NUCLEAR REACTOR**  
**FOR**  
**THE ROYAL MILITARY COLLEGE OF KINGSTON**

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**REQUEST FOR INFORMATION REGARDING THE UPGRADE OF THE DIGITAL REGULATING AND MONITORING SYSTEM FOR THE SLOWPOKE-2 NUCLEAR REACTOR****FOR****THE ROYAL MILITARY COLLEGE OF KINGSTON****A.1 Background and Purpose of this Request for Information (RFI)**

- 1.1 The Royal Military College of Canada (RMCC) in Kingston, Ontario has installed, and is licensed to operate, a 17.7kW, Safe LOW Power Kritical Experiment (SLOWPOKE-2) nuclear reactor for research and academic (teaching) purposes. Through the techniques of neutron activation, neutron radioscopy, and neutron tomography, the SLOWPOKE-2 Facility at RMCC is used to address operational needs within the Department of National Defence (DND). Further, the Facility is employed in the academic advancement of officers serving in the Canadian Forces.
- 1.2 The reactor was installed in 1985 with an analogue (MK-2) regulating and monitoring system, which was replaced with a digital system in 2001. The digital system was updated recently (2012) using the technologies of the 2001 system. The main objective of the update was to re-constitute the documentation, the QA process and a team to support development, implementation, operation and maintenance. It was realized from the outset that the update was an interim measure to facilitate a full upgrade of the system to proven, contemporary technologies. The upgrade of the digital regulating and monitoring system is required to ensure the continued operation for at least the next ten years.

**2. OBJECTIVE**

The objective of this request for information is to:

- 2.1 Determine the extent to which there exists a level of interest and expertise in industry to provide the services required to upgrade the Digital Regulating and Monitoring System, in whole or part, for the SLOWPOKE-2 nuclear reactor.
- 2.2 Allow respondents to assess and comment on the adequacy and clarity of the requirements as currently expressed.
- 2.3 Allow respondents to propose alternate methods of performing the work.
- 2.3 Provide industry with an opportunity to communicate information about the factors that RMCC should take into consideration when planning and developing the upgrade strategy.

**A.2 Nature of Request for Information**

This is not a bid solicitation. This RFI will not result in the award of any contract. As a result, potential suppliers of any goods or services described in this RFI should not reserve stock or facilities, nor allocate resources, as a result of any information contained in this RFI. Nor will this RFI result in the creation of any source list. Therefore, whether or not any potential supplier responds to this RFI will not preclude that supplier from participating in any future procurement. Also, the procurement of any of the goods and services described in this RFI will not necessarily

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follow this RFI. This RFI is simply intended to solicit feedback from industry with respect to the matters described in this RFI.

### A.3 Nature and Format of Responses Requested

Respondents are requested to provide their comments, concerns and, where applicable, alternative recommendations regarding how the requirements or objectives described in this RFI could be satisfied. Respondents are also invited to provide comments regarding the content, format and/or organization of any draft documents included in this RFI. Respondents should explain any assumptions they make in their responses.

### A.4 Response Costs

Canada will not reimburse any respondent for expenses incurred in responding to this RFI.

### A.5 Treatment of Responses

- (a) **Use of Responses:** Responses will not be formally evaluated. However, the responses received may be used by Canada to develop or modify procurement strategies or any draft documents contained in this RFI. Canada will review all responses received by the RFI closing date. Canada may, in its discretion, review responses received after the RFI closing date.
- (b) **Review Team:** A review team composed of representatives of the client (where applicable) and PWGSC will review the responses. Canada reserves the right to hire any dependent consultant, or use any Government resources that it considers necessary to review any response. Not all members of the review team will necessarily review all responses.
- (c) **Confidentiality:** Respondents should mark any portions of their response that they consider proprietary or confidential. Canada will handle the responses in accordance with the *Access to Information Act*.
- (d) **Follow-up Activity:** Canada may, in its discretion, contact any respondents to follow up with additional questions or for clarification of any aspect of a response.

### A.6 Contents of this RFI

- (a) This RFI contains a draft Statement of Work. This document remains a work in progress and respondents should not assume that new clauses or requirements will not be added to any bid solicitation that is ultimately published by Canada. Nor should respondents assume that none of the clauses or requirements will be deleted or revised. Comments regarding any aspect of the draft document are welcome.
- (b) This RFI also contains specific questions addressed to the industry.

### A.7 Questions to Industry

All responses are valued:

#### (1) Adequacy and clarity of the requirements:

- (a) Please provide comments on the adequacy of the Statement of Work (Annex A) as currently expressed. What additional information would be required in order to bid on this requirement?

- (b) Are the Experience Criteria (Annex B), as currently expressed clear and reasonable?

**(2) Industry Interest and Expertise:**

- (a) It is anticipated that a supplier would demonstrate a profile of relevant experience. Respondents are asked to comment on the expected expertise, below;
- (i) Business experience with particular focus on application development;
  - (ii) Knowledge, experience and resources applicable and suitable to the work of upgrading a reactor regulating and monitoring system;
  - (iii) Experience in nuclear, defence, avionics, manufacturing and/or other industries requiring specified deliverables to exacting standards provided on time and budget; and
  - (iv) Experience, typically of more than 5 years, in design, specification, development and/or test of instrumentation and control systems;
- (b) Please provide general information on the following:
- (i) How would the respondent approach the work?
  - (ii) What resources would be acquired, developed or redeployed to perform the work;
  - (iii) Statements describing the potential capability and capacity of your target resources, or full or partial resumes;
  - (iv) Reference sites and contacts for verification of stated capability and experience; and
- (c) Please identify potential issues, risks and concerns the respondent would expect at the start and during the contract and outline their mitigation strategy (s) for addressing them.
- (d) When might the respondent be able to undertake the work?

**(3) Method of Supply:**

- (a) Please provide an indication if the respondent is listed, or plans to be listed, on the following Supply Arrangements and Standing Offers: the Solutions - Based Informatics Professional Services (SBIPS) Supply Arrangement, the Task-Based - Informatics Professional Services (TBIPS) Standing Offer and Supply Arrangement, or the Technical, Engineering and Maintenance Services Supply Arrangement (TEMS) Supply Arrangement. (Reference Annex C)
- (b) Does the respondent have any of the required resources available through one or more of the following SBIPS, TBIPS, TEMS Standing Offer/Supply Arrangements?

**A.8 Format of Responses**

- (a) Responses must be formatted in native MS Office 2010 applications (Word, Excel, PowerPoint, etc.) compatible formats in a MS Windows 7 personal computing environment

- (b) **Cover Page:** If the response includes multiple volumes, respondents are requested to indicate on the front cover page of each volume the title of the response, the solicitation number, the volume number and the full legal name of the respondent.
- (c) **Title Page:** The first page of each volume of the response, after the cover page, should be the title page, which should contain:
- (i) the title of the respondent's response and the volume number;
  - (ii) the name and address of the respondent;
  - (iii) the name, address and telephone number of the respondent's contact;
  - (iv) the date; and
  - (v) the RFI number.
- (d) **Numbering System:** Respondents are requested to prepare their response using a numbering system corresponding to the one in this RFI. All references to descriptive material, technical manuals and brochures included as part of the response should be referenced accordingly.
- (c) **Number of Copies:** Canada requests that respondents submit ONE (1) hard copy and ONE (1) soft copy.

## A.9 Enquiries

Because this is not a bid solicitation, Canada will not necessarily respond to enquiries in writing or by circulating answers to all potential suppliers. However, respondents with questions regarding this RFI may direct their enquiries to:

Contracting Authority:	Mr. Patrick Semple
E-mail address:	patrick.semple@pwgsc-tpgsc.gc.ca
Telephone:	(613) 530-3117
Facsimile:	(613) 545-8067

## A.10 Submission of Responses

- (a) **Time and Place for Submission of Responses:** Suppliers interested in providing a response should deliver it to the Contracting Authority identified above by the time and date indicated on page 1 of this document.
- (b) **Responsibility for Timely Delivery:** Each respondent is solely responsible for ensuring its response is delivered on time to the correct location.
- (c) **Identification of Response:** Each respondent should ensure that its name and return address, the solicitation number and the closing date appear legibly on the outside of the response.

## Annex A

### UPGRADE OF THE DIGITAL REGULATING AND MONITORING SYSTEM FOR THE SLOWPOKE-2 NUCLEAR REACTOR

#### Statement of Work

- 1.1 The upgrade of the digital regulating system and monitoring system will entail fundamental changes in the technologies and design of the system. What is expected of the Contractor is the following:
- 1.1.1 Confirmation of the target architecture and design,
  - 1.1.2 Specification of suitable technology and component configurations for development, test/training and production environments,
  - 1.1.3 Application(s) development and test using National Instruments LabVIEW programming workbench,
  - 1.1.4 Recommendations on decomposing the current monolithic application architecture with a more modular approach,
  - 1.1.5 Integration and update/redesign of the existing GUI,
  - 1.1.6 Integration and use of existing cabling and enclosures,
  - 1.1.7 Integration of UPS and application health monitors,
  - 1.1.8 The development of a simulator/test rig for system integration testing and post implementation diagnostics and training,
  - 1.1.9 System verification and validation testing,
  - 1.1.10 Documentation updates based on established templates, in accordance with established RMCC practice, and
  - 1.1.11 Demonstrable Configuration Management and Change Control throughout the execution of the.

## 2. APPLICABLE DOCUMENTS

- 2.1 The required quality standards are available from their publishers. These include:
- 2.1.1 **N286.7-99 (R2012) - Quality Assurance of Analytical, Scientific and Design Computer Programs for Nuclear Power Plants,**  
<http://shop.csa.ca/en/canada/nuclear/n2867-99-r2012/inv/27005891999/>,



**2.1.2 N290.14-07 (R2012) - Qualification of Pre-Developed Software for Use in Safety-Related Instrumentation and Control Applications in Nuclear Power Plants.** <http://shop.csa.ca/en/canada/nuclear/n29014-07-r2012/invnt/27026862007/>, and

**2.1.3** Associated relevant standards.

**3. REPORTING REQUIREMENTS**

- 3.1 Detailed, clear and concise documentation are required to demonstrate knowledge, experience and capability. Monthly reviews and reports are required. RMCC retains the right to audit the Contractor's project processes, QA procedures and deliverables at any time during the work
- 3.2 Openness to RMCC project inspection and periodic audit.

**4. LANGUAGE REQUIREMENTS**

- 4.1 The Contractor must be fluent in the English language. Fluent means that the individuals must be able to communicate orally and in writing without any assistance and with minimal errors.

**5. LOCATION OF WORK**

- 5.1 All work in responding to this letter of interest may be performed on the Contractor's site in North America (Canada and continental USA).
- 5.2 The upgrade work is expected to be completed at the Contractor's site in North America, with the exception of requirements confirmation, design and specification reviews, system integration testing, and validation testing which must be completed at RMCC in Kingston, Ontario, Canada.
- 5.3 Due to security requirements, subcontracting of the design, development or test work outside continental USA and Canada will NOT be permitted.

## Annex B

### EXPERIENCE CRITERIA

- 1.1 Companies must have requisite knowledge and experience and must demonstrate success in delivering digital instrumentation and control systems of the kind suitable for the regulation and monitoring of a nuclear reactor.

Specifically, documented evidence is required that demonstrates that the Contractor has:

- 1.1.1 At least 10 calendar years (within 15 years from the closing date of the solicitation) of directly applicable experience in the project management, specification, design, development and test of instrumentation and control systems using digital technologies similar to those outlined below in 1.1.2 and 1.1.3.

- 1.1.2 Experience and resource depth in:

- 1.1.2.1 The design of real time instrumentation and control systems that include:

- 1.1.2.1.1 Intel-based, multicore computer processing technology,

- 1.1.2.1.2 Hypervisor real time operating system (for regulation and monitoring),

- 1.1.2.1.3 Microsoft Windows (for HMI/GUI and data processing), (HMI: Human Machine Interface; GUI: Graphical User's Interface),

- 1.1.2.1.4 National Instruments LabVIEW Programming Workbench or similar programming languages and tools,

- 1.1.2.1.5 National Instruments PXI signal processing platform

- 1.1.2.1.6 Keithley instruments integration, and

- 1.1.2.1.7 HMI/GUI design, redesign, human factors, etc.

- 1.1.3 The development and test of such systems using:

- 1.1.3.1 National Instruments LabVIEW Programming Workbench or similar tools,

- 1.1.3.2 automated test rigs and system simulators, and

- 1.1.3.3 specified Quality Assurance processes and procedures auditable by a qualified independent party.

- 2.1 A propensity to hold successful, effective communications and teamwork in high regard internally and externally; and frequent and effective communications have been maintained between parties on projects.

## Annex C

### ADDITIONAL INFORMATION

#### 1. SECURITY REQUIREMENTS

It is anticipated that contractors must have a minimum security clearance to the Reliability level and contractors must be able to demonstrate that code is only available to specified project members with a minimum of this clearance level.

#### 2. METHOD OF SUPPLY

- 1.1 Openness to a long term relationship where maintenance and support would be provided to RMCC on an annual and/or time and materials arrangement;
- 2.1 Flexibility in the work process to accommodate the nuances in the federal budgeting and budget allocation processes;
- 2.2 Funding is likely to be available over more than one financial year
- 2.3 It is anticipated that funding would be available on an annual basis, without a multi-year commitment. A potential method of supply is a Contract with Task Authorisations to allow for an initial core activity and the option for additional services provided on an "as and when required" basis at an hourly rate.
- 2.4 For this requirement, based on appropriate levels of interest and capability, Canada intends to use the following methods of supply; the Task-Based Informatics Professional Services (TBIPS) Standing Offer and Supply Arrangement, the Solutions - Base Informatics Professional Services (SBIPS) Supply Arrangement or the Technical, Engineering and Maintenance Services Supply Arrangement (TEMS) Supply Arrangement, if applicable. However, Canada may choose to proceed otherwise based on the review of the feedback received to this RFI.

For more information on the above listed methods of supply and how to become a holder, please refer to the web links below:

Task-Based - Informatics Professional Services (TBIPS) Standing Offer and Supply  
<http://www.tpsgc-pwgsc.gc.ca/app-acq/sptb-tbps/index-eng.html>

Solutions - Based Informatics Professional Services (SBIPS) Supply Arrangement  
<http://www.tpsgc-pwgsc.gc.ca/app-acq/spc-cps/spics-sbips-eng.html>

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Buyer ID - Id de l'acheteur

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

File No. - N° du dossier

CCC No./N° CCC - FMS No/ N° VME

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Engineering and Maintenance Services Supply Arrangement (TEMS) Supply Arrangement  
<http://www.tpsgc-pwgsc.gc.ca/app-acq/aa-sa/index-eng.html>