

**RETURN BIDS TO:  
RETOURNER LES SOUMISSIONS À:**

**Bid Receiving  
PWGSC  
33 City Centre Drive  
Suite 480C  
Mississauga  
Ontario  
L5B 2N5  
Bid Fax: (905) 615-2095**

**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**  
THIS DOCUMENT CONTAINS SECURITY  
REQUIREMENTS.

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

**Issuing Office - Bureau de distribution**  
Public Works and Government Services Canada  
Ontario Region  
33 City Centre Drive  
Suite 480  
Mississauga  
Ontario  
L5B 2N5

<b>Title - Sujet</b> Weather Radar Replacement Solution	
<b>Solicitation No. - N° de l'invitation</b> K3D33-141144/B	<b>Amendment No. - N° modif.</b> 012
<b>Client Reference No. - N° de référence du client</b> K3D33-141144	<b>Date</b> 2015-09-14
<b>GETS Reference No. - N° de référence de SEAG</b> PW-\$TOR-018-6873	
<b>File No. - N° de dossier</b> TOR-4-37044 (018)	<b>CCC No./N° CCC - FMS No./N° VME</b>
<b>Solicitation Closes - L'invitation prend fin</b> <b>at - à 02:00 PM</b> <b>on - le 2015-09-30</b>	
<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> Pan, Long	<b>Buyer Id - Id de l'acheteur</b> tor018
<b>Telephone No. - N° de téléphone</b> (905) 615-2076 ( )	<b>FAX No. - N° de FAX</b> (905) 615-2023
<b>Destination - of Goods, Services, and Construction:</b> <b>Destination - des biens, services et construction:</b>	

**Instructions: See Herein**

**Instructions: Voir aux présentes**

<b>Delivery Required - Livraison exigée</b>	<b>Delivery Offered - Livraison proposée</b>
<b>Vendor/Firm Name and Address</b> Raison sociale et adresse du fournisseur/de l'entrepreneur	
<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/</b> <b>de l'entrepreneur (taper ou écrire en caractères d'imprimerie)</b>	
<b>Signature</b>	<b>Date</b>

Solicitation No. - N° de l'invitation

K3D33-141144/B

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

K3D33-141144

Amd. No. - N° de la modif.

012

File No. - N° du dossier

TOR-4-37044

Buyer ID - Id de l'acheteur

tor018

CCC No./N° CCC - FMS No/ N° VME

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Please see attached.

**THE SOLICITATION AMENDMENT No. 012 IS RAISED TO MODIFY THE SOLICITATION AND ANSWER QUESTIONS FROM THE INDUSTRY.**

**Modification #012**

**Reference:**

Appendix B: Pricing Schedule

**Modification #012:**

Part 2: Milestone Payment Schedule for Firm Deliverables is hereby deleted and replaced with the following:

**Part 2: Milestone Payment Schedule for Firm Deliverables**

- 2.1 Canada will pay the Contractor the milestone payment based on the percentage of the allocated value and the actual Task Authorization cost described in the following Table 1 – Milestone Payment Schedule.
- 2.2 The Allocated Value (AV) in the following Table 1 = (Table 1 + Table 3 + Table 4 + Table 5 of Annex B, Part 1: Firm Deliverables)
- 2.3 For Radar Infrastructure and Construction deliverables, Canada will pay the actual Task Authorization value after Contract award upon approval of the deliverables by the Contracting Authority and Project Authority. The total actual cost for firm Radar Infrastructure and Construction deliverables cannot exceed the Lot ceiling price described in Table 2 - Radar Infrastructure and Construction – Task Authorization in Part 1 of Annex B – Pricing Schedule.

For example:

The value of the selected proponent's Table 1, 3, 4 & 5 bid prices totals \$60 Million. The value of the selected proponent's Table 2 bid is \$1,000,000. After contract award, the actual cost incurred by the selected proponent for Radar Infrastructure and Construction of the first radar system is \$88,500 (as supported by documents submitted to Canada). As noted below, the Milestone payment in Item #2 Acceptance of Infrastructure and construction deliverables and supply, delivery and installation of first Weather Radar System is 10%. Therefore, the payment would be calculated as follows: 10% x \$60 million + \$88,500 = \$6,088,500.

**Table 1 – Milestone Payment Schedule**

Item	Description		
1	<b>Milestone 1 – Transition-In Phase: Acceptance of Implementation Plan</b>		
	<i>Description</i>	<i>Reference to Contract</i>	<i>% of Allocated Value (AV)</i>
	<ul style="list-style-type: none"> <li>• Acceptance of preliminary Implementation Plan required in the initial kick-off meeting</li> </ul>	Appendix C of Annex A - SOW	1% of AV

	<ul style="list-style-type: none"> <li>Acceptance of final Implementation Plan and final system and infrastructure design and approvals</li> </ul>	Appendix C of Annex A - SOW	1% of AV
2	<b>Milestone 2 – Operational Implementation Phase: Acceptance of the First Weather Radar System and infrastructure delivery including all associated deliverables described in Annex A – SOW</b>		
	<i>Description</i>	<i>Reference to Contract</i>	<i>% of Allocated Value and actual Task Authorization (TA) cost</i>
	<ul style="list-style-type: none"> <li>Acceptance of Infrastructure and construction deliverables and supply, delivery and installation of first Weather Radar System</li> </ul>	Appendix A and B of Annex A - SOW	10% of AV + Actual TA cost
	<ul style="list-style-type: none"> <li>Successfully pass the Technical Performance Test at TRL of 8 and approved by Project Authority</li> </ul>	Appendix A of Annex A - SOW	3% of AV
	<ul style="list-style-type: none"> <li>Acceptance of training and project management deliverables and successful transfer the ownership of radar system to Canada upon approval by Project Authority</li> </ul>	Appendix A, C, D and E of Annex A - SOW	2% of AV
3	<b>Milestone 3 – Operational Implementation Phase : Acceptance of the Second Weather Radar System and infrastructure delivery including all associated deliverables described in Annex A – Statement of Work (SOW)</b>		
	<i>Description</i>	<i>Reference to Contract</i>	<i>% of Allocated Value and actual Task Authorization (TA) cost</i>
	<ul style="list-style-type: none"> <li>Acceptance of infrastructure and construction deliverables and supply, delivery and installation of Second Weather Radar System</li> </ul>	Appendix A and B of Annex A - SOW	8% of AV + Actual TA cost
	<ul style="list-style-type: none"> <li>Successfully pass the Technical Performance Test at TRL of 8 and approved by Project Authority</li> </ul>	Appendix A of Annex A - SOW	3% of AV
	<ul style="list-style-type: none"> <li>Acceptance of training and project management deliverables and successful transfer of the responsibility for the radar system to GoC upon approval by Project Authority</li> </ul>	Appendix A, C, D and E of Annex A - SOW	2% of AV
4	<b>Milestone 4 – Operational Implementation Phase : Acceptance of the 18 radar systems and infrastructure deliveries including all associated deliverables described in Annex A – Statement of Work (SOW)</b>		
	<i>Description</i>	<i>Reference to Contract</i>	<i>% of Allocated Value and actual Task Authorization (TA) cost</i>

	<ul style="list-style-type: none"> <li>Acceptance of Infrastructure and construction deliverables and supply, delivery and installation of 3<sup>rd</sup> to 10<sup>th</sup> Radar System; Successfully pass the Technical Performance Test at TRL of 9 (TRL 8 if less than 30 months into contract period) and Acceptance of training and project management deliverables and successful transfer the responsibility for the radar system to GoC upon approval by Project Authority.</li> <li><b>Note: The delivery of above goods and services will be paid 3% of the Contract Value for each Radar system.</b></li> </ul>	Appendix A, B, C, D and E of Annex A - SOW	24% of AV + Actual TA cost
	<ul style="list-style-type: none"> <li>Acceptance of mid-project review deliverables.</li> </ul>	Appendix C of Annex A - SOW	6% of AV
	<ul style="list-style-type: none"> <li>Acceptance of Infrastructure and construction deliverables and supply, delivery and installation of 11<sup>th</sup> to 20<sup>th</sup> Radar System; Successfully pass the Technical Performance Test at TRL of 9 and Acceptance of training and project management deliverables and successful transfer the responsibility for the radar system to GoC upon approval by Project Authority.</li> <li><b>Note: The delivery of above goods/services will be paid 3% of the Contract Value for each Radar system.</b></li> </ul>	Appendix A, B, C, D and E of Annex A - SOW	30% of AV + Actual TA cost
5	<b>Milestone 5 – Transition-Out Phase: Acceptance of transition-out deliverables as described in Annex A - Statement of Work (SOW)</b>		
	Acceptance of transition-out deliverables	Appendix C of Annex A - SOW	10% of AV

**Modification #013**

<p><b>Reference:</b> Appendix F to Annex A</p>
<p><b>Modification #013:</b> The following term will be inserted into Appendix F under 1.0 Scope:</p> <p>1.3 Canada will reimburse the Contractor for its pre-authorized travel and living expenses reasonably and properly incurred in the performance of the tasks specified in the Appendix F - Specialized Professional Services Deliverables, without any allowance for profit and/or administrative overhead, in accordance with the meal, private vehicle and incidental expenses provided in Appendices B, C and D of the Treasury Board Travel Directive (<a href="http://www.njc-cnm.gc.ca/directive/travel-voyage/index-eng.php">http://www.njc-cnm.gc.ca/directive/travel-voyage/index-eng.php</a>), and with the other provisions of the directive referring to “travellers”, rather than those referring to “employees”. All</p>

travel must have the prior authorization of the Project Authority. All payments are subject to government audit. The Contractor will be able to charge for the time spent travelling at the hourly rates set out in the Contract.

#### Question # 080

**Reference:**

RFP Annex A Glossary: Graphical Definition of 1. Radar System, 2. Radar Infrastructure, 2. Radar Site  
RFP Annex A 2.1 a., 2.2  
Document G1  
Attachment 4 Bidders Pricing Table

**Question #080:**

In the Glossary and number 2.1 of section 2 of Annex A, the tower is included as part of the radar system. Attachment 4 Table 1 and Table 7 indicate that the Radar system is to be bid as Firm Unit Price. However, the price of the tower will vary from site to site due the difference in geotechnical conditions at each site as well as the variance in the heights of the feedhorns as specified in Document G.1. Given this variation in tower costs, would Canada consider changing the tower from Radar System deliverables to Radar Infrastructure and Construction deliverables and have the price of the tower included in the Lot Ceiling Price of Table 2?

**Answer #080:**

Canada has considered the request. The tables listed in Attachment 4 for evaluation purpose will remain unchanged and your request is hereby rejected.

#### Question # 081

**Reference:**

RFP Attachment 4  
RFP Annex A, Appendix F

**Question #081:**

Bidders are to submit an hourly rate for six different labour categories for Specialized Professional Services. However, Appendix F, section 1.2 indicates that some on-site work is expected. Travel time and travel costs could be significant cost drivers.

1. Could Canada confirm that the hourly rates are to account for travel costs?
2. If travel costs are included, could Canada provide an estimate of the number and duration of expected deployments?

**Answer #081:**

Please refer to Modification # 013. The hourly rates are not to account for travel costs. Travel time and travel costs will be reimbursed by Canada following the Treasury Board travel directive, hosted by National Joint Council (NJC) as per Modification # 013. The most efficient method of travel must be used and detailed costs must be included and approved prior to any travel taking place.

#### Question # 082

**Reference:**

RFP Section 7 para 7.6  
RFP Annex B Part 1

**Question #082:**

PWGSC is requested to clarify the method of payment. Paras 7.6.1 to 7.6.5 of the RFP indicate that this is to be done through a combination of milestone payments and Task Authorization payments. The milestone payment process is outlined in para 7.6.4 and in Annex B Part 2 Milestone Payment schedule for Firm Deliverables.

- 1) It is our understanding that the milestone payments will be based upon the firm price that will be inserted in para 7.6.1 of the RFP at Contract Award. Is this understanding correct?
- 2) Will the firm price inserted into para 7.6.1 after contract award be based upon the Firm Deliverable prices quoted by the selected bidder in Table 1, Table 3, Table 4 and Table 5 in Part 1 of Annex B?
- 3) It is also our understanding that the Task Authorization payments will be made to the contractor in accordance with paragraphs 7.6.2 and 7.6.5 of the RFP. It is understood that Canada's total liability will not exceed the sum inserted into paragraph 7.6.3 after Contract Award.
- 4) Will the amount that is inserted in paragraph 7.6.3 be the amount shown in the Firm Deliverables Table 2 in Part 1 of Annex B?
- 5) The response to question 073 states that the Lot Ceiling Price will be part of the Maximum Contractor Fee in the milestone payment schedule described in Annex B. If the Lot ceiling Price is included in the milestone payment schedule, then does this mean that the Task Authorizations will not be used?

**Answer #082:**

- 1) Yes. Milestone Payments in Annex B will form part of any resulting Contract.
- 2) Yes, the firm price(s) described will be the total price(s) of Table 1, Table 3, Table 4 and Table 5 in Annex B Part 1.
- 3) Yes. Canada's total liability to the Contractor under the Contract for all authorized Task Authorizations will be confirmed at Contract award and in accordance with 7.6.6 – Time Verification.
- 4) Yes.
- 5) Please refer to Modification # 012. The Task Authorization process will be used for the radar infrastructure and construction deliverables.

**Question # 083**

**Reference:**

RFP Annex A, Attachment 2 para 1.2.3 M20

**Question #083:**

This criteria indicates that the user must be able to configure the processor to apply corrections and adjustments including...point filter.

Please clarify if a point filter is a configurable 2D speckle filter for the ray data or moving point target detection and filtering.

**Answer #083:**

"Point Filter" means point target filter. Normally this is a speckle filter, however, any other technique that meets the requirement in M20 will also be accepted.

**Question # 084**

**Reference:**

RFP Annex A, Attachment 3 para 2.2 Group 7 R 26

**Question #084:**

This criteria state that "The proposed Radar System will be awarded extra points if it has multi-trip recovery capability.

What is meant by "multi-trip recovery" Does this refer to range unfolding such as Sachidananda-Zrnic (SZ)-2 Range Unfolding Algorithm?

**Answer #084:**

Yes. The SZ-2 Range Unfolding Algorithm is an example of multi-trip recovery.

**Question # 085**

**Reference:**

RFP Annex A, Attachment 3 para 2.2 Group 7 R 29

**Question #085:**

This criteria states that "the proposed radar will be awarded extra points if it can report absolute phase  
Does this requirement address the absolute burst phase for each pulse?

**Answer #085:**

This refers to the absolute phase of the returned pulse.

**Question # 086**

**Reference:**

RFP

**Question #086:**

We believe that Canada may have introduced unintended consequences, or may want to re-consider the ramifications of its response to Q78.

**Discussion:**

The original M20 requirement requested 'user-selectable corrected data' for a well-defined minimum number of parameters. It requires that at least four different corrections be available to adjust the parameters. It requires that these parameters be available in three quantities, corrected, uncorrected, and the difference between corrected and uncorrected. This is well understood.

The wording in M20 then redefines the possible three forms of parameters as moments, as the term moments is not used earlier. After defining the three states of the parameters into moments the requirement states the moments must be user configurable. Therefore it must be user configurable that the moments are provided in the uncorrected form OR their corrected form OR as the difference between corrected and uncorrected OR in corrected, uncorrected, and difference forms (all).

Question number 78 proposes two interpretations of requirement M20 and EC provides an affirmative answer. The two interpretations are attempting to clarify which corrections are to be applied to which moments. However, it is not entirely clear which of the interpretations is being affirmed.

If the first interpretation is being affirmed, M20 does not state that each correction be available to each moment and that the correction configurations are unique to each moment. However, this is our only interpretation what a 'moment specific definition of correction' means, which EC affirms. In other words, a potential bidder just inserted a new requirement to M20 through this Q/A process. This is further supported by general requirement 21 that states "The Radar system must allow user adjustable

configuration of the radar data to 8- or- 16 bit, on a parameter-by-parameter basis.” In this case, it is absolutely clear that each of the parameters must be configurable to 8- or 16- bit with the “parameter-by-parameter” key phrase. M20 explicitly did not include any reference to “parameter-by-parameter” which we interpret as synonymous with the newly inserted requirement “moment specific definition of correction” drawing the conclusion that “moment specific definition of correction” is not part of, nor may be interpreted as part of the original SOW and that it is, in fact, a completely new requirement.

Our interpretation of this new requirement, that a ‘user must be able to configure a moment specific definition of correction’ is open-ended. It leads to scenarios not ever seen in the field of Weather Radar in the past, nor even within the research community. For example, a Bidder offering may provide 6 unique types of ground clutter filtering, each having 2-10 configurable parameters, where the parameters themselves have a range of 100 quantities. Is the requirement now that each moment has a unique definition of ground clutter filter type and variables, and that different clutter filters may be applied to different moments? A Bidder may offer two or more methodologies for multi-trip suppression having multiple configurable parameters: Again, is each moment to have the capability to apply a unique definition of the multi-trip suppression? A Bidder may offer three or more different attenuation correction algorithms, again have multiple variables needing to be quantified: Is the system to provide unique attenuation correction to moment A, then another unique attenuation correction to moment B, and on, and on. This permutation of possibilities gets into the thousands. Are all these permutations to be available in real-time operations of the weather radar network? Question #78 and its answer is a Pandora’s Box of unknown scope and scale as illustrated above.

This new undefined terminology ‘moment specific definition of correction’ that a potential bidder inserted into the RFP, which EC affirmed, needs to be completely defined by EC and the new requirements added to the RFP. Bidders will require additional time to evaluate the new requirements and to prepare appropriate responses. “Moment specific definition of correction” is fundamental to the offered system’s architecture. As Bidder solutions have been developed over a period of time since the RFP’s release, we would request an extension of a comparable duration upon receipt of the formal modification; nominally three months. Else EC should withdraw the answer provided to question #78 and re-write M20 to clarify what is truly desired. Or EC could state that both interpretations with regards to how the corrections are applied to the parameters may be correct, that in fact, moment configurability refers to availability of the uncorrected, corrected, difference, or all, as written in the requirement.

**Request: Please confirm that:**

- Canada intends to withdraw A78, and/or
- Canada will clarify that either interpretation of the requirement is correct, as described above; or
- Canada will provide an update to Requirement 18/M20 with a bid extension of 12 weeks.

**Answer #086:**

Canada has not introduced a new requirement nor changed an existing requirement and will not extend the bid period.

For clarity regarding M20:

- “parameter”, “moment”, and “variable” may be used interchangeably and refer to the well-defined parameters of reflectivity (Z), radial velocity (Vr), etc. listed in M20.
- “filtering” and “correcting” the data can also be used interchangeably when discussing general data processing steps.
- Corrections/filters are necessarily parameter-specific and must be appropriate for the parameter they are correcting and applied to improve the data quality for the subject parameter.

### Question # 087

**Reference:**

RFP Appendix A to Annex A

**Question #087:**

Paragraph 2.4.4, Mandatory Requirement 125 indicates that the contractor must ensure that the identified frequencies will be authorized and approved by Industry Canada. This requirement was reinforced by the responses to questions 020 and 025. Immediately after the release of the RFP on 11 Jun 2015, Industry Canada was asked to confirm the availability of frequencies for weather radar systems in Canada. Unfortunately, Industry Canada did not provide this information until 5 Aug 2015, 55 days after release of the RFP. Since final design and pricing of the proposed system could not start until the frequency was known, preparation of a significant portion of the proposal had to be delayed. In addition, EC is requesting a great deal of documentation and supporting data in the submission. This takes a great deal of time to collect and analyze as required by the RFP. This latter problem has been further exacerbated by the unavailability of key design personnel from our radar system component suppliers during the summer vacation period. In light of all of these factors, PWGSC is requested to grant a 30 day extension to the submission date such that a cost effective solution can be submitted in response to this RFP.

**Answer #087:**

Information on the possible allowable frequency bands for radars that would meet the performance requirements is readily available through a number of sources. Available frequencies are extremely limited. The request for extension is denied.

### Question # 088

**Reference:**

Ref: Amendment #10, Q&A #78

**Question #088:**

**Ref: Amendment #10, Q&A #78**

- SOW, Appendix A to Annex A, Sec 2.1.1 Requirement #18
- Attachment #2, Mandatory Requirement M20

At this late stage in the RFP period, we are surprised and concerned by Answer #78 with respect to Requirement #18. The described capability is a significant change to the system requirement.

As the described in Q78, there is a valid interpretation of Requirement #18 that is much simpler than the answer provided with A78 . A78 describes a capability of significant complexity. As suggested by the bidder who posed Q78, the alternative interpretation of requirement #18 is valid, given that other requirements (e.g. #21) use a different phrasing when stating the configurability required "on a parameter-by-parameter basis".

If truly the A78 capability is mandatory for Canada then:

- a. We recommend that you modify requirement #18 (and criteria M20) to clearly and unambiguously describe this capability.
- b. Provide bidders with additional time to consider the ramifications on their signal processors, develop an appropriate solution, and assess the cost and schedule impacts.

At this late stage, there is not sufficient remaining time in the bid period for contractors, and their subcontractors, to accurately revise their designs and cost estimates to meet this more complex capability. We would recommend an extension of 6 weeks to enable contractors and their subcontractors to re-work their bids.

If it was not Canada's intent to significantly change the requirement to this extent, then we recommend that Canada retract A78, or re-issue the clarification to permit either interpretation of the original requirement.

1. We respectfully request that Canada please confirm the intent to retract or modify A78, or provide an extension to the bid period of 6 weeks.

**Answer #088:**

Please refer to Answer # 086 in this amendment.

**Question # 089**

**Reference:**

RFP

**Question #089:**

Mandatory Requirement M36d requests the comparison of the ZDR performance from 3 radars. With the answer to question #47 the requirement may be formulated as:

***M36 (d)***

***must have the same ZDR performance to within a standard deviation of 0.1 dB or less.***

The related substantiation states:

***For M36 (d): Bias and variance from 3 radars must be within a standard deviation of 0.1 dB or less.***

- a) Is this formulation correct ?
- b) Is our understanding correct that EC requests an analysis of multiple ZDR calibration measurement results from 3 radars. The standard deviation of the time series of these ZDR calibration measurement results should be 0.1dB or less for all 3 radars.

**Answer #089:**

The Bidder is directed to the context statement at the beginning of Q36. The requirements in this section refer to the need for the radars to work effectively as an operational network. The measurements are to compare the bias **between radars** and are measures of quality and consistency of design and production. The responses in Q#47 clarified the calculations, but did not replace the wording, therefore the original Mandatory and substantiation requirements remain unchanged

**ALL OTHER TERMS AND CONDITIONS OF THE BID SOLICITATION REMAIN UNCHANGED**