Public Works and Government Services Canada | Travaux publics et Services gouvernementaux Canada

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RETOURNER LES SOUMISSIONS À:

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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

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Science Procurement Directorate/Direction de l'acquisition de travaux scientifiques
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Title - Sujet Enhanced SATCOM Project - Polar	
Solicitation No. - N° de l'invitation W6369-180123/B	**Amendment No. - N° modif.** 006
Client Reference No. - N° de référence du client W6369-180123	**Date** 2020-11-16
GETS Reference No. - N° de référence de SEAG PW-$$ST-046-33781	
File No. - N° de dossier 046st.W6369-180123	**CCC No./N° CCC - FMS No./N° VME**
Solicitation Closes - L'invitation prend fin **at - à** 02:00 PM Eastern Daylight Saving Time EDT **on - le** 2021-01-15 Heure Avancée de l'Est HAE	
F.O.B. - F.A.B. **Plant-Usine:** ☐ **Destination:** ☐ **Other-Autre:** ☐	
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ENHANCED SATELLITE COMMUNICATION PROJECT – POLAR

REQUEST FOR INFORMATION

November 16, 2020

Canada

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Canada

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1.0 PURPOSE AND NATURE OF THE REQUEST FOR INFORMATION

1.1. Public Services and Procurement Canada (PSPC) is providing Industry with an update on the progress of the Enhanced Satellite Communications (SATCOM) Project – Polar (ESCP-P) and is requesting Industry feedback regarding its Arctic Narrowband (NB) and Wideband (WB) Beyond Line-of-Sight (BLOS) communications capability for the Department of National Defence (DND) and the Canadian Armed Forces (CAF).

1.2. Extensive information and feedback was received from Industry as part of the Request for Information (RFI) process conducted between December 2017 and 2019 and that process helped to refine the ESCP-P requirements.

1.3. The objectives of this ESCP–P RFI are to:

a. Share the progress of ESCP-P with Industry and detail the scope of the proposed preferred capability;

b. Seek feedback from Industry on potential areas that could result in cost and/or schedule efficiencies without impacting the desired capability; and

c. Seek feedback and proposed hybrid architecture solutions from Industry.

1.4. This RFI is neither a call for tender nor a Request for Proposal (RFP). No agreement or contract will be entered into based on this RFI. The issuance of this RFI is not in any way a commitment by the Government of Canada (GC), nor an authority to potential Respondents to undertake any work that could be charged to Canada. This RFI is not to be considered as a commitment to issue a subsequent solicitation or award contract(s) for the work described herein. This RFI is solely for informational purposes.

1.5. Although the information collected may be provided as commercial-in-confidence (and, if identified as such, will be treated accordingly by Canada), Canada may use the information to assist in drafting performance specifications, risk assessments, and/or budgetary estimates.

1.6. Respondents are encouraged to identify, in the information they share with Canada, any information that they feel is proprietary or confidential. Canada will handle the responses in accordance with the Access to Information Act and will not disclose proprietary or commercially-sensitive information concerning Respondents or third parties, except and only to the extent required by law. For more information, see: http://laws-lois.justice.gc.ca/eng/acts/a-1/.

1.7. Respondents are asked to identify if their responses, or any part of their responses, are subject to the Controlled Goods (CG) regulations, see Section 2.2.

1.8. Participation in this RFI is encouraged, but is not mandatory. Respondents should note that this RFI is not a pre-selection process and that there will be no short-listing of potential suppliers for the purposes of undertaking any future work as a result of this RFI. Participation in this RFI is not a condition or prerequisite for the participation in future follow-on RFI processes, Invitation to Qualify (ITQ) (if applicable) or RFP solicitation.

1.9. Respondents will not be reimbursed for any cost incurred by participating in this RFI or for any activities associated with the Industry consultation including, but not limited to, travel or hospitality. Responses to this RFI will not be returned to Respondents.

1.10. Responses will not be formally evaluated. The responses received however, may be used by Canada to develop or modify business requirements, conduct analysis, and analyze possible procurement approaches. Canada will review all responses received by the RFI closing date. Canada may, at its discretion, review responses received after the RFI closing date.

1.11. A review team composed of representatives supporting ESCP-P will include, but is not limited to, DND, CAF, PSPC, Innovation, Science and Economic Development Canada, and the Canadian Space Agency, will review the responses. Not all members of the review team will necessarily review all aspects of each response. Canada reserves the right to hire any independent consultants, or use any Government resources that it considers necessary to review any response. Independent consultants, that may be provided access to the Respondent's information, will be subject to a Non-Disclosure Agreement stating that they will not reproduce, copy, use, divulge, release or disclose, in whole or in part, in whatever way or form any ESCP–P response information to any person other than a person employed by Canada on a 'need-to-know' basis. Such consultants will not be involved in preparing any subsequent RFP.

2.0 LEGISLATION, TRADE AGREEMENTS AND GOVERNMENT POLICIES

The following is indicative of some of the legislation, trade agreements, and government policies which could impact the ESCP–P procurement:

2.1. National Security Exception

2.1.1. The National Security Exception (NSE), allows Canada to exclude a procurement from some or all of the obligations in the relevant trade agreement(s), where Canada considers it necessary to do so in order to protect its national security interests specified in the text of the NSE. Potential Respondents are advised that an NSE has been invoked under the authority of PSPC's Assistant Deputy Minister - Procurement Branch. Details are available at: https://buyandsell.gc.ca/policy-and-guidelines/supply-manual/section/3/105; The NSE is provided for the following Agreements:

a. Canada-United States-Mexico Agreement;
b. Canada-European Comprehensive Economic and Trade Agreement;
c. World Trade Organization Agreement on Government Procurement;
d. Canada-Chile Free Trade Agreement; and
e. Canadian Free Trade Agreement.

2.2. Controlled Goods Provisions

2.2.1. As the ESCP–P may require the production of or access to CG that are subject to the Defence Production Act, Respondents are encouraged to familiarize themselves with the provisions of the Controlled Goods Program (CGP) at the earliest opportunity. Details on how to register under the CGP are available at https://www.tpsgc-pwgsc.gc.ca/pmc-cgp/frmlrs-ld-frms-gdlns-eng.html.

2.3. Technical Assistance Agreements (TAAs) and International Traffic In Arms Regulations (ITAR) Provisions

2.3.1. The ESCP–P may require the production of, or access to, CG that are subject to the ITAR provisions of the United States (US) for which TAAs will be required to be in place so that ITAR-controlled material may be included in any forthcoming proposed solution. Respondents are encouraged to familiarize themselves with the ITAR provisions and TAA requirements at the earliest opportunity. Details are available at: https://www.pmddtc.state.gov/ddtc_public.

2.4. Country over Private Entity and Third-Party Partnerships

2.4.1. The ESCP-P may require access to US Government Technology through a Third-Party Partnership complying with Country over Private Entity policies. Respondents are encouraged to familiarize themselves with such provisions in order to work with the GC in order to meet such requirements. Details are available at: https://www.state.gov/third-party-transfer-process-and-documentation/.

2.5. Industrial and Technological Benefits

2.5.1. The Industrial and Technological Benefits (ITB) Policy, including Value Proposition, may apply to the ESCP-P. For more information on the ITB Policy, consult the ITB website: www.canada.ca/itb.

3.0 PROJECT BACKGROUND, SCOPE, AND RECOMMENDED SOLUTION

3.1. The Arctic is a longstanding GC priority, which requires CAF presence, mobility, and reach into the region. The Minister of National Defence Mandate Letter from the Prime Minister includes direction to "Renew Canada's focus on surveillance and control of Canadian territory and approaches, particularly our Arctic regions,"[1] as well as to maintain Canada's commitment to the North American Aerospace Defense Agreement (NORAD). This mandate aligns with previous direction to the DND, and was recently confirmed with the release of Strong, Secure, Engaged: Canada's Defence Policy.

3.2. SATCOM is a well-recognized force multiplier for the conduct of effective military operations; however, they are especially critical for the successful execution of operations in the high North. Despite the importance of domestic sovereignty and surveillance missions in Canada's North, there currently exists only limited SATCOM capabilities north of 65° North (N) latitude that are available to the CAF. To address this capability gap, the CAF has an immediate need for dedicated, secure, and reliable narrowband and wideband BLOS communications to support the execution of domestic and continental operations in the Arctic. In response to this CAF requirement, the DND has initiated the ESCP–P to deliver both narrowband and wideband SATCOM to the CAF and potentially other partners.

3.3. Table 1 presents the ESCP-P High Level Mandatory Requirements (HLMR) that were developed using the DND capability based planning process, consultations with Allies, lessons learned from the CAF and Allies, and Industry data from past RFI processes. The HLMRs were utilized to derive the ESCP-P Business Requirements that are detailed in Annex A.

[1] Released by the Prime Minister's Office 13 November 2015.

HLMR	Description
1 – Coverage and Availability	• The ability to communicate voice and data information at any given time in the Arctic theatre of operations between 65° N and 90° N Latitudes; • The ability to provide an annual operational link availability of at least 99%; and • The ability to provide a constellation availability of at least 90% over the minimum 15-year service life.
2 – Capacity	• The ability to provide throughput and channel accesses to support communications for the GC and its International Partners in the Arctic Region; • The ability to provide tactical communications including, but not limited to, chat, voice, text, and e-mail in support of concurrent CAF operations; • The ability to provide a tactical minimum throughput to support concurrent CAF operations in the Arctic; • The ability to provide sufficient throughput for operational and strategic communications to include imagery, Intelligence, Surveillance, and Reconnaissance, streaming video and DND/CAF networks; and • The ability to provide the minimum operational and strategic communications throughput over X and Ka-bands to support concurrent CAF operations in the Arctic.
3 – Protection	• The ability to communicate classified information securely in accordance with DND Security Assessment and Authorization (SA&A) Guidelines in a joint environment.
4 – Technical Interoperability	• The ability to communicate jointly amongst CAF force elements and with most Allies including NATO and NORAD. • Note: Interoperable allies will depend on the selected option but are anticipated to include selected NATO and Five Eyes (FVEY) partners based on their requirements and contributions.
5 – Control	• The ability to have national control over planning, monitoring, operation, and management of the capability in support of CAF operations and on behalf of all International Partners.
6 – Supportability	• The ability to support and leverage the full system capability as an integrated component of the overall CAF infrastructure.

Table 1. ESCP–P High Level Mandatory Requirements

3.4. The ESCP-P Team has investigated a number of possible solutions to meet its HLMRs based on the initial feedback from Industry, consultation with Allies and other Government of Canada Subject Matter Experts from research and space organizations, and detailed technical and costing studies.

3.5. The ESCP-P no longer intends to address:

a. Tier 3 requirements for a commercial-grade wideband capability suitable for other government departments and non-military purposes; or

b. Tier 2 requirements, which were to include incremental capacity exceeding the minimum requirements outlined in the Business Requirements detailed in Annex A.

The ESCP-P will only address its Tier 1 capability, which represents the minimum capability required for compliance with the Business Requirements detailed in Annex A.

3.6. With the feedback and recommendations from the Industry Engagement activities in 2017-2019, the project commenced investigating options to meet the ESCP-P requirements. Various options were considered; however, the preferred option was determined based on the most suitable technical and low risk solution. The preferred option is a purpose-built system, for both Space and Ground that meets the ESCP-P requirements and is composed of the following:

3.6.1. A Space segment including:

a. A purpose-built satellite constellation of at least two satellites in a Highly Elliptical Orbit (HEO) optimized to maximize Arctic coverage between 65° N and 90° N latitudes at all longitudes;

b. A NB communications capability with 6 Integrated Waveform (IW) channels (25 kHz each) making it interoperable with current and future CAF and allied terminals and radios. NB channels are broken into two groups:

1. 4 NB channels dedicated to ESCP-P communication activities; and

2. 2 NB channels dedicated to Integrated Broadcast Service (IBS) communication activities.

Note: After detailed technical and programmatic reviews, it was determined that Canada will not pursue incorporating Wideband Code Division Multiple Access (WCDMA) technology.

c. A WB capability to incorporate Military (Mil) X and Mil Ka-Band (1920 Mbps Ka & 1280 Mbps X) WB communications.

3.6.2 Ground segment infrastructure that provides the terrestrial infrastructure, interface and control capabilities for the system including:

a. New Mission, Payload and Satellite Operations Centre functionality in Canada, providing the command and control for satellites and payloads, planning functions for the communications payloads, as well as signal processing of payload data; and

b. Two or three geographically distinct gateways within Canada, providing the terrestrial interfaces to the space segment, including receive and transmit capabilities for the satellite payloads, as well as interfaces to existing terrestrial CAF/DND networks. Note that the third gateway is proposed to provide redundancy in comparison to a two gateway solution with redundant stations.

3.6.3 A User segment that includes upgraded and/or procured terminals and radios; and

3.6.4 Full-life In-Service Support (ISS) for the delivered system for the service life of 15 years.

3.7. Canada has completed detailed costing activities for the preferred purpose-built option. In light of these cost studies, Canada is interested in exploring options that provide equivalent capabilities to the defined preferred option, detailed in Paragraph 3.6, that allow for cost and/or schedule efficiencies to be realized in their delivery. To meet this objective, Canada is currently investigating hybrid system architectures that could be implemented without impacting ESCP-P's core capability. In order to find cost and/or schedule efficiencies, Canada is considering options that could include, but are not limited to, the following:

Possible Cost and/or Schedule Efficiencies	Description
Commercial Constellations	Acquiring WB and/or NB capability that meets or exceeds the protection and security requirements via commercial constellations from a NATO or FVEY partner will be considered if it offers cost and/or schedule efficiencies.
Relaxing HLMR 1 - Coverage and Availability	Reducing the systems service life from 15 years to 10 years will be considered only if it offers cost and/or schedule efficiencies. No other reductions for coverage and availability are being considered.
HLMR 2 - Capacity	The preferred option includes WB capacity of 3200 Mbps. Relaxing the WB capacity HLMR will be considered if it offers cost efficiencies. WB capacity could be reduced to: 1) For a 15 year mission life – 1800 Mbps; and 2) For a 10 year mission life – 1118 Mbps. The preferred option includes a Mil-Ka and Mil-X band ratio of 60:40 (1920 Mbps Mil-Ka & 1280 Mbps Mil-X). The project will consider an alternative ratio of 40:60 (1280 Mbps Mil-Ka & 1920 Mbps Mil-X) if it offers cost efficiencies. No other reductions for capacity are being considered.
HLMR 3 - Protection	Relaxing the protection HLMR will be considered if it offers cost and/or schedule efficiencies. Protection aspects that the project will consider relaxing include no nuclear hardening and/or the ability to evade kinetic threats No other reductions for protection are being considered.

Table 2. ESCP–P Possible Cost and/or Schedule Efficiencies

3.8 The ESCP-P team has also investigated a number of acquisition options for delivering the required SATCOM capability. There are multiple acquisition methods to meet the HLMRs, which could range from: a major crown acquisition, managed services, government-owned contractor-operated equipment, and long-term leasing of existing or planned commercial SATCOM capacity. An acquisition model for ESCP-P is currently in the planning stages. Canada is also soliciting feedback from industry related to acquisition methods in the context of the hybrid architecture.

3.9 Canada is considering implementing a two-phased contracting approach. The two phases would consist of an ITQ (if applicable), followed by an RFP for the Implementation Phase contract(s), which will be issued only to Respondents that qualified under the ITQ. **Error! Reference source not found.** details a possible procurement schedule for planning purposes.
Note: In this RFI, Canada is interested in exploring means to realize schedule efficiencies.

Milestone	**Forecast Date (Calendar Year)**
Industry Engagements (as required)	2018-2021
ITQ Released (if applicable)	2022
RFP Released	2025
Anticipated Contact Award	2026
Partial Initial Operating Capability (IOC)	No Later Than 2032
Full IOC	No Later Than 2034
Full Operational Capability (FOC)	No Later Than 2036
End of Service Life (15 Years from FOC)	2051

Table 2. Estimated Procurement Schedule

3.10 Interactive engagement with Industry is intended to continue after the RFI leading up to the release of an ITQ (if applicable) and/or one or more RFPs to meet the ESCP-P requirements.

4.0 INFORMATION TO INCLUDE IN RESPONSES

4.1. General

4.1.1. Respondents are invited to submit a reply to this RFI that addresses any or all of the topics listed below. To facilitate the review of the responses to this RFI, Respondents are asked to address and provide the requested information in the order in which the topics are presented.

4.2. Respondent Summary Information

4.2.1. Provide a brief high-level company summary that includes background information and information on Space and Ground Station heritage.

4.3. Respondent's Representative

4.3.1. Provide the name, telephone number, and e-mail address of a representative who may be contacted for clarification or other matters related to the Respondent's RFI response.

4.4 ESCP–P Hybrid System Architecture Delivery to be addressed by All Respondents

4.4.1 Canada continues to seek a solution that addresses Canada's requirement to deliver an end-to-end solution, as described in Paragraph 3.6; however, in order to generate potential cost and/or schedule efficiencies, Canada is interested in considering a number of hybrid options to achieve these goals. Hybrid system architectures could include, but are not limited to, the following:

a. A purpose built constellation providing a NB capability, complemented with access to a commercial WB constellation. This commercial WB capability could be acquired via a procured data service model or hosted payload opportunity;

b. A purpose built constellation providing a WB capability complemented with access to a commercial NB constellation (e.g. Ultra-High Frequency, IW interoperable or L band, etc.). This commercial NB capability could be acquired via a procured data service model or hosted payload opportunity; or

c. Commercial standalone access to a WB or NB constellation where Canada would acquire access via a lease/service model. This architecture can assume that all NB or WB data would be channelled through a DND Gateway and Missions Operation Centre. Canada would also be interested in direct or shared access via its own gateway to a WB or NB constellation/ payload.

In any purpose-built GC constellation Canada develops, Canada could consider hosting a NB and/or WB payload for a commercial vendor or Allied Government. The hosted payload supplier would have to provide assured access to Canada and its Allies and share appropriate Assembly, Integration, Test and Launch costs. Canada is also open to other variants that Respondents can propose that provide equivalent capabilities or in-kind services.

4.4.2 It is understood that trade-offs in schedule, cost, and complexity are possible with different configurations and Canada is requesting written information on the following:

4.4.2.1 Respondents are requested to provide an overall description of a proposed hybrid system architecture and detail if the proposed architecture would require relaxing the protection and/or control HLMRs detailed in Table 1 (Refer also to Annex A, Sections 4.5 and 4.6). Responses should detail benefits and trade-offs including potential cost, risk and schedule efficiencies.

4.4.2.2 Respondents are requested to outline if the proposed architecture provides a similar, equivalent, or superior capability to the preferred purpose-built system that hosts both NB and WB capability, as detailed in Paragraph 3.6. Responses should include benefits and trade-offs including potential cost and schedule efficiencies.

4.4.2.3 Depending on the architecture of the proposed solution, Respondents are requested to respond to all of the following that apply:

a. If the proposed architecture includes constellation combinations comprising of two or more different constellations (e.g. purpose-built NB communications in a HEO and WB communications via commercial Low Earth Orbit (LEO) constellation), Respondents are requested to provide details on possible technical issues related to communication and telemetry synchronization issues between NB and WB handover (Refer to Annex A, [WBC0060] and [NBC0100]) and latency (Refer to Annex A, [GCR0020]) that may result both in terms of user access (i.e. a single user accessing both systems simultaneously) as well as satellite and payload command and control.

b. In a constellation that is comprising of two or more different constellations, Respondents are requested to explain the feasibility of handovers (Refer to Annex A, [WBC0060] and [NBC0100]) within the constellation and across constellations and outline how these would be achieved.

c. Respondents are requested to explain the feasibility of handovers (Refer to Annex A, [WBC0060] and [NBC0100]) between the constellation(s) proposed and existing constellations currently or envisioned to be used by the CAF (e.g. Wideband Global SATCOM, Mobile User Objective System).

d. In a hybrid solution (i.e. Purpose built and leased services), Respondents are requested to explain how Canada would participate or manage Payload Missions Operations (Refer to Annex A, [CON0010]) with a commercial provider.

4.4.2.4 Respondents are requested to detail the challenges that exist related to the provision of inter-satellite links either optically and/or using Radio Frequency technology, including, but not limited to, the following:

a. Provide an overview on optical inter-satellite link technology especially related to ESCP-P security/protection requirements (Refer to Annex A, Section 4.5); and

b. Detail any differences in space and ground architecture that would be necessary in a system using inter-satellite links in contrast to more traditional systems.

4.4.2.5 Respondents are requested to comment on the benefits and trade-offs of the proposed architecture in terms of pass times (including eclipse mitigation), radiation impacts, latency, high-level link budgets and Doppler shift correction.

4.4.2.6 Respondents are requested to outline protection and security options available to improve passive defences, both in space and on the ground, which would allow a system to survive and operate through different forms of electronic attack (Refer to Annex A, Section 4.5). Information on costs and level of risk associated with each of these passive defence strategies should be incorporated into the response and be specific to the proposed architecture.

4.4.2.7 Respondents are requested to detail key differences in security measures/elements employed in Space and Ground systems, between Commercial and Military NB and WB SATCOM systems (Refer to Annex A, Section 4.5).

4.4.2.8 Respondents are requested to provide their estimated/forecasted bandwidth growth of both NB and WB systems in both the commercial and military domains over the next 5-10 years.

4.4.2.9 Canada is considering trade-offs of decreasing the service life from 15 to 10 years (Refer to HLMR-1 in Table 1). Respondents are requested to provide a high level breakdown of how the reduction in service life could be achieved (e.g. parts selection, reliability and redundancy architecture), the risks associated with it and the potential cost impact.

4.5 Cost Estimates

4.5.1 Respondents are requested to provide rough order magnitude cost estimates for their response(s) broken down by system element. The objective of this request is to determine the potential cost efficiencies for ESCP-P if it were to reduce or relax the requirements as detailed in Section 3.7. It should be noted that any costs provided in response to this RFI will not be evaluated or referenced as part of any future ESCP-P requirements and will not be used to exclude potential vendors from bidding on future ESCP-P solicitations. Cost elements should, as a minimum, include:

a. The design, build and integration of the NB capability, WB capability, and ground systems (including Satellite, Mission and Payload Operating Center(s)) and all associated software;

b. Estimated acquisition/leasing/service costs for WB and/or NB capabilities for the configuration outlined in 4.4.1(c); and

c. In-service support and operating costs.

Responses should also detail:

a. Any underlying assumptions (i.e. inflation, type of contract, mark-up and fees) used to establish cost estimates and cash flows should be described;

b. All key cost elements and drivers;

c. Currency exchange considerations should be highlighted, where used; and

d. Costs reflected using Nominal Dollars ($Current Year), which is defined as the dollar value of a product at the time it was produced.

4.6 Schedule

4.6.1 Respondents should provide their schedule for the delivery of the capability. The objective of this request is to determine the potential schedule efficiencies for ESCP-P if it were to reduce or relax the requirements as detailed in Section 3.7. It should be noted that any schedule provided in response to this RFI will not be evaluated or referenced as part of any future ESCP-P requirements and will not be used to exclude potential vendors from bidding on future ESCP-P solicitations. In order to have initial communications services operational no later than in 2032 the Respondent should consider the following:

a. When would the Respondent need to be under contract?

b. Respondents should provide detailed definitions of the IOC and FOC milestones in relation to the System architecture proposed. Canada anticipates that these milestones could be phased based on the complexity of the system (i.e. IOC-A, -B etc.). For the hybrid solution proposed, the Respondent is requested to include timelines for the system integration of a commercial capability with the purpose-built capability within their high level schedule.

c. What is the critical path for a 2032 IOC date (i.e. what conditions need to be met to make that date)?

d. Is a more aggressive contract completion than the 2036 date achievable? Indicate the conditions needed to be met to make an earlier proposed date.

e. What Respondent managed issues would significantly impact the Project in terms of cost and schedule?

f. If contract completion by 2036 is not practically achievable, identify the critical path activities driving a later completion date and specify an achievable date.

4.7 Risk Assessment

4.7.1 Given the range of potential solutions that could meet the requirements, Respondents should demonstrate how their proposed architecture optimizes the balance between capacity and risk (cost/technical risk/programmatic risk). The objective of this request is to determine the potential risks for ESCP-P if it were to reduce or relax the requirements as detailed in Section 3.7 and implement a hybrid architecture. It should be noted that any risks provided in response to this RFI will not be evaluated or referenced as part of any future ESCP-P requirements and will not be used to exclude potential vendors from bidding on future ESCP-P solicitations. Specifically, Respondent should address the following:

a. Respondents should indicate the key scope, schedule, and technical risks for their response(s). Key questions include:

    i. What are the proposed mitigation strategies for the highest impact risks?

    ii. What specific risks are avoided/mitigated through the Respondents' design?

b. Respondents should indicate the key technical and programmatic risks associated with their selected technologies. For example, specific frequency bands should be explained;

c. Respondents should indicate the likely feasibility and key technical risks (e.g. Doppler) associated with modifying existing NB and WB terminals for use with the ESCP-P capability versus acquiring new terminal equipment; and

d. The intent is to minimize risk by leveraging existing technology with an established Technology Readiness Level (TRL), where possible. Should new technology be incorporated or existing technology be used in a substantially innovative manner, it should be identified along with its TRL and an elaboration on how any associated risk has been minimized with respect to the added value gained by its use. Respondents are requested to use the following TRL:

i. Space Elements: National Aeronautics and Space Administration TRL https://www.nasa.gov/pdf/458490main_TRL_Definitions.pdf

ii. All Other Elements: Innovation, Science and Economic Development Canada TRL https://www.ic.gc.ca/eic/site/080.nsf/eng/00002.html.

4.8 Possible Hosted Payload Opportunities

4.8.1 Respondents are requested to provide information and feedback on the implications of including a hosted payload in addition to the ESCP-P requirements described in Section 3.6. Canada is interested in exploring potential opportunities to integrate an additional hosted payload; however, the possible inclusion of a hosted payload must not influence the Respondents proposed solution or responses to other questions. Section 4.8 must be addressed independently, since any hosted payload requirements are outside of the scope of ESCP-P's primary mission and any opportunities for hosted payloads will only be considered once the primary mission requirements are fully met. For the purposes of this RFI, Respondents may consider:

a. A Radio Frequency sensing payload design that is integrated within the Respondents proposed purpose-built architecture;

b. All developmental and flight models would be provided as Government Furnished Equipment to the system integrator; and

c. A hosted payload comprised of an internal payload area hosting multiple units and two externally attached units. The SWaP will not exceed:

i. Internal total surface area 1.3 m^2, volume 0.5 m^3, mass 155 kg, and end of life power of 350 W;

ii. External Unit 1 Stowed 0.45 m diameter by 2.9 m long, mass of 105 kg, and end of life power of 25 W; and

iii. External Unit 2 modeled as two segments hinged to fold back on itself:

1. Segment 1 Stowed: 1.1 m diameter by 4 m long, a mass of 95 kg, and end of life power of 80 W; and

2. Segment 2 Stowed: 1.1 m wide by 3.5 m long by 0.3 m deep, a mass of 150 kg, and end of life power of 70 W.

4.8.2 Respondents are requested to provide the information:

a. Provide Space and Ground Segment cost, schedule, and risk implications of testing, integrating and developing the support structure of a hosted payload as describe in Section 4.8.1; and

b. Provide any additional cost, schedule, and risk implications if integrating a hosted payload resulted a need to increase the security requirements beyond what is outlined in Section 5.1.

4.9 Economic Benefits

4.9.1 Canada is seeking information on economic leveraging opportunities related to ESCP-P. The Industrial and Technological Benefits (ITB) Policy is Canada's main tool to leverage economic benefit. Under the ITB Policy, companies awarded defence procurement contracts are required to undertake business activities in Canada equal to the value of the contract.

As highlighted in the 2019 State of the Canadian Space Sector Report: Facts and Figures 2018, the Canadian space sector generates valuable economic impacts to the Canadian economy and contributed $2.5 billion to Canada's gross domestic product (GDP). It supported nearly 10,000 jobs in the Canadian space sector and close to 11,000 additional jobs in the wider Canadian economy. The space industry is an innovation leader with R&D intensity 11 times higher than the average for manufacturing in Canada. The sector employs a high proportion of STEM (science, technology, engineering and mathematics) employees, an important element of supporting an innovative economy. In 2018, export activity in the space sector increased by 7% and accounted for 40% of the Canadian space revenues.

ESCP-P falls within the emerging technology Key Industrial Capability of space systems, an area that features strong potential to grow the Canadian economy into future. Canada's Defence Policy Strong, Secure, Engaged, has identified space capabilities to be of critical importance to national security, sovereignty and defence. Consistent with Exploration, Imagination, Innovation- A New Space Strategy for Canada, the ITB Policy will leverage procurement to help grow Canada's space sector. Accordingly, Canada will seek to develop an approach to maximize economic benefits from this procurement to support the growth of the Canadian-based space sector.

A core element of the ITB Policy is a weighted and rated Value Proposition. The ITB Value Proposition Pillars support the core ITB Policy objectives:

a. Direct Defence Sector Work- Supports long-term sustainability and growth of Canada's aerospace and defence sectors;

b. Canadian Supplier Development- Support the growth of prime contractors and suppliers in Canada, including small and medium business (SMBs) in all regions of Canada;

c. Research and Development- Enhance innovation through R&D in Canada;

d. Exports- Increase the export potential and international competitiveness of Canadian-based firms; and

e. Skills Development and Training- Fill skills and training gaps within the Canadian economy to support a more innovative Canada

4.9.2 Respondents are requested to provide responses to the following questions:

4.9.2.1 Recognizing the role of R&D in space programs, please provide information regarding the engineering expertise available in-house related to design, build, test and manufacture of the requirements in terms of Canadian content.

a. What roles in the above areas occur in Canada at this time?

b. What roles in the above areas could be expected to occur directly in Canada under your proposed solution?

4.9.2.2 Supporting the growth of prime contractors and suppliers in Canada is an objective of the ITB Policy.

a. What types of opportunities for Canadian suppliers could there be under your solution?

b. Please provide information on existing relationships that could be leveraged?

c. Are there opportunities or existing relationships with Small and Medium sized businesses (under 250 employees) in Canada?

4.9.2.3 What opportunities are there to enhance innovation in Canada directly or indirectly related to ESCP-P?

4.9.2.4 Are there any opportunities for Canadian-based companies to participate on exports?

a. What factors hinder or facilitate these opportunities in terms of your solution?

b. Is this a requirement that has the potential for spin-off commercialization that may include Canadian-based companies?

4.9.2.5 Skills development and training plays a vital role in supporting a more innovative Canadian economy. Space labour force challenges have been noted in the 2019 State of the Canadian Space Sector Report: Facts and Figures 2018.

a. What potential activities are there for supporting this ITB pillar?

b. How would activities under ESCP-P or in other indirect areas support skills development training?

5.0 SECURITY REQUIREMENTS

5.1 The security requirements for the ESCP–P are still to be confirmed. It is expected that there will be a requirement for SECRET-level facilities and clearances for both facility and staff. The Respondents are requested to comment on their current and planned capabilities/facilities, in terms of physical security and screened personnel, to address these requirements. Respondents are encouraged to familiarize themselves with potential security provisions. Details are available at: http://www.tpsgc-pwgsc.gc.ca/esc-src/index-eng.html.

6.0 RESPONDENT ENQUIRIES

6.1 Enquiries are to be made by email only to the Contracting Authority indicated below.

6.2 Enquiries should be received no less than ten working days prior to the RFI closing date to allow sufficient time to provide a response or to prepare a meeting. Enquiries received after that time might not be answered prior to the RFI closing date.

6.3 To ensure consistency and quality of information provided to Respondents, the replies to enquiries will be provided to all Respondents having signed the Rules of Engagement agreement (Annex B), without revealing the sources of the enquiries.

6.4 It should be noted that any information provided in relation to this RFI will not be binding upon Canada under any circumstances.

6.5 All enquiries and other communications related to this RFI must be directed to the Contracting Authority by email as follows:

Mr. Gianni Barreca
Supply Team Leader
Procurement Branch
Public Services and Procurement Canada (PSPC)
Space, Innovation and Informatics Projects Directorate
Telephone: 613-858-9351
E-mail address: Gianni.Barreca@tpsgc-pwgsc.gc.ca

7.0 ENGAGEMENT PROCESS

7.1 This phase of the ESCP-P's Industry Engagement Process will begin with the publication on the Government Electronic Tendering Service (GETS) https://buyandsell.gc.ca/procurement-data/tenders of this RFI and will conclude with the dissemination of the RFI Summary of the feedback and outcomes. This phase of the Industry Engagement Process consists of the following events:

a. Release of follow-on RFI;
b. Submission of the RFI Responses;
c. RFI Closing;
d. One-on-One Post-RFI Submission Meetings with Respondents who provided written responses and proposed hybrid architecture solutions;
e. Written questions to clarify points provided in RFI responses;

f. Release of One or More Follow-on RFIs (if necessary); and
g. Release of the RFI Summary of Feedback and Outcomes.

7.2 At any point within the Industry Engagement process, the above-listed Industry Engagement events or their scheduling may change. Except for changes brought about by unforeseen events or adverse weather, Canada will endeavour to provide a minimum of five working days' notice to Respondents of any planned change. One-on-one meetings will be held at a location within the National Capital Region or will be held virtually.

7.3 Canada will provide information with respect to this Industry Engagement only to those entities that have signed the Rules of Engagement agreement, which is located at Annex B.

7.4 Proceedings from all of the consultations, such as one-on-one meetings, will be recorded. The information gathered during these engagement activities and through Industry enquiries (excluding proprietary or commercially sensitive information) will be summarized and published via the RFI Summary of Feedback and Outcomes on https://buyandsell.gc.ca/.

8.0 WRITTEN RESPONSES

8.1 Respondents should consider the following policies in the development of their responses:

a. Strong, Secure, Engaged: Canada's Defence Policy;
b. NORAD Agreement;
c. Canada's Northern Strategy and Canada's Arctic Foreign Policy; and
d. Canada's ITB Policy.

8.2 Canada is seeking input and written responses to the questions detailed in Section 4 of this RFI. Respondents are requested to provide responses in writing referencing the number format of Section 4. Respondents are invited to provide comments regarding the content of Section 4 and should explain any assumptions made in the interpretation of the requirements.

8.3 In all solutions, an end-to-end solution is desired, including user terminals, ground and related support systems, as described in Annex A.

9.0 ONE-ON-ONE MEETINGS

9.1 It is expected that Respondents will participate in one-on-one meetings with representatives from the ESCP–P Team, which will be scheduled following the receipt of written responses. One-on-one meetings will only be held with Respondents who provide written responses to Section 4 of this RFI and provide an end-to-end hybrid architecture solution.

9.2 Note that all parties who participate in the one-on-one meetings must:

a. Have completed and submitted a signed Rules of Engagement form to the Contracting Authority referenced above; and

b. Register at least ten days in advance of the one-on-one meetings by contacting the Contracting Authority referenced above.

10.0 DELIVERY ADDRESS FOR RFI RESPONSES

10.1 Responses to this RFI must be sent to the Contracting Authority referenced in Section 6.5.

10.2 Responses should be submitted on or before January 15, 2021, 2:00 pm EST. Responses received after this deadline may not be reviewed by Canada.

10.3 RFI Responses must be submitted electronically to Gianni.Barreca@tpsgc-pwgsc.gc.ca and the ESCP-P Procurement office inbox TPSGC.PAPCSAP-APESCPP.PWGSC@tpsgc-pwgsc.gc.ca

10.4 Emails over 10Mb will have to be separated into multiple emails.

10.5 Responses submitted by fax, CD or USB are not acceptable.

10.6 Responses are to be submitted in one of the two Official Languages of Canada (English or French).

ANNEX A – BUSINESS REQUIREMENTS

This document has been delivered under a separate cover.

Please note that Canada will provide information (including the Business Requirements) with respect to this Industry Engagement only to those entities that have signed the Rules of Engagement agreement, which is located at Annex B.

ANNEX B – RULES OF ENGAGEMENT

1.0 OVERVIEW

1.1 An overriding principle of the Industry consultation is that it be conducted with the utmost of fairness and equality between all parties. No one person or organization must receive or be perceived to have received any unusual or unfair advantage over the others.

1.2 All Crown documentation provided throughout the Industry consultative process, which begins with the publication on the Government Buy and Sell Service https://buyandsell.gc.ca/procurement-data/tenders of this Request for Information (RFI) and concludes with the dissemination of the RFI Summary of the feedback and outcomes, will be provided to all Respondents who have agreed to and signed the Rules of Engagement.

1.3 The consultative process will consist of the following events:

a. Release of follow-on RFI;
b. Submission of the RFI Responses;
c. One-on-One Post-RFI Submission Meetings with Respondents who provided written responses and proposed hybrid architecture solutions;
d. Release of One or More Follow-On RFIs (if necessary); and
e. Release of the RFI Summary of the Feedback and Outcomes.

1.4 Canada will not disclose proprietary or commercially-sensitive information concerning a Respondent to other Respondents or third parties, except and only to the extent required by law.

2.0 TERMS AND CONDITIONS

2.1 The following terms and conditions apply to the consultative process. In order to encourage open dialogue, Respondents agree to:

a. Discuss their views concerning the ESCP–P requirement and to provide positive resolutions to the issues in question. Everyone will have equal opportunity to share their ideas and suggestions;

b. NOT reveal or discuss any information to the MEDIA/NEWSPAPER regarding the ESCP–P requirement during this consultative process. Any Media questions will be directed to the PSPC Media Relations Office at 819-420-5501 or media@tpsgc-pwgsc.gc.ca; and

c. Direct inquiries and comments to the Contracting Authority unless advised otherwise. Note that any communication to unauthorized representatives of Canada may be subject to full disclosure by Canada on GETS.

2.2 In reference to the RFI consultative process, Canada:

a. Is not obligated to issue any RFP, or to negotiate any contract for the ESCP–P;

b. Will have absolute discretion over the terms and conditions of an ITQ and/or RFP, if released; and

c. Will not reimburse any person or entity for any cost incurred in participating in this consultative process.

2.3 Additional information pertaining to the RFI consultation includes:

a. Participation is not mandatory. Not participating in this consultative process will not preclude an organization from further participation;

b. Failure to agree to and sign the Rules of Engagement will result in the exclusion from participation in this consultative process; and

c. A dispute resolution process to manage impasses throughout this consultative process must be adhered to as detailed in the section immediately following.

3.0 DISPUTE RESOLUTION PROCESS

3.1 By informal discussion and good faith negotiation, each of the parties shall make all reasonable efforts to resolve any dispute, controversy or claim arising out of or in any way connected with this consultative process.

3.2 Any dispute between the Parties of any nature arising out of or in connection with this consultative process shall be resolved by the following process:

a. Any such dispute shall first be referred to the Respondent's Representative and the PSPC Manager managing the Industry Engagement. The parties will have three (3) Business Days in which to resolve the dispute;

b. In the event the representatives of the Parties specified in Article 3.2 a. above are unable to resolve the dispute, it shall be referred to the Respondent's Project Director and the PSPC Senior Director of the Division responsible for managing the Industry Engagement. The parties will have three (3) Business Days to resolve the dispute;

c. In the event the representatives of the Parties specified in Article 3.2 b. above are unable to resolve the dispute, it shall be referred to the Respondent's President and the PSPC Director General, who will have three (3) Business Days to resolve the dispute;

d. In the event the representatives of the Parties specified in Article 3.2 c. above are unable to resolve the dispute, it shall be referred to the Respondent's Chief Executive Officer and the PSPC Assistant Deputy Minister, Acquisitions Branch who will have five (5) Business Days to resolve the dispute; and

e. In the event the representatives of the Parties specified in Article 3.2 d. above are unable to resolve the dispute, the Contracting Authority shall within five (5) Business Days render a written decision which decision shall include a detailed description of the dispute and the reasons supporting the Contracting Authority's decision. The Procurement Authority shall deliver a signed copy thereof to the Respondent.

By signing this agreement, the individual represents that he/she has full authority to bind the company listed below and that the individual and the company agree to be bound by all the terms and conditions contained herein.

Name of Company: _____

Name of Individual: _____

Telephone: _____ (Office)

_____ (Mobile)

E-mail: _____

Signature: _____

Date: _____

Identify which of the following capabilities can be provided by your company and which are provided by other members of your Team (identify the respective Team Member):

- ❑ Host Spacecraft
- ❑ Narrowband Communications Space Qualified Payload Capability
- ❑ Wideband Communications Space Qualified Payload Capability
- ❑ Commercial NB SATCOM Service Provider
- ❑ Commercial WB SATCOM Service Provider
- ❑ Launch Provider
- ❑ Spacecraft Command and Control Ground Segment Software and Infrastructure
- ❑ Gateway Capability
- ❑ Gateway Command and Control Software and Infrastructure
- ❑ Payload (Narrowband) Planning, Command and Control Ground Segment
- ❑ Payload (Wideband) Planning, Command and Control Ground Segment
- ❑ Narrowband Terminals
- ❑ Wideband Terminals
- ❑ Networking and Connectivity
- ❑ Operations
- ❑ In-Service Support

Correspondence: ❑ French ❑ English

ANNEX C – ACRONYMS

BLOS	Beyond Line-of-Sight
CAF	Canadian Armed Forces
CG	Controlled Goods
CGP	Controlled Goods Program
DND	Department of National Defence
ESCP–P	Enhanced Satellite Communications Project – Polar
FOC	Full Operational Capability
FVEY	Five Eyes
GC	Government of Canada
GETS	Government Electronic Tendering Service
HEO	Highly Elliptical Orbit
HLMR	High Level Mandatory Requirement
IBS	Integrated Broadcast Service
IOC	Initial Operating Capability
ISS	In-Service Support
ITAR	International Traffic in Arms Regulations
ITB	Industrial and Technological Benefits
ITQ	Invitation to Qualify
IW	Integrated Waveform
LEO	Low Earth Orbit
Mil	Military
N	North
NATO	North Atlantic Treaty Organization
NB	Narrowband
NORAD	North American Aerospace Defense Agreement
NSE	National Security Exception
PSPC	Public Services and Procurement Canada
RF	Radio Frequency
RFI	Request for Information
RFP	Request for Proposal
SATCOM	Satellite Communications
SA&A	Security Assessment and Authorization
TAA	Technical Assistance Agreement
TRL	Technology Readiness Level`
US	United States
WB	Wideband
WCDMA	Wideband Code Division Multiple Access