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Canadian Nuclear Safety Commission (CNSC)

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REQUEST FOR PROPOSAL

Proposal to: Canadian Nuclear Safety Commission (CNSC)

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Title: R745.1 - Reliability Assessment of Passive Safety Systems for Advanced Reactor Technologies	
Solicitation no.: 5000060124/A	Date: August 31, 2022
File No. – N° de dossier: 5000060124	
Solicitation closes: At 2:00 pm, Thursday, September 29, 2022	Time zone: Eastern Daylight Time (EDT)
Address inquiries to:	
Telephone:	Fax:
Email: solicitation-demandedesoumission@cnsccsn.gc.ca	
Destination: See herein	

Delivery required: (See Herein)	Delivery offered:
Supplier name and address:	
Telephone:	
Fax:	
Name and title of person authorized to sign on behalf of supplier (type or print):	
Signature	Date



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PART 1 – GENERAL INFORMATION

It is understood that the procurement of services for the Canadian Nuclear Safety Commission (CNSC) falls under the provisions of the *Nuclear Safety and Control Act*, S.C. 1997, c. 9.

1.1 INTRODUCTION

This bid solicitation is divided into six parts plus attachments and annexes, as follows:

Part 1 General Information: provides a general description of the requirement;

Part 2 Bidder Instructions: provides the instructions, clauses and conditions applicable to the bid solicitation;

Part 3 Bid Preparation Instructions: provides bidders with instructions on how to prepare their bid;

Part 4 Evaluation Procedures and Basis of Selection: indicates how the evaluation will be conducted, the evaluation criteria that must be addressed in the bid, if applicable, and the basis of selection;

Part 5 Certifications and Additional Information: includes the certifications and additional information to be provided;

Part 6 Resulting Contract Clauses: includes the clauses and conditions that will apply to any resulting contract;

The Attachments include:

List of Attachments to Part 3 (Bid Preparation Instructions):

[Attachment 1 to Part 3: Pricing Schedule](#)

List of Attachments to Part 4 (Evaluation Procedures and Basis of Selection):

[Attachment 1 to Part 4: Bid Evaluation Criteria](#)

The Annexes include:

[ANNEX A - STATEMENT OF WORK](#)

[ANNEX B - BASIS OF PAYMENT](#)

1.2 SUMMARY

1.2.1 The Canadian Nuclear Safety Commission (CNSC) is seeking bids from qualified suppliers to supply professional services in order to establish a research project that would systematically analyze available and widely used methodologies and strategies proposed to model the reliability of passive safety systems, focusing on its applications for Advanced Reactor Technologies.

A complete description of the work to be performed is provided in Annex A – Statement of Work

It is intended to result in the award of one (1) contract for a period of one (1) year commencing on the date of contract award.

Interested bidders are required to submit their proposals in accordance with the instructions provided in this RFP.



Bids can be submitted in both official languages of Canada.

- 1.2.2 The resulting Contract is not to be used for deliveries within a Comprehensive Land Claims Settlement Area (CLCSA). All requirements for delivery within a CLCSA are to be processed individually.

1.3 DEBRIEFINGS

After contract award, bidders may request a debriefing on the results of the bid solicitation process. Bidders should make the request to the Contracting Authority within 15 working days of receipt of the results of the bid solicitation process. The debriefing may be provided in writing, by telephone or in person.

A de-brief is intended to:

1. Provide the Bidder with feedback on their proposal and the solicitation process;
2. Review the evaluation of the Bidder's proposal and explain where they met or failed to meet the criteria;
3. Identify strengths and weaknesses in the Bidder's proposal to assist them with preparing future proposals.

A de-brief is not an opportunity for the Bidder to debate the evaluation or request a re-evaluation of the proposal.



PART 2 – BIDDER INSTRUCTIONS

2.1 STANDARD INSTRUCTIONS, CLAUSES AND CONDITIONS

2.1.1 All instructions, clauses and conditions identified in the bid solicitation by number, date and title are set out in the [Standard Acquisition Clauses and Conditions Manual](#) issued by Public Works and Government Services Canada (PWGSC).

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

2.1.3 The [2003 \(2022-03-29\) Standard Instructions – Goods or Services – Competitive Requirements](#) are incorporated by reference into and form part of the bid solicitation, with the following modifications:

- delete section 02 in its entirety;
- in section 03, delete “Pursuant to the *Department of Public Works and Government Services Act* (S.C. 1996, c.16),”
- delete subsection 2d of section 05, Submission of Bids in its entirety;
- revise subsection 4 of section 05, Submission of Bids, as follows:

Delete: “Bids will remain open for acceptance for a period of not less than 60 days from the closing date of the bid solicitation,”

And replace with: “Bids will remain open for acceptance for a period of not less than 180 days from the closing date of the bid solicitation”.

- in sections 06 and 07
Delete: “PWGSC”
Replace with: “CNSC”
- delete section 8, Transmission by Facsimile or by epost Connect, in its entirety.
- delete subsections 1a and 1b of section 12, Rejection of Bid, and replace with:

a) Bidders are advised that the CNSC reserves the right to consider, as part of its evaluation, any unsatisfactory performance in a previous or current project performed by the bidder, proposed subcontractor or individual proposed resource either on contract or under previous CNSC employment.

b) Additionally, bidders shall take note that once awarded, the performance of the contractor during and upon completion of the work shall be evaluated by the CNSC. The evaluation may include all or some of the following criteria: quality of deliverables, timeliness of completion of the work, project management, contract management, and cost. Should the contractor's performance be considered unsatisfactory, the contractor may be declared ineligible for future CNSC contracts.

- add the following paragraphs to section 18, Conflict of Interest – Unfair Advantage:

Conflict of Interest – Performance of the Work

- a. The CNSC reserves the right to review real, potential or apparent conflict(s) of interest. Bidders must disclose any of their activities related to the subject of the statement of work that are licensed by the CNSC. Bidders are also required to disclose any involvement in previous, current or planned work undertaken for a CNSC licensee that is or may be related to the subject of the statement of work. Such



activities or work are not in themselves grounds for rejection; however, proposals to review previous work contributed by the bidder on behalf of a CNSC licensee, and proposals to make recommendations affecting the CNSC licensing decisions in which the bidder has a financial or non-financial interest may be rejected.

- b. Bidders must address in detail, in their submitted bids, any real, potential or apparent conflict(s) of interest they may encounter while performing the work, and must substantiate which measures they are taking to prevent the conflict(s). If in doubt about a particular situation, bidders may contact the Contracting Authority before bid closing. The CNSC reserves the right to reject any bids in which a real, potential or apparent conflict of interest exists.
- Delete subsection 2 of section 20, Further Information, in its entirety.

2.1.4 With the exception of sections 1 and 21 of the [2003 \(2022-03-29\) Standard Instructions – Goods or Services – Competitive Requirements](#), all references to "Canada", "Crown", "Her Majesty", "the Government" or "the Minister" means or is replaced by the Canadian Nuclear Safety Commission and its presiding Minister as appropriate.

2.1.5 Wherever there is a discrepancy between information in this request for proposal and the provisions of the 2003 (2022-03-29) Standard Instructions, the information in this request for proposal document shall supersede the information of the 2003 (2022-03-29) Standard Instructions.

2.2 SUBMISSION OF BIDS

- a. Bids must be submitted only to CNSC e-mail address: solicitation-demandedesoumission@cnscccsn.gc.ca, by the date and time indicated on page 1 of the bid solicitation.
- b. Canada will not be responsible for late bids received at destination after the closing date and time, even if it was submitted before.
- c. Given that bids will be received by email, a confirmation of receipt of bid will be sent to the Bidder by the CNSC. CNSC is limited to individual emails of a maximum size of 15 MBs.
- d. Due to the nature of the bid solicitation, bids transmitted by facsimile to CNSC will not be accepted.

2.3 FORMER PUBLIC SERVANT

See [Part 5 – Certifications](#), for certification required with the bid and section [6.6 of Part 6 – Resulting Contract Clauses](#).

Contracts awarded to former public servants (FPS) in receipt of a pension or of a lump sum payment must bear the closest public scrutiny, and reflect fairness in the spending of public funds. In order to comply with Treasury Board policies and directives on contracts awarded to FPSs, bidders must provide the required information before contract award. If the answer to the questions and, as applicable the information required have not been received by the time the evaluation of bids is completed, Canada will inform the Bidder of a time frame within which to provide the information. Failure to comply with Canada's request and meet the requirement within the prescribed time frame will render the bid non-responsive.

2.4 ENQUIRIES – BID SOLICITATION

- 2.4.1 All inquiries must be submitted in writing to the contracting authority no later than **five (5) calendar days** before the bid closing date. Inquiries received after that time may not be answered.
- 2.4.2 Bidders should reference as accurately as possible the numbered item of the bid solicitation to which the inquiry relates. Care should be taken by bidders to explain each question in sufficient detail in order to enable the CNSC to provide an accurate answer. Technical inquiries that are of a proprietary nature must be clearly marked "proprietary" at each relevant item. Items identified as "proprietary" will be treated as such except where the CNSC determines that the inquiry is not of a proprietary nature. The CNSC may edit the questions or may request



that the bidder do so, so that the proprietary nature of the question is eliminated, and the inquiry can be answered with copies to all bidders. Inquiries not submitted in a form that can be distributed to all bidders may not be answered by the CNSC.

2.5 APPLICABLE LAWS

- 2.5.1 Any resulting contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in the **Province of Ontario**.
- 2.5.2 Bidders may, at their discretion, substitute the applicable laws of a Canadian province or territory of their choice without affecting the validity of their bid, by deleting the name of the Canadian province or territory specified and inserting the name of the Canadian province or territory of their choice. If no change is made, it acknowledges that the applicable laws specified are acceptable to the bidders.

2.6 MAXIMUM FUNDING

The maximum funding available for a contract resulting from the bid solicitation is **\$100,000** (Canadian dollars, Applicable Taxes extra).

Bids valued in excess of this amount will be considered non-responsive. This disclosure does not commit Canada to pay the maximum funding available.



PART 3 – BID PREPARATION INSTRUCTIONS

3.1 BID PREPARATION INSTRUCTIONS

3.1.1 Canada requests that bidders provide their bid in separate sections as follows:

- i. Section I: Technical Bid (1 email copy)
- ii. Section II: Financial Bid (1 email copy)
- iii. Section III: Certifications (1 email copy)
- iv. Section IV: Additional Information (1 email copy)

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

NB: Please note that CNSC is limited to individual emails of a maximum size of 15 MBs.

3.1.2 **Format for Bid:** Canada requests that bidders follow the format instructions described below in the preparation of their bid :

- i. use a numbering system that corresponds to the bid solicitation;
- ii. include a title page at the front of each volume of the bid that includes the title, date, bid solicitation number, bidder's name and address and contact information of its representative; and
- iii. Include a table of contents.
- iv. Soft copies will be accepted in any of the following electronic formats:
 - Portable Document Format .pdf
 - Microsoft Word 97/2000 (.doc)
 - Microsoft Excel 97/2000 (.xls)

3.2 SECTION I: TECHNICAL BID

3.2.1 In their technical bid, bidders should demonstrate their understanding of the requirements contained in the bid solicitation and explain how they will meet these requirements. Bidders should demonstrate their capability in a thorough, concise and clear manner for carrying out the work.

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

3.2.3 [Part 4, Evaluation Procedures](#), contains additional instructions that bidders should consider when preparing their technical bid.

3.3 SECTION II: FINANCIAL BID

A. Bidders must submit their financial bid in Canadian funds and in accordance with the pricing schedule detailed in [Attachment 1 to Part 3](#). The total amount of Applicable Taxes must be shown separately.

B. Bidders must submit their prices/rates FOB destination; Canadian customs duties and excise taxes included, as applicable; and Applicable Taxes excluded.



- C. When preparing their financial bid, Bidders should review clause [2.6 MAXIMUM FUNDING](#) (it is recommended that bidders comply with the suggested per fiscal year funding), of Part 2, [clause 4.1.2, Financial Evaluation, of Part 4](#) of the bid solicitation; and [article 6.7, Payment, of Part 6](#) of the bid solicitation.

D. Price Breakdown

In their financial bids, bidders are requested to provide the following details for each firm lot price quoted in response to the pricing schedule detailed in [Attachment 1 to Part 3](#), as applicable:

1. Estimated Cost of Professional Fees

For each individual, Bidders should provide: a) the estimated cost of professional fees; and b) the cost basis (comprised of the quoted all-inclusive fixed hourly rate; and the estimated corresponding number of working hours. Bidders should specify the number of hours included in a working day, exclusive of meal breaks.

The quoted all-inclusive fixed time rate should include the total estimated cost of any local travel and living expenses that may need to be incurred for the Work described in Annex A – Statement of Work.

2. Estimated Cost of Incidental Goods

Bidders should: 1) identify each incidental good to be purchased; and 2) provide the estimated cost and the cost basis for each one.

3. Estimated Cost of Materials and Supplies

Bidders should: 1) identify each category of materials and supplies to be purchased; and 2) provide for each one, the estimated cost and the cost basis. Materials and supplies are items which will be consumed during the performance of any resulting contract.

4. Each trip -Travel Plan and Estimated Cost of Travel and Living Expenses

For each individual required to travel to do, deliver or perform the Work described in Part 7 of the bid solicitation, Bidders should provide for each trip: 1) the travel plan; and 2) the estimated cost of travel and living expenses not included in the professional fees (D.1 above), established in accordance with the meal, private vehicle and incidental expenses provided in Appendices B, C and D of the [National Joint Council Travel Directive](#); and with the other provisions of the directive referring to "travelers", rather than those referring to "employees".

5. Estimated Cost of Subcontracts

Bidders should: 1) identify any proposed subcontractors; and 2) provide a price breakdown submitted in accordance with paragraph D of this section of Part 3 of the bid solicitation for each one.

6. Estimated Cost of Other Direct Charges

Bidders should: 1) identify the categories of other direct charges anticipated (such as long-distance communications and rental); and 2) provide the estimated cost and the cost basis for each one.

7. Applicable Taxes

The price breakdown must not include the Applicable Taxes.

E. SACC Manual Clauses

[C3011T \(2013-11-06\) Exchange Rate Fluctuation](#)



3.4 SECTION III: CERTIFICATIONS

Bidders must submit the certifications required under [Part 5](#) of this bid solicitation.

3.5 SECTION IV: ADDITIONAL INFORMATION

In Section IV of their bid, bidders should provide:

1. their legal name;
2. the name of the contact person (provide also this person's mailing address, phone and facsimile numbers and email address) authorized by the Bidder to enter into communications with Canada with regards to their bid, and any contract that may result from their bid;



ATTACHMENT 1 TO PART 3 – PRICING SCHEDULE

The Bidder must complete this pricing schedule and include it in its financial bid.

<p>Total Firm Bid Price (Canadian dollars, with Applicable Taxes excluded, FOB destination, Canadian customs duties and excise taxes included)*:</p> <p>* This amount will be used as the bid evaluated price as per 4.2.1 Basis of Selection – Highest Combined Rating of Technical Merit (60%) and Price (40 %).</p> <p>Cannot exceed overall maximum funding of \$100,000 (Canadian dollars, applicable taxes extra) as specified in clause 2.6 MAXIMUM FUNDING .</p>	<p>\$ _____</p>
<p style="text-align: right;"><i>Total Estimated Applicable Taxes:</i></p>	<p>\$ _____</p>



PART 4 – EVALUATION PROCEDURES AND BASIS OF SELECTION

4.1 EVALUATION PROCEDURES

Bids will be evaluated in accordance with the entire requirement of the bid solicitation including the technical and financial evaluation criteria.

An evaluation team composed of representatives of Canada will evaluate the bids.

4.1.1 Technical Evaluation

a) Mandatory technical criteria

Refer to [Attachment 1 to Part 4](#) of this bid solicitation.

b) Point-Rated technical criteria

Refer to [Attachment 1 to Part 4](#) of this bid solicitation. Point-rated technical criteria not addressed in the bid will be given a score of zero.

4.1.2 Financial Evaluation

For bid evaluation and contractor(s) selection purposes only, the evaluated price of a bid will be determined in accordance with the Pricing Schedule detailed in [Attachment 1 to Part 3](#) of this bid solicitation.

The price of the bid will be evaluated in Canadian dollars, with Applicable Taxes excluded, FOB destination, Canadian customs duties and excise taxes included.

4.2 BASIS OF SELECTION

4.2.1 Basis of Selection – Highest Combined Rating of Technical Merit (60%) and Price (40 %)

4.2.1.1 To be declared responsive, a bid must:

- (a) comply with all the requirements of the bid solicitation;
- (b) meet all the mandatory evaluation criteria; and
- (c) obtain the required minimum number/percent of points for the technical evaluation criteria which are subject to point rating.

4.2.1.2 Bids not meeting 4.2.1.1 (a) or (b) or (c) will be declared non-responsive. Neither the responsive bid obtaining the highest number of points nor the one with the lowest evaluated price will necessarily be accepted.

4.2.1.3 The lowest evaluated price (LP) of all responsive bids will be identified and a pricing score (PS), determined as follows, will be allocated to each responsive bid (i): $PS_i = LP / P_i \times 40$. P_i is the evaluated price (P) of each responsive bid (i).

4.2.1.4 A technical merit score (TMS), determined as follows, will be allocated to each responsive bid (i): $TMS_i = OS_i \times 60$. OS_i is the overall score (OS) obtained by each responsive bid (i) for all the point rated technical criteria specified in [Attachment 1 to Part 4](#), determined as follows: total number of points obtained / maximum number of points available.

4.2.1.5 The combined rating (CR) of technical merit and price of each responsive bid (i) will be determined as follows: $CR_i = PS_i + TMS_i$.

4.2.1.6 The responsive bid with the highest combined rating of technical merit and price will be recommended for award of a contract. In the event two or more responsive bids have the same highest combined rating of technical merit



and price, the responsive bid that obtained the highest overall score for all the point rated technical criteria detailed in [Attachment 1 to Part 4](#) will be recommended for award of a contract.

4.2.1.7 The table below illustrates an example where all three bids are responsive and the selection of the contractor is determined by a 60/40 ratio of the technical merit and price, respectively.

Basis of Selection - Highest Combined Rating of Technical Merit (60%) and Price (40%)			
Bidder	Bidder 1	Bidder 2	Bidder 3
Overall Score for All the Point Rated Technical Criteria	OS1: 120/135	OS2: 98/135	OS3: 82/135
Bid Evaluated Price	P1: C\$60,000	P2: C\$55,000	LP and P3: C\$50,000
Calculations	Technical Merit Score (OS_i x 60)	Pricing Score (LP/P_i x 40)	Combined Rating
Bidder 1	120/135 x 60 = 53.33	50/60 x 40 = 33.33	86.66
Bidder 2	98/135 x 60 = 43.56	50/55 x 40 = 36.36	79.92
Bidder 3	82/135 x 60 = 36.44	50/50 x 40 = 40.00	76.44



ATTACHMENT 1 TO PART 4 – EVALUATION PROCEDURES

Evaluation Disclaimer

The Technical Evaluation of the bids will be performed in two phases as follows:

Evaluation Phase 1: Mandatory Criteria

The mandatory criteria will be evaluated on a “Met/Not Met” (i.e. compliant/non-compliant) basis. Bids must demonstrate compliance with all of the following Mandatory requirements and must provide the necessary documentation to support a determination of compliance. Bids that fail to meet any mandatory requirements will be deemed non-compliant and will be given no further consideration.

Evaluation Phase 2: Point Rated Technical Criteria

The Bidder must obtain the required minimum number of points specified for the point rated technical criteria.

Overall Maximum Points Available	120
Overall Minimum Points Required	80

For each of the mandatory and point rated requirements listed below, the Bidder must provide, for each proposed resource, a copy of the resource curriculum vitae (CV) as well as summaries of projects outlining the qualifications and experience listed below, for both Corporate Criteria and Resources Criteria. It is the responsibility of the Bidder to indicate in the “Reference to Bidder’s Bid”, where in the Bid, the information can be found. The Bidder must be compliant with the mandatory criteria in order to proceed to the point-rated evaluation. In its bid, the Bidder should provide one evaluation grid for each proposed resource. The submission must include the full name of the proposed, as well as the education and academic qualifications for each resource presented.

Summaries of project outlining the corporate and resources experience to support compliance should include:

- a. Project Title
- b. Description of project
- c. List of tasks performed by the resource
- d. Start and end date of project (if end date applies) (dates must include month and year)
- e. Start and end date when the resource actually worked in this capacity on this project (dates must include month and year)
- f. The Bidder must provide concrete and detailed examples to clearly demonstrate how the experience requirements were met, merely stating you have the experience will not qualify;
- g. Reference contact information that includes name and email. The reference must be a person who was either the Project or Technical Authority, or the supervisor or employer of the resource, if an employee.

Indicate the location in your bid where the requested information can be found for both the mandatory and point rated requirements.



Merely stating the experience is not sufficient and the bid will be deemed non-compliant.

Example: If the mandatory and point rated criteria demands experience in gathering, analyzing and validating findings, it is not sufficient just to state the resource has experience gathering, analyzing and validating findings. The experience must be demonstrated and a reference made to the specific location in the resume where corroborating information can be located in the manner indicated above.

The Contracting Authority reserves the right to request reference(s)* from any of the listed projects to verify and validate the information stated in the bid. If the reference is unable to verify or validate the information stated in the proposal, the bid will be deemed non-compliant.

Definitions

A. Resource Categories

For the purpose of this evaluation, resource categories are defined as follows:

- a) A Senior resource is defined as having more than 10 years of experience in their field of expertise
- b) An Intermediate resource is defined as having between 5 and 10 years, inclusive, of experience in their field of expertise
- c) A Junior resource is defined as having less than 5 years of experience in their field of expertise.

B. Experience Time Frame

All experiences time-frames provided for evaluation is experience gained by bid closing date. Any experience described after bid is closed will not count towards experience.



Mandatory Criteria

The bid must meet the mandatory criterion specified below. The Bidder must provide the necessary documentation to support compliance with this requirement.

Bids which fail to meet the mandatory criterion will be declared non-responsive.

#	Mandatory Criteria	Met / Not Met	Bidder's cross-reference to proposal
M1	<p>The Bidder's financial proposal must not exceed the Maximum Funding of \$100,000 (Canadian dollars, Applicable Taxes extra).</p> <p><u>Bids valued in excess of this amount will be considered non-responsive.</u></p>		

Point Rated Technical Criteria

Bids which meet all the mandatory criteria will be evaluated and scored as specified in the tables inserted below.

Bids which fail to obtain the required minimum number of points specified will be declared non-responsive. Each point rated technical criterion should be addressed separately.

	RATED CRITERIA	MAX POINTS	SCORES TO BE ASSIGNED BASED ON THE FOLLOWING	ASSIGNED MARK	RATIONAL/JUSTIFICATION FOR MARK
R1	<p>Experience of Team Leader</p> <p>The Bidder should provide two (2) project descriptions to demonstrate that the Team Leader has experience successfully executing projects relevant to the Statement of Work (i.e. executing projects related to Probabilistic Safety Assessment (PSA),</p>	40	<p>0 Points - one or more of the elements a) to d) was not addressed</p> <p>10 Points - all four element from (a) to (d) are addressed, but there is not enough detail to determine the level of success achieved based on the results and outcomes of the project</p> <p>15 Points - all four element from (a) to (d) are addressed; approach/methodology applied with an adequate level of success</p>		



	<p>Deterministic Safety Analysis (DSA), reliability design, assessment and monitoring, and ALWR designs).</p> <p>The Bidder's response should include the following elements for each project example:</p> <ul style="list-style-type: none"> a) the scope of the project b) the approach and methodology applied to complete the work c) challenges or issues encountered while completing the project and the solutions/actions taken to mitigate them d) results and outcomes of the project <p>Each project description must include the project title, client/organization name for which the work was performed, the start and end date that the proposed resource worked on project (if an end date applies), and the role or overall responsibility of the proposed resource on the project.</p>		<p>achieved based on the results and outcomes of the project</p> <p>20 Points - all four element from (a) to (d) are addressed; approach/methodology applied with a high level of success achieved, demonstrated by the results and outcomes of the project</p> <p>A maximum of 20 points will be awarded per project example.</p>		
<p>R2</p>	<p>Recognition of problems and solutions proposed</p> <p>Based on its experience with projects with similar scope,</p>	<p>10</p>	<p>0 Points - fails to identify any potential issues relevant to the SOW 1 Points - 1 potential issue identified relevant to the SOW</p>		



	<p>the Bidder should identify any relevant potential or anticipated problems and/or difficulties that could affect the outcome of the work described in the Statement of Work and suggest how these will be addressed and resolved.</p>		<p>2 Points - 2 potential issues identified relevant to the SOW 3 Points - 3 potential issues identified relevant to the SOW 4 Points - 4 potential issues identified relevant to the SOW 5 Points - 5 or more potential issues identified relevant to the SOW</p> <p>Proposed solutions to mitigate above identified issues:</p> <p>1 point to propose a solution to mitigate the issues for each of the above identified major issues. Maximum of 5 points</p> <p>Additional score if less than 5 major issues can be identified:</p> <p>If the Bidder can <u>fully demonstrate</u> no other major issues beyond those identified above is possible:</p> <p>X point(s) = (5-(# points for identified major problems))x2</p>		
<p>R3</p>	<p>Understanding scope and objective</p> <p>The bidder should demonstrate that they understand the scope and objectives.</p> <p>The bidder should include a short introduction with a brief evaluation of the proposed work, and the reasons for carrying it out as proposed and the benefits to be</p>	<p>10</p>	<p>0 Points – not addressed or insufficient information to assess Bidder’s understanding of scope and objective.</p> <p>2 Point – given verbatim from the bid solicitation (RFP) and/or the bidder does not fully demonstrate understanding: reasons for carrying work out as proposed and the benefits to be derived are not addressed.</p> <p>6 Points – the bidder demonstrates good understanding of scope and objectives by providing an evaluation of the proposed</p>		



	derived.		<p>work. The reasons for carrying out the proposed work and the benefits to be derived are addressed but lack some detail/clarity.</p> <p>10 Points – the bidder demonstrates in-depth understanding of the scope and objective, by illustrating with supporting references and/or evidence from the team’s past experience that they have dealt with projects with similar scope and objective. The reasons for carrying out the work as proposed and the benefits to be derived are clearly discussed.</p>		
A	Total Score R1, R2 and R3	/60			
<p>The following point rated criteria are resource and team specific. The Bidder will select the size of its team, and <u>must</u> identify the Project Manager/Team Leader and each member of the team, if more than one resource is proposed. If only one resource is proposed, that resource will be deemed the Project Manager.</p>					
R4	<p>Proposed team organization</p> <p>The Bidder should identify the team leader and the key personnel that will carry out the tasks and their roles, including any major subcontractors if applicable.</p> <p>The Bidder should include the reporting structure as well as the previous experience and ability of the proposed team to complete the work.</p>	<p>5</p> <p>Or</p> <p>N/A</p>	<p>0 Points – not addressed in the proposal</p> <p>1 Point – description of the team included, but reporting structure not defined and the team has no experience working together</p> <p>2 Points – description of the team included with a defined reporting structure but proposed team has no experience working together</p> <p>3 Points – description of the team included with a defined reporting structure and the proposed team has some experience working together (less than 2 projects)</p> <p>5 Points – description of the team included with a defined reporting structure and the proposed team has extensive experience working together (2 or more projects)</p>		
B	Total for R4, if applicable	/5 or N/A			



Name of Project Manager:					
R5	<p>Project Manager</p> <p>The Bidder should demonstrate the qualifications and relevant experience of the proposed project manager including their position within the organization.</p> <p>The Bidder should identify who the Project Manager assigned to this requirement will be. The Bidder should describe the Project Manager's position within the organization, as well as their experience, education, and qualifications. The Bidder should provide their curriculum vitae.</p>	10	<p><u>Experience</u> 0 Points - the project manager has less than 2 years project management experience 2 Points - project manager has 2 to less than 5 years project management experience 5 Points - project manager has 5 or more years project management experience</p> <p><u>Education</u> 0 Points - no formal project management training 1 Point - formal project management training 2 Points - PMP certification</p> <p><u>Position</u> 0 Points - not addressed or junior position 1 Point - no authority to (re)direct resources 2 Points - authority to (re)direct resources</p> <p><u>Other</u> 1 Point - at least one year of project management experience in the nuclear sector</p>		
C	Total for R5	10			
<p>For the grid of point rated criteria below (R6 to R9) the knowledge and expertise of the proposed subject matter expert(s) on the team will be evaluated. Only one resource will be evaluated per criterion (C6 to C9). In your proposal, clearly indicate which resource meets the requirement. The resource to be evaluated can be the same resource for each criteria, or a different subject matter expert.</p>					
R6	The Bidder should demonstrate that the proposed subject matter	12	<p><u>Methodologies for Reliability Assessment</u> 0 Points - no demonstrated experience</p>		



	<p>expert has experience with the methodologies used for reliability assessment of passive systems including understanding of the safety margin and uncertainties associated with these methodologies.</p> <p>The Bidder should provide the curriculum vitae of the subject matter expert and any relevant project descriptions to demonstrate experience.</p> <p>The curriculum vitae should contain detailed information that describes, explains, or illustrates through examples the specific work and tasks performed by the proposed resource, specific to the identified project that clearly demonstrates how the resource meets and complies with the required experience identified in the criterion.</p>		<p>2 Points - less than 2 years demonstrated experience 5 Points - from 2 years to less than 5 years of demonstrated experience 8 Points - 5 years or more of demonstrated experience</p> <p><u>Other</u> 4 Points - at least one year of the demonstrated experience is related to nuclear reactors, including advanced reactor technologies</p>			
R7	<p>The Bidder should demonstrate that the proposed subject matter expert has knowledge of and experience using Phenomena Identification and Ranking Tables (PIRT) to understand the coupling effects of thermal-hydraulic phenomena and active components degradation</p>	9	<p><u>Phenomena Identification and Ranking Tables (PIRT)</u> 0 Points - no demonstrated experience 2 Point - less than 2 years demonstrated experience 5 Points - from 2 years to less than 5 years of demonstrated experience 7 Points - 5 years or more of demonstrated experience</p> <p><u>Other</u></p>			



	<p>and failure in a passive safety system.</p> <p>The Bidder should provide the curriculum vitae of the subject matter expert and any relevant project descriptions to demonstrate experience.</p> <p>The curriculum vitae should contain detailed information that describes, explains, or illustrates through examples the specific work and tasks performed by the proposed resource, specific to the identified project that clearly demonstrates how the resource meets and complies with the required experience identified in the criterion.</p>		<p>2 Points - at least one year of the demonstrated experience is related to the nuclear sector, including advanced reactor technologies</p>			
<p>R8</p>	<p>The Bidder should demonstrate that the proposed subject matter expert has knowledge of and experience with consideration and applicability of general reliability design requirements (such as single failure criterion, redundancy, independence, diversity, sharing between reactors) to passive systems, as well as the understanding of the vulnerability of passive systems to environmental conditions, internal and external hazards.</p>	<p>12</p>	<p><u>Reliability Design Requirements</u> 0 Points - no demonstrated experience 2 Points - less than 2 years demonstrated experience 5 Points - from 2 years to less than 5 years of demonstrated experience 8 Points - 5 years or more of demonstrated experience</p> <p><u>Other</u> 4 Point - at least one year of the demonstrated experience is related to the nuclear sector, including advanced reactor technologies</p>			



	<p>The Bidder should provide the curriculum vitae of the subject matter expert and any relevant project descriptions to demonstrate experience.</p> <p>The curriculum vitae should contain detailed information that describes, explains, or illustrates through examples the specific work and tasks performed by the proposed resource, specific to the identified project that clearly demonstrates how the resource meets and complies with the required experience identified in the criterion.</p>					
R9	<p>The Bidder should demonstrate that the proposed subject matter expert has knowledge of: inclusion of passive safety systems into system fault trees and event trees in the PSA, with due consideration of phenomena based failures.</p> <p>The Bidder should provide the curriculum vitae of the subject matter expert and any relevant project descriptions to demonstrate experience.</p>	12	<p><u>Probabilistic Safety Analysis</u> 0 Points - no demonstrated experience 2 Points - less than 2 years demonstrated experience 5 Points - from 2 years to less than 5 years of demonstrated experience 8 Points - 5 years or more of demonstrated experience</p> <p><u>Other</u> 4 Point - at least one year of the demonstrated experience is related to nuclear reactors, including advanced reactor technologies</p>			



	The curriculum vitae should contain detailed information that describes, explains, or illustrates through examples the specific work and tasks performed by the proposed resource, specific to the identified project that clearly demonstrates how the resource meets and complies with the required experience identified in the criterion.					
D	Total C6 + C7 + C8 + C9				/45	
Total /120						



PART 5 – CERTIFICATIONS

Bidders must provide the required certifications and additional information to be awarded a contract.

The certifications provided by bidders to Canada are subject to verification by Canada at all times. Canada will declare a bid non-responsive, or will declare a contractor in default if any certification made by the Bidder is found to be untrue, whether made knowingly or unknowingly, during the bid evaluation period or during the contract period.

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

5.1 Certifications Required with the Bid

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

5.1.1 Integrity Provisions - Declaration of Convicted Offences

In accordance with the Integrity Provisions of the Standard Instructions, all bidders must provide with their bid, if applicable, the Integrity declaration form available on the Forms for the Integrity Regime website (<http://www.tpsgc-pwgsc.gc.ca/ci-if/declaration-eng.html>), to be given further consideration in the procurement process.

5.2 Certifications Precedent to Contract Award and Additional Information

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

5.2.1 Integrity Provisions – Required Documentation

In accordance with the section titled Information to be provided when bidding, contracting or entering into a real procurement agreement of the [Ineligibility and Suspension Policy](http://www.tpsgc-pwgsc.gc.ca/ci-if/politique-policy-eng.html) (<http://www.tpsgc-pwgsc.gc.ca/ci-if/politique-policy-eng.html>), the Bidder must provide the required documentation, as applicable, to be given further consideration in the procurement process.

5.2.2 Federal Contractors Program for Employment Equity - Bid Certification

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

Canada will have the right to declare a bid non-responsive if the Bidder, or any member of the Bidder if the Bidder is a Joint Venture, appears on the "[FCP Limited Eligibility to Bid](http://www.labour.gc.ca/eng/standards_equity/eq/emp/fcp/list/inelig.shtml)" list at the time of contract award.

5.2.3 Former Public Servant

Contracts with former public servants (FPS) in receipt of a pension or of a lump sum payment must bear the closest public scrutiny, and reflect fairness in the spending of public funds. In order to comply with Treasury Board policies and directives on contracts with FPS, bidders must provide the information required below.



Definitions

For the purposes of this clause, "*former public servant*" is any former member of a department as defined in the [Financial Administration Act](#), R.S., 1985, c. F-11, a former member of the Canadian Armed Forces or a former member of the Royal Canadian Mounted Police. A former public servant may be:

- a. an individual;
- b. an individual who has incorporated;
- c. a partnership made of former public servants; or
- d. a sole proprietorship or entity where the affected individual has a controlling or major interest in the entity.

"*lump sum payment period*" means the period measured in weeks of salary, for which payment has been made to facilitate the transition to retirement or to other employment as a result of the implementation of various programs to reduce the size of the Public Service. The lump sum payment period does not include the period of severance pay, which is measured in a like manner.

"*pension*" means, a pension or annual allowance paid under the [Public Service Superannuation Act](#) (PSSA), R.S., 1985, c.P-36, and any increases paid pursuant to the [Supplementary Retirement Benefits Act](#), R.S., 1985, c.S-24 as it affects the PSSA. It does not include pensions payable pursuant to the [Canadian Forces Superannuation Act](#), R.S., 1985, c.C-17, the Defence, 1970, c.D-3, the [Royal Canadian Mounted Police Pension Continuation Act](#), 1970, c.R-10, and the [Royal Canadian Mounted Police Superannuation Act](#), R.S., 1985, c.R-11, the Members, R.S., 1985, c.M-5, and that portion of pension payable to the [Canada Pension Plan Act](#), R.S., 1985, c.C-8.

Former Public Servant in Receipt of a Pension

As per the above definitions, is the Bidder a FPS in receipt of a pension? **Yes** () **No** ()

If so, the Bidder must provide the following information, for all FPS in receipt of a pension, as applicable:

- a. name of former public servant;
- b. date of termination of employment or retirement from the Public Service.

By providing this information, Bidders agree that the successful Bidder's status, with respect to being a former public servant in receipt of a pension, will be reported on departmental websites as part of the published proactive disclosure reports in accordance with [Contracting Policy Notice: 2012-2](#) and the [Guidelines on the Proactive Disclosure of Contracts](#).

Work Force Reduction Program

Is the Bidder a FPS who received a lump sum payment pursuant to the terms of a work force reduction program?

Yes () **No** ()

If so, the Bidder must provide the following information:

- a. name of former public servant;
- b. conditions of the lump sum payment incentive;
- c. date of termination of employment;
- d. amount of lump sum payment;



- e. rate of pay on which lump sum payment is based;
- f. period of lump sum payment including start date, end date and number of weeks;
- g. number and amount (professional fees) of other contracts subject to the restrictions of a work force reduction program.

For all contracts awarded during the lump sum payment period, the total amount of fees that may be paid to a FPS who received a lump sum payment is \$5,000, including Applicable Taxes.

5.2.4 Status and Availability of Resources

The Bidder certifies that, should it be awarded a contract as a result of the bid solicitation, every individual proposed in its bid will be available to perform the Work as required by Canada's representatives and at the time specified in the bid solicitation or agreed to with Canada's representatives. If for reasons beyond its control, the Bidder is unable to provide the services of an individual named in its bid, the Bidder may propose a substitute with similar qualifications and experience. The Bidder must advise the Contracting Authority of the reason for the substitution and provide the name, qualifications and experience of the proposed replacement. For the purposes of this clause, only the following reasons will be considered as beyond the control of the Bidder: death, sickness, maternity and parental leave, retirement, resignation, dismissal for cause or termination of an agreement for default.

If the Bidder has proposed any individual who is not an employee of the Bidder, the Bidder certifies that it has the permission from that individual to propose his/her services in relation to the Work to be performed and to submit his/her résumé to Canada. The Bidder must, upon request from the Contracting Authority, provide a written confirmation, signed by the individual, of the permission given to the Bidder and of his/her availability. Failure to comply with the request may result in the bid being declared non-responsive.

5.2.5 Education and Experience

The Bidder certifies that all the information provided in the résumés and supporting material submitted with its bid, particularly the information pertaining to education, achievements, experience and work history, has been verified by the Bidder to be true and accurate. Furthermore, the Bidder warrants that every individual proposed by the Bidder for the requirement is capable of performing the Work described in the resulting contract.

5.3 Certifications

By submitting a bid, the Bidder certifies that the information submitted by the Bidder in response to the above requirements is accurate and complete.

Signature of Bidder's Authorized Representative

Date



PART 6 – RESULTING CONTRACT CLAUSES

It is understood that the procurement of services for the Canadian Nuclear Safety Commission (CNSC) falls under the provisions of the *Nuclear Safety and Control Act*, S.C. 1997, c. 9.

The following clauses and conditions apply to and form part of any contract resulting from the bid solicitation.

6.1 STATEMENT OF WORK

The Contractor must perform the Work in accordance with the Statement of Work in [Annex A](#), and the Contractor's technical bid entitled _____, dated _____.

6.2 STANDARD CLAUSES AND CONDITIONS

All clauses and conditions identified in the Contract by number, date and title are set out in the [Standard Acquisition Clauses and Conditions \(SACC\) Manual](#) issued by Public Works and Government Services Canada.

With the exception of the Integrity Provisions of the General Conditions, all references to "Canada", "Crown", "Her Majesty", "the Government" or "the Minister" in the clauses and conditions included herein, including those incorporated by reference, shall mean Her Majesty the Queen in right of Canada as represented by the Canadian Nuclear Safety Commission and its presiding Minister as appropriate.

6.2.1 General Conditions :

[2035 \(2022-05-12\), General Conditions – Higher Complexity – Services](#), apply to and form part of the Contract with the following modifications:

The text under Section 34 – Conflict of Interest and Values and Ethics Codes for the Public Service, of General Conditions 2035 referenced above is replaced by:

- i. The contractor acknowledges that individuals who are subject to the provisions of the *Conflict of Interest Act* (S.C. 2006, c. 9, s. 2) the *Conflict of Interest Code for Members of the House of Commons*, the *Values and Ethics Code for the Public Sector*, the *Treasury Board Policy on Conflict of Interest and Post- Employment*, the *CNSC Values and Ethics Code*, the *CNSC Conflict of Interest and Post-Employment Policy*, the *CNSC Directive on Reporting and Managing Financial Conflicts of Interest* and/or all other codes of conduct applicable within specific federal organizations cannot derive any direct benefit resulting from the contract.
- ii. Contractors, subcontractors, or any of their respective employees working full-time on CNSC premises must comply with the *Values and Ethics Code for the Public Sector*, the *Treasury Board Policy on Conflict of Interest and Post- Employment*, the *CNSC Values and Ethics Code*, the *CNSC Conflict of Interest and Post-Employment Policy* and the *CNSC Directive on Reporting and Managing Financial Conflicts of Interest*.
- iii. Post-employment procedures apply to individuals who have left the public sector.
- iv. The *CNSC Values and Ethics Code*, *CNSC Conflict of Interest and Post-Employment Policy* and the *CNSC Directive on Reporting and Managing Financial Conflicts of Interest* can be found at <http://www.nuclearsafety.gc.ca/eng/about-us/values-and-ethics/index.cfm> .

6.2.2 Supplemental General Conditions

[4006 \(2010-08-16\) Contractor to Own Intellectual Property Rights in Foreground Information](#) apply to and form part of the Contract.



6.2.2.1 License to Material Subject to Copyright (K3030C – 2010-01-11)

1. In this section, "Material" means anything that is created or developed by the Contractor as part of the Work under the Contract, and in which copyright subsists.
2. The Contractor grants to Canada a non-exclusive, perpetual, irrevocable, world-wide, fully-paid and royalty-free license to exercise all rights comprised in the copyright in the Material, for any government purposes. Canada may use independent contractors in the exercise of Canada's license pursuant to this clause.
3. Copyright in any translation of the Material made by or for Canada belongs to Canada. Canada agrees to reproduce the Contractor's copyright notice, if any, on all copies of the Material, and to acknowledge the Contractor's title to the copyright in the original Work on all copies of translations of the Material effected by or for Canada.
4. No restrictions other than those set out in this section must apply to Canada's use of copies of the Material or of translated versions of the Material.
5. At the request of Canada, the Contractor must provide to Canada, at the completion of the Work or at such other time as Canada may require, a written permanent waiver of moral rights, in a form acceptable to Canada, from every author that contributed to the Material. If the Contractor is an author of the Material, the Contractor permanently waives its moral rights in respect of the Material.

6.2.3 Inspection and Acceptance

The Technical Authority is the Inspection Authority. All reports, deliverable items, documents, goods and all services rendered under the Contract are subject to inspection by the Inspection Authority or representative. Should any report, document, good or service not be in accordance with the requirements of the Statement of Work and to the satisfaction of the Inspection Authority, as submitted, the Inspection Authority will have the right to reject it or require its correction at the sole expense of the Contractor before recommending payment.

6.3 SECURITY REQUIREMENT

There is no security requirement applicable to this Contract.

6.4 TERM OF CONTRACT

6.4.1 Period of the Contract

The period of the Contract is from _____ to _____ inclusive.

6.5 AUTHORITIES

6.5.1 Contracting Authority

(To be identified at contract award)

The Contracting Authority for the Contract is:

Name: _____
 Title: _____
 Organization: _____
 Address: _____
 Telephone: ___ - ___ - ____





Facsimile: ___ - ___ - ___
E-mail address: _____

The Contracting Authority is responsible for the management of the Contract and any changes to the Contract must be authorized in writing by the Contracting Authority. The Contractor must not perform work in excess of or outside the scope of the Contract based on verbal or written requests or instructions from anybody other than the Contracting Authority.

6.5.2 Project Authority

(To be identified at contract award)

The Project Authority for the Contract is:

Name: _____
Title: _____
Organization: _____
Address: _____
Telephone: ___ - ___ - ___
Facsimile: ___ - ___ - ___
E-mail address: _____

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

6.5.3 Technical Authority

The Technical Authority for the Contract is:

Name: _____
Title: _____
Organization: _____
Address: _____
Telephone: ___ - ___ - ___
Facsimile: ___ - ___ - ___
E-mail: _____.

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

6.5.4 Contractor's Representative

(To be identified at contract award)

6.6 PROACTIVE DISCLOSURE OF CONTRACTS WITH FORMER PUBLIC SERVANTS

By providing information on its status, with respect to being a former public servant in receipt of a [Public Service Superannuation Act](#) (PSSA) pension, the Contractor has agreed that this information will be reported on



departmental websites as part of the published proactive disclosure reports, in accordance with [Contracting Policy Notice: 2012-2](#) of the Treasury Board Secretariat of Canada.

6.7 PAYMENT

6.7.1 Basis of Payment – Firm Price

In consideration of the Contractor satisfactorily completing all of its obligations under the Contract, the Contractor will be paid a firm price of \$ _____. Customs duties are included and Applicable Taxes are extra.

6.7.2 Travel and Living Expenses

All Travel and Living Expenses are included in the price of the contract. Canada will not reimburse any travel or living expenses associated with performing the Work.

6.7.3 Limitation of Price

Canada will not pay the Contractor for any design changes, modifications or interpretations of the Work unless they have been approved, in writing, by the Contracting Authority before their incorporation into the Work.

6.7.4 Method of Payment – Milestone Payments

Canada will make milestone payments in accordance with the Schedule of Milestones detailed in [Annex B](#) and the payment provisions of the Contract if:

- i. an accurate and complete invoice and any other documents required by the Contract have been submitted in accordance with the invoicing instructions provided in the Contract;
- ii. all such documents have been verified by Canada;
- iii. the Work performed has been accepted by Canada.

6.7.5 T1204 – Information Reported by Contractor (A9116C – 2007-11-30 - modified)

1. Pursuant to paragraph 221 (1)(d) of the [Income Tax Act](#), R.S.C. 1985, c.1 (5th Supp.), payments made by departments and agencies to contractors under applicable services contracts (including contracts involving a mix of goods and services) must be reported on a T1204 Government Service Contract Payments slip.
2. To enable departments and agencies to comply with this requirement, the contractor must provide the following information prior to signature of the contract:
 - a. the legal name of the contractor, i.e. the legal name associated with its business number or social insurance number (SIN), as well as its address and postal code;
 - b. the status of the contractor, i.e. an individual, a sole proprietorship, a corporation, or a partnership;
 - c. the business number of the contractor if the contractor is a corporation or a partnership and the SIN if the contractor is an individual or a sole proprietorship. In the case of a partnership, if the partnership does not have a business number, the partner who has signed the contract must provide its SIN;
 - d. in the case of a joint venture, the business number of all parties to the joint venture who have a business number or their SIN if they do not have a business number.
3. The information must be sent to the contracting authority. If the information includes a SIN, the information should be provided in an envelope marked "Protected".

6.7.6 Payment by Direct Deposit

- a) Payments by direct deposit will be subject to Article 16 – Payment Period and Article 17 - Interest on Overdue Accounts, set out in [2035 General Conditions – Higher Complexity, Services \(2022-05-12\)](#) forming part of this Contract.



- b) To complete or amend a direct deposit registration, the Contractor must complete and submit to the Contracting Authority a Direct Deposit Enrolment Form, which is available on demand.
- c) It is the sole responsibility of the Contractor to ensure that the information and account number submitted to Canada via their Direct Deposit Enrolment Form is up to date. Should the Contractor's information within the Direct Deposit Enrolment Form not be accurate or up to date, the provisions identified herein under (Article 16 – Payment Period and Article 17 - Interest on Overdue Accounts, set out in [2035 General Conditions – Higher Complexity, Services \(2022-05-12\)](#) forming part of this Contract will not apply, until the Contractor corrects the matter.

6.7.7 C2000C (2007-11-30) Taxes Foreign Based Contractor (If applicable)

Unless specified otherwise in the Contract, the price includes no amount for any federal excise tax, state or local sales or use tax, or any other tax of a similar nature, or any Canadian tax whatsoever. The price, however, includes all other taxes. If the Work is normally subject to federal excise tax, Canada will, upon request, provide the Contractor a certificate of exemption from such federal excise tax in the form prescribed by the federal regulations.

Canada will provide the Contractor evidence of export that may be requested by the tax authorities. If, as a result of Canada's failure to do so, the Contractor has to pay federal excise tax, Canada will reimburse the Contractor if the Contractor takes such steps as Canada may require to recover any payment made by the Contractor. The Contractor must refund to Canada any amount so recovered.

6.8 INVOICING INSTRUCTIONS

- a. The Contractor must submit invoices in accordance with the section entitled "Invoice Submission" in the General Conditions.
- b. The original and one (1) copy must be forwarded to the following address for certification and payment.

Canadian Nuclear Safety Commission
Finance Division
P.O. Box 1046, Station B
Ottawa, ON
Canada K1P 5S9

Or submitted electronically at: finance@cnsccsn.gc.ca.

- c. The Contractor shall include the contract number and appropriate Applicable Taxes registration number on all invoices pertaining to the contract.
- d. The last and final invoice under the contract shall be clearly marked "final invoice".

6.9 CERTIFICATIONS

6.9.1 Compliance

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

6.10 APPLICABLE LAWS

The Contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in the province of **Ontario**.



6.11 PRIORITY OF DOCUMENTS

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

- a. these Articles of Agreement;
- b. the supplemental general conditions [4006 \(2010-08-16\) Contractor to Own Intellectual Property Rights in Foreground Information](#);
- c. [2035 \(2022-05-12\), General Conditions – Higher Complexity – Services](#);
- d. [Annex A, Statement of Work](#);
- e. [Annex B, Basis of Payment](#);
- f. the Contractor's bid dated [_____] [*insert date of bid*], as amended [_____] [*insert date(s) of amendment(s) if applicable*].

6.12 FOREIGN NATIONALS

[SACC Manual Clause A2000C \(2006-06-16\) Foreign Nationals \(Canadian Contractor\)](#)

OR

[SACC Manual Clause A2001C \(2006-06-16\) Foreign Nationals \(Foreign Contractor\)](#)

6.13 INSURANCE

[SACC Manual clause G1005C \(2016-01-28\), Insurance – No Specific Requirement](#)

6.14 THIRD-PARTY INFORMATION

1. The contractor acknowledges that all third-party technical documents supplied for the purpose of this contract belong to the third party. The contractor shall return these technical documents to the originator upon completion of the contract.
2. The contractor acknowledges that proprietary third-party technical documents belong to the third party and shall be treated as confidential. No physical copies or digital records of technical documents shall be retained by the contractor after completion of the contract.
3. Upon completion of the contract, the contractor shall immediately return all proprietary technical documents to the originator, and shall provide the CNSC with a certificate of a senior officer of the contractor certifying such return and that no copies of proprietary technical documents, or any part thereof, in any form remain in the possession or control of the contractor.

6.15 DISPUTE RESOLUTION

1. The parties must first attempt to resolve disputes arising in connection with this contract through direct good-faith negotiations. Such negotiations shall be undertaken for a maximum period of 30 working days unless resolved earlier. The parties may agree to an extension of the 30 working day period upon agreement in writing by each party.
2. All disputes, questions or differences arising in connection with this contract which cannot be resolved by the parties as set out in subsection 1 shall be resolved in an efficient and cooperative manner through mediation or any other such third-party assistance process as may be appropriate and agreed upon. Such a process shall be undertaken for at least 20 working days unless resolved earlier. The parties may agree to an extension of this 20 working day period upon agreement in writing by each party.



3. All disputes, questions or differences arising in connection with this contract, which the parties cannot resolve themselves through direct negotiations or the appropriate dispute resolution efforts discussed in subsection 2 shall be finally settled by binding arbitration.
4. The parties shall appoint a single arbitrator. The appointment of an arbitrator shall occur within 30 calendar days of the decision to proceed to binding arbitration. If such appointment has not occurred within this 30 calendar day period, then the parties shall apply to a Justice of the Ontario Court (General Division) in Ottawa to have an arbitrator appointed.
5. The arbitration shall be in accordance with the *Commercial Arbitration Act*, R.S.C., 1985, c.17 and shall take place in Ottawa, Ontario.
6. The arbitrator may appoint a secretary with the prior written permission of the parties. The fees of the sole arbitrator and of the secretary shall be shared equally by each of the parties. Notwithstanding the above, the arbitrator shall be authorized to require any party to pay the whole or part of the fees, costs and expenses. In such case, payments shall be made in accordance with the award and the award shall be final and shall not be subject to appeal.
7. This section does not apply in respect of the interpretation or application of constitutional, administrative, criminal or tax law or other law as may be determined and agreed upon by the parties. Except with respect to the laws expressly listed herein, if no agreement is reached regarding this article's application with respect to other areas of law, then the matter shall be subject to binding arbitration.
8. The parties understand that the Procurement Ombudsman appointed pursuant to subsection 22.1(1) of the *Department of Public Works and Government Services Act* will, on request, and consent of the parties, to participate in an alternative dispute resolution process to resolve any dispute between the parties respecting the interpretation or application of a term and condition of this contract and their consent to bear the cost of such process, provide to the parties a proposal for an alternative dispute resolution process to resolve their dispute. The Procurement Ombudsman will also review a complaint filed by the Contractor respecting administration of this contract if the requirements of subsection 22.2(1) of the *Department of Public Works and Government Services Act* and Sections 15 and 16 of the *Procurement Ombudsman Regulations* have been met, and the interpretation and application of the terms and conditions and the scope of the work of this contract are not in dispute. The Office of the Procurement Ombudsman may be contacted by telephone at 1-866-734-5169 or by e-mail at boa.opo@boa.opo.gc.ca.



ANNEX A – STATEMENT OF WORK

1.0 TITLE

R745.1 - Reliability Assessment of Passive Safety Systems for Advanced Reactor Technologies

2.0 OBJECTIVE OF THE CONTRACT

The Canadian Nuclear Safety Commission (CNSC) is looking to establish a research project that would systematically evaluate available and widely used methodologies and strategies proposed to assess the reliability of passive safety systems, focusing on its applications for Advanced Light Water Reactors (ALWRs).

The work required for this research project is complex, and requires an adequate technical knowledge and experience in Probabilistic Safety Assessment (PSA), Deterministic Safety Analysis (DSA), reliability design, assessment and monitoring, and ALWR designs, etc.

The majority of work is expected to be through literature review and a case study.

The main tasks for this research project are to:

- 1) Conduct an evaluation of methodologies proposed to assess/model the reliability of passive safety systems
- 2) Provide summary, observations and recommendations to the CNSC on advantages and disadvantages of reliability assessment and modeling methodologies, important phenomena and parameters for ALWRs that could have impact on the reliability of the passive safety systems, and recommendations for future considerations for surveillance, aging management and maintenance strategies.

3.0 BACKGROUND

The passive safety systems and safety functions have been widely used and proposed for advanced nuclear reactor designs to improve safety and reduce costs.

One of the challenges posed by Advanced Reactor Technology designs, and the increasing trend towards using passive safety systems, is the demonstration of meeting reliability requirements in the design and throughout reactor operation. There are many factors that must be considered for passive safety systems operation, which may be different compared to active safety systems:

- 1) The use of Phenomena Identification and Ranking Table (PIRT) results vs Failure Modes and Effects Analysis (FMEA) results
- 2) Ageing mechanism and impact on the effectiveness and reliability of the system during the reactor operation
- 3) Coupling effects of thermal-hydraulic phenomena and active components degradation and failure in a passive safety system
- 4) Impact of environmental conditions (including both internal and external hazards) and plant operating states
- 5) Lesser driving force (therefore demonstration that an adequate safety margin will be achieved)
- 6) Dynamic behavior of passive safety system performance for different initiating events and during mission
- 7) Evaluation of adverse system interactions
- 8) Lack/insufficient operating experience and data

CNSC regulatory document REGDOC-2.5.2, Design of Nuclear Reactor Facilities: Nuclear Power Plants, sets out requirements for the reliability design of the safety systems. In addition, REGDOC 2.4.2, Probabilistic Safety Assessment for Nuclear Power Plants, requires that the PSA is developed by taking consideration of all failure probabilities of the system that may have impact on the reactor safety. Furthermore, REGDOC 2.6.1 Reliability



program for nuclear power plants requires that all licensees develop and implement a reliability program to identify system/components failure modes of systems important to safety and monitor the performance during the operation.

In general, the lack of mature and consensus reliability assessment/analysis methods, reliability data and operating experience are the common issues identified for the assessment of the reliability of passive safety systems. On the other hand, the main concern arises from the nature of the passive systems whose predominant operating principles are based on physical phenomena rather than on active components. The best estimate codes based phenomenological simulations of natural convection passive systems include significant uncertainties that have to be incorporated in appropriate manner in the performance and reliability analysis of such systems. These identified issues have to be addressed in a consistent way, in order to endorse the proposed approaches for the assessment of the reliability of the system and crediting the mitigation function of these passive systems in the PSA.

Recently, there has been an increasing international attention towards the reliability analysis of passive safety systems; however, there has yet to be a consensus on the best suited methodologies or approaches to conduct these reliability assessments.

4.0 SCOPE OF WORK

The scope of work will focus on the methodologies and strategies proposed to assess/model the reliability of passive safety systems, to monitor the performance of the passive systems during the operation, and compare against relevant CNSC regulatory requirements and international best practice. In addition, this project aims to evaluate approaches used to integrate passive safety systems into system fault trees and event trees for PSAs, with due consideration of (but not limited to):

- Component failures (mechanical and electrical components) and phenomena based failures (critical parameters)
- The impairment of the physical phenomenon upon which the system relies upon to perform their functions
- Identification of parameters and ranking importance of critical parameters that affect the effectiveness and reliability of the passive systems
- Uncertainty distributions of critical parameters
- Dependency and coupling effect of between parameters, and between parameters and the components in a passive system
- Potential aging mechanism of the passive functions
- Possible surveillance strategies to verify the availability and effectiveness of the passive safety functions
- Safety margin and uncertainties associated with methodologies
- The consideration and applicability of general reliability design requirements (such as single failure criterion, redundancy, independence, diversity, sharing between reactors) to passive systems
- Vulnerability of passive systems to environmental conditions, internal and external hazards and the possible analysis methods
- Current computer codes used in Thermal-hydraulics (T-H) simulation, uncertainty analysis and reliability assessment of passive safety systems

5.0 TASKS

Task 1 –Literature Review

Using publicly available information conduct a literature review on relevant topics, including (but not limited to):

- 1) Methodologies and approaches for reliability design and assessment, reliability and modeling for passive safety systems.
- 2) History and current status of passive safety systems/functions used in ALWRs designs focusing on BWRX-300 and ESBWR.
- 3) Computer codes used in the T-H analysis of passive systems, computer codes used in reliability analysis of passive safety systems (including uncertainty and sensitivity analysis), success criteria selected for the passive systems, important tests and experiments conducted for computer code validations for system



commissioning. In addition, information should include considerations of potential PSA modeling strategy for passive systems as mentioned in Section 4.0.

- 4) Journal papers and documents from academia, international organizations (e.g. IAEA, OECD/NEA), regulators (e.g. USNRC) and industry on the current practice and Research and Development (R&D) for the design and analysis/assessment of passive safety system reliability and PSA modeling strategy

Task 2 – Analysis

- 1) Conduct an analysis based on the literature review, including an evaluation of the advantages and disadvantages of identified methodologies and approaches for reliability design, reliability assessment and modeling of passive safety systems, and the strategy for PSA integration as identified in Section 4.0.
- 2) Case Study – using BWRX-300 or ESBWR (if limited BWRX-300 information), perform a case study for the following passive safety systems: 1) Isolation Condenser System and 2) Passive Containment Cooling System. (The purpose of this case study is to summarize and compare the actual reliability designs and reliability modeling strategies (including those strategies identified in Task 1), possible failure modes for each design, important phenomena parameters affecting the reliability of the passive systems in the form of a Phenomenon Identification Ranking Table (PIRT), modeling strategies for reliability analysis and for PSAs.
- 3) Evaluation relevant CNSC requirements and guidance and international best practices to make recommendations to CNSC on the important observations and challenges with reliability design, reliability assessment, reliability monitoring for passive safety systems.

Task 3 – Presentation on the Reliability Design and Assessment of Passive Safety Systems

Provide a presentation to CNSC staff based on observations from the literature review report and initial assessment report and seek feedback for potential improvements

Task 4 – Final Report

Based on feedback from the literature review, initial assessment report and presentation to CNSC staff, a final report will be generated.

6.0 DELIVERABLES and ASSOCIATED SCHEDULE

6.1 Start-up Meeting

Date: Within 14 days following award of the Contract

Location: Tele/Videoconference

Purpose: To discuss and clarify the proposed approach, work plan and schedule to ensure achievement of the Contract objectives. The Contractor shall make a presentation with the above purpose in mind.

6.2 Progress Meetings

Dates: Every 60 days for the duration of the Contract

Location: Via Tele/Videoconference

Purpose: To assess the degree to which the agreed project objectives are being achieved as planned and thus to facilitate timely adjustments (if necessary) to ensure the project success. Progress meetings should be followed by email correspondence summarizing the current status of the project activities and agreements made during the progress meetings.



6.3 Literature Review Report

Due Date: Within four months following the award of the Contract

Location: Via Tele/Video Conference

Copies: One electronic copy via email to the Project Authority and a presentation summarizing the literature review to the Project Team

6.4 Initial Assessment Report

The Initial Assessment Report shall address the work performed from the literature review and analysis, according to the project schedule as agreed upon at the project kick-off meeting. The report shall also include the following:

- Outputs from the literature review
- An executive summary that includes preliminary conclusions and recommendations
- A table of contents
- A brief summary of review findings up to that point

Due Date: 8 months following award of the Contract

Copies: One electronic copy via email to the Project Authority

6.5 Draft Final Report

Due Date: 10 months following award of the Contract

Copies: One electronic copy via email to the Project Authority

Format and style requirements: As specified in section 7.0.

6.6 Presentation

Due Date: 11 months following award of the Contract

Location: The CNSC Head Office, Ottawa (or virtual if the Pandemic travel restriction is still in effect)

Purpose: To present the project findings, conclusions and recommendations documented in the Draft Report to CNSC staff and interested industry stakeholders.

6.7 Final Report

The report shall include the following:

- An abstract
- An executive summary that includes preliminary conclusions and recommendations
- A table of contents
- Results and discussion
- Summary and recommendations
- Appendices

Due Date: 12 months following award of the Contract

Copies: One electronic copy via email to the Project Authority

Format and style requirements: As specified in section 7.0

7.0 FORMAT OF DELIVERABLES



The Contractor must provide the deliverables in the following formats:

- electronic;
- using font Times New Roman 12;
- MS Office 2010 or later (Word, Project, PowerPoint, Excel, Visio);

Any electronic files that cannot be read or require major formatting changes when opened are not acceptable and will be returned to the Contractor for correction at their expense.

The CNSC reserves the right to distribute the final report publicly at its discretion. CNSC publication number(s) will be provided by the CNSC.

8.0 GOVERNMENT FURNISHED EQUIPMENT/INFORMATION

None

9.0 CONSTRAINTS

No constraints since the Contractor will be using publicly available information.

10.0 LANGUAGE OF WORK

The work will be conducted in English. All deliverables will be submitted in English.

11.0 TRAVEL REQUIREMENTS

No travel

12.0 LOCATION OF WORK

The Contractor must complete all the work at the Contractor's location.



ANNEX B – BASIS OF PAYMENT

1.0 Schedule of Milestones

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

Milestone No.	Description or "Deliverable"	Due Date	Firm All-inclusive Amount
1	6.4 Initial Assessment Report	8 months after contract award	(40% of Total Firm Bid Price)
2	6.5 Draft Final Report & Presentation	Two months before contract end date or 10 months after contract award	(40% of Total Firm Bid Price)
3	6.7 Final Report	1 year after contract award	(20% of Total Firm Bid Price)
Total Firm Price:			\$ _____
(Canadian dollars, Applicable Taxes excluded, FOB destination, Canadian customs duties and excise taxes included)			
<i>Total Estimated Applicable Taxes:</i>			\$ _____