



REQUEST FOR PROPOSAL DEMANDE DE PROPOSITION

Proposal To: Transport Canada

We hereby offer to sell to Her Majesty the Queen in right of Canada, in accordance with the terms and conditions set out herein, referred to herein or attached hereto, the goods and services listed herein and on any attached sheets at the price(s) set out therefore.

Proposition à : Transports Canada

Nous offrons par la présente de vendre à Sa Majesté la Reine du chef du Canada, aux conditions énoncées ou incluses par référence dans la présente et aux annexes ci-jointes, les biens et services énumérés ici et sur toute feuille ci-annexée, au(x) prix indique(s).

Comments - Commentaires

RETURN BIDS TO: RETOURNER LES SOUMISSIONS À :

By e-mail to: - Par courriel au :
Jessica.hanschell@tc.gc.ca

Attention: - Attention :
Jessica Hanschell
Procurement Specialist
Transport Canada

Solicitation Closes - L'invitation prend fin

At - à :
2:00 PM - 14:00

On - le :
19 December - décembre 2023

Time Zone - Fuseau Horaire :
Eastern Standard Time - Heure Avancée de l'Est

Title - Sujet

Regulatory Gap Analysis and Environment Scan: Hydrogen and Battery Powered Locomotives - Analyse des lacunes réglementaires et analyse de l'environnement : locomotives à hydrogène et à batterie

Solicitation No. N° de l'invitation

T8080-230264

Date of Solicitation Date de l'invitation

17 November - novembre 2023

Address enquiries to: - Adresser toute demande de renseignements à :

Jessica Hanschell

E-Mail Address - Courriel

Jessica.hanschell@tc.gc.ca

Destination

See herein - Voir aux présentes

Instructions: Municipal taxes are not applicable. Unless otherwise specified herein all prices quoted must include all applicable Canadian customs duties, GST/HST, excise taxes and are to be delivered Delivery Duty Paid including all delivery charges to destination(s) as indicated. The amount of the Goods and Services Tax/Harmonized Sales Tax is to be shown as a separate item.

Instructions : Les taxes municipales ne s'appliquent pas. Sauf indication contraire, les prix indiqués doivent comprendre les droits de douane canadiens, la TPS/TVH et la taxe d'accise. Les biens doivent être livrés « rendu droits acquittés », tous frais de livraison compris, à la ou aux destinations indiquées. Le montant de la taxe sur les produits et services/taxe de vente harmonisée doit être indiqué séparément.

Delivery required Livraison exigée

See herein - Voir aux présentes

Delivery offered Livraison proposée

Not applicable - Sans objet

Vendor/Firm Name and Address

Raison sociale et adresse du fournisseur/de l'entrepreneur

Person authorized to sign on behalf of Vendor/Firm (type or print):

La personne autorisée à signer au nom du fournisseur/de l'entrepreneur (taper ou écrire en caractères d'imprimerie) :

Name - Nom

Title - Titre

Signature

Date

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PART 1 - GENERAL INFORMATION

1.1 Introduction

- A. The bid solicitation is divided into seven 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, 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.
- B. The Annexes include the Statement of Work and the Basis of Payment.

1.2 Summary

1.2.1 Description

- A. The use of hydrogen and batteries in Canadian rail operations is expected to continue to expand rapidly in the coming years, and TC Rail Safety (RS) is working to ensure that these new technologies are implemented safely.
- B. To accomplish these objectives the contractor will undertake a risk identification exercise, a regulatory gap analysis, and a survey of oversight practices for hydrogen operations in other jurisdictions. Recommendations are required as to: safety practices that exist to mitigate known hydrogen fuel cell and battery propulsion rail risks; and existing codes, standards and/or regulatory measures that are capable of filling the regulatory gaps identified.

1.3 Debriefings

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

PART 2 - BIDDER INSTRUCTIONS

2.1 Standard Instructions, Clauses, and Conditions

- A. All instructions, clauses and conditions identified in the bid solicitation by number, date and title are set out in the Standard Acquisition Clauses and Conditions Manual (<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual>) issued by Public Works and Government Services Canada.
- B. 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.
- C. 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 modification(s):
- (i) Section 05, Submission of bids, subsection 2, paragraph d., is deleted in its entirety and replaced with the following:
 - d. send its bid only to the Transport Canada location specified on page 1 of the bid solicitation;
 - (ii) Section 05, Submission of bids, subsection 4, is amended as follows:
 - Delete: 60 days
 - Insert: 120 days
 - (iii) Section 06, Late bids, is deleted in its entirety and replaced with the following:
 - Bids must be submitted electronically by email. Any late bids will be deleted.

2.2 Submission of Bids

- A. Bids must be submitted only Transport Canada by the date, time, and place indicated on page 1 of the bid solicitation.

2.2.1 Transmission by E-mail

- A. Individual e-mails that may include certain scripts, formats, embedded macros, and/or links, or those that exceed 10 megabytes may be rejected by Canada's e-mail system and/or firewall(s) without notice to the Bidder or Contracting Authority. Larger bids may be submitted through more than one e-mail. Canada will confirm receipt of documents. It is the Bidder's responsibility to ensure that their entire submission has been received. Bidders should not assume that all documents have been received unless Canada confirms receipt of each document. In order to minimize the potential for technical issues, bidders are requested to allow sufficient time before the closing date and time to confirm receipt. Bid documents submitted after the closing time and date will not be accepted.

2.2.2 Transmission by Connect

- A. Due to the nature of the bid solicitation, bids submitted through Canada Post Corporation's (CPC) Connect service will not be accepted.

2.2.3 Transmission by Facsimile

- A. Due to the nature of the bid solicitation, bids transmitted by facsimile will not be accepted.

2.3 Former Public Servant

- A. 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 information required below 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.

2.3.1 Definitions

- A. For the purposes of this clause:

- (i) "Former public servant" is any former member of a department as defined in the *Financial Administration Act* (<http://laws-lois.justice.gc.ca/eng/acts/f-11/>), 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;
- (ii) "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; and
- (iii) "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 Services Pension Continuation Act*, 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 of Parliament Retiring Allowances Act*, R.S. 1985, c. M-5, and that portion of pension payable to the *Canada Pension Plan Act*, R.S., 1985, c. C-8.

2.3.2 Former Public Servant in Receipt of a Pension

- A. As per the above definitions, is the Bidder a FPS in receipt of a pension?

() Yes

() No

- B. If so, the Bidder must provide the following information, for all FPSs in receipt of a pension, as applicable:

- (i) Name of former public servant; and
- (ii) Date of termination of employment or retirement from the Public Service.

- C. 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: 2019-01](https://www.canada.ca/en/treasury-board-secretariat/services/policy-notice/changes-contracting-limits-approval-new-requirements.html) (<https://www.canada.ca/en/treasury-board-secretariat/services/policy-notice/changes-contracting-limits-approval-new-requirements.html>) and the [Guidelines on the Proactive Disclosure of Contracts](http://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=14676§ion=text) (<http://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=14676§ion=text>).

2.3.3 Work Force Adjustment Directive

- A. Is the Bidder a FPS who received a lump sum payment pursuant to the terms of the Work Force Adjustment Directive?
- () Yes () No
- B. If so, the Bidder must provide the following information:
- (i) Name of former public servant;
 - (ii) Conditions of the lump sum payment incentive;
 - (iii) Date of termination of employment;
 - (iv) Amount of lump sum payment;
 - (v) Rate of pay on which lump sum payment is based;
 - (vi) Period of lump sum payment including start date, end date and number of weeks; and
 - (vii) Number and amount (professional fees) of other contracts subject to the restrictions of a work force adjustment program.

2.4 Enquiries - Bid Solicitation

- A. All enquiries must be submitted in writing to the Contracting Authority no later than seven (7) calendar days before the bid closing date. Enquiries received after that time may not be answered.
- B. Bidders should reference as accurately as possible the numbered item of the bid solicitation to which the enquiry relates. Care should be taken by Bidders to explain each question in sufficient detail in order to enable Canada to provide an accurate answer. Technical enquiries that are of a proprietary nature must be clearly marked "proprietary" at each relevant item. Items identified as "proprietary" will be treated as such except where Canada determines that the enquiry is not of a proprietary nature. Canada may edit the question(s) or may request that the Bidder do so, so that the proprietary nature of the question(s) is eliminated, and the enquiry can be answered to all Bidders. Enquiries not submitted in a form that can be distributed to all Bidders may not be answered by Canada.

2.5 Applicable Laws

- A. Any resulting contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in Ontario.
- B. 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 Improvement of Requirement During Solicitation Period

- A. Should bidders consider that the specifications or Statement of Work contained in the bid solicitation could be improved technically or technologically, bidders are invited to make suggestions, in writing, to the Contracting Authority named in the bid solicitation. Bidders must clearly outline the suggested improvement as well as the reason for the suggestion. Suggestions that do not restrict the level of competition nor favour a particular bidder will be given consideration provided they are submitted to the Contracting Authority at least ten (10) days before the bid closing date. Canada will have the right to accept or reject any or all suggestions.

2.7 Bid Challenge and Recourse Mechanisms

- A. Several mechanisms are available to potential suppliers to challenge aspects of the procurement process up to and including contract award.
- B. Canada encourages suppliers to first bring their concerns to the attention of the Contracting Authority. Canada's [Buy and Sell](https://buyandsell.gc.ca/) (<https://buyandsell.gc.ca/>) website, under the heading "[Bid Challenge and Recourse Mechanisms](https://buyandsell.gc.ca/for-businesses/selling-to-the-government-of-canada/bid-follow-up/bid-challenge-and-recourse-mechanisms)" (<https://buyandsell.gc.ca/for-businesses/selling-to-the-government-of-canada/bid-follow-up/bid-challenge-and-recourse-mechanisms>) contains information on potential complaint bodies such as:
- (i) The Office of the Procurement Ombudsman (OPO) was established by the Government of Canada to provide an impartial, independent venue for Canadian bidders to raise complaints regarding the award of certain federal contracts under \$26,400 for goods and \$105,700 for services. If you have concerns regarding the award of a federal contract below these dollar amounts, you may contact OPO by e-mail at boa.opo@boa-opo.gc.ca, by telephone at 1-866-734-5169, or by web at www.opo-boa.gc.ca. For more information on OPO's services or to determine if your concerns are within the Ombudsman's mandate, please see the [Procurement Ombudsman Regulations](https://laws-lois.justice.gc.ca/eng/regulations/SOR-2008-143/page-1.html) (<https://laws-lois.justice.gc.ca/eng/regulations/SOR-2008-143/page-1.html>) or visit the [OPO website](#); and
 - (ii) Canadian International Trade Tribunal (CITT).
- C. Suppliers should note that there are strict deadlines for filing complaints, and the time periods vary depending on the complaint body in question. Suppliers should therefore act quickly when they want to challenge any aspect of the procurement process.

PART 3 - BID PREPARATION INSTRUCTIONS

3.1 Bid Preparation Instructions

- A. The bid must be gathered per section and separated as follows:
- Section I: Technical Bid;
- Section II: Financial Bid;
- Section III: Certifications; and
- Section IV: Additional Information
- B. Prices must appear in the financial bid only. No prices must be indicated in any other section of the bid.
- C. It is recommended that all electronic documents be submitted using PDF file format.
- D. Canada requests that bidders follow the format instructions described below in the preparation of their bid:
- (i) use 8.5 x 11-inch (216 mm x 279 mm) page size; and
 - (ii) use a numbering system that corresponds to the bid solicitation.
- E. In accordance with the Treasury Board *Contracting Policy* and the *Accessible Canada Act*, federal departments and agencies must consider accessibility criteria and features when procuring goods or services. Therefore, bidders are encouraged to highlight all the accessibility features and components of their proposal for this Statement of Work (SOW) and must, if applicable:
- (i) Demonstrate how the bidder's proposed goods and/or services meet the accessibility requirement at delivery; or
 - (ii) Describe how the bidder would deliver its goods and/or services under any resulting contract in a way that satisfies the mandatory requirement.

3.2 Submission of Only One Bid

- A. A Bidder, including related entities, will be permitted to submit only one bid in response to this bid solicitation. If a Bidder or any related entities participate in more than one bid (participating means being part of the Bidder, not being a subcontractor), Canada will provide those Bidders with 2 working days to identify the single bid to be considered by Canada. Failure to meet this deadline will result in all the affected bids being disqualified.
- B. For the purposes of this Article, regardless of the jurisdiction where any of the entities concerned is incorporated or otherwise formed as a matter of law (whether that entity is a natural person, corporation, partnership, etc.), an entity will be considered to be "related" to a Bidder if:
- (i) They are the same legal entity (i.e., the same natural person, corporation, partnership, limited liability partnership, etc.);
 - (ii) They are "related persons" or "affiliated persons" according to the Canada Income Tax Act;
 - (iii) The entities have now or in the two years before bid closing had a fiduciary relationship with one another (either as a result of an agency arrangement or any other form of fiduciary relationship); or
 - (iv) The entities otherwise do not deal with one another at arm's length, or each of them does not deal at arm's length with the same third party.

- C. Individual members of a joint venture cannot participate in another bid, either by submitting a bid alone or by participating in another joint venture.

3.3 Substantial Information

- A. Bidders must demonstrate their compliance with the following sections of the bid solicitation by providing substantial information describing completely and in detail how the requirement is met or addressed. Bidders must provide with their technical bid, a document indicating clearly where the substantial information for each of the sections identified below can be found:

- (i) Attachment to Part 4 titled "Evaluation Criteria"

3.4 Section I: Technical Bid

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

3.5 Section II: Financial Bid

- A. Bidders must submit their financial bid in accordance with Attachment 1 to Part 3 titled "Pricing Schedule".

3.5.1 Electronic Payment of Invoices - Bid

- A. If you are willing to accept payment of invoices by Electronic Payment Instruments, complete the attachment titled "Electronic Payment Instruments", to identify which ones are accepted.
- B. If the attachment titled "Electronic Payment Instruments" is not completed, it will be considered as if Electronic Payment Instruments are not being accepted for payment of invoices.
- C. Acceptance of Electronic Payment Instruments will not be considered as an evaluation criterion.

3.5.2 Exchange Rate Fluctuation

- A. The requirement does not offer exchange rate fluctuation risk mitigation. Requests for exchange rate fluctuation risk mitigation will not be considered. All bids including such provision will render the bid non-responsive.

3.6 Section III: Certifications

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

3.7 Section IV: Additional Information

- A. In Section IV of their bid, bidders should provide:
 - (i) A completed, signed, and dated Page 1 of this solicitation or final solicitation amendment;
 - (ii) The name of the contact person (provide also this person's title, mailing address, phone number, and e-mail 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;

- (iii) For the article in Part 2 titled "Applicable Laws" of the bid solicitation: the province or territory if different than specified;
 - (iv) Former Public Servant (FPS) in Receipt of a Pension
 - A. Is the Bidder a FPS in receipt of a pension?
 - () Yes
 - () No
 - B. If so, the Bidder must provide the following information, for all FPSs in receipt of a pension, as applicable:
 - (i) Name of former public servant; and
 - (ii) Date of termination of employment or retirement from the Public Service.
- and
- (iv) Any other information submitted in the bid not already detailed.

ATTACHMENT 1 TO PART 3 - PRICING SCHEDULE

1. General

- A. Bidders are requested to complete the following Pricing Schedule and include it in the bid. At a minimum, the Firm Price for each Item must be submitted.
- B. All prices and costs must be submitted in Canadian Dollars, Canadian customs duties and excise taxes included, Applicable Taxes excluded.
- C. Travel and living expenses will not be reimbursed and must be included in the costs below.
- D. Refer to Annex A Statement of Work for a detailed description of the deliverables listed below.

2.1 Firm Prices for the List of Milestone Deliverables

Milestone No.	Deliverable No.	Description or "Deliverable"	Firm Amount
1	6	Project Management & 12 Update Meetings	
2	1	Report Section #1: List of Risks for Hydrogen and Battery Powered Locomotives	
3	2	Report Section #2: Regulatory Gap Analysis	
4	3	Report Section #3: Proprietary and Patented Technology Review	
5	4	Report Section #4: Analysis of Processes and Tools Implemented by Other Jurisdictions	
6	5	Report Section #5: Recommendations	
7	7	Option: Payment per page for additional materials (for the purpose of evaluation, an addition of 200 pages will be assumed. Please provide the price per page and multiply it by 200)	_____ x 200 = _____
		Total Cost (Sum of Milestones 1-7 (excluding taxes))	\$ _____
		Applicable Taxes (insert the amount, as applicable)	\$ _____
		Total Cost (taxes included)	\$ _____

ATTACHMENT 2 TO PART 3 - ELECTRONIC PAYMENT INSTRUMENTS

A. The Bidder accepts to be paid by any of the following Electronic Payment Instrument(s):

- VISA Acquisition Card;
- MasterCard Acquisition Card;
- Direct Deposit (Domestic and International);
- Electronic Data Interchange (EDI);
- Wire Transfer (International Only); and
- Large Value Transfer System (LVTS) (Over \$25M).

PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION

4.1 Evaluation Procedures

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

4.1.1 Technical Evaluation

- A. Mandatory and point rated technical evaluation criteria are included in the Attachment to Part 4 titled "Evaluation Criteria".

4.1.2 Financial Evaluation

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

4.2 Basis of Selection - Highest Combined Rating of Technical Merit and Price

- A. To be declared responsive, a bid must:
 - (i) Comply with all the requirements of the bid solicitation; and
 - (ii) Meet all mandatory criteria
- B. Bids not meeting (i) or (ii) will be declared non-responsive.
- C. The selection will be based on the highest responsive combined rating of technical merit and price. The ratio will be 70% for the technical merit and 30% for the price.
- D. To establish the technical merit score, the overall technical score for each responsive bid will be determined as follows: total number of points obtained / maximum number of points available multiplied by the ratio of 70%.
- E. To establish the pricing score, each responsive bid will be prorated against the lowest evaluated price and the ratio of 30%.
- F. For each responsive bid, the technical merit score and the pricing score will be added to determine its combined rating.
- G. Neither the responsive bid obtaining the highest technical score nor the one with the lowest evaluated price will necessarily be accepted. The responsive bid with the highest combined rating of technical merit and price will be recommended for award of a contract.
- H. The table below illustrates an example where all 3 bids are responsive and the selection of the contractor is determined by a 60/40 ratio of technical merit and price, respectively. The total available points equals 135 and the lowest evaluated price is \$45,000 (45).

Basis of Selection - Highest Combined Rating Technical Merit (60%) and Price (40%).

		Bidder 1	Bidder 2	Bidder 3
Overall Technical Score		115/135	89/135	92/135
Bid Evaluated Price		\$55,000.00	\$50,000.00	\$45,000.00
Calculations	Technical Merit Score	115/135 x 60 = 51.11	89/135 x 60 = 39.56	92/135 x 60 = 40.89
	Pricing Score	45/55 x 40 = 32.73	45/50 x 40 = 36.00	45/45 x 40 = 40.00
Combined Rating		83.84	78.56	80.89
Overall Rating		1st	3rd	2nd

- I. Should two or more responsive bids achieve an identical highest combined rating of technical merit and price, the bid with the highest number of points will be recommended for award of a contract.

ATTACHMENT 1 TO PART 4 - EVALUATION CRITERIA

Technical Evaluation Criteria

Proposal compliance will be evaluated on the following mandatory and rated requirements. Bidders must provide necessary documentation to support compliance.

Bidders are advised that the month(s) of experience listed for a project or experience whose timeframe overlaps that of another referenced project or experience for the same resource will only be counted once. For example: Project 1 timeframe is July 2019 to December 2019; Project 2 timeframe is October 2019 to January 2020; the total months of experience for these two project references is seven (7) months.

Table A: Required Format for Demonstrating Experience

When requested in a technical evaluation criterion to demonstrate either Work experience or Project experience, the Bidder must provide (at a minimum) the following information below in order to demonstrate compliance (in addition to any other required information identified in the criterion):
<ul style="list-style-type: none"> a. The name of the client organization; b. Title of the proposed resource c. A description of the project, including the scope and elements of the framework, and the results/outcomes of the work undertaken by the proposed resource; d. The dates/-duration of the work/project indicating the years and months of engagement by the proposed resource e. Title, name and email address of an individual at the organization which may be contacted to validate the information provided

Part 1: Mandatory Technical Criteria

Criteria	Mandatory Criteria (M)	Provide a cross reference to the proposal/CV where substantiating information can be found.	Met / Not Met
M1	<p>BIDDER TEAM</p> <p>The Bidder must have a resource with a minimum of 6 years of experience in conducting literature reviews specific to hydrogen and battery powered rail operations or related fields (i.e. transportation).</p> <p>To demonstrate compliance, the bidder must provide a description of the proposed resource(s) work experience in accordance with the format outlined in Table A.</p>		
M2	<p>The Bidder must propose at least one (1) resource with a minimum of 5 years of experience in hydrogen fuel cell and/or battery-powered transportation operations.</p> <p>To demonstrate compliance, the bidder must provide a description of the proposed resource(s) work experience in accordance with the format outlined in Table A.</p>		

Criteria	Mandatory Criteria (M)	Provide a cross reference to the proposal/CV where substantiating information can be found.	Met / Not Met
M3	<p>The Bidder must have at least one (1) resource with a minimum of 2 years of experience evaluating rail or transport regulations, with a focus on new and emerging technologies.</p> <p>To demonstrate compliance, the bidder must provide a description of the proposed resource(s) work experience in accordance with the format outlined in Table A.</p>		

Part 2: Point-Rated Technical Criteria

Only bids that meet the mandatory criteria will be subject to point rating. The criteria listed below will be used to evaluate each bid that meets the mandatory requirements. Contractors are advised to address these requirements in order and in sufficient depth in their bid to enable a full assessment. The evaluation will be based exclusively on the information contained in the bid. Any points obtained in the point rated criteria will determine the technical score.

PR 1: QUALITY AND RESPONSIVENESS OF PROPOSAL				
Maximum Points Available: 60; Minimum Points Required: 40				
<p>PR1.1 Demonstrated project and task planning. (10 points)</p> <p>The Bidder should submit a proposal demonstrating its project and task planning for safety regulations research.</p> <p>The planning should address the following elements:</p> <ul style="list-style-type: none"> (i) Work breakdown structure for the proposed work plan. (ii) Personnel allocation (including subcontractor management, if applicable). (iii) Risk and mitigation strategies specific to the proposed work plan. (iv) Identification of key regulatory bodies and project stakeholders. (v) Project management plan. (vi) Documentation procedures. 	<p>Max. points:</p> <p>10</p>	<p>Score:</p>	<p>0 Points - The proposal does not address at least 5 of the listed project and task planning elements.</p> <p>5 Points - The proposal addresses 5 of the project and task planning elements listed.</p> <p>10 Points - The proposal addresses all 6 of the listed project and task planning elements.</p>	<p>Referenced Section/Page in Bidder's proposal and/or CV</p>

<p>PR1.2 Elements of the proposed work plan, including task methodologies</p> <p>The bidder should submit a proposed work plan for the project including a complete outline of the methodology to address each of the following elements of the Statement of Work:</p> <ul style="list-style-type: none"> (i) Task 1.1: Literature Review in Support of the List of Hydrogen Fuel Cell and Battery Powered Rail Risks (ii) Task 1.2: Developing a List of Hydrogen Fuel Cell and Battery Powered Rail Risks (iii) Task 2.1: Gap Analysis (iv) Task 3.1: Identification of Proprietary or Patented Technologies Related to Hydrogen Fuel Cell and Battery Powered Rail Operations (v) Task 3.2: Assessment of Intellectual Property Implications Associated with Hydrogen Fuel Cell and Battery Powered Rail Technologies and Rail Interoperability. (vi) Task 4.1: Literature Review in Support of an Analysis of Hydrogen and Battery Powered Rail Regulatory Practices in Other Jurisdictions (vii) Task 4.2: Survey of Stakeholders for Hydrogen Fuel Cell and Battery Powered Rail Operations (viii) Task 5: Recommendations Pertaining to Hydrogen Fuel Cell and Battery Powered Rail Operations 	<p>20</p>		<p>0 Points – 5 or fewer of the listed elements are present in the proposed work plan. The Evaluation Committee is unable to locate and understand 3 or more of the elements being evaluated.</p> <p>10 Points - 6 of the listed elements are present in the proposed work plan. The Evaluation Committee is unable to locate and understand 2 of the elements being evaluated.</p> <p>15 Points - 7 of the listed elements are present in the proposed work plan. The Evaluation Committee is unable to locate and understand 1 of the elements being evaluated</p> <p>20 Points - All 8 of the listed elements are present in the proposed work plan. The Evaluation Committee can easily locate and understand all of the elements being evaluated.</p>	
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<p>PR1.3 Quality of the proposed work plan</p> <p>The bidder's proposed work plan should articulate an appropriate methodology that the Bidder proposes to use to perform the work described in the Statement of Work.</p> <p>Appropriate Methodologies should meet the following criteria:</p> <p>a) The methodology is described clearly and completely for each of the included elements listed in PR1.2.</p> <p>b) The proposed work plan is reasonable within the scope of the project (reasonable is defined as likely to be completed within the given timeframe and budget).</p> <p>c) The proposed work plan is likely to accomplish the objectives described in the statement of work.</p>	<p>20</p>		<p>0 Points –The bidder has not included a proposed work plan, or the quality of the proposed work plan is very poor</p> <p>(<i>very poor</i> is defined as: does not address any of the 3 criteria described in Rated Criterion PR1.3).</p> <p>10 Points –The quality of the bidder's proposed work plan is poor</p> <p>(<i>poor</i> quality is defined as: only addresses 1 of the 3 criteria described in Rated Criterion PR1.3)</p> <p>15 Points - The quality of the bidder's proposed work plan is good</p> <p>(<i>good</i> is defined as: addresses 2 of the 3 criteria described in Rated Criterion PR1.3)</p> <p>20 Points - The quality of the bidder's proposed work plan is great</p> <p>(<i>great</i> is defined as: addresses 3 of the 3 criteria described in Rated Criterion PR1.3)</p>	
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<p>PR1.4 Additional Experience</p> <p>The Bidder should include one or a combination of several proposed resources that have at least five (5) years of experience in the last ten (10) years that is relevant to this project. Relevant experience is defined as:</p> <ul style="list-style-type: none"> (i) experience in hydrogen fuel cell and/or battery-powered transportation operations; or (ii) experience evaluating rail or transport regulations with a focus on new and emerging technologies. <p>To demonstrate compliance, the bidder must provide a description of the proposed resource(s) work experience in accordance with the format outlined in Table A.</p> <p>Please note that multiple resources may be combined to meet this rated criteria. However, each resource used to meet this criteria must have a minimum of 5 years of relevant experience as an individual.</p> <p>Please also note that experience used to meet mandatory criteria M1, M2, and/or M3 may not be used to meet rated criteria P1.4.</p>	10		<p>Points awarded based on years of experience.</p> <p>Rating:</p> <p>0 points - <5 years</p> <p>5 points - ≥5 yrs. and <10</p> <p>10 points - ≥10 years</p>	
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PART 5 - CERTIFICATIONS AND ADDITIONAL INFORMATION

5.1 General

- A. Bidders must provide the required certifications and additional information to be awarded a contract.
- B. The certifications provided by Bidders to Canada are subject to verification by Canada at all times. Unless specified otherwise, 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.
- C. 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.

5.2 Certifications Required with the Bid

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

5.2.1 Integrity Provisions - Declaration of Convicted Offences

- A. 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](http://www.tpsgc-pwgsc.gc.ca/ci-if/declaration-eng.html) website (<http://www.tpsgc-pwgsc.gc.ca/ci-if/declaration-eng.html>), to be given further consideration in the procurement process.

5.3 Certifications Precedent to Contract Award and Additional Information

- A. 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.

5.3.1 Integrity Provisions - Required Documentation

- A. In accordance with the section titled "Information" to be provided when bidding, contracting or entering into a real property 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.

5.3.2 Federal Contractors Program for Employment Equity - Bid Certification

- A. 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" list available at the bottom of the page of the [Employment and Social Development Canada \(ESDC\) - Labour's](https://www.canada.ca/en/employment-social-development/corporate/portfolio/labour/programs/employment-equity/federal-contractors/compliance-assessment.html) website (<https://www.canada.ca/en/employment-social-development/corporate/portfolio/labour/programs/employment-equity/federal-contractors/compliance-assessment.html>).
- B. 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 list at the time of contract award.
- C. Canada will also have the right to terminate the Contract for default if a Contractor, or any member of the Contractor if the Contractor is a Joint Venture, appears on the "[FCP Limited Eligibility to Bid](https://www.canada.ca/en/employment-social-development/corporate/portfolio/labour/programs/employment-equity/federal-contractors/compliance-assessment.html)" (<https://www.canada.ca/en/employment-social-development/corporate/portfolio/labour/programs/employment-equity/federal-contractors/compliance-assessment.html>) list during the period of the Contract.

5.3.3 Status and Availability of Resources

- A. 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.

- B. 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.

5.3.4 Education and Experience

- A. 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.

PART 6 - RESULTING CONTRACT CLAUSES

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

ARTICLES OF AGREEMENT

6.1 Statement of Work

- A. The Contractor must perform the Work in accordance with the annex titled "Statement of Work".

6.2 Standard Clauses and Conditions

- A. All clauses and conditions identified in the Contract by number, date and title are set out in the [Standard Acquisition Clauses and Conditions Manual \(https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual\)](https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual) issued by Public Works and Government Services Canada.

6.2.1 General Conditions

- A. [2035](#) (2022-12-01), General Conditions - Higher Complexity - Services, apply to and form part of the Contract.

6.3 Security Requirements

- A. There is no security requirement applicable to the Contract.

6.4 Term of Contract

6.4.1 Period of the Contract

- A. The period of the Contract is from date of Contract to March 31, 2026, inclusive.

6.5 Authorities

6.5.1 Contracting Authority

- A. The Contracting Authority for the Contract is:

Name: Jessica Hanschell
Title: Procurement Specialist
Transport Canada
E-mail address: jessica.hanschell@tc.gc.ca

- B. 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

- A. The Project Authority for the Contract is:

[Contact information to be detailed in the resulting contract]

- B. 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 Contractor's Representative

[Contact information to be detailed in the resulting contract]

6.6 Proactive Disclosure of Contracts with Former Public Servants

- A. By providing information on its status, with respect to being a former public servant in receipt of a [Public Service Superannuation Act](http://laws-lois.justice.gc.ca/eng/acts/P-36/FullText.html) (<http://laws-lois.justice.gc.ca/eng/acts/P-36/FullText.html>) (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: 2019-01](https://www.canada.ca/en/treasury-board-secretariat/services/policy-notice/changes-contracting-limits-approval-new-requirements.html) (<https://www.canada.ca/en/treasury-board-secretariat/services/policy-notice/changes-contracting-limits-approval-new-requirements.html>) of the Treasury Board Secretariat of Canada.

6.7 Payment

6.7.1 Basis of Payment

6.7.1.1 Firm Price

- A. In consideration of the Contractor satisfactorily completing all of its obligations under the Contract, the Contractor will be paid a firm price, as specified in the Annex titled "Basis of Payment". Customs duties are included and Applicable Taxes are extra.

6.7.2 Method of Payment

6.7.2.1 Milestone Payments

- A. Canada will make milestone payments in accordance with the List of Deliverables detailed in the Contract 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; and
 - (iii) all work associated with the milestone and as applicable any deliverable required has been completed and accepted by Canada.
- B. For the Work described in the Statement of Work in Annex A, Canada will make milestone payments in accordance with the List of Deliverables detailed in the Contract and Annex B Basis of Payment.

6.7.3 Electronic Payment of Invoices - Contract

- A. The Contractor accepts to be paid using any of the following Electronic Payment Instrument(s):

[List to be updated in the resulting contract]

- (i) Visa Acquisition Card;
- (ii) MasterCard Acquisition Card;
- (iii) Direct Deposit (Domestic and International);
- (iv) Electronic Data Interchange (EDI);
- (v) Wire Transfer (International Only); and
- (vi) Large Value Transfer System (LVTS) (Over \$25M).

6.8 Invoicing Instructions

- A. The Contractor must submit invoices in accordance with the section titled "Invoice Submission" of the general conditions. Invoices cannot be submitted until all work identified in the invoice is completed.
- B. Each invoice must be supported by:
- (i) A description of the Work delivered including any deliverables; and
 - (ii) A breakdown of the cost elements.
- C. Invoices must be distributed as follows:
- (i) The invoice must be forwarded to the address shown below for certification and payment; **(to be included upon contract award)**.
 - (ii) By submitting a .pdf copy, the Contractor certifies that the .pdf copy of each invoice will be considered as the original invoice. In addition, the Contractor must indicate the contract number and name of the Project Authority in its covering e-mail.

6.9 Certifications and Additional Information

6.9.1 Compliance

- A. Unless specified otherwise, the continuous compliance with the certifications provided by the Contractor in its bid or precedent to contract award, and the ongoing cooperation in providing additional information are conditions of the Contract and failure to comply will constitute the Contractor in default. Certifications are subject to verification by Canada during the entire period of the Contract.

6.10 Applicable Laws

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

6.11 Priority of Documents

- A. If there is a discrepancy between the wordings of any of the documents that appear on the list, the wording of the document that first appears on the list has priority over the wording of any document that subsequently appears on the list.
- (i) The Articles of Agreement;
 - (ii) The General Conditions 2035 (2022-05-12), General Conditions - Higher Complexity - Services;
 - (iii) Annex A, Statement of Work;
 - (iv) Annex B, Basis of Payment; and
 - (v) the Contractor's bid **(date to be included upon contract award)**

6.12 Insurance - No Specific Requirement

- A. The Contractor is responsible for deciding if insurance coverage is necessary to fulfill its obligation under the Contract and to ensure compliance with any applicable law. Any insurance acquired or maintained by the Contractor is at its own expense and for its own benefit and protection. It does not release the Contractor from or reduce its liability under the Contract.

6.13 Inspection and Acceptance

- A. The Project 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.

6.14 Post-Contract Award Meeting

- A. Within 10 days of the date of Contract, the Contractor must contact the Contracting Authority to determine if a post-contract award meeting is required. A meeting will be convened at the discretion of the Contracting Authority to review technical and contractual requirements. The Contractor must prepare and distribute the minutes of the meeting within 5 calendar days after the completion of the meeting. The meeting will be held at the Contractor's facility or via teleconference at Canada's discretion at no additional cost to Canada, with representatives of the Contractor and Transport Canada.

6.15 Handling of Personal Information

- A. The Contractor acknowledges that Canada is bound by the *Privacy Act*, R.S., 1985, c. P-21 (<http://laws-lois.justice.gc.ca/eng/acts/P-21/index.html>), with respect to the protection of personal information as defined in the Act. The Contractor must keep private and confidential any such personal information collected, created, or handled by the Contractor under the Contract, and must not use, copy, disclose, dispose of, or destroy such personal information except in accordance with this clause and the delivery provisions of the Contract.
- B. All such personal information is the property of Canada, and the Contractor has no right in or to that information. The Contractor must deliver to Canada all such personal information in whatever form, including all working papers, notes, memoranda, reports, data in machine-readable format or otherwise, and documentation which have been made or obtained in relation to the Contract, upon the completion or termination of the Contract, or at such earlier time as Canada may request. Upon delivery of the personal information to Canada, the Contractor will have no right to retain that information in any form and must ensure that no record of the personal information remains in the Contractor's possession.

6.16 Dispute Resolution

- A. The Parties agree to maintain open and honest communication about the Work throughout and after the performance of the contract.
- B. The Parties agree to consult and co-operate with each other in the furtherance of the contract and promptly notify the other Party or Parties and attempt to resolve problems or differences that may arise.
- C. If the Parties cannot resolve a dispute through consultation and cooperation, the Parties agree to consult a neutral third party offering alternative dispute resolution services to attempt to address the dispute.
- D. Options of alternative dispute resolution services can be found on Canada's Buy and Sell website under the heading "Dispute Resolution" (<https://buyandsell.gc.ca/for-businesses/selling-to-the-government-of-canada/contract-management/dispute-resolution>).

6.16.1 Dispute Resolution - Office of the Procurement Ombudsman

- A. The Parties agree to make every reasonable effort, in good faith, to settle amicably all disputes or claims relating to the Contract, through negotiations between the Parties' representatives authorized to settle. If the Parties do not reach a settlement within 25 working days after the dispute was initially raised to the other Party in writing, either Party may contact the Office of the Procurement Ombudsman (OPO) to request dispute resolution/mediation services. OPO may be contacted by e-mail at boa.opo@boa-opo.gc.ca, by telephone at 1-866-734-5169, or by web at www.opo-boa.gc.ca.

- B. For more information on OPO's services, please see the [Procurement Ombudsman Regulations](https://laws-lois.justice.gc.ca/eng/regulations/SOR-2008-143/page-1.html) (<https://laws-lois.justice.gc.ca/eng/regulations/SOR-2008-143/page-1.html>) or visit the [OPO website](#).

ANNEX A - STATEMENT OF WORK

Statement of Work – Regulatory Gap Analysis and Environment Scan: Hydrogen and Battery Powered Locomotives

Introduction:

Background

Under the Paris Agreement Canada has committed to reducing GHG emissions 40-45% by 2030 and to achieve net-zero emissions by 2050. These targets were enshrined in the Canadian Net-Zero Emissions Accountability Act. In March 2022, the Government of Canada (GoC) announced its 2030 Emissions Reduction Plan (ERP), with a sector-by-sector approach for Canada to reach its 2030 climate target and remain on track towards net-zero emissions by 2050. Although rail is generally more sustainable than alternative forms of transportation, the sector is still responsible for 5% of total transport emissions in Canada (around 7.5 Mt CO₂ eq in 2021).

The development of hydrogen and battery locomotive technologies has been underway for over 20 years and represents significant potential for emissions reductions in the sector. Many hydrogen locomotives use hydrogen fuel-cells and lithium-ion batteries to power electric traction motors; as such these locomotives produce zero emissions and lower noise.

While several commercial service demonstrations of hydrogen locomotives have been performed over the last 5 years for passenger applications, until recently hydrogen locomotives for freight applications have not been tested in revenue service. In September 2022, CPKC notified Transport Canada (TC) in writing of their intention to test the performance of their hydrogen locomotive – the first line-haul locomotive project in North America - at speeds greater than 15mph on their mainlines. German manufacturer Alstom is currently carrying passengers in a revenue service demonstration of their hydrogen locomotive on Quebec's Réseau Charlevoix network.

The use of hydrogen and batteries in Canadian rail operations is expected to continue to expand rapidly in the coming years, and TC Rail Safety (RS) is working to ensure that these new technologies are implemented safely.

The existing Rail Safety regulatory regime was designed primarily to address diesel operations. Additional considerations that are unique to hydrogen operations may not be covered under the current regime. For this reason, it is necessary to thoroughly examine the current regime, through the lens of hydrogen and battery technology experts, so that any gaps can be identified and subsequently addressed.

Objective

1. Produce a list of safety risks that are unique to hydrogen fuel cell and battery powered rail operations.
2. Identify gaps pertaining to hydrogen fuel cell and battery powered rail operations in TC's current regulatory regime (as referenced in Annex A).
3. Understand regulatory tools being used in other jurisdictions (as referenced in Annex B) to address hydrogen fuel cell and battery powered rail operations

Definitions

Gap: A safety risk unique to hydrogen fuel cell and battery powered rail operations that is not addressed in the current regulatory regime.

Hydrogen fuel cell and battery powered rail operations: This term is used to encompass all rail operations involving hydrogen fuel cells or battery power, including refueling, charging, bulk transportation for fuel, rail-side storage of hydrogen, emergency protocols, etc.

Scope of Work

Tasks

The contractor must complete the following tasks:

Task 1: List of Hydrogen Fuel Cell and Battery Powered Rail Risks

Through the performance of task 1, the contractor must produce a list of risks that are unique to hydrogen fuel cell and battery powered rail operations. To further this work the contractor must undertake the following activities:

Task 1.1: Literature Review

The contractor must perform a literature review of risk assessments relevant to hydrogen and battery powered locomotives.

Task 1.2: Develop List of Risks

The contractor must develop a list of risks that must include considerations for the operation and design of hydrogen fuel cell and battery powered locomotives, fire hazards, crash worthiness, human factors, training, emergency response, occupational health and safety, fueling, storage, etc.

Task 1.3: Produce Section #1 of the Project Report

Section #1 of the project report must outline the work done in Task 1. This must include:

- A) A summary of the findings of the literature review performed under Task 1.1
- B) For each risk identified in Task 1.2, the following must be provided:
 - A description of the risk including the components involved;
 - Any parameters known to influence the level of this risk; and
 - An indicator if more research is needed to understand the risk

The contractor must submit a draft of section #1 of the project report to be reviewed by TC. Following TC's review, the contractor must produce a final version of section #1 of the project report where TC's comments have been addressed. Both the draft and the final version of this section of the report must be provided in pdf and Microsoft Word format and must be submitted to TC via email.

Task 2: Regulatory Gap Analysis

Task 2.1: Gap Analysis

The contractor must perform an analysis that includes **but is not limited** to the Canadian rail regulatory reference materials given in Annex A and identify potential gaps for hydrogen fuel cell and battery powered rail operations in each item. This analysis must include considerations for the risks identified in Task 1.

Task 2.2: Produce Section #2 of the Project Report

Section #2 of the project report must identify all potential gaps for hydrogen fuel cell and battery powered rail operations in the given reference material. For each gap the following must be indicated:

- The document in which the gap exists (if applicable);
- The location in the document where the gap exists (if applicable);
- A description of the nature of the gap; and
- Any potential next steps related to the gap

The contractor must submit a draft of section #2 of the project report to be reviewed by TC. Following TC's review, the contractor must produce a final version of section #2 of the project report where TC's comments have been addressed. Both the draft and the final version of this section of the report must be provided in pdf and Microsoft Word format and must be submitted to TC via email.

Task 3: Proprietary and Patented Technology Review

Through the performance of task 3, the contractor must assess any proprietary or patented technologies currently being used (or currently proposed for use) in hydrogen fuel cell and battery-powered rail operations. The contractor must compile and present the potential challenges or benefits these technologies might introduce from a regulatory standpoint. To further this work the contractor must undertake the following activities:

Task 3.1: Identification of Proprietary or Patented Technologies

The contractor must undertake an environment scan to identify any proprietary or patented technologies with an impact on the safety, interoperability, and regulatory oversight of hydrogen fuel cell and battery-powered rail operations. As part of this environment scan the contractor must:

- survey manufacturers, rail companies, and other stakeholders in the North American hydrogen and battery-powered rail operations sector about any of their relevant technologies that they have patented or that they consider to be proprietary.
- perform a preliminary scan of patent filings related to hydrogen and battery powered locomotive operations.

Task 3.2: Assessment of Intellectual Property Implications for Rail Safety and Interoperability

The contractor must evaluate the potential implications of the proprietary or patented technologies (identified in task 3.1) for broader rail safety and interoperability implications. For each technology, this assessment must be done with respect to:

- potential challenges in ensuring safety standards if proprietary technologies are not transparent or verifiable.
- risks associated with non-standardized technology deployment leading to interoperability issues between different rail systems.
- consideration of how proprietary technologies might influence the evolution of industry standards and best practices.

Task 3.3: Produce Section #3 of the Project Report

This section of the report must detail the findings from Tasks 3.1 and 3.2. It must provide a clear explanation of the current proprietary or patented technology landscape in hydrogen fuel cell and battery-powered rail operations and the regulatory challenges or advantages each of these technologies might present.

The contractor must submit a draft of section #3 of the project report to be reviewed by TC. Following TC's review, the contractor must produce a final version of section #3 of the project report where TC's comments have been addressed. Both the draft and the final version of this section of the report must be provided in pdf and Microsoft Word format and must be submitted to TC via email.

Task 4: Analysis of Other Jurisdictions

Through the completion of this task, the contractor must survey the processes and tools being used to address hydrogen fuel cell and battery powered rail operations in other jurisdictions. To further this work the contractor must undertake the following activities:

Task 4.1: Literature Review

The contractor must perform a literature review of the processes and tools being used by international jurisdictions to regulate hydrogen and battery powered rail operations. This literature review must focus on the 5 most relevant nations from the list given in Annex B, as determined by TC and the contractor.

Depending on the availability of information and the allocation of time and resources, more than 5 of the nations listed in Annex B may be included in the literature review.

Task 4.2: Survey

The contractor must conduct a survey of international regulators, national and international labs of expertise, and industry stakeholders to determine the following (as they relate to hydrogen and battery powered rail operations):

- Regulations and regulatory tools;
- Submission requirements for new operations;
- Oversight/Inspection practices;
- Design standards; and
- Imposed operational limitations.

Task 4.3: Produce Section #4 of the Project Report

Section #4 of the project report must outline the work done in Task 3. This must include a description of the findings of the literature review for each jurisdiction as well as a summary of the survey results.

The contractor must submit a draft of section #4 of the project report to be reviewed by TC. Following TC's review, the contractor must produce a final version of section #4 of the project report where TC's comments have been addressed. Both the draft and the final version of this section of the report must be provided in pdf and Microsoft Word format and must be submitted to TC via email.

Task 5: Recommendations

Task 5.1: Produce Section #5 of the Project Report

Based on the findings of tasks 1, 2, 3, and 4, in section #5 of the report the contractor must provide recommendations as to:

- Safety practices that exist to mitigate known hydrogen fuel cell and battery propulsion rail risks.
- Existing codes, standards and regulatory measures that are capable of filling regulatory gaps identified in Task 2.

The contractor must submit a draft of section #5 of the project report to be reviewed by TC. Following TC's review, the contractor must produce a final version of section #5 of the project report where TC's comments have been addressed. Both the draft and the final version of this section of the report must be provided in pdf and Microsoft Word format and must be submitted to TC via email.

Task 6: Project Management and Update Meetings

The contractor must be responsible for all project management items including but not limited to:

- Report section compilations
- Coordination of deliverables and deliverable review process
- Progress and update meetings and emails
- Presentations of project results (as detailed in Table 1, item 15 below)
- Project budget, time, and schedule management

Options

Option 1: Adding reference materials

TC reserves the right to add additional materials to Annex A for review by the contractor. A price per additional page must be provided by the contractor in their proposal, to be used for this option.

Schedule and Deliverables

The contractor must provide the following deliverables as per the schedule detailed in the Table 1 below:

Table 1: List of Deliverables and Schedule

Item	Task	Deliverable	Due Date
1	1	Draft of Section #1 of the Project Report	12 weeks from date of signing.
2		Final Version of Section #1 of the Project Report	4 weeks following the receipt of TC's comments on the draft report.
3	2	Draft of Section #2 of the Project Report	6 weeks following the completion of task 1.
4		Final Version of Section #2 of the Project Report	4 weeks from the receipt of TC's comments on the draft report.
5	1 and 2	1 st Progress Update Meeting (virtual)	2 weeks following the completion of task 2.
6	3	Draft of Section #3 of the Project Report	6 weeks following the completion of task 2
7		Final Version of Section #3 of the Project Report	4 weeks following the receipt of TC's comments on the draft report.
8	1, 2, and 3	2 nd Progress Update Meeting (virtual)	2 weeks following the completion of task 3.
9	4	Draft of Section #4 of the Project Report	6 weeks following the completion of task 3.
10		Final Version of Section #4 of the Project Report	4 weeks following the receipt of TC's comments on the draft report.
11	5	Draft of Section #5 of the Project Report	6 weeks following the completion of task 4.
12		Final Version of Section # of the Project Report	4 weeks following the receipt of TC's comments on the draft report.
13	All Tasks	Final Concluding Meeting (virtual)	2 weeks following the completion and acceptance of task 5.
14	6	Project Management Activities, as outlined in Task #6	Ongoing throughout the duration of the project
15	N/A	<p>12 Virtual meetings via Microsoft Teams to provide an update on the progress, issues and status of deliverables, to be scheduled roughly every one month or as appropriate based on the project progression.</p> <p>These meetings must be 0.5 - 1hr in duration and need not be held on weeks when the 1st, 2nd, or final project meetings are held.</p> <p>Agenda's must be provided for each meeting, along with visual aids to guide the discussions (as necessary). For each meeting, this must be provided in the form of a Microsoft PowerPoint presentation.</p>	Ongoing throughout the duration of the project

Annex A: Reference Materials

Note: The **bolded documents** must be prioritized and should be completed early in the project.

1. **RSA**
2. Regulations made under the RSA
 - a. Locomotive Emissions Regulations
 - b. **Railway Safety Management System Regulations, 2015**
 - c. **Railway Prevention of Electric Sparks Regulations**
 - d. Ammonium Nitrate Storage Facilities Regulations
 - e. Anhydrous Ammonia Bulk Storage Regulations
 - f. Chlorine Tank Car Unloading Facilities Regulations
 - g. **Flammable Liquids Bulk Storage Regulations**
 - h. Handling of Carloads of Explosives on Railway Trackage Regulations
 - i. Liquefied Petroleum Gases Bulk Storage Regulations
 - j. Railway Safety Appliance Standards Regulations
 - k. Service Equipment Cars Regulations
 - l. Wire Crossings and Proximities Regulations
 - m. Prevention and Control of Fires on Lines Works Regulations
 - n. Transportation Information Regulations
 - o. **Railway Employee Qualification Standards Regulations**
3. Transport Canada approved Rules
 - a. **Railway Locomotive Inspection and Safety Rules**
 - b. Canadian Rail Operating Rules
 - c. Pull-By Inspection Rules
 - d. **Railway Extreme Heat and Fire Risk Mitigation Rules**
 - e. Railway Freight Car Inspection & Safety Rules
 - f. Railway Passenger Car Inspection & Safety Rules
 - g. Railway Passenger Handling Safety Rules
 - h. Railway Rules Governing Safety Critical Positions
 - i. Rules respecting Key Trains and Key Routes
4. Rail related Standards
 - a. Grade Crossings Standards
 - b. Method 1010.8 Temperature cycling - MIL-STD-883H, extract of Test Method Standard, Microcircuits, MIL-STD-883H
5. ISO 12100:2010 Safety of Machinery – General Principles for Design – Risk Assessment and Risk Reduction

Annex B: Preliminary list of jurisdictions for Environment Scan

1. USA
2. Germany
3. UK
4. Austria
5. China
6. France
7. Japan
8. Netherlands
9. Poland
10. Russia
11. South Africa
12. South Korea
13. Spain
14. Sweden

ANNEX B - BASIS OF PAYMENT

1. General

- A. Bidders are requested to complete the following Pricing Schedule and include it in the bid. At a minimum, the Firm Price for each Item must be submitted.
- B. All prices and costs must be submitted in Canadian Dollars, Canadian customs duties and excise taxes included, Applicable Taxes excluded.
- C. Travel and living expenses will not be reimbursed and must be included in the costs below.
- D. Refer to Annex A Statement of Work for a detailed description of the deliverables listed below.

2. Firm Prices for the List of Milestone Deliverables [prices to be indicated in the resulting contract]

Milestone No.	Deliverable No.	Description or "Deliverable"	Firm Amount
1	6	Project Management & 12 Update Meetings	
2	1	Report Section #1: List of Risks for Hydrogen and Battery Powered Locomotives	
3	2	Report Section #2: Regulatory Gap Analysis	
4	3	Report Section #3: Proprietary and Patented Technology Review	
5	4	Report Section #4: Analysis of Processes and Tools Implemented by Other Jurisdictions	
6	5	Report Section #5: Recommendations	
7	7	Option: Payment per page for additional materials (for the purpose of evaluation, an addition of 200 pages will be assumed. Please provide the price per page and multiply it by 200)	_____ x 200 = _____
		Total Cost (Sum of Milestones 1-7 (excluding taxes))	\$ _____
		Applicable Taxes	\$ _____
		Total Cost (taxes included)	\$ _____