

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 :

epost Connect

Solicitation Closes - L'invitation prend fin

At - à :
2:00 PM - 14:00

On :
June 28, 2021

Time Zone - Fuseau Horaire :
[EDT]

Title - Sujet Validation of recommended emergency actions for liquefied natural gas (LNG) in the Emergency Response Guidebook (ERG)	
Solicitation No. N° de l'invitation T8080-200704	Date of Solicitation Date de l'invitation May 18, 2021
Address enquiries to: Natasha Blackstein Telephone No. (343) 550-2321 E-Mail Address - Natasha.blackstein@tc.gc.ca	
Destination See herein -	

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 See herein - Voir aux présentes OR [Insert date] - [Insérer la date]	Delivery offered Not applicable
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

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 Security, Financial and Other Requirements: includes specific requirements that must be addressed by Bidders; and
- Part 7 Resulting Contract Clauses: includes the clauses and conditions that will apply to any resulting contract.

The Annexes include the Statement of Work, the Basis of Payment and the Electronic Payment Instruments.

1.2 Summary

1.2.1 Description

The Transportation of Dangerous Goods (TDG) Program develops risk-based safety standards and regulations, provides oversight, and gives expert advice on dangerous goods incidents to promote public safety in the transportation of dangerous goods by all modes of transport in Canada. The Canadian Transport Emergency Centre (CANUTEC) is responsible for delivering emergency response advice 24 hours a day, seven days a week, to anyone with questions or concerns involving the transportation of dangerous goods or emergencies involving dangerous goods. This includes advice on dangerous goods release mitigation strategies, the physical and chemical properties of dangerous goods, as well as protective actions (e.g. recommendations for personal protective equipment (PPE) and evacuation distances).

The ERG typically classifies substances with similar physical and chemical properties together. Liquefied natural gas (LNG), usually consisting primarily of methane in a mixture with small amounts of other hydrocarbons, has increased in use as a fuel source in recent years, and there is a potential for increased demand for the transport of LNG by rail and road. LNG is currently assigned in the ERG to Guide 115, along with liquefied petroleum gas (LPG). Therefore, the emergency actions for both LNG and LPG are currently identical. However, there are differences in the way the substances are transported that may alter their hazard profile if an incident were to occur. For example, LPG is liquefied under pressure, and is transported in single-walled containers capable of sustaining these pressures during transport. By contrast, LNG is liquefied under extremely low temperatures. The product is kept cold using double-walled tanks, with insulation, that are not suited for the higher pressures required for the transportation of LPG. There are other key differences in these two substances that could suggest that their hazard

profiles are different and thus, may warrant being placed in different guides in the ERG. For example, LNG forms pools of liquid product when released, whereas LPG generally does not, thus their dispersion profiles following a release are different.

TC is looking to obtain the services of a contractor to comparatively analyze LNG to LPG in terms of the hazard profile based on its physical and chemical properties, and past incidents involving a release of these products, including those involving fires and/or resulting in BLEVE events. The objective of the research is to demonstrate the differences and/or similarities between LPG and LNG in order to inform decisions related to its emergency guide assignment in the upcoming editions of the ERG, or to inform additional research that might need to be undertaken to make this determination.

1.2.2 epost Connect

This bid solicitation allows bidders to use the epost Connect service provided by Canada Post Corporation to transmit their bid electronically. Bidders must refer to Part 2 entitled Bidder Instructions, and Part 3 entitled Bid Preparation Instructions, of the bid solicitation, for further information.

1.3 Debriefings

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

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) (https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual) issued by Public Works and Government Services Canada.

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.

The [2003](#) (2020-05-28) Standard Instructions - Goods or Services - Competitive Requirements, are incorporated by reference into and form part of the bid solicitation.

Subsection 5.4 of [2003](#), Standard Instructions - Goods or Services - Competitive Requirements, is amended as follows:

Delete: 60 days
Insert: 120 days

2.2 Submission of Bids

Bids must be submitted only to Transport Canada via epost Connect by the date, time and place indicated in the bid solicitation.

natasha.blackstein@tc.gc.ca

Note: Bids will not be accepted if emailed directly to this email address. This email address is to be used to open an epost Connect conversation, as detailed in Standard Instructions [2003](#), or to send bids through an epost Connect message if the bidder is using its own licensing agreement for epost Connect.

2.2.1 epost Connect

- a. Unless specified otherwise in the bid solicitation, bids may be submitted by using the [epost Connect service](#) provided by Canada Post Corporation.
 - i. The only acceptable email address to use with epost Connect for responses to bid solicitations issued by Transport Canada is: natasha.blackstein@tc.gc.ca , or, if applicable, the email address identified in the bid solicitation.
- b. To submit a bid using epost Connect service, the Bidder must either:
 - i. send directly its bid only to natasha.blackstein@tc.gc.ca , using its own licensing agreement for epost Connect provided by Canada Post Corporation; or
 - ii. send as early as possible, and in any case, at least six business days prior to the solicitation closing date and time, (in order to ensure a response), an email that includes the bid solicitation number to natasha.blackstein@tc.gc.ca requesting to open an epost Connect

conversation. Requests to open an epost Connect conversation received after that time may not be answered.

- c. If the Bidder sends an email requesting epost Connect service to the specified email in the bid solicitation, an officer of Transport Canada will then initiate an epost Connect conversation. The epost Connect conversation will create an email notification from Canada Post Corporation prompting the Bidder to access and action the message within the conversation. The Bidder will then be able to transmit its bid afterward at any time prior to the solicitation closing date and time.
- d. If the Bidder is using its own licensing agreement to send its bid, the Bidder must keep the epost Connect conversation open until at least 30 business days after the solicitation closing date and time.
- e. The bid solicitation number should be identified in the epost Connect message field of all electronic transfers.
- f. It should be noted that the use of epost Connect service requires a Canadian mailing address. Should a bidder not have a Canadian mailing address, they may use the Bid Receiving Unit address specified in the solicitation in order to register for the epost Connect service.
- g. For bids transmitted by epost Connect service, Canada will not be responsible for any failure attributable to the transmission or receipt of the bid including, but not limited to, the following:
 - i. receipt of a garbled, corrupted or incomplete bid;
 - ii. availability or condition of the epost Connect service;
 - iii. incompatibility between the sending and receiving equipment;
 - iv. delay in transmission or receipt of the bid;
 - v. failure of the Bidder to properly identify the bid;
 - vi. illegibility of the bid;
 - vii. security of bid data; or,
 - viii. inability to create an electronic conversation through the epost Connect service.
- h. Transport Canada will send an acknowledgement of the receipt of bid document(s) via the epost Connect conversation, regardless of whether the conversation was initiated by the supplier using its own license or Transport Canada. This acknowledgement will confirm only the receipt of bid document(s) and will not confirm if the attachments may be opened nor if the content is readable.
- i. Bidders must ensure that they are using the correct email address for Transport Canada when initiating a conversation in epost Connect or communicating with Transport Canada and should not rely on the accuracy of copying and pasting the email address into the epost Connect system.
- j. A bid transmitted by epost Connect service constitutes the formal bid of the Bidder and must be submitted in accordance with section 05.

2.3 Former Public Servant

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.

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 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.

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 FPSs 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: 2019-01](#) and the [Guidelines on the Proactive Disclosure of Contracts](#).

Work Force Adjustment Directive

Is the Bidder a FPS who received a lump sum payment pursuant to the terms of the Work Force Adjustment Directive? **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 adjustment program.

2.4 Enquiries - Bid Solicitation

All enquiries must be submitted in writing to the Contracting Authority no later than 10 calendar days before the bid closing date. Enquiries received after that time may not be answered.

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

Any resulting contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in Ontario.

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

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 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](#) website, under the heading "[Bid Challenge and Recourse Mechanisms](#)" contains information on potential complaint bodies such as:
 - Office of the Procurement Ombudsman (OPO)
 - 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

Canada requests that the Bidder submits its bid in accordance with section Part 2 – Bidder Instructions 2.3 epost Connect. The epost Connect system has a limit of 1GB per single message posted and a limit of 20GB per conversation.

The bid must be gathered per section and separated as follows:

Section I: Technical Bid (1 soft copy)
Section II: Financial Bid (1 soft copy)
Section III: Certifications (1 soft copy)
Section IV: Additional Information

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

Section I: Technical Bid

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.

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.

Section II: Financial Bid

3.1.1 Bidders must submit their financial bid in accordance with "Basis of Payment in Annex "B".

3.1.2 Electronic Payment of Invoices – Bid

If you are willing to accept payment of invoices by Electronic Payment Instruments, complete Annex "C" Electronic Payment Instruments, to identify which ones are accepted.

If Annex "C" Electronic Payment Instruments is not completed, it will be considered as if Electronic Payment Instruments are not being accepted for payment of invoices.

Acceptance of Electronic Payment Instruments will not be considered as an evaluation criterion.

3.1.3 Exchange Rate Fluctuation

C3011T (2013-11-06) - Exchange Rate Fluctuation

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, financial evaluation criteria.
- (b) An evaluation team composed of representatives of Canada will evaluate the bids.

4.1.1 Technical Evaluation

4.1.1.1 Mandatory Technical Criteria

For the requirements mentioned below, the bidder must provide documentation to support their assertions in the satisfaction of each requirement (e.g. project timelines, descriptions and tasks performed, degrees, résumés).

Mandatory Requirement	Compliant (Yes/No)	Reference to Bidder's Proposal
<p>M1 The bidder must propose a project team consisting of a project manager and any other personnel deemed necessary to carry out the study as described in the statement of work.</p> <ul style="list-style-type: none"> • The proposed project team must include at least one member with a degree (bachelor's, masters, doctorate) from a recognized post-secondary institution with a specialization in chemistry or chemical engineering. • The proposed project team must include at least one member with a minimum of three (3) years of experience in dangerous goods (hazardous materials) emergency management or response related to liquefied and refrigerated liquefied flammable gases. • The proposed project team must include at least one member with a minimum of one (1) year of experience with the Emergency Response Guidebook (ERG) for the development of incident response strategies. • The proposed project team must contain at least one member with a minimum of three (3) years of experience performing assessments for the development of emergency response guidance and procedures for dangerous goods incidents. • The proposed project team must include at least one member with a minimum of one (1) year of experience in the means of 		

	<p>containment applicable to the transport of liquefied and refrigerated liquefied flammable gases in Canada.</p> <ul style="list-style-type: none"> The proposed project manager must have a minimum of three (3) years of experience managing projects of a technical nature (e.g. scientific). <p>* Résumés and copies of degrees for each proposed team member must be included in the bidder's submission.</p>		
M2	<p>The bidder must submit a draft work plan, which must include a comprehensive plan that addresses completing all desired outcomes outlined in the statement of work. The draft work plan must include, at a minimum, the following components:</p> <ul style="list-style-type: none"> A detailed description of the approach and methodology, as well as data sets available and those needed, along with a concrete route for acquiring them, for achieving, at a minimum, the desired outcomes listed in Section 5 of Annex A. A time table (e.g. Gantt chart) showing activities and timelines for the completion of each deliverable in the statement of work. 		

4.1.1.2 Point Rated Technical Criteria

For the requirements mentioned below, the bidder must provide documentation to support their assertions in the satisfaction of each requirement (e.g. project timelines, descriptions and tasks performed, degrees, résumés).

	Rated Requirement	Point Attribution	Maximum Points	Referenced Section/Page in Bidder's Proposal
R1	<p>Dangerous goods experience I The bidder should demonstrate each proposed team member's experience in the following fields of expertise:</p> <p>1) Dangerous goods (hazardous materials) emergency</p>	<p>Per individual team member experience, per field of expertise (i.e. LNG, LPG): More than 3 years, per field of expertise: 1 point. More than 5 years, per field of expertise: 2 points. More than 7 years, per field of expertise: 3 points. More than 9 years, per field of expertise: 4 points.</p>	/20	

	<p>management or response to LNG incidents.</p> <p>2) Dangerous goods (hazardous materials) emergency management or response to LPG incidents.</p>	<p>More than 11 years, per field of expertise: 5 points. (cumulative maximum of 10 points per field of expertise across all team members)</p>		
R2	<p>Dangerous goods experience II</p> <p>The bidder should demonstrate, for each proposed team member, their years of experience in using the ERG to develop and/or implement incident response strategies.</p>	<p>Per individual team member experience: More than 1 year: 1 point. More than 3 years: 2 points. More than 5 years: 3 points. More than 7 years: 4 points. More than 9 years: 5 points. (cumulative maximum of 10 points across all team members)</p>	/10	
R3	<p>Assessment experience I</p> <p>The bidder should demonstrate hazard assessments, conducted by proposed team members, involving a release or anticipated release of LNG, LPG, or another flammable gas that has been liquefied under pressure or cryogenic temperatures, including a description of the methodology used to perform the assessment.</p>	<p>Per hazard assessment:</p> <ul style="list-style-type: none"> • 1 point for hazard assessment addressing flammable pressure-liquefied or refrigerated liquefied gases other than LNG and LPG. • + 1 point for hazard assessment addressing LPG. • +1 point for hazard assessment addressing LNG. <p>(Maximum of 3 points per assessment up to a cumulative maximum of 15 points across all assessments)</p>	/15	
R4	<p>Assessment experience II</p> <p>The bidder should demonstrate, using project descriptions, the proposed team members' experience</p>	<p>Per project:</p> <ul style="list-style-type: none"> • 1 point per project. • +1 point per project involving transportation. 	/10	

	and involvement - evaluating and comparing the chemical and physical hazards of dangerous goods for the purposes of emergency response.	(Maximum of 2 points per project to a cumulative maximum of 10 points)		
R5	<p>Technical projects</p> <p>The bidder should demonstrate at least one of the proposed team members has experience providing professional expertise and was continuously involved in projects (3 months duration) related to;</p> <ul style="list-style-type: none"> • chemistry or related science • transportation of dangerous goods <p>*Note: Work experience acquired in the field of study outside of post-secondary education.</p>	<p>Per project:</p> <ul style="list-style-type: none"> • 1 point for experience related to chemistry or related science • + 1 point if related to transportation of dangerous goods <p>(Maximum of 2 points per project)</p>	/10	
R6	<p>Work plan</p> <p>The bidder's work plan submitted in satisfaction of mandatory requirement M2 details an approach and methodology to accomplish each of the desired outcomes of the project.</p>	<p>According to Table 1 below</p> <p>(Maximum of 5 points per desired outcome)</p>	/25	
R7	<p>Data availability</p> <p>The bidder's proposed work plan should contain a description of the relevant data sets to be used for this study, identifies the datasets that are immediately available, and those that are intended to be acquired, along with an approach for acquiring these data sets, in order to perform the incident analysis detailed in Section 5.A.3. of Annex A.</p>	<p>According to Table 1 below</p>	/5	
Minimum Passing Mark (70% or 68 points)				

	Points Achieved	/95

Table 1	
Points	Description
1	Information provided about the approach and methodology (see R6) or data sets (see R7) addresses the desired outcome of the criterion at a high level with little details in the description. Not enough information is provided to assess the soundness of the approach and methodology (see R6) or data sets (see R7).
3	Information provided about the approach and methodology (see R6) or data sets (see R7) provides some details and an overview, but not enough information is provided to assess the soundness of the approach and methodology (see R6) or data sets (see R7).
5	Information provided about the approach and methodology (see R6) or data sets (see R7) is in depth and comprehensive, and the approach and methodology (see R6) or data sets (see R7) are sound.

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

1. To be declared responsive, a bid must:
 - a. comply with all the requirements of the bid solicitation; and
 - b. meet all mandatory criteria; and
 - c. obtain the required minimum of 68 points overall for the technical evaluation criteria which are subject to point rating.
The rating is performed on a scale of 95 points.
2. Bids not meeting (choose "(a) or (b) or (c) will be declared non-responsive.
3. 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.
4. 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 %.
5. To establish the pricing score, each responsive bid will be prorated against the lowest evaluated price and the ratio of 30%.
6. For each responsive bid, the technical merit score and the pricing score will be added to determine its combined rating.
7. 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.

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 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	$115/135 \times 60 = 51.11$	$89/135 \times 60 = 39.56$	$92/135 \times 60 = 40.89$
	Pricing Score	$45/55 \times 40 = 32.73$	$45/50 \times 40 = 36.00$	$45/45 \times 40 = 40.00$
Combined Rating		83.84	78.56	80.89
Overall Rating		1st	3rd	2nd

PART 5 – CERTIFICATIONS AND ADDITIONAL INFORMATION

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. 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.

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](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.

5.2 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 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.

5.2.2 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" 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/programs/employment-equity/federal-contractor-program.html#) website (<https://www.canada.ca/en/employment-social-development/programs/employment-equity/federal-contractor-program.html#>).

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.

Contractors Program for Employment Equity - Certification, for each member of the Joint Venture.

5.2.3 Certifications Precedent to Contract Award and Additional Information

5.2.3.1 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.

5.2.3.2 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.

PART 6 - RESULTING CONTRACT CLAUSES

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 annex titled "Statement of Work".

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 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

[2035](#) (2020-05-28), General Conditions - Higher Complexity - Services, apply to and form part of the Contract.

6.3 Security Requirements

6.3.1 There is no security requirement applicable to the Contract.

6.4 Term of Contract

6.4.1 Period of the Contract

The period of the Contract is from date of Contract to March 31, 2022, inclusive.

6.5 Authorities

6.5.1 Contracting Authority

The Contracting Authority for the Contract is:

Name: Natasha Blackstein
Title: Procurement Specialist
Transport Canada
Address: 275 Sparks Street
Ottawa, Ontario
K1A 0N5
Telephone: (343) 550-2321
E-mail address: natasha.blackstein@tc.gc.ca

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

The Project Authority for the Contract is: (to be provided upon contract award)

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 Contractor's Representative

Name: _____
Title: _____
Address: _____

Telephone: ____ - ____ - _____
E-mail address: _____

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 \(http://laws-lois.justice.gc.ca/eng/acts/P-36/FullText.html\)](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

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

6.7.2 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.

6.7.3 Method of Payment (Schedule of Milestone)

For the Work described in the Statement of Work in Annex A, Canada will make milestone payments in accordance with the Schedule of Milestones detailed in the Contract and the payment provisions of the Contract.

6.7.5 Electronic Payment of Invoices – Contract

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

- a. Visa Acquisition Card;
- b. MasterCard Acquisition Card;
- c. Direct Deposit (Domestic and International);
- d. Electronic Data Interchange (EDI);
- e. Wire Transfer (International Only);
- f. Large Value Transfer System (LVTS) (Over \$25M)

6.8 Invoicing Instructions

1. 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.

Each invoice must be supported by:

- a. description of the Work delivered
2. Invoices must be distributed as follows:
 - a. The original must be forwarded to the address shown on page 1 of the Contract for certification and payment;

6.9 Certifications and Additional Information

6.9.1 Compliance

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

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

If there is a discrepancy between the wording of any 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.

- (a) the Articles of Agreement;
- (b) the general conditions [2035](#) (2020-05-28), General Conditions - Higher Complexity - Services;
- (c) Annex A, Statement of Work;
- (d) Annex B, Basis of Payment;
- (e) the Contractor's bid dated _____.

6.12 Insurance

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

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 Handling of Personal Information

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.

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.

6.15 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](#)".

ANNEX "A"

STATEMENT OF WORK

1. TITLE:

Validation of recommended emergency actions for liquefied natural gas (LNG) in the Emergency Response Guidebook (ERG)

2. BACKGROUND:

The Transportation of Dangerous Goods (TDG) Program develops risk-based safety standards and regulations, provides oversight, and gives expert advice on dangerous goods incidents to promote public safety in the transportation of dangerous goods by all modes of transport in Canada. The Canadian Transport Emergency Centre (CANUTEC) is responsible for delivering emergency response advice 24 hours a day, seven days a week, to anyone with questions or concerns involving the transportation of dangerous goods or emergencies involving dangerous goods. This includes advice on dangerous goods release mitigation strategies, the physical and chemical properties of dangerous goods, as well as protective actions (e.g. recommendations for personal protective equipment (PPE) and evacuation distances).

The Emergency Response Guidebook (ERG) is produced by CANUTEC in collaboration with the US Department of Transportation (DOT), the Secretariat of Transport and Communications of Mexico (SCT), and CIQUIME (*Centro de Información Química para Emergencias*) of Argentina. It can be accessed in either official language in various formats on the CANUTEC website (PDF version: <https://tc.canada.ca/en/dangerous-goods/canutec/2020-emergency-response-guidebook-pdf-version>).

The ERG, released every four years, is primarily a guide to aid first responders in quickly identifying the specific or generic hazards of the material(s) involved in a dangerous goods transportation incident, and in protecting themselves and the general public during the initial response phase of the incident. The guide contains emergency guide pages (orange pages) with emergency recommendations tailored to products that share certain physical and chemical properties. Each UN number included in the Transportation of Dangerous Goods Regulations (TDGR) is accounted for in the ERG. The emergency actions in the ERG are updated periodically to account for changes in the TDG landscape, such as changes in commodity flows, improvements in means of containment that reduce the likelihood of a release or failure, or the generation of new scientific knowledge that may change the assessment that applies for a particular substance.

The ERG typically classifies substances with similar physical and chemical properties together. Liquefied natural gas (LNG), usually consisting primarily of methane in a mixture with small amounts of other hydrocarbons, has increased in use as a fuel source in recent years, and there is a potential for increased demand for the transport of LNG by rail and road. LNG is currently assigned in the ERG to Guide 115, along with liquefied petroleum gas (LPG). Therefore, the emergency actions for both LNG and LPG are currently identical. However, there are differences in the way the substances are transported that may alter their hazard profile if an incident were to occur. For example, LPG is liquefied under pressure, and is transported in single-walled containers capable of sustaining these pressures during transport. By contrast, LNG is liquefied under extremely low temperatures. The product is kept cold using double-walled tanks, with insulation, that are not suited for the higher pressures required for the transportation of LPG. There are other key differences in these two substances that could suggest that their hazard profiles are different and thus, may warrant being placed in different guides in the ERG. For example, LNG forms pools of liquid product when released, whereas LPG generally does not, thus their dispersion profiles following a release are different.

One of the most critical situations with LPG is one involving flame impingement of a container of the pressurized product, which could result in catastrophic failure, possibly producing a massive fireball

and flying debris; this is called a boiling liquid expanding vapour explosion (BLEVE). One of the key aspects of this research will involve examining past incidents to determine whether the same definition of a BLEVE can be applied to LNG. While there are some studies that have shown BLEVE-like behaviour under testing conditions with LNG, it is unclear whether LNG exhibits this behaviour outside of a test setting. Additionally, the tanks involved in the LNG tests were severed using explosive charges and not from heating the tanks to the point of failure, as is the case with most LPG-based BLEVEs¹. The study showed that while the fireball produced using LNG was smaller than in similar experiments previously run using LPG, it persisted for a similar amount of time and the surface emissive power (SEP) generated by an LNG fireball was equivalent, or in some cases greater than those seen in tests with LPG. Interestingly, the heat given off by the LNG fireball was found to be greater near the fireball, but decreased more rapidly with distance than the heat from LPG-based tests.

Given the differences in how LPG and LNG are liquefied when transported (i.e. using pressure versus temperature, respectively) and the slightly different hazard profiles between the two products, a stakeholder submitted a comment to CANUTEC, recommending that the emergency guide for LNG in the ERG be re-evaluated. This research idea was presented at the TDG Research Symposium held in 2019 by Transport Canada (TC) (<https://tc.canada.ca/en/dangerous-goods/transportation-dangerous-goods-research-symposium>). This research project would evaluate if there is a need to redefine the recommended emergency actions in the ERG for LNG based on the following key areas:

- physical and chemical properties and hazards that would result following a release;
- examining whether LNG exhibits BLEVE behaviour similar to LPG based on past incident data;
- effect of a release on the means of containment integrity; and
- emergency response considerations for incident mitigation.

The results of this research project will provide additional insight into the behaviour of LNG in accident and incident scenarios compared with LPG, which will inform the decision on whether or not it should remain in the same emergency guide in the ERG as LPG, despite identified differences in their properties during transport.

3. PROJECT OBJECTIVES:

TC is looking to obtain the services of a contractor to comparatively analyze LNG to LPG in terms of the hazard profile based on its physical and chemical properties, and past incidents involving a release of these products, including those involving fires and/or resulting in BLEVE events. The objective of the research is to demonstrate the differences and/or similarities between LPG and LNG in order to inform decisions related to its emergency guide assignment in the upcoming editions of the ERG, or to inform additional research that might need to be undertaken to make this determination.

4. SCOPE:

This project will address the question of whether or not the hazard profiles of LNG and LPG differ significantly enough to change the emergency response guidance for LNG in the ERG. Specifically, the hazard profiles of LNG and LPG will be compared, including:

- a comparison of their chemical and physical properties with respect to their inherent hazard profile;
- a comparison of the hazard presented by each product when spilled based on physical and chemical properties;
- a comparison of the effects of a release on the means of containment for both LNG and LPG;

¹ Betteridge, S. and Phillips, L., 2015, "Large Scale Pressurised LNG BLEVE Experiments" *Hazards 25*, Symposium series No. 160, Shell, Research Ltd. Manchester, 1 - 12.

-
- the emergency response tactics used in LNG vs LPG incidents and the factors affecting the complexity of the response;
 - an analysis of a wide range of incidents involving a release, including those involving fire or resulting in BLEVE events, of these products by road and rail and the hazards encountered.

These results will be then be analysed to determine if the current emergency response actions for LNG are appropriate and whether the emergency response actions for LNG should be comparable to those for LPG or not.

5. DESIRED OUTCOMES:

5.A.1. A comparative analysis of the hazards associated with the transportation of LPG and LNG by road and rail due to their chemical and physical properties, including at a minimum: flammability, changes in pressure or temperature of the product during transport or during an emergency, BLEVE potential, exposure routes, by-products when on fire, effects on means of containment during and following a release, and behaviour of the product during and following a release (e.g. pooling, evaporation, dissipation).

5.A.2. A list comparing operational emergency response factors that may influence the complexity of a response to a release or anticipated release in transport (e.g. specialised equipment and personnel) for LNG vs. LPG, for a wide possible range of incidents (e.g. small spills, large spills, Emergency Response Assistance Plan (ERAP) implementations, small fire, large fire, flame impingement, BLEVE, product volumes (e.g. small vs. large), and modes of transport (i.e. road vs. rail).

5.A.3. An analysis of a wide range of incidents (e.g. spills, ERAP implementations, fire, flame impingement, BLEVE) involving a range of product volumes (e.g. small vs. large) while handling or transporting of LNG and LPG by road and rail. If an insufficient number of incidents are available, the search should be expanded, following a rationale to be approved in advance by the Technical Authority, to include incidents fitting additional search criteria that will add data for analysis (e.g. from fixed facilities, products with similar chemical and physical properties). The analysis shall provide a clear description of the main hazards during the incident (e.g. fire, spill, catastrophic means of containment failure, BLEVE, failure due to damage or puncture), mechanism of means of containment failure, consequences due to the failure, and tactics (e.g. types of personal protective equipment (PPE), mitigation methods, protective actions) used in the response.

5.A.4. An assessment with supporting rationale regarding the comparison of LNG to LPG during or following a release or anticipated release, which addresses whether or not their hazard profiles are comparable for the purpose of providing currently relevant emergency response guidance. The assessment should be based on incidents and on chemical and physical properties that may be affected by fire, or a compromised or failed means of containment, including whether or not the products exhibit BLEVE behaviour. It should provide a recommendation, with supporting rationale based on the data collected, on the assignment of LNG to Guide 115, a new guide, or elsewhere in the ERG, and elaborate on further research needed to make that determination, if required.

5.A.5. If further research is deemed necessary, a detailed rationale for the indicated research, including all of the missing elements that would be required to conclusively determine the appropriateness of ERG Guide 115 for LNG, as well as a recommended approach to obtaining the missing information (e.g. physical testing, modelling).

6. CONSTRAINTS

- The Contractor must first consider LNG and LPG incident data for incidents in means of containment (e.g. highway tanks, tank cars, UN portable tanks) from Canada and the United

-
- States. Approval from TC’s Technical Authority must be sought before including data from other jurisdictions.
- The analysis and recommendations derived from this work must be applicable to transportation incidents involving LNG.

7. DELIVERABLES AND SCHEDULE

The Contractor shall complete the work according to the following stages (A through D) and must receive the approval of TC’s Technical Authority, acknowledging the completion and satisfaction of each stage in writing, before proceeding to the next stage.

A. Project Initiation

A.1. Attend a kick-off meeting with the Technical Authority and other TC stakeholders to discuss the objectives and requirements of the mandate and the Contractor’s provisional approach and methodology as well as any modifications proposed by the Technical Authority regarding the proposed work plan submitted by the Contractor during the solicitation for bids. The meeting will take place within two (2) weeks of contract award by web conference.

A.2. Develop a final, detailed, project work plan and proposed project outline for approval by the Technical Authority, including:

- tasks to be performed;
- deliverables to be produced;
- roles and responsibilities of the resources proposed to perform the work;
- schedule for the performance of each element of work and submission of each deliverable;
- suggested table of contents for the final project report, including an executive summary; and
- proposed data sets (including the geographic location of incidents in each data set and number of incidents) to be used in the incident analysis.

Deliverable	Content	Format	Due Date
A.1. Kick-off meeting	Attend kick-off meeting to discuss project approach and deadlines with TC and TC’s comments on draft work plan	Web Conference	within 2 weeks of contract award
A.2. Final work plan	Submit final work plan including timelines for the completion of each of the deliverables defined in the statement of work, incorporating the changes requested by TC	MS Word	within 2 weeks of kick-off meeting

B. Data Collection and Analysis

B.1. For each desired outcome in Section 5, the Contractor shall assemble the necessary data and analysis to accomplish the desired outcome according to the approved work plan and provide a written progress report, including a summary of data sources used, findings and limitations on any data, conclusions, and/or analysis, for comment by the Technical Authority. The Contractor shall incorporate all comments from the Technical Authority and obtain written authorization before the desired outcome is considered complete.

Deliverable	Content	Format	Due Date
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B.1.1 Progress Report	A comparative analysis of the hazards associated with the transportation of LPG and LNG by road and rail due to their chemical and physical properties, including at a minimum: flammability, changes in pressure or temperature of the product during transport or during an emergency, BLEVE potential, exposure routes, by-products when on fire, effects on means of containment during and following a release, and behaviour of the product during and following a release (e.g. pooling, evaporation, dissipation).	MS Word	Within three (3) weeks of approval of, and according to, the final work plan.
B.1.2 Progress Report	A list comparing operational emergency response factors that may influence the complexity of a response to a release or anticipated release in transport (e.g. specialised equipment and personnel) for LNG vs. LPG for a wide possible range of incidents (e.g. small spills, large spills, Emergency Response Assistance Plan (ERAP) implementations, small fire, large fire, flame impingement, BLEVE, product volumes (e.g. small vs. large), and modes of transport (i.e. road vs. rail)).	MS Word	
B.1.3 Progress Report	An analysis of a wide range of incidents (e.g. spills, ERAP implementations, fire, flame impingement, BLEVE) involving a range of product volumes (e.g. small vs. large) while handling or transporting of LNG and LPG by road and rail. If an insufficient number of incidents are available, the search should be expanded, following a rationale to be approved in advance by the Technical Authority, to include incidents fitting additional search criteria that will add data for analysis (e.g. from fixed facilities, products with similar chemical and physical properties). The analysis shall provide a clear description of the main hazards during the incident (e.g. fire, spill, catastrophic means of containment failure, BLEVE, failure due to damage or puncture), mechanism of means of containment failure, consequences due to the failure, and tactics (e.g. types of PPE, mitigation methods, protective actions) used in the response.	MS Word	Within nine (9) weeks of approval of, and according to, the final work plan. If a search expansion is requested, the Contractor must provide this deliverable no later than two (2) weeks before the submission of B.1.4.
B.1.4 Progress Report	An assessment with supporting rationale regarding the comparison of LNG to LPG during or following a release or anticipated release, which addresses whether or not their hazard profiles are comparable for the purpose of providing currently relevant emergency response guidance. The assessment should be based on incidents and on chemical and physical properties that may be affected by fire, or a compromised or failed means of containment, including whether or not the products exhibit BLEVE behaviour. It should provide a recommendation, with supporting rationale based on the data collected, on the assignment of LNG to Guide 115, a new guide, or elsewhere in the ERG, and elaborate on further research needed to make that determination, if required.	MS Word	Within seventeen (17) weeks of approval of, and according to, the final work plan.
B.1.5 Progress Report	If further research is deemed necessary, a detailed rationale for the indicated research, including all of the missing elements that would be required to conclusively determine the appropriateness of ERG Guide 115 for LNG, as well as a recommended approach to obtaining the missing information (e.g. physical testing, modelling).	MS Word	

C. Draft Report and Presentation of findings and recommendations

- C.1.** Upon completion of work on all desired outcomes, the Contractor shall produce a draft report, summarizing all of the work completed as part of section B above, including a summary of all data collected, analyses performed, conclusions, and final recommendations. The report will incorporate all feedback previously provided to the Contractor by the Technical Authority. Any assumptions, caveats or limitations with the data or analysis will be clearly indicated in the report, including any measures that were taken to address the limitations. TC will review and provide feedback on this report.
- C.2.** Within one (1) week of submitting the draft report per C.1, the Contractor shall establish a mutually agreeable date for the presentation of the results by web conference with the Technical Authority.
- C.3.** The Contractor shall prepare a presentation of the results of the research. The presentation will be given via web conference on the date that was mutually agreed upon by the Contractor and the Technical Authority in C.2. The Contractor shall forward the PowerPoint file containing the intended presentation slides to the Technical Authority at least five (5) business days prior to the date scheduled for the presentation as per C.2.
- C.4.** The Contractor shall present the content of the PowerPoint file to the Technical Authority via web conference. The Technical Authority will provide comments on the presentation, including an assessment of the completeness of the work, and indicate any modifications to be made to the presentation or subsequent reports, to the Contractor. The Contractor must incorporate all changes requested by the Technical Authority into the presentation and subsequent reports.

Deliverable	Content	Format	Due Date
C.1. Draft Report	Draft report, summarizing all the work completed as part of section B above, including a summary of all data collected, analyses performed, conclusions and final recommendations. TC will review and provide feedback on this report.	MS Word	Within three (3) weeks of completion of B.1. according to final work plan.
C.2. Establish presentation date	Established date that is mutually agreed upon with the Technical Authority for presentation of the contents of the draft report in the form of a PowerPoint presentation to be delivered by web conference.	Phone call, e-mail	Within one (1) week of completion of C.1.
C.3. Draft presentation file	The presentation file in PowerPoint format of the results of the research referred to in C.2., forwarded to the Technical Authority by email at least five (5) business days prior to the agreed upon presentation date.	MS PowerPoint	At least five (5) business days prior to the agreed upon presentation date of C.2.
C.4. Presentation	A presentation of the content of the PowerPoint file to the Technical Authority via web conference. The Technical Authority will provide feedback on the presentation, including an assessment of the completeness of the work, and indicate any modifications to be made to the presentation or subsequent reports, to the Contractor.	Web Conference	TBD

D. Final Report and Presentation

D.1. Prepare a final report according to final work plan, free of grammatical and typographical errors, that incorporates all modifications and feedback from TC.

D.2. Prepare a final presentation in Microsoft PowerPoint format, free of grammatical and typographical errors, that incorporates all modifications and feedback from TC.

Deliverable	Content	Format	Due Date
D.1. Final Report	A final report that incorporates the comments provided by TC on the draft report.	MS Word	Within 2 weeks of completion of the presentation of C.4.
D.2. Final presentation file	A final version of the PowerPoint presentation that incorporates the feedback and input provided by TC on the draft presentation.	MS PowerPoint	

8. REPORTING REQUIREMENTS

The Contractor shall meet with the Technical Authority by teleconference or web conference monthly, and at the request of the Technical Authority or his/her designated representative(s).

In addition to the reports described in Section 7, the Contractor must provide a written monthly update by e-mail two business (2) days in advance of each monthly meeting with the Technical Authority that includes:

- status of the project,
- proposed approach(es) for resolving any project delays (if required),
- a summary of the work done and any results since the last update,
- percentage of work completed to date, and
- cost to date.

In addition to the timely submission of all deliverables and fulfillment of obligations specified in the contract, the Contractor must facilitate and maintain regular communication with the Technical Authority and immediately notify the Technical Authority of any issues, problems, or areas of concern (e.g. delays) in relation to any work completed or anticipated under the contract, as they arise. Communication may include: phone calls, electronic mail, and meetings.

9. LOCATION OF WORK

All work will be performed at contractor's facilities.

10. LANGUAGE OF WORK

The principal language of communication will be English. Progress reports, working papers, monthly updates, the draft and final report, presentation, and all other material must be provided in English.

Transport Canada will be responsible for translation of the report and other materials into French if and as required.

11. TERMS OF ACCEPTANCE

All deliverables and services rendered under any contract are subject to inspection by the TC Technical Authority. Should any deliverables not be to the satisfaction of the TC Technical Authority, as submitted, the TC Technical Authority shall have the right to reject it or require correction before payment will be authorized.

This contract shall not be considered to have been completed until the Contractor has demonstrated to the satisfaction of the TC Technical Authority that the Project Report meets the requirements detailed in this Statement of Work.

12. TC OBLIGATIONS

- relevant internal documentation,
- scheduled access to departmental stakeholders, and
- provision of timely review of, feedback on and approval of deliverables (approximately 5-10 business days unless otherwise specified).

ANNEX "B"

BASIS OF PAYMENT

In consideration of the Contractor satisfactorily completing all of its obligations under the terms and conditions of this Contract, the Contractor will be paid an all-inclusive fixed price:

All prices and costs must be submitted in Canadian Dollars, Canadian customs duties and excise taxes included, Applicable Taxes excluded.

Period of the Contract: Award to 31 March, 2022

Milestone No.	Description or "Deliverable"	Firm Amount (CAD)	Delivery Date
1	Acceptance of final work plan with detailed timelines (Section 7.A.2. of Annex A)	\$ _____ (10% of fixed price)	Within 2 week of kick-off meeting
2	Completion of all progress reports (7.B.1.1. – 7.B.1.5.) (Section 7.B. in Annex A)	\$ _____ (25% of price)	Within 17 weeks of approval of, and according to, the final work plan.
3	Receipt of PowerPoint and draft report files as well as presentation of PowerPoint file contents based on the report findings. (Section 7.C.- of Annex A)	\$ _____ (25% of fixed price)	TBD
4	Acceptance of the final report and PowerPoint that incorporate the feedback from TC (Section 7.D. of Annex A)	\$ _____ (40% of fixed price)	Within 2 weeks of the completion of deliverable C.4. of Annex A
Total Cost for Evaluation Purposes (Sum of Milestone 1 to Milestone 4 (with no Taxes))		\$ _____	
Applicable Taxes (insert the amount, as applicable)		\$ _____	
Total Cost (taxes included)		\$ _____	