



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

Transport Canada  
TC MAIL ROOM, (Food Court Level)  
Tower "C", Place de Ville  
330 Sparks Street  
Ottawa, Ontario K1A 0N5  
Attention: Sylvain Desbois  
Bid receiving Unit : 613-998-5105

Transports Canada  
TC MAIL ROOM, (Niveau Food Court)  
Tour C", Place de Ville  
330 Sparks Street  
Ottawa, Ontario K1A 0N5  
Attention: Sylvain Desbois  
Service de réception des soumissions : 613-998-5105

**REQUEST FOR PROPOSAL  
DEMANDE DE PROPOSITION**

**Comments – Commentaires**

**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, services, and construction listed herein and on any attached sheets at the price(s) set out thereof.

On behalf of the bidder, by signing below, I confirm that I have read the entire bid solicitation including the documents incorporated by reference into the bid solicitation and I certify that:

1. The bidder considers itself and its products able to meet all the mandatory requirements described in the bid solicitation;
2. This bid is valid for the period requested in the bid solicitation;
3. All the information provided in the bid is complete, true and accurate; and
4. If the bidder is awarded a contract, it will accept all the terms and conditions set out in the resulting contract clauses included in the bid solicitation.

**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, services et construction énumérés ici sur toute feuille ci-annexées, au(x) prix indiqué(s).

En apposant ma signature ci-après, j'atteste, au nom du soumissionnaire, que j'ai lu la demande de propositions (DP) en entier, y compris les documents incorporés par renvoi dans la DP et que :

1. le soumissionnaire considère qu'il a les compétences et que ses produits sont en mesure de satisfaire les exigences obligatoires décrites dans la demande de soumissions;
2. cette soumission est valide pour la période exigée dans la demande de soumissions ;
3. tous les renseignements figurant dans la soumission sont complets, véridiques et exacts; et
4. si un contrat est attribué au soumissionnaire, ce dernier se conformera à toutes les modalités énoncées dans les clauses concernant le contrat subséquent et comprises dans la demande de soumissions

<b>Title – Sujet</b>	
Passenger Automobile and Light Truck Greenhouse Gas (GHG) Reduction Technology Review	
<b>Solicitation No. – N° de l'invitation</b>	<b>Date</b>
T8080-180611	November 18, 2019
<b>Client Reference No. – N° référence du client</b>	
<b>GETS Reference No. – N° de référence de SEAG</b>	
<b>Solicitation Closes L'invitation prend fin</b>	<b>Time Zone Fuseau horaire</b>
<b>at – à</b> 02:00 PM – 14h00	Eastern Standard Time (EST)
<b>on – le</b> December 30, 2019	Heure Normale de l'Est (HNE)
<b>F.O.B. - F.A.B.</b>	
Plant-Usine: <input type="checkbox"/> Destination: <input checked="" type="checkbox"/> Other-Autre: <input type="checkbox"/>	
<b>Address inquiries to – Adresser toute demande de renseignements à :</b>	
Sylvain Desbois	
Area code and Telephone No. Code régional et N° de téléphone	Facsimile No. / e-mail N° de télécopieur / courriel
	<a href="mailto:sylvain.desbois@tc.gc.ca">sylvain.desbois@tc.gc.ca</a>
<b>Destination – of Goods, Services, and Construction: Destination – des biens, services et construction</b>	
National Capital Region	

**Instructions:** See Herein  
**Instructions :** Voir aux présentes

<b>Delivery required -Livraison exigée</b>	<b>Delivery offered -Livraison proposée</b>
See Herein – Voir aux présentes	
<b>Jurisdiction of Contract:</b> Province in Canada the bidder wishes to be the legal jurisdiction applicable to any resulting contract (if other than as specified in solicitation) <b>Compétence du contrat :</b> Province du Canada choisie par le soumissionnaire et qui aura les compétences sur tout contrat subséquent (si différente de celle précisée dans la demande)	
<b>Vendor/firm Name and Address Raison sociale et adresse du fournisseur/de l'entrepreneur</b>	
Telephone No. - N° de téléphone	
e-mail - courriel	
<b>Name and title of person authorized to sign on behalf of Vendor/firm (type or print) Nom et titre de la personne autorisée à signer au nom du fournisseur/de l'entrepreneur (taper ou écrire en caractères d'imprimerie)</b>	
<b>Signature</b>	<b>Date</b>

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## **PART 1 - GENERAL INFORMATION**

### **1.1 Introduction**

The bid solicitation is divided into six (6) 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.

The Annexes include the Statement of Work, the Basis of Payment.

### **1.2 Summary**

**1.2.1** The objective of this project is to fill knowledge gaps with respect to recent advanced vehicle technologies (AVT) that are emerging to reduce greenhouse gas (GHG) emissions for passenger vehicles and light trucks, especially those whose costs and benefits have not been benchmarked in publicly available documents/studies such as the U.S. EPA's Draft Technical Assessment documents. The period of the Contract is from date of Contract award to June 30, 2020.

#### **1.2.2 Trade Agreements**

The requirement is subject to the provisions of the World Trade Organization Agreement on Government Procurement (WTO-AGP), the North American Free Trade Agreement (NAFTA), the Canada-European Union Comprehensive Economic and Trade Agreement (CETA), and the Canadian Free Trade Agreement (CFTA).

### **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](#) (2019-03-04) Standard Instructions - Goods or Services - Competitive Requirements, are incorporated by reference into and form part of the bid solicitation.

<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual/1/2003/24>

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 (TC) Bid Receiving Unit by the date, time and place indicated on page 1 of the bid solicitation.

### **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 FPS, bidders must provide in writing before contract award for each question in Attachment 1 to Part 5 – Information on Former Canadian Public Servant, the answer and, as applicable, the information required.

### **2.4 Enquiries - Bid Solicitation**

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.

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 ten (10) calendar days before the bid closing date. Canada will have the right to accept or reject any or all suggestions.

## **2.7 Basis for Canada's Ownership of Intellectual Property**

Transport Canada has determined that any intellectual property rights arising from the performance of the Work under the resulting contract will belong to Canada, for the following reasons, as set out in the [Policy on Title to Intellectual Property Arising Under Crown Procurement](#) :

- the main purpose of the contract, or of the deliverables contracted for, is to generate knowledge and information for public dissemination;

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## PART 3 - BID PREPARATION INSTRUCTIONS

### 3.1 Bid Preparation Instructions

Canada requests that the Bidder submits its bid in separately bound sections as follows:

- Section I: Technical Bid (4) hard copies and 1 (one) soft copy such CD or DVD or USB key
- Section II: Financial Bid (1 hard copy)
- Section III: Certifications and additional information (1 hard copy)

If there is a discrepancy between the wording of the soft copy on electronic media and the hard copy, the wording of the hard copy will have priority over the wording of the soft copy.

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

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

Canada requests that bidders follow the format instructions described below in the preparation of hard copy of their bid:

- (a) use 8.5 x 11 inch (216 mm x 279 mm) paper;
- (b) use a numbering system that corresponds to the bid solicitation.

In April 2006, Canada issued a policy directing federal departments and agencies to take the necessary steps to incorporate environmental considerations into the procurement process [Policy on Green Procurement](https://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=32573) (https://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=32573). To assist Canada in reaching its objectives, bidders should:

- 1) use 8.5 x 11 inch (216 mm x 279 mm) paper containing fibre certified as originating from a sustainably-managed forest and containing minimum 30% recycled content; and
- 2) use an environmentally-preferable format including black and white printing instead of colour printing, printing double sided/duplex, using staples or clips instead of cerlox, duotangs or binders.

#### 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.

**Education:** Where the education of a proposed individual will be evaluated, Canada will only consider academic credentials obtained from a recognized\* Canadian university, college or high school, or the equivalent for credentials obtained outside Canada, as established by a recognized\* Canadian academic credentials assessment service. (\*The list of recognized organizations can be found under the Canadian Information Centre for International Credentials website, at the following Internet link: <http://www.cicic.ca/2/home.canada>.)

Attachment 1 to Part 4: Technical Evaluation Criteria, contains additional instructions that bidders should consider when preparing their technical bid

#### Section II: Financial Bid

- 3.1.1 Bidders must submit their financial bid in accordance with the Basis of Payment. The total amount of Applicable Taxes must be shown separately.

- i. Bidders must submit their financial bid in accordance with Attachment 2 to Part 4 : Financial Evaluation – Pricing Schedule. The total amount of Goods and Services Tax (GST) or Harmonized Sales Tax (HST) is to be shown separately, as applicable.
- ii. Bidders must submit their price, FOB destination, as applicable, Canadian customs duties and excise taxes included, as applicable, and GST or HST excluded.
- iii. All prices included in the pricing schedule detailed in Attachment 2 to Part 4 : Financial Evaluation – Pricing Schedule exclude allowable authorized travel and living expenses.

### **3.1.2 Exchange Rate Fluctuation**

C3011T (2013-11-06) Exchange Rate Fluctuation

#### **Section III: Certifications and additional information**

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

Bidders must also submit Page 1 of this Request for Proposal, duly completed and signed and dated by a person authorized to sign on behalf of the Bidder (Vendor/firm).

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## **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**

##### **4.1.1.1 Mandatory Technical Criteria (Step 1)**

Refer to Attachment 1 to Part 4: Technical Evaluation Criteria. If the proposal fails to meet any of the Mandatory Criteria of the RFP, the proposal shall not be given further consideration and it will be deemed non-responsive.

##### **4.1.1.2 Point Rated Technical Criteria (Step 2)**

Refer to Attachment 1 to Part 4: Technical Evaluation Criteria.

Point-rated technical criteria not addressed will be given a score of zero. If the proposal fails to meet the minimum required threshold of the Point Rated Technical Criteria, the proposal shall not be given further consideration and it will be deemed non-responsive.

#### **4.1.2 Financial Evaluation**

Refer to Attachment 2 to Part 4: Financial Evaluation - Pricing Schedule.

Only compliant proposals meeting all of the requirements detailed in Steps 1 and 2 will be considered at this point.

Prices submitted will be evaluated to determine the bid evaluation price as defined in Attachment 2 to Part 4: Financial Evaluation - Pricing Schedule.

Should there be an error in the extended pricing of the Bidder's proposal, the unit pricing and rates shall prevail and the extended pricing shall be corrected in the evaluation. Any errors in quantities of the Bidder's proposal shall be changed to reflect the quantities stated in the Request for Proposal (RFP).

Failure or refusal to provide a price or rate for any item in Attachment 2 to Part 4 : Financial Evaluation - Pricing Schedule shall be considered as failing to meet a mandatory requirement of the RFP and therefore, the Bidder's proposal shall be given no further consideration.

- 4.1.2.1 The price of the bid will be evaluated in Canadian dollars, Applicable Taxes excluded, FOB destination, Canadian customs duties and excise taxes included.
- 4.1.2.2 For bid evaluation and contractor selection purposes only, the evaluated price of a bid will be determined in accordance with Attachment 2 to Part 4 : Financial Evaluation - Pricing Schedule.

### **4.2 Basis of Selection**

#### **4.2.1 Basis of Selection – Highest Combined Rating of Technical Merit (70%) and Price ( 30% )**

##### **4.2.1.1 To be declared responsive, a bid must:**

- (a) comply with all the requirements of the bid solicitation;
- (b) meet all mandatory criteria specified in Attachment 1 to Part 4; and
- (c) obtain the required minimum points specified in Attachment 1 to Part 4 for the points rated technical criteria;

##### **4.2.1.2 Bids not meeting either (a), (b) or (c) above will be declared non-responsive.**

##### **4.2.1.3 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.**



- 4.2.1.4 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%.
- 4.2.1.5 To establish the pricing score, each responsive bid will be prorated against the lowest evaluated price and the ratio of 30%.
- 4.2.1.6 For each responsive bid, the technical merit score and the pricing score will be added to determine its combined rating.
- 4.2.1.7 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 the selection of the contractor is determined by a 70/30 ratio of the technical merit and price, respectively.

<b>Basis of Selection - Highest Combined Rating of Technical Merit (70%) and Price (30%)</b>			
Bidder	Bidder 1	Bidder 2	Bidder 3
Overall Technical Score	88/100	82/100	92/100
Bid Evaluated Price	C\$60,000	C\$55,000	C\$50,000
Calculations	Technical Merit Points	Price Points	Total Score
Bidder 1	$88 / 100 \times 70 = 61.6$	$50,000^* / 60,000 \times 30 = 25.00$	86.60
Bidder 2	$82 / 100 \times 70 = 57.4$	$50,000^* / 55,000 \times 30 = 27.27$	84.67
Bidder 3	$92 / 100 \times 70 = 64.4$	$50,000^* / 50,000 \times 30 = 30.00$	94.40**

\* represents the lowest evaluated price

\*\*represents the bidder who will be recommended for award of a contract

4.2.2 In the event two or more responsive bids have the same highest combined rating of technical merit and price, these bids will be ranked in descending order of the overall scores obtained for all of the point rated technical criteria detailed in Attachment 1 to Part 4; the responsive bid obtaining the highest overall score being ranked the highest.

## ATTACHMENT 1 TO PART 4 – TECHNICAL EVALUATION CRITERIA

### 1.0 Technical Evaluation Criteria

Proposals compliance will be evaluated on the following mandatory and rated requirements. Bidders must provide necessary documentation to support compliance. Bidders are advised to also refer to Part 3, Section I: Technical Bid.

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 will only be counted once. For example: Project 1 timeframe is July 2001 to December 2001; Project 2 timeframe is October 2001 to January 2002; the total months of experience for these two project references is seven (7) months.

**TABLE 1: REQUIRED FORMAT FOR DEMONSTRATING EXPERIENCE**

Work experience or project experience used to demonstrate compliancy must be presented using the format of this table.

If referencing a project, dates duration of the project and bidder's work must have been for a minimum of two months.

- a. The name of the client organization;
- b. A description of the project, including the scope and elements of the framework, and the results/outcomes of the work undertaken by the bidder ;
- c. The dates/duration of the work/project indicating the years/months of engagement by the bidder
- d. Description of the activities performed by one of the proposed resource team member relevant to the criteria
- e. The name of the client organization and the name, title and email address of a contact person that may be used as a reference to validate projects or experiences

### 2.0 Mandatory Technical Criteria (M)

The Mandatory Technical Criteria listed below will be evaluated on a simple met/not met (i.e. compliant/non-compliant) basis.

Each Mandatory Technical Criteria should be addressed separately. Proposals which fail to meet the Mandatory Technical Criteria will be deemed non-responsive and given no further consideration.

Proposals will be evaluated in accordance with the mandatory evaluation criteria as detailed herein. Bidders are advised to address each requirement in sufficient depth to permit a complete requisite analysis and assessment by the evaluation team. Proposals failing to adequately respond to the mandatory evaluation criteria will be excluded from further consideration. Only proposals found to meet the mandatory evaluation criteria will be evaluated in accordance with the evaluation criteria subject to point rating.

No	Mandatory Requirement	MET / NOT MET	Bidder Response / Cross Reference to Proposal and/or CV
<b>M1</b>	<p>The bidder must provide the name and resume (CV) for each team member, including the team member who will be the Project Manager/Contractor representative and the roles and responsibilities of the Project Manager and each other team member for this project.</p> <p>I. The resume of each of the proposed resources must include as a minimum, education, employment history and relevant experience</p> <p>II. The team must include no less than 2 resources</p>	<p>Met: <input type="checkbox"/></p> <p>Not Met: <input type="checkbox"/></p>	
<b>M2</b>	<p>The bidder must demonstrate having completed a minimum one (1) project within the past five (5) years from the date of bid closing working with one (1) original equipment manufacturer (OEMs) or supplier in the automotive industry to obtain and analyze technical information on advanced technologies to reduce GHG emissions from passenger vehicles and/or light-trucks.</p> <p>The Bidder must provide the information as required using Table 1</p>	<p>Met: <input type="checkbox"/></p> <p>Not Met: <input type="checkbox"/></p>	
<b>M3</b>	<p>The bidder must demonstrate having completed one (1) project within the past five (5) years from the date of bid closing involving detailed analysis of the impact of advanced technologies at reducing fuel consumption, GHG emissions, and criteria air contaminants for passenger vehicles and/or light trucks.</p> <p>The Bidder must provide the information as required using Table 1</p>	<p>Met: <input type="checkbox"/></p> <p>Not Met: <input type="checkbox"/></p>	
<b>M4</b>	<p>The bidder must demonstrate having completed one (1) project within the past five (5) years from the date of bid closing involving cost-benefit analysis in the automotive industry related to advanced technologies of passenger vehicles and/or light trucks.</p> <p>The Bidder must provide the information as required using Table 1</p>	<p>Met: <input type="checkbox"/></p> <p>Not Met: <input type="checkbox"/></p>	

### 3.0 Point Rated Technical Criteria (R)

Bids which meet all of the mandatory technical criteria will be further evaluated and scored against the following rated requirements.

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

No.	Rated Requirements	Maximum Score	Bidder Response / Cross Reference to Proposal and/or CV	Bidder score
R1	<p><b>Demonstrated statement of understanding of the project's objective, scope, tasks and deliverables as stated in the Statement of Work (SOW): Annex A</b></p> <p><b>(20 points):</b> Bidder's proposal demonstrates a complete and thorough understanding of the project's objective, scope, tasks and deliverables</p> <p><b>(15 points):</b> Bidder's proposal demonstrates a thorough understanding of the project's objective, scope, tasks, and deliverables</p> <p><b>(10 points):</b> Bidder's proposal demonstrates a general understanding of the project's objective, scope, tasks and deliverables.</p> <p><b>(5 points):</b> Bidder's proposal demonstrates an incomplete or incorrect understanding of the project's objective, scope, tasks, and deliverables.</p> <p><b>(0 point):</b> Bidder's proposal does not demonstrate or address any understanding of the project's objective, scope, tasks, and deliverables.</p> <p>The following definitions will be used to evaluate R1</p> <ul style="list-style-type: none"> <li>• Complete and thorough means the proposal addresses all elements of the objectives, scope, tasks, and deliverables listed in the SOW and includes significant added insights that demonstrate the completeness of understanding of the objectives.</li> <li>• Thorough means the proposal addresses all elements of the objectives, scope, tasks, and deliverables.</li> <li>• General means the proposal addresses most but not all elements of the objectives, scope, tasks, and deliverables.</li> <li>• Incomplete or incorrect mean the proposal does not address or include elements of the objectives, scope, tasks and deliverables.</li> </ul>	20		
R2	<p><b>Proposed approach, Project Work-plan and schedule</b></p> <p>The Bidder's proposal should include a proposed approach, project workplan and schedule that details deadlines and milestones regarding how they would complete the tasks included in the Statement of Work (SOW): Annex A</p> <p>The above will be evaluated for completeness, clarity, and achievability, as demonstrated through use of a work-breakdown structure mapped to the tasks in the Statement of Work (SOW).</p>	40		

<p><b>(40 points):</b> Bidder provides a comprehensive description of their proposal with significant added insights, which includes:</p> <p>For the purposes of evaluating R2, a comprehensive description is defined as follows:</p> <ul style="list-style-type: none"> <li>a) methodology/approach to addressing the issues;</li> <li>b) description of potential risks and risk mitigation strategies;</li> <li>c) Identification and discussion of assumptions they make in their proposed approach;</li> <li>d) Identification of management, administrative and engineering tasks required for successful completion of each task outlined in the SOW;</li> <li>e) A schedule that includes all the tasks and subtasks, and the required inputs from Canada (if any is identified in the bidder's proposal);</li> <li>f) Identifies critical path activities; and presents consideration to anticipate and avoid delays;</li> </ul> <p><b>(30 points):</b> Bidder provides a complete description of their proposed approach with some added insights.</p> <p>For the purposes of evaluating R2, a complete description is defined as follows:</p> <ul style="list-style-type: none"> <li>a) methodology/approach to addressing the issues;</li> <li>b) description of potential risks and risk mitigation strategies;</li> <li>c) Identification of management, administrative and engineering tasks required for successful completion of each task outlined in the SOW;</li> <li>d) A schedule that includes all the tasks and subtasks, and the required inputs from Canada (if any is identified in the bidder's proposal)</li> </ul> <p><b>(20 points):</b> Bidder provides a general description of their proposed approach with few added insights.</p> <p>For the purposes of evaluating R2, a general description is defined as follows:</p> <ul style="list-style-type: none"> <li>a) methodology/approach to addressing the issues;</li> <li>b) Identification of management, administrative and engineering tasks required for successful completion of each task outlined in the SOW</li> </ul> <p><b>(10 points):</b> Bidder provides an incomplete description of their proposed technical approach with no added insights.</p> <p>For the purposes of evaluating R2, an incomplete description is defined as follows:</p> <ul style="list-style-type: none"> <li>a) The Bidder's proposal identifies technical issues to be addressed;</li> <li>b) Identification of management, administrative and engineering tasks required for successful completion of each task outlined in the SOW</li> </ul> <p><b>(0 points):</b> Bidder does not provide a proposed approach or a project plan to complete the Statement of Work (SOW).</p>			
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R3	<p><b>Project Manager Experience</b> For the Project Manager identified in mandatory criteria M1. Demonstrated work or project managerial experience using table 1 in the last five (5) years from the date of bid closing having:</p> <ul style="list-style-type: none"> <li>a. Supervising and performing literature reviews on technical subjects</li> <li>b. Interviewing stakeholders on technical subjects</li> <li>c. Produce reports and summary on technical subjects</li> </ul> <p><b>(20 points):</b> 4 or more projects. <b>(15 points):</b> 3 projects. <b>(10 points):</b> 2 projects. <b>(5 points):</b> 1 project <b>(0 points):</b> 0 project</p>	20		
R4	<p>Demonstrated project(s) using table 1 in the last eight (8) years from the date of bid closing, investigating emerging on-road technologies for passengers and/or light duty vehicles aimed at reducing greenhouse gas emissions and identifying their efficiency and potential for implementation.</p> <p><b>(10 points):</b> 3 or more projects. <b>(7 points):</b> 2 projects. <b>(5 points):</b> 1 project <b>(0 points):</b> 0 project</p>	10		
R5	<p>Demonstrated project(s) using table 1 in the last eight (8) years from the date of bid closing working with original equipment manufacturers (OEMs) or suppliers to evaluate and compare technologies aimed at reducing greenhouse gas emissions from passengers and/or light duty vehicles.</p> <p><b>(10 points):</b> 3 or more projects. <b>(7 points):</b> 2 projects. <b>(5 points):</b> 1 project <b>(0 points):</b> 0 project</p>	10		
R6	<p>Demonstrated project(s) using table 1 in the last 8 years from the date of bid closing 1 in performing cost-benefit analysis for on-road passengers and/or light duty vehicle technologies.</p> <p>The bidder should demonstrate experience in identifying fixed and variable costs; and experience identifying tooling and capital equipment costs related to the introduction of new vehicle technologies, and their impact on consumers.</p> <p><b>(10 points):</b> 3 or more projects. <b>(7 points):</b> 2 projects. <b>(5 points):</b> 1 project <b>(0 points):</b> 0 project</p>	10		

Maximum available points	110	
Minimum overall points required	75	
<b>Bidder score ( *)</b>		Met: <input type="checkbox"/> Not Met: <input type="checkbox"/>

(\*): Overall Technical score. This value constitutes the technical evaluation score for bid evaluation and contractor selection purposes.

**ATTACHMENT 2 TO PART 4 – FINANCIAL EVALUATION – PRICING SCHEDULE**

Only bids which meet all the mandatory technical criteria and obtain and obtain the minimum overall score on the rated criteria from Attachment 1 to Part 4 – Technical Evaluation Criteria will be rated on their financial proposal.

The Bidder must complete this pricing schedule and include it in its financial bid. The price specified below, includes any travel expenses that may need to be incurred to satisfy the terms of any contract that may result from its bid

**Pricing Schedule**

	<b>Deliverable / Milestone</b>	<b>% of contract value</b>	<b>Firm Price ( CDN \$ )</b>	
1	Final work-plan Project schedule Progress meeting scheduling	<b>10%</b>	#[Insert amount]	A
2	Literature review (list of sources) Stakeholder list Interview questions	<b>20%</b>	#[Insert amount]	B
3	Stakeholder interview summary	<b>20%</b>	#[Insert amount]	C
4	Report table of contents Draft report Draft presentation	<b>10%</b>	#[Insert amount]	D
5	Final report	<b>20%</b>	#[Insert amount]	E
6	Final Presentation	<b>20%</b>	#[Insert amount]	F
	<b>EVALUATED PRICE</b> (the sum of prices for deliverables 1 to 6, excluding taxes)		#[Insert amount]	G=A+B+C+D+E+F
	Taxes (insert tax amount, as applicable):		#[Insert amount]	
	<b>Total Cost:</b>		#[Insert amount]	



## **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.

Forms : <http://www.tpsgc-pwgsc.gc.ca/ci-if/formulaires-forms-eng.html>

#### **5.2.2 Former Public Servant**

The Bidder must submit a duly completed Attachment 1 to Part 5 – Information on Former Canadian Public Servant.

#### **5.2.3 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.

The Bidder must submit a duly completed Attachment 2 to Part 5

#### **5.2.4 Additional Certification and Information precedent to Contract Award**

Bidders must submit Attachment 3 to Part 5.

## ATTACHMENT 1 TO PART 5 – INFORMATION ON FORMER CANADIAN PUBLIC SERVANT

### **Former Public Servant**

The Bidder must submit a duly completed Attachment 1 to Part 5 - Information on Former Canadian Public Servant, precedent to contract award.

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 with FPS, bidders must provide the information required below before contract award.

#### A. 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.

#### B. Former Public Servant in Receipt of a Pension

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

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

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

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

#### C. 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 \_\_\_\_\_.

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

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## ATTACHMENT 2 TO PART 5 : FEDERAL CONTRACTORS PROGRAM FOR EMPLOYMENT EQUITY – CERTIFICATION

I, the Bidder, by submitting the present information to the Contracting Authority, certify that the information provided is true as of the date indicated below. The certifications provided to Canada are subject to verification at all times. I understand that Canada will declare a bid non-responsive, or will declare a contractor in default, if a certification is found to be untrue, whether during the bid evaluation period or during the contract period. Canada will have the right to ask for additional information to verify the Bidder's certifications. Failure to comply with any request or requirement imposed by Canada may render the bid non-responsive or constitute a default under the Contract.

For further information on the Federal Contractors Program for Employment Equity visit [Employment and Social Development Canada \(ESDC\) – Labour's](#) website.

Date: \_\_\_\_\_(YYYY/MM/DD) (If left blank, the date will be deemed to be the bid solicitation closing date.)

Complete both A and B.

A. Check only one of the following:

- A1. The Bidder certifies having no work force in Canada.
- A2. The Bidder certifies being a public sector employer.
- A3. The Bidder certifies being a [federally regulated employer](#) being subject to the [Employment Equity Act](#).
- A4. The Bidder certifies having a combined work force in Canada of less than 100 permanent full-time and/or permanent part-time employees.

A5. The Bidder has a combined workforce in Canada of 100 or more employees; and

- A5.1. The Bidder certifies already having a valid and current [Agreement to Implement Employment Equity](#) (AIEE) in place with ESDC-Labour.

**OR**

- A5.2. The Bidder certifies having submitted the [Agreement to Implement Employment Equity \(LAB1168\)](#) to ESDC-Labour. As this is a condition to contract award, proceed to completing the form Agreement to Implement Employment Equity (LAB1168), duly signing it, and transmit it to ESDC-Labour.

B. Check only one of the following:

- B1. The Bidder is not a Joint Venture.

**OR**

- B2. The Bidder is a Joint venture and each member of the Joint Venture must provide the Contracting Authority with a completed annex Federal Contractors Program for Employment Equity - Certification. (Refer to the Joint Venture section of the Standard Instructions)

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**ATTACHMENT 3 TO PART 5 – Additional Certification and Information**

Bidders must submit **Attachment 3 to Part 5 - Additional Certifications** and information precedent of contract award.

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

**A. Bidder / Supplier Information. Bidder to also sign and date page 1**

Supplier's legal name	
Supplier Operating name	
Supplier's procurement business number (PBN)	
Supplier's address	
Contact person name and email address	

**B. Status and Availability of Resources** *SACC Manual* clause [A3005T](#) (2010-08-16)

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.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**B. Education and Experience** *SACC Manual* clause [A3010T](#) (2010-08-16)

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.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## 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 Statement of Work at Annex "A".

### 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 (2018-06-21) General Conditions - Higher Complexity - Services, apply to and form part of the Contract.

<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual/3/2035/17>

#### 6.2.2 Supplemental General Conditions

4007 (2010-08-16): Canada to Own Intellectual Property Rights in Foreground Information, apply to and form part of the Contract.

<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual/4/4007/3>

### 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 award to June 30, 2020.

### 6.5 Authorities

#### 6.5.1 Contracting Authority

The Contracting Authority for the Contract is:

Sylvain Desbois  
Contracting Specialist  
Transport Canada  
275 Sparks Street  
Building 275 Sparks - Floor 01 - Room 7  
Ottawa, Ontario  
K1A 0N5

Telephone: 613-990-8737

E-mail : sylvain.desbois@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 Technical Authority / Departmental representative *(to be identified at contract award)*

The Technical Authority for the Contract is:

Name: \_\_\_\_\_  
Title: \_\_\_\_\_  
Organization: \_\_\_\_\_  
Address: \_\_\_\_\_

Telephone: \_\_\_\_\_  
e-mail address: \_\_\_\_\_

The Technical 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** (*to be identified at contract award*)

**6.5.4 Contractor's Resources** (*to be identified at contract award*)

**6.6 Proactive Disclosure of Contracts with Former Public Servants**

By providing information on its status, with respect to being a former public servant in receipt of a Public Service Superannuation Act (PSSA) pension, the Contractor has agreed that this information will be reported on departmental websites as part of the published proactive disclosure reports, in accordance with Contracting Policy Notice: 2012-2 of the Treasury Board Secretariat of Canada.

**6.7 Payment**

**6.7.1 Basis of Payment**

Firm Price

In consideration of the Contractor satisfactorily completing all of its obligations under the Contract, the Contractor will be paid a firm price as specified in Annex B - Basis of Payment, for a cost of \$ \_\_\_\_\_ (amount to be inserted at contract award). 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**

Milestone Payments

For the work as described in Annex A – Statement of Work, Canada will make milestone payments in accordance with The Schedule of Milestones outlined in Annex B and the payment provisions of the Contract if:

- a) 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;
- b) all such documents have been verified by Canada; and
- c) the Work delivered has been accepted by Canada.

**6.7.4 Electronic Payment of Invoices - Contract**

The Contractor accepts to be paid using any of the following Electronic Payment Instruments:

- 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

The Contractor must submit invoices in accordance with the section entitled "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) a copy of the release document and any other documents as specified in the Contract;
- b) a copy of the invoices, receipts, vouchers for all direct expenses, and all travel and living expenses ( if applicable);

Invoices must be distributed as follows:

- a) The original and one (1) copy must be forwarded to the Technical Authority of the Contract for certification and payment.
- b) One (1) electronic copy must be forwarded to the Contracting Authority.

## 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 \_\_\_\_\_. (*Insert the name of the province or territory as specified by the Bidder in its bid, if applicable*)

## 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) 4007 (2010-08-16 ) - Canada to Own Intellectual Property Rights in Foreground Information
- (c) 2035 (2018-06-21) - General Conditions - Professional Services (Medium Complexity) ;
- (d) Annex A, Statement of Work ;
- (e) Annex B, Basis of Payment ;
- (F) the Contractor's bid dated \_\_\_\_\_ (*insert date of bid*) (*If the bid was clarified or amended, insert at the time of contract award: “, as clarified on \_\_\_\_\_” or “, as amended on \_\_\_\_\_” and insert date(s) of clarification(s) or amendment(s)*)

## 6.12 Insurance – No specific requirement

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.

## ANNEX "A": STATEMENT OF WORK

### 1. TITLE

Passenger Automobile and Light Truck Greenhouse Gas (GHG) Reduction Technology Review

### 2. OBJECTIVE

The objective of this project is to fill knowledge gaps with respect to recent advanced vehicle technologies (AVT) that are emerging to reduce greenhouse gas (GHG) emissions for passenger vehicles and light trucks, especially those whose costs and benefits have not been benchmarked in publicly available documents/studies such as the U.S. EPA's Draft Technical Assessment documents.

Knowledge gaps exist in Canada with respect to which technologies are available in Canada, what the up-front costs of implementing these technologies are, as well as the time it takes for consumers to recover additional cost of these technologies, considering operation in Canadian conditions.

Specifically, the project must address the following questions:

- What is the potential of these emerging AVTs to reduce GHG emissions, considering Canadian operating conditions and market preferences?
- What are the estimated costs and payback times of AVTs for consumers?

This information will support the development of Canada's policies, strategies, and future regulatory efforts for reducing greenhouse gas emissions from passenger vehicles and light trucks.

### 3. DEFINITIONS AND APPLICABLE DOCUMENTS

The following list of definitions and acronyms is relevant to this project. The list is not exhaustive, but rather is intended to ensure clarity of understanding of critical terms used within this SOW.

Term/Acronym	Definition
Passenger Automobile	Means any automobile, other than a light truck, that is designed for use in the transportation of not more than 10 persons.
Light Truck	Means an automobile <ol style="list-style-type: none"> <li>1) that has four-wheel drive or a GVWR of more than 2,722 kg (6,000 pounds) and that has at least four of the following characteristics calculated when the automobile is at curb weight, on a level surface, with the front wheels parallel to the automobile's longitudinal centerline and the tires inflated to the manufacturer's recommended pressure:                             <ol style="list-style-type: none"> <li>a) approach angle of not less than 28 degrees</li> <li>b) break-over angle of not less than 14 degrees,</li> <li>c) departure angle of not less than 20 degrees</li> <li>d) running clearance of not less than 20 centimeters,</li> <li>e) front and rear axle clearances of not less than 18 centimeters; or</li> </ol> </li> <li>2) that is designed to perform at least one of the following functions:                             <ol style="list-style-type: none"> <li>a) transport more than 10 persons,</li> <li>b) provide temporary living quarters,</li> <li>c) transport property on an open bed,</li> <li>d) provide greater cargo-carrying than passenger-carrying volume, the cargo-carrying volume of a vehicle sold with a second-row seat being determined with that seat installed, regardless of whether or not the manufacturer has described that seat as optional</li> <li>e) permit expanded use of the automobile for cargo-carrying purposes through the removal or stowing of seats to create a flat surface extending from the forward most point of installation of those seats to the rear of the automobile's interior, with automobiles of the 2012 and subsequent model years being equipped with at least three rows of designated seating positions as standard equipment.</li> </ol> </li> </ol>



#### 4. BACKGROUND STATEMENT

Canada's transportation system needs to be safe, efficient, accessible, reliable and clean. Transport Canada's (TC) Innovation Centre (IC) is working in collaboration with Environment and Climate Change Canada's (ECCC) Transportation Division, provincial governments, industry and academia to test and evaluate the safety and environmental performance of advanced vehicle technologies in Canada. The IC program's test results are helping to develop codes, standards and regulations that government and industry require to introduce these technologies in Canada in a safe and timely manner.

Transportation is the second largest contributor to greenhouse gas (GHG) emissions in Canada, accounting for approximately a quarter of all Canadian emissions. Canada's GHG emission standards are becoming increasingly stricter for on-road passenger vehicles and light trucks. As such, various technologies have emerged from original equipment manufacturers to meet ECCC's most recent *Passenger Vehicle and Light Truck Greenhouse Gas Emission Regulations* (<https://laws-lois.justice.gc.ca/eng/regulations/SOR-2010-201/index.html>). Some of these technologies include but are not limited to advanced powertrains (including advanced methods of combustion and propulsion), alternative fuels, vehicle structures, automotive connectivity and automation.

The Environmental Protection Agency's (EPA) published the *Midterm Evaluation of Light-Duty Vehicle Greenhouse Gas Emissions Standards for Model Years 2022-2025* (available only in English, <https://www.epa.gov/regulations-emissions-vehicles-and-engines/midterm-evaluation-light-duty-vehicle-greenhouse-gas>). ECCC's *Discussion paper on the Mid-term evaluation of the Passenger Automobile and Light Truck Greenhouse Gas Emission Regulations* (<http://publications.gc.ca/site/eng/9.859616/publication.html>) describes the current regulatory landscape, and highlights comments from various stakeholders affected by GHG emission regulations.

#### 5. REQUIREMENT DESCRIPTION

The first requirement is to perform a literature review to determine which AVTs are available for passenger vehicles and light trucks and their capacity to reduce GHG emissions, considering Canadian operating conditions and market preferences.

Building upon information obtained in the literature review, the contractor must then conduct interviews with various stakeholders in the automotive industry to gather more information that will add value to the study. Stakeholders may include: original equipment manufacturers (OEMs), industry associations, and other government bodies.

The final requirement is to generate a report that must summarize all the information found in the literature review and stakeholder interviews.

#### 6. SCOPE

Research must include reviewing literature for emerging on-road technologies for passenger vehicles and light trucks aimed at reducing greenhouse gas emissions, including the following technologies:

##### 6.1 Advanced Combustion and Emissions Control Strategies

- Including the effect of variable compression ratio engines and their improvements to brake thermal efficiency and its potential incorporation into various vehicle types (sedans, crossovers, SUVs, pickups, etc.)
- Analyze the technologies incorporated into recent high-brake thermal efficiency engines (>=40%) and their potential for improving general vehicle efficiency
- Determine what effects knock-control technologies like water injection can have in improving cycle efficiency or maximum compression ratio?
- Discuss the potential of opposed-piston engines and under what circumstances they could be brought into production
- Determine the efficiency gains that can be obtained from a spark-assisted gasoline compression-ignition engine (SACI) like Mazda's SkyActiv-X engine compared to an equivalent conventional spark ignition engine
  - In addition, determine if it is feasible to expect a non-spark assisted gasoline compression engine (HCCI) in the marketplace within the next 10 years, and what gains on top of the SACI engine could be achieved

## 6.2 Advanced Powertrains

- Determine the potential performance benefits of advanced cylinder deactivation systems (i.e. dynamic skip-fire) in different vehicle types and the feasibility of incorporation
- Determine the potential for new 48V mild hybridization systems in different vehicle types in light of recent high-profile developments (2019 Ram, Kia Sportage (for diesel in EU), etc.)
- Determine the potential of electric turbochargers to improve operating conditions compared to conventional units, as well as their ease of integration into conventional and hybridized (micro hybrid, mild hybrid, full hybrid, and plug-in hybrid) vehicles
- Analyze the potential of high-gear number transmissions (ex. Ford's 10-speed automatic) in improving efficiency
- Determine what improvements could be made to traditional 4WD/AWD systems by utilizing equivalent electric drive systems (ex. RAV4 Hybrid system) and how much can we expect fuel economy penalties to decrease?
- How do newer regenerative braking systems compare to older systems in terms of energy recaptured and with what vehicles can these systems be incorporated?

## 6.3 Alternative Fuels,

- Analyze the effects of increased octane rating on engine brake thermal efficiency; compare reductions in fuel energy content vs gains in cycle thermal efficiency, including analysis of various octane-boosting agents

## 7. TASKS / DETAILED SERVICES

The Contractor must undertake the following tasks/activities:

### 7.1 Project Kickoff, Work planning & Progress Meetings

Within five (5) business days of the award of the contract, the contractor must prepare and submit a draft work plan to the Technical Authority. The draft work plan shall include the following elements:

- a) Statement of understanding of the project's objective, scope, and deliverables
- b) Proposed approach
- c) Project workplan and schedule

The Contractor must schedule a kick-off meeting by teleconference within ten (10) business days of contract award. The kickoff meeting agenda will include a discussion about the contractor's work plan, and project schedule. The Contractor must update the workplan and project schedule with any changes agreed to during the meeting and submit an updated work plan within five (5) business days following the kickoff meeting.

In addition, the Contractor must schedule bi-weekly progress meetings with the technical authority for providing project updates and interim results. The Contractor must submit minutes of all meetings to the Technical Authority (TA) within two (2) working days of the meeting for acceptance.

### 7.2 Literature Review List of Publications, Stakeholder List, Interview Questions

The literature review must provide information on advanced technologies including, but not limited to those in Section 6.1 to 6.3, for passenger vehicles and light trucks, and their expected GHG emission benefits; and approaches taken to reduce GHG emissions from on-road vehicles in international jurisdictions.

The Contractor must seek literature published in or after 2014 from various publicly available sources (internet publications, technical journals, research papers, environmental studies, and regulatory impact assessments). Some sources of this information include, but are not limited to: Society of Automotive Engineers (SAE) technical papers, and academic papers available publically. The contractor must submit a list of literature review publications found for approval.

As the literature review is being conducted, the Contractor must develop a stakeholder list with whom interviews will be held. This is to complement the literature review as these stakeholders can comment on the results. The stakeholder

list must include a minimum of twenty (20) stakeholders and include a minimum of six (6) original equipment and technology manufacturers, three (3) industry associations and three (3) regulatory agencies). The stakeholder list shall include: the organization name, organization representative's name, title, contact information. The technical authority will review and approve the list of stakeholders.

The Contractor must develop a list of interview questions to be asked in english and translation in any other language if required. The contractor must provide the stakeholder list and interview questions to the Technical Authority for review and approval.

### 7.3 Stakeholder Interviews & Draft Report Table of Contents

The contractor is responsible for contacting the stakeholders to set-up the interviews. Stakeholder interviews will be conducted by phone or email in their language of choice. The Contractor must hold interviews with the approved stakeholders identified in Section 7.2. The contractor must provide a summary of the stakeholder interviews (including the date and time interview took place, or the time the feedback was received if by email).

### 7.4 Draft Report & Presentation

The contractor must draft a report table of contents to the technical authority for approval.

The Contractor must prepare a draft report and draft presentation that include the results of the literature review, and stakeholder interviews. The report must analyze and compare advanced vehicle technologies emerging for passenger vehicles and light trucks, assess their ability to reduce greenhouse gas emissions in Canada, considering Canadian environmental conditions and consumer preferences.

These must be provided to the Technical Authority for comment. The Technical authority will review and comment on the draft report and presentation within ten (10) business days or as agreed to.

### 7.5 Final Report

The Contractor must address the Technical Authority's comments provided on the draft report and provide a final report within five (5) business days.

### 7.6 Final Presentation

The Contractor must address the Technical Authority's comments provided on the draft presentation and deliver a final PowerPoint presentation to the Technical Authority. This presentation must include key findings and recommendations contained in the final report. This presentation must be provided within 1 week after Technical Authority approval of the final report, and must be completed by teleconference/Web Ex.

## 8. DELIVERABLES AND ACCEPTANCE CRITERIA

The Contractor must provide the deliverables to the Technical Authority in English by email using Microsoft Office software formatted documents.

Item	Deliverable / Milestone	Format (latest version of software)	Number of weeks after contract award date
1	Final work-plan	MS Word	1 week
	Project schedule	MS Project	1 week
	Progress meeting scheduling	MS Outlook	1 week
2	Literature review (list of sources)	MS Excel	5 weeks
	Stakeholder list	MS Excel	5 weeks
	Interview questions	MS Word	5 weeks
3	Stakeholder interview summary	MS Word	9 weeks
4	Report table of contents	MS Word	15 weeks
	Draft report	MS Word	15 weeks
	Draft presentation	MS PowerPoint	15 weeks

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5	Final report	MS Word	21 weeks
6	Final presentation	MS PowerPoint	22 weeks

The Technical Authority will review each deliverable and indicate (via email) approval and acceptance or the need for the Contractor to make revisions. Only once the Technical Authority has provided written approval and acceptance can the Contractor proceed with subsequent work.

## **9. REPORTING REQUIREMENTS**

Following the kickoff meeting, the contractor is required to schedule bi-weekly progress update meetings with the Technical Authority as per section 7.1. At the contractor's choice, meeting can be via video-conference or teleconference.

## **10. LANGUAGE REQUIREMENTS**

All written deliverables must be submitted to the Technical Authority in English.

All verbal and written communication must be in the language preference of the participants contacted. The contractor is to ensure that all participants are given the option to use the official language of their choice.

## **11. LOCATION OF WORK**

The work must be carried out from the contractor's facilities. All meetings between the contractor and Transport Canada, including the kickoff and the final presentation will take place via teleconference or webinar. Transport Canada will not provide reimbursement of travel expenses incurred by the Contractor during the contract period.

**ANNEX "B": BASIS OF PAYMENT** *[To be inserted at contract award]*