



<p>RETURN BIDS TO: RETOURNER LES SOUMISSIONS À:</p> <p>Bid Receiving - Environment and Climate Change Canada / Réception des soumissions – Environnement Canada</p> <p>Melanie.desjardins4@canada.ca</p> <p><i>Les questions peuvent être adressées à;</i> Josee.francoeur@canada.ca</p> <p>BID SOLICITATION DEMANDE DE SOUMISSIONS</p> <p>PROPOSAL TO: ENVIRONMENT AND CLIMATE CHANGE CANADA</p> <p>We offer to perform or provide to Canada the services detailed in the document including any attachments and annexes, in accordance with the terms and conditions set out or referred to in the document, at the price(s) provided.</p> <p>SOUSSION À: ENVIRONNEMENT CANADA</p> <p>Nous offrons d'effectuer ou de fournir au Canada, aux conditions énoncées ou incluses par référence dans le document incluant toutes pièces jointes et annexes, les services détaillés dans le document, au(x) prix indiqué(s).</p>	Title – Titre	
	Electricity Unit Costs in Canada – In Support of Economic Modeling.	
	ECCC Bid Solicitation No. /SAP No. – N° de la demande de soumissions ECCC / N° SAP 5000038750	
	Date of Bid solicitation (2018-06-06) – Date de la demande de soumissions (2018-06-06)	
	Bid Solicitation Closes (YEAR-MM-DD) - La demande de soumissions prend fin (AAAA-MM-JJ)	Time Zone – Fuseau horaire Eastern Standard Time EST
	at – à 2:00 P.M. on – le June 28, 2018	
	F.O.B – F.A.B	
	Address Enquiries to - Adresser toutes questions à Josee.francoeur@canada.ca	
	Telephone No. – N° de téléphone 819-938-3822	Fax No. – N° de Fax
	Delivery Required (YEAR-MM-DD) – Livraison exigée (AAAA-MM-JJ)	
Destination - of Services / Destination des services		
Security / Sécurité No security requirement		
Vendor/Firm Name and Address - Raison sociale et adresse du fournisseur/de l'entrepreneur		
Telephone No. – N° de téléphone	Fax No. – N° de Fax	
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)		
Signature	Date	

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PART 1 - GENERAL INFORMATION

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: includes the certifications to be provided;
- Part 6 Security 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 Attachments include, a Confidentiality Agreement, the Information - Ontario Labour Legislation, Financial Bid Presentation Sheet, Mandatory Technical Criteria.

The Annexes include the Statement of Work, the Basis of Payment, the Security Requirements Checklist, Insurance Requirements, the Schedule of Milestones, and any other annexes.

2. Summary

- 2.1 Under the guidance of the Departmental Representative, a Contractor with experience with the Canadian electricity sector and the necessary economics, shall be asked to provide information on the regional economic aspects of various new electricity generating plants with respect to the Canadian grid. This work shall culminate in the Contractor's provision of a written report and user-adjustable model for Environment and Climate Change Canada's use.
- 2.2 Bidders must provide a list of names and other related information as required in accordance with Section 01 Provisions for the Integrity of the Standard Instructions.
- 2.3 For services requirements, bidders in receipt of a pension or a lump sum payment must provide the required information as detailed in article 3 of Part 2 of the bid solicitation.

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 of receipt of the results of the bid solicitation process. The debriefing may be in writing, by telephone or in person.

PART 2 - BIDDER INSTRUCTIONS

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 PWGSC *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, 2014-09-25 Standard Instructions - Goods or Services - Competitive Requirements, are incorporated by reference into and form part of the bid solicitation.

The standard instructions 2003 are modified as follows:

Under “Text” at 02:

Delete: “Procurement Business Number”

Insert: “Deleted”

At Section 02 Procurement Business Number

Delete: In its entirety

Insert: “Deleted”

At Section 05 Submission of Bids, Subsection 05 (2d):

Delete: In its entirety

Insert: “send its bid only to Environment and Climate Change Canada (ECCC) as specified on page 1 of the bid solicitation or to the address specified in the bid solicitation;”

At Section 06 Late Bids:

Delete: “PWGSC”

Insert: “Environment and Climate Change Canada”

At Section 07 Delayed Bids:

Delete: “PWGSC”

Insert: “Environment and Climate Change Canada”

At Section 08 Transmission by Facsimile, Subsection 08 (1):

Delete: In its entirety

Insert: “Bids may be submitted by facsimile if specified in the bid solicitation.”

At Section 12 Rejection of Bid, Subsection 12 (1) a. and b.:

Delete: In their entirety

Insert: “Deleted”

At Section 17 Joint Venture, Subsection 17 (1) b.:

Delete: “the Procurement Business Number of each member of the joint venture,”

Insert: “Deleted”

At Section 20 Further Information, Subsection 20 (2):

Delete: In its entirety

Insert: “Deleted”

At Section 05 Submission of Bids, Subsection 05 (4):

Delete: “sixty (60) days”

Insert: “one hundred and twenty (120) days”

The standard instructions 2004 are modified as follows:

Under “Text” at 02:

Delete: “Procurement Business Number”

Insert: “Deleted”

At Section 02 Procurement Business Number

Delete: In its entirety

Insert: “Deleted”

At Section 07 Rejection of Bid, Subsection 07 (1) a. and b.:

Delete: In their entirety

Insert: “Deleted”

At Section 10 Joint Venture, Subsection 10 (1b):

Delete: “the Procurement Business Number of each member of the joint venture,”

Insert: “Deleted”

2. Submission of Bids

Bids must be submitted to Environment and Climate Change Canada (ECCC) at the address and by the date, time and place indicated on page 1 of the bid solicitation.

3. Former Public Servant – Competitive Bid

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 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 page 7, definitions, is the Bidder a FPS in receipt of a pension? **Yes** () **No** ()

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

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

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

Work Force 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.

4. Enquiries - Bid Solicitation

All enquiries must be submitted in writing to the Contracting Authority no later than three (3) 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.

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.

6. Basis for Canada's Ownership of Intellectual Property

Canada will retain ownership of the intellectual property rights in foreground information, as identified by Environment and Climate Change Canada, based on the following exception;

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

PART 3 - BID PREPARATION INSTRUCTIONS

1. Bid Preparation Instructions

Canada requests that bidders provide their bid in separately bound sections as follows:

Section I: Technical Bid (1 electronic copy),

Section II: Financial Bid (1 electronic copy),

Section III: Certifications (1 electronic copy)

Section IV: Additional Information (1 electronic copy)

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

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

- (a) use 8.5 x 11 inch (216 mm x 279 mm) format;
- (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 (<http://www.tpsgc-pwgsc.gc.ca/ecologisation-greening/achats-procurement/politique-policy-eng.html>). To assist Canada in reaching its objectives, bidders should:

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

- 1.1** Bidders must submit their financial bid in accordance with the Financial Bid Presentation Sheet as seen in attachment 1 to part 3. The total amount of Applicable Taxes must be shown separately.

1.2 Bidders must submit their financial bid in Canadian funds and in accordance with the Financial Bid Presentation Sheet as seen in attachment 1 to part 3. The total amount of Applicable Taxes must be shown separately.

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

1.4 Price Breakdown

In their financial bid, the bidders are requested to provide a detailed breakdown of the price for the following elements for performance of the Work, as applicable:

- (a) Professional fees: For each individual and (or) labour category to be assigned to the Work, the bidders should indicate: i) the firm hourly rate or the firm daily rate, inclusive of overhead and profit; and ii) the estimated number of hours or days, as applicable. The bidders should indicate the number of hours in one working day.
- (b) Equipment (if applicable): The bidders should specify each item required to complete the Work and provide the pricing basis of each one, Canadian customs duty and excise taxes included, as applicable.
- (c) Materials and Supplies (if applicable): The bidders should identify each category of materials and supplies required to complete the Work and provide the pricing basis. The Bidder should indicate, on a per category basis, whether the items are likely to be consumed during the performance of any resulting contract.
- (d) Travel and Living Expenses (if applicable): The bidders should indicate the number of trips and the number of days for each trip, the cost, destination and purpose of each journey, together with the basis of these costs without exceeding the meal, private vehicle and incidental expenses provided in Appendices B, C and D of the *National Joint Council Travel Directive* and with the other provisions of the directive referring to "travellers", rather than those referring to "employees".
- (e) Subcontracts (if applicable): The bidders should identify all of the proposed subcontractors and provide in their financial bid for each one a price breakdown.
- (f) Other Direct Charges (if applicable): The bidders should identify all of the categories of other direct charges anticipated, such as long distance communications and rentals, providing the pricing basis for each and explaining the relevance to the work described in Part 7 of the bid solicitation.
- (g) Applicable Taxes: The bidders should indicate the Applicable Taxes separately.

1.5 Bidders should include the following information in their financial bid:

- (a) Their legal name; and
- (b) The name of the contact person (including this person's mailing address, phone and facsimile numbers and email address) authorized by the Bidder to enter into

communications with Canada with regards to their bid; and any contract that may result from their bid.

Section III: Certifications

Bidders must submit the certifications required under Part 5.

**ATTACHMENT 1 TO PART 3 -
FINANCIAL BID**

The tenderer must complete the presentation sheet of the financial bids and include in its financial bid when completed. At the very least, the bidder must meet this financial bid Format Sheet by including in its financial bid for the periods indicated below its rate for each deliverables

ECCC wishes to establish a contract until March 31st, 2019.

Each proposal will also have a cost component. Table 1 presents the breakdown of how Professional Services should be presented (show fee structure all-inclusive of profit and overhead).

Table 1 : Presentation of the cost component of Professional Services

Contract Period: contract award to 31 March 2019			
Category of Personnel	Per Diem Rates (A)	Estimated Level Of Effort in days(B)	Total (C) A x B = C
Bidder's Grand Total Price =	\$ _____		

PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION

1.1 Selection of Contractor (Highest combined Technical Merit (75%) and Price (25%))

The proposal that obtained the highest score for the technical evaluation, as presented in appendix A, will be assigned a weight of **75%**. All other proposals that meet the minimum score requirements for the technical evaluation will be prorated.

If no acceptable bids are received, Environment and Climate Change Canada has the right to not award this contract. To be declared responsive, bid must meet the following;

- a. Comply with all the requirements of the bid solicitation; and
- b. Meet all mandatory criteria; and
- c. Obtain the required minimum points required from R1 to R4 for the technical evaluation criteria which are subject to point rating.
- d. Obtain the minimum **overall required total points (67/95)** (70%) for the technical evaluation criteria which are subject to point rating.

The responsive Bidder with the highest combined rating of proposal scores (75%), and price (25%) will be recommended for award of a contract. See the following example below. Contractor Selection Method is based on the Responsive Bidder achieving the highest total points.

Formula:

$$\frac{\text{Bidder's Rated Score}}{\text{Highest Bidder's Rated Score}} \times 75 + \frac{\text{Lowest Bidder Price}}{\text{Bidder's Price}} \times 25$$

Example:

Description	Bidder A	Bidder B	Bidder C
Bidder Proposal Points Received	95	85	75
Bidder Proposed Price	\$175,000	\$181,000	\$171,000

Final Evaluation Score Calculation:

Bidder	Points for Proposal Score	Points for Price	Total Points
Bidder A	$(95 / 95) \times 75 = 75$	$(71,000 / 75,000) \times 25 = 24.4$	99.4
Bidder B	$(85 / 95) \times 75 = 67.1$	$(71,000 / 81,000) \times 25 = 23.6$	90.7
Bidder C	$(75 / 95) \times 75 = 59.2$	$(71,000 / 71,000) \times 25 = 25$	84.2

In this example, Bidder A will be recommended for Contract award.

In the event of a tie, the proposal receiving the highest score for the technical evaluation will be selected.

1.2 Technical Evaluation

1.2.1 Mandatory Technical Criteria

Proposals will be evaluated against mandatory requirements as well as point rated requirements in accordance with the requirements listed below.

Failure by bidders to meet any of the mandatory requirements will render the bidder's proposal **non-responsive**. The treatment of mandatory requirements in any procurement process is absolute.

Proposers must meet **all** the mandatory requirements described below. This will be evaluated as either "Yes" or "No". Proposals receiving "No" for any mandatory requirement will **not** be considered further.

Attention Bidders: Write beside each of the criteria the relevant page number(s) from your proposal which addresses the requirement identified in the criteria.			
Criteria	Yes	No	Page #
EDUCATION			
M-1 At least one member of the Contractor team MUST have a Master's degree in economics, accounting or a related business discipline such as corporate finance or business analysis. Disciplines in business ethics, industrial and labour relations, and business law will not be accepted.			
EXPERIENCE			
M-2 At least one member of the Contractor team MUST have experience greater than or equal to two (2) years(*) in the Canadian electricity sector			

1.2.2 Point Rated Technical Criteria

Rated Requirements Evaluation Criteria

Each proposal meeting the mandatory criteria will be evaluated and rated according to the criteria described below and to the weighting described under Part 4. Any relevant information enabling Environment and Climate Change Canada to adequately score the proposal based on the criteria listed below must be included. Information not included in the proposal will not be taken into consideration.

Technical Proposal (R1)

A description of the technical approach, methodology and data sources to be used must be included. The proposed approach, methodology and specific steps undertaken to meet each deliverable in the Statement of Work must be presented in detail. The proposed approach and methodology must allow the objectives of the project to be met while being technically feasible. Advantages of the proposed approach must be presented. Possible problems and challenges that could arise that would impact the quality and/or delivery of the project should be presented, with realistic solutions.

Work plan and schedule (R2)

The proposal must present a detailed work plan that demonstrates how the Contractor will carry out the tasks outlined in the Statement of Work so that the objectives are achieved. The detailed work plan will also include a time schedule outlining the main activities and milestones. The detailed work plan must be coherent with the proposed approach and the budget. The feasibility of the work plan will be assessed.

The resources allocated to each Task will be evaluated to ensure that the proposed approach and methodology can be carried out. The qualifications and experience of the resources allocated for each Task will also be assessed.

At least one member of the Contractor team must have a Master's degree in economics, accounting or a related business discipline such as corporate finance or business analysis. Disciplines in business ethics, industrial and labour relations, and business law will not be accepted. Other team members will have extensive knowledge of and experience in the Canadian electricity sector. These specializations may have been obtained through an acceptable combination of education, training, and/or experience.

Resumes of all staff that will work on the project, including staff that will have a back-up role, must be submitted in the proposal. The resumes must clearly demonstrate the extent of knowledge and previous related work experience, research and analytical skills related to the Canadian electricity sector for the professional staff assigned to the project.

The Contractor should describe how quality assurance will be addressed throughout the project. The proposal must explain how quality assurance will be applied to management of the project, but also to the data, the analysis and the results.

The proposal must include details to assess the qualification and experience of the professional staff assigned to the project in relation to their involvement and responsibility in each Task of the project. The qualifications and experience of the personnel assigned to the work will be evaluated. Reviewers will consider if the staff is experienced and qualified for the level of responsibility and involvement in each Task.

Project Team Experience (R3)

The proposal must include sufficient detail for reviewers to be able to assess the Contractor's expertise, knowledge and experience in economic estimate development related to Canada's electricity sector.

The proposal must include sufficient detail for reviewers to be able to assess the Contractor's expertise, knowledge and experience in developing user friendly analytical frameworks or tools.

Management component (R4)

The proposal will present the qualifications and the experience of the Project Manager assigned to this project. The experience of the Project Manager in managing projects having a similar scope and budget and related to the Canadian electricity sector should be demonstrated. The Project Manager will present the experience of the Project Manager in leading, coordinating, and managing multi-disciplinary teams focused on the Canadian electricity sector. In addition, the Project Manager's experience in working in close collaboration with a client will be assessed.

Back-up capabilities for project management must be demonstrated and these capabilities will be evaluated.

A proposal with a score less than minimum points required outlined for each section and/or as a whole will be considered **non responsive**, and eliminated from the competition.

Attention Bidders: Write beside each of the criteria the relevant page number(s) from your proposal and/or CV which addresses the requirement identified in the criteria.

	Criteria	Maximum Points allocated	Minimum Points Required	Score	Page #
R1	<p>Technical Proposal</p> <p>A) Proposal demonstrates a comprehensive, methodological approach to complete all aspects of the project including:</p> <p>The proposed approach and method</p> <p>(14 pts) The description of the technical approach and method is detailed enough to include a description of each step that will be undertaken to meet each deliverable in the Statement of Work and data sources. The approach and method are complete, realistic and technically feasible; the approach offers advantages with no trade-offs;</p> <p>(10.5 pts) The description of the technical approach and method, including a description of each step that will be undertaken to meet each deliverable in the Statement of Work and data sources, is a) missing some details AND/OR b) not realistic or technically feasible. The approach offers some advantages;</p> <p>(7 pts) The description of the technical approach and method is incomplete or not realistic or not technically feasible AND/OR the approach is not convincingly advantageous;</p> <p>(3.5 pts) The description of the technical approach and method is incomplete AND/OR not realistic AND/OR not technically feasible AND/OR the approach offers no advantages;</p> <p>(0 pts) Advantages to the proposed approach are not presented.</p>	<p>R1 A) 14 and B) 6</p> <p>20</p>	<p>R1 A) and B)</p> <p>14</p>		

Attention Bidders: Write beside each of the criteria the relevant page number(s) from your proposal and/or CV which addresses the requirement identified in the criteria.

	Criteria	Maximum Points allocated	Minimum Points Required	Score	Page #
R1	<p>B) Possible problems and challenges that could impact the quality and/or delivery of the project and proposed solutions</p> <p>(6 pts) Possible problems and challenges that could arise that would impact the quality and/or delivery of the project are clearly described; demonstrate a realistic approach and understanding of the project; the proposed solutions are realistic and within the scope of the project.</p> <p>(4 pts) Possible problems and challenges that could arise that would impact the quality and/or delivery of the project are not clearly described or are incomplete, i.e. they are not entirely aligned with the Statement of Work and/or the Contractor's proposed approach AND/OR the proposed solutions are not sufficient to address the issues or are outside the scope of the project as described in the Statement of Work.</p> <p>(2 pts) Possible problems and challenges that could arise that would impact the quality and/or delivery of the project are poorly described AND/OR do not demonstrate a complete understanding of the project.</p> <p>(0 pts) Problems, challenges and solutions are not identified.</p>				

Attention Bidders: Write beside each of the criteria the relevant page number(s) from your proposal and/or CV which addresses the requirement identified in the criteria.

	Criteria	Maximum Points allocated	Minimum Points Required	Score	Page #
R2	<p>Work plan and Schedule</p> <p>A) Proposal provides a detailed schedule and work plan which demonstrates a commitment to meeting the project objectives and deliverables on time and how quality assurance will be addressed throughout the project. The following rating scheme will be used to evaluate this criterion:</p> <p>(10 pts) The work plan is detailed and demonstrates a clear and logical understanding of the Objectives of the Statement of Work and quality assurance is addressed.</p> <p>(8 pts) Objectives of the Statement of Work and quality assurance are addressed. Some details are missing.</p> <p>(4 pts) The work plan demonstrates only some understanding of the Objectives of the Statement of Work and quality assurance, but is missing many details;</p> <p>(0 pts) The bidding company did not include a schedule or work plan.</p>	<p>R2 A) 10 and B) 5</p> <p>15</p>	<p>R2 A) and B)</p> <p>8</p>		

Attention Bidders: Write beside each of the criteria the relevant page number(s) from your proposal and/or CV which addresses the requirement identified in the criteria.

	Criteria	Maximum Points allocated	Minimum Points Required	Score	Page #
R2	<p>B) In the work plan, qualified and experienced personnel are assigned to each Task:</p> <p>(5 pts) For each Task, all the personnel assigned to the Task are each qualified and have previous experience in their assigned role successfully completing the Task. Previous experience is greater than or equal to one (1) year*);</p> <p>(4 pts) For each Task, there are enough qualified and experienced personnel assigned in a supervision role to ensure the successful completion of the Task;</p> <p>(3 pts) For some Tasks, the personnel assigned are not qualified and/or not experienced to ensure successful completion of the Task;</p> <p>(2 pts) For most Tasks or for key tasks, the personnel assigned are not qualified and not experienced to ensure successful completion of the Task;</p> <p>(0 pts) The personnel assigned to each Task are not identified.</p> <p>(*) Experience will be deemed gained in a professional capacity (university experience is not included)</p>				

Attention Bidders: Write beside each of the criteria the relevant page number(s) from your proposal and/or CV which addresses the requirement identified in the criteria.

	Criteria	Maximum Points allocated	Minimum Points Required	Score	Page #
R3	<p>Project Team Experience</p> <p>Note: To facilitate the review process, contractors are encouraged to describe upfront the projects they intend to refer to, to demonstrate their experience in this section. They can then simply refer to a project and avoid duplications of project summaries.</p> <p>A) Experience in developing economic estimates related to Canada’s energy sector:</p> <p>A maximum of two (2) reference projects will be evaluated and each project will be evaluated as described below. If more than two (2) referenced projects are submitted, only the first two (2) in order of presentation will be evaluated. Referenced projects must have been completed at the time of proposal submission.</p> <p>(12.5 pts) If the experience is related to the Canadian electricity sector;</p> <p>(9 pts) If the experience is related to the electricity sector;</p> <p>(6 pts) If the experience is related to the energy sector other than electricity;</p> <p>(3 pts) If the experience is related to another sector.</p> <p>(0 pts) Experience developing economic estimates is not demonstrated.</p>	<p>R3 A) 25 B) 10</p> <p>35</p> <p>(maximum of 12.5 points per project)</p>	<p>R3 A) and B)</p> <p>24</p>		

Attention Bidders: Write beside each of the criteria the relevant page number(s) from your proposal and/or CV which addresses the requirement identified in the criteria.

	Criteria	Maximum Points allocated	Minimum Points Required	Score	Page #
R3	<p>B) Experience in the development of analytical framework or tools:</p> <p>A maximum of two (2) reference projects will be evaluated and each project will be evaluated as described below. If more than two (2) referenced projects are submitted, only the first two (2) in order of presentation will be evaluated. Referenced projects must have been completed at the time of proposal submission.</p> <p>(5 pts) The bidder successfully completed a project that developed a simple, easy to use calculator with multiple inputs based on a complex model (complex model to simple calculator);</p> <p>(3.5 pts) The bidder successfully developed a complex calculator based on a complex model (complex model to complex calculator);</p> <p>(2 pts) The bidder successfully developed a simple calculator based on a simple model (simple model to simple calculator)</p> <p>(0 pts) The bidder has not successfully developed a calculator based on any model.</p>	(maximum of 5 points per project)			
	<p>Management Component</p> <p>Note: For criterion R4 all referenced projects should have been for a minimum duration of four (4) months and should have been performed within the last ten (10) years from the date of bid closing.</p> <p>The bidder should provide a reference contact for each of the projects undertaken by the proposed Project Manager. Each cited reference should include the following information:</p> <ul style="list-style-type: none"> • Client Organization Name; • Project description including role played by the Bidder; • Project duration, including start and end dates; • Client Contact name, position, and current phone number and email address. The client may be contacted to verify the project information provided in the 	<p>R4 A) 10 B) 6 C) 7 D) 2</p> <p>25</p>	<p>R4 A) B) C) and D)</p> <p>10</p>		

Attention Bidders: Write beside each of the criteria the relevant page number(s) from your proposal and/or CV which addresses the requirement identified in the criteria.

	Criteria	Maximum Points allocated	Minimum Points Required	Score	Page #
R4	<p>proposal. For rated criteria R4-A, R4-B, and R4-C, if the client cannot be contacted within 5 business days of the bid closing date, the bidder will receive a score of zero (0).</p> <p>A) The bidder should demonstrate, using project description(s), that the proposed Project Manager has experience related to the Canadian electrical sector on projects having a similar scope and budget. A maximum of two (2) reference projects will be evaluated as described below. If the bidder submits more than two (2) referenced projects, only the first two (2) in order of presentation will be evaluated. Referenced projects must have been completed at the time of proposal submission.</p> <p>(5 pts) The proposed Project Manager managed projects of similar or greater scope and budget and which were directly related the Canadian electricity sector;</p> <p>(3 pts) The proposed Project Manager managed projects of similar or greater scope and budget and which were directly related to the energy sector but not the Canadian electricity sector;</p> <p>(1.5 pts) The proposed Project Manager managed projects similar in scope or budget but unrelated to the energy sector;</p> <p>(0 pts) No reference project provided.</p>	(maximum of 5 points per project)			

Attention Bidders: Write beside each of the criteria the relevant page number(s) from your proposal and/or CV which addresses the requirement identified in the criteria.

	Criteria	Maximum Points allocated	Minimum Points Required	Score	Page #
R4	<p>B) The bidder should demonstrate, using project description(s), that the proposed Project Manager has experience managing a complex project, including ability to provide leadership, coordination or management within a multi-disciplinary team. A maximum of two (2) reference projects will be evaluated as described below. If the bidder submits more than two (2) referenced projects, only the first two (2) in order of presentation will be evaluated. Referenced projects must have been completed at the time of proposal submission.</p> <p>(3 pts) The proposed Project Manager has managed multiple complex projects, provided leadership, coordination and management within a multi-disciplinary team setting;</p> <p>(1.5 pts) The proposed Project Manager has little experience in managing complex projects, providing leadership, coordination or management within a multi-disciplinary team setting.</p> <p>(0 pts) No reference project provided.</p>	<p>(maximum of 3 points per project)</p>			

Attention Bidders: Write beside each of the criteria the relevant page number(s) from your proposal and/or CV which addresses the requirement identified in the criteria.

	Criteria	Maximum Points allocated	Minimum Points Required	Score	Page #
R4	<p>C) The bidder should demonstrate, using project description(s), that the proposed Project Manager has experience working in close collaboration with clients and has, as part of a project, determined the tasks to be undertaken as part of the project with the client and to the satisfaction of the client. A maximum of two (2) reference projects will be evaluated as described below. If the bidder submits more than two (2) referenced projects, only the first two (2) in order of presentation will be evaluated. Referenced projects must have been completed at the time of proposal submission.</p> <p>(3.5 pts) The proposed Project Manager has experience in working in close collaboration with clients and has, as part of a project, determined the tasks to be undertaken as part of the project with the client and to the satisfaction of the client. The proposed Project Manager has experience with integrating significant go/no-go decision points, i.e. those that could terminate the contract.</p> <p>(2 pts) The proposed Project Manager has experience in working in close collaboration with clients, but does not have experience with significant go/no-go decisions points.</p> <p>(1 pts) The proposed Project Manager has experience in working with clients, but not in close collaboration.</p> <p>(0 pts) No reference project provided.</p>	(Maximum of 3.5 points per project)			

Attention Bidders: Write beside each of the criteria the relevant page number(s) from your proposal and/or CV which addresses the requirement identified in the criteria.

	Criteria	Maximum Points allocated	Minimum Points Required	Score	Page #
R4	<p>D) Details on back-up arrangements for the proposed Project Manager and their capabilities</p> <p>(2 pts) The arrangements for the back-up, proposed Project Manager are presented and the back-up, proposed Project Manager is qualified to act as Project Manager as defined in R3;</p> <p>(1 pts) The back-up arrangements are not clearly presented OR the proposed back-up, proposed Project Manager does not meet many of the project management requirements;</p> <p>(0 pts) There is no mention of the back-up, proposed Project Manager or of his/her qualifications.</p>	2 points			
<p>TOTAL MAXIMUM POINTS Overall minimal points required for the proposal to be considered: 67 points.</p>		95	67/95 (overall)		

1.2.3 Mandatory Financial Criteria

Mandatory Financial Criteria

MF 1	Environment Canada has established funding for this project at a maximum amount of \$50,000, excluding taxes.	
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PART 5 - CERTIFICATIONS

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

The certifications provided by bidders to Canada are subject to verification by Canada at all times. Canada will declare a bid non-responsive, or will declare a contractor in default in carrying out any of its obligations under the Contract, 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 may render the bid non-responsive or constitute a default under the Contract.

Certifications Required Precedent to Contract Award

1. Integrity Provisions - Associated Information

By submitting a bid, the Bidder certifies that the Bidder and its Affiliates are in compliance with the provisions as stated in Section 01 Integrity Provisions - Bid of Standard Instructions 2003. The associated information required within the Integrity Provisions will assist Canada in confirming that the certifications are true.

Additional Certifications Required Precedent to Contract Award

The certifications listed below should be completed and submitted with the bid but may be submitted afterwards. If any of these required certifications 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 comply with the request of the Contracting Authority and to provide the certifications within the time frame provided will render the bid non-responsive.

2. 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.

2.1 Education and Experience

PWGSC SACC Manual clause A3010T 2010-08-16 Education and Experience

2.2 Former Public Servant in Receipt of a Pension

As per page 7, 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:

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

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

Work Force 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:

- h. name of former public servant;
- i. conditions of the lump sum payment incentive;
- j. date of termination of employment;
- k. amount of lump sum payment;
- l. rate of pay on which lump sum payment is based;
- m. period of lump sum payment including start date, end date and number of weeks;
- n. 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.

Signed

Date

PART 6 – SECURITY AND OTHER REQUIREMENTS

1.0 Security Requirement

There is no security requirement associated with this work.

2.0 Insurance Requirements

N/A

PART 7 - RESULTING CONTRACT

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

TITLE: Electricity Unit Costs in Canada – In Support of Economic Modeling

1. Statement of Work

The Contractor must perform the Work in accordance with the Statement of Work at Annex A.

2. Standard Clauses and Conditions

All clauses and conditions identified in the Contract by number, date and title are set out in the PWGSC *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.

2.1 General Conditions

2010B 2016-04-04, General Conditions - Professional Services (Medium Complexity), as modified below, apply to and form part of the Contract.

General conditions 2010B is modified as follows:

At Section 12 Transportation Costs

Delete: In its entirety

Insert: "Deleted"

At Section 13 Transportation Carriers' Liability

Delete: In its entirety.

Insert: "Deleted"

At Section 18, Confidentiality:

Delete: In its entirety

Insert: "Deleted"

Insert Subsection: "35 Liability"

"The Contractor is liable for any damage caused by the Contractor, its employees, subcontractors, or agents to Canada or any third party. Canada is liable for any damage caused by Canada, its employees or agents to the Contractor or any third party. The Parties agree that no limitation of liability or indemnity provision applies to the Contract unless it is specifically incorporated in full text in the Articles of Agreement. Damage includes any injury to persons (including injury resulting in death) or loss of or damage to property (including real property) caused as a result of or during the performance of the Contract."

3. Security Requirement

3.1 Security Requirement

There is no security requirement associated with this work.

4. Term of Contract

4.1 Period of the Contract

The period of the Contract is from contract award to **March 31, 2019** inclusive.

4.2 Transition Period

The Contractor acknowledges that the nature of the services provided under the Contract requires continuity and that a transition period may be required at the end of the Contract. The Contractor agrees that Canada may, at its discretion, extend the Contract by a period of 5 days under the same conditions to ensure the required transition. The Contractor agrees that, during the extended period of the Contract, it will be paid in accordance with the applicable provisions as set out in the Basis of Payment.

The Contracting Authority will advise the Contractor of the extension by sending a written notice to the Contractor at least 5 days calendar days before the contract expiry date. The extension will be evidenced for administrative purposes only, through a contract amendment.

5. Authorities

5.1 Contracting Authority

The Contracting Authority for the Contract is:

Name: Josée Francoeur
Title: Contracting Officer
Environment and Climate Change Canada
Procurement and Contracting Division
Address: 200 Sacré-Coeur Blvd.,
Gatineau, QC

Telephone: 819-938-3822
Facsimile: 819-938-4848
E-mail address: josee.francoeur@canada.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.

5.2 Technical/Project Authority (at contract award)

The Technical Authority for the Contract is:

Name:

Title:
Organization:
Address:

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

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

5.3 Contractor's Representative (at contract award)

Name:
Title:
Organization:
Address:

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

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.

7. Payment

7.1 Basis of Payment

The Contractor will be reimbursed for the costs reasonably and properly incurred in the performance of the Work, as determined in accordance with the Basis of Payment in Annex B , to a limitation of expenditure of \$_____ (at contract award) and Applicable Taxes are extra.

7.2 Limitation of Expenditure

- (a) Canada's total liability to the Contractor under the Contract must not exceed \$ _____. Customs duties are included and the Applicable Taxes are extra.
- (b) No increase in the total liability of Canada or in the price of the Work resulting from any design changes, modifications or interpretations of the Work, will be authorized or paid to the Contractor unless these design changes, modifications or interpretations have been

approved, in writing, by the Contracting Authority before their incorporation into the Work. The Contractor must not perform any work or provide any service that would result in Canada's total liability being exceeded before obtaining the written approval of the Contracting Authority. The Contractor must notify the Contracting Authority in writing as to the adequacy of this sum:

- (i) when it is 75 percent committed, or
 - (ii) four (4) months before the contract expiry date, or
 - (iii) as soon as the Contractor considers that the contract funds provided are inadequate for the completion of the Work, whichever comes first.
- (c) If the notification is for inadequate contract funds, the Contractor must provide to the Contracting Authority a written estimate for the additional funds required. Provision of such information by the Contractor does not increase Canada's liability.

7.3 Time Verification

C0711C 2008-05-12 Time Verification

8. Invoicing Instructions

8.1 Milestone Payments

H3010C, 2016-01-28 Milestone Payments

- 8.1.1 The Contractor must submit invoices in accordance with Annex "B" Basis of Payments.

9. Certifications

9.1 Compliance

Compliance with the certifications provided by the Contractor in its bid is a condition of the Contract and subject to verification by Canada during the 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.

10. Applicable Laws

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

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) 2010B General Conditions - Professional Services (Medium Complexity) [2016-04-04](#) as modified;
- (c) Annex A, Statement of Work;
- (d) Annex B, Basis of Payment;
- (e) the Contractor's bid dated _____, as clarified on _____ *or* as amended on _____

ANNEX A STATEMENT OF WORK

CONFIDENTIALITY

It is understood and agreed that the Contractor shall, during and after the effective period of the ensuing contract, treat as confidential and not divulge, unless authorized in writing by the Departmental Representative or his/her delegate, any information obtained in the course of the performance of the ensuing contract. Any failure of the Contractor to respect the confidentiality obligations is a default by the Contractor which the Minister may consider as default on the contract.

Subject to the Access to Information Act, R.S. 1985, c.A-1, the Contractor agrees that the terms of this Agreement are confidential and each party shall use the same degree of care to prevent disclosure of the terms of this Agreement to third parties as it uses to protect its own confidential information of similar nature. Any failure of the Contractor to respect the confidentiality obligations is a default of the Contractor for which the Minister may terminate the contract.

INTRODUCTION

Under the guidance of the Departmental Representative, a Contractor with experience with the Canadian electricity sector and the necessary economics, shall be asked to provide information on the regional economic aspects of various new electricity generating plants with respect to the Canadian grid. This work shall culminate in the Contractor's provision of a written report and user-adjustable model for Environment and Climate Change Canada's use.

BACKGROUND

The Electricity and Combustion Division (ECD) of Environment and Climate Change Canada (ECCC) routinely gathers economic information on various electricity generation technologies. This information is used to forecast future generating costs and to better understand the costs and benefits of potential electricity sector regulations.

Studies have reported significant cost differences between identical units built in different locations. The purpose of this work requirement is to gain updated regional economic estimates of new electricity generating plants in Canada. The deliverables will increase ECCC's knowledge of the feasibility of adding various types of electricity generating plants to the electrical grid and will inform future policy developments.

OBJECTIVES

The purpose of this work requirement is to gain updated regional economic estimates of various new electricity generating plants in Canada. This work shall culminate in the Contractor's provision of a written report and user-adjustable model for Environment and Climate Change Canada's use.

SCOPE OF WORK

The Contractor shall complete the following tasks:

Task 1: Identify key authoritative sources on cost and operation of electricity generating plants and review sources relevant to the future regional Canadian capital and operational costs of new electricity generation plants.

The Contractor shall identify key authoritative sources on cost and operation of electricity generating plants. The aforementioned sources shall be credible, independent, and referenceable. Preference shall be given by the Contractor to publically available sources of data.

Authoritative sources include, but shall not be limited to, internationally recognised sources such as the United States Department of Energy's National Energy Technology Laboratory, the OECD's International Energy Agency, the European Union Commission, the United States Environmental Protection Agency, and Canada's Departments.

Using acceptable sources, the Contractor shall conduct research, gather information, and perform analyses to investigate future regional Canadian capital and operational costs of new electricity generation plants. The Contractor shall employ both quantitative and qualitative analysis methodologies and the information shall include socio-economic, technological, and policy forms of data as sources. The Contractor shall investigate relevant differences between Canadian and American fleets of electric power generation facilities.

Task 2: Determine reference capacity sizes for various types of new electricity generation plants.

The Contractor shall provide capacity sizes for each of those electrical generation facilities listed in **Task 3**, including any other source significant in the Canadian electricity generation context, which the Contractor judges feasible and appropriate to adopt as reference capacity size.

Should the Contractor judge that the capital and operational costs of any type of electricity generation unit listed in **Task 3** have significant sensitivity as a function of capacity size, the Contractor shall provide multiple capacity sizes for that type of electrical generation unit. The quantity of the aforementioned multiple capacity sizes shall be sufficient to reflect the range of capacity sizes that are probable to be built in any of the regions studied during this project. The aforementioned regions shall be those in **Task 3**.

Task 3: Develop and describe an approach to estimate future regional Canadian capital and operational costs of new electricity generation plants and seek the input of Environment and Climate Change Canada.

The Contractor shall develop an approach for the cost estimation of future regional Canadian capital and operation costs of new electricity generation plants. The aforementioned costs shall be regionalized according to each of the Canadian provinces and territories, however aggregate estimates for regions with similar costs may be adopted where sufficient provincial or territorial data is not available. Adoption of the aforementioned aggregate estimates for regions by the Contractor is subject to the written approval by the Departmental Representative.

The approach shall include the capability to calculate alternative future cost estimates and sensitivities to those cost estimates. The approach shall include the capability to vary economic parameter assumptions including, but not limited to, interest rates, depreciating rates, and expected rate of return on investment, if and when applicable.

The aforementioned cost estimations shall include, but not be limited to:

1. **Capital costs**
Overnight, as well as total investment costs. The latter includes the interest during construction. Overnight costs shall break-out the cost items and shall include, but not be limited to, the owner's preconstruction costs, engineering costs, procurement and construction costs, and contingency.
2. **Fixed costs**
Fixed costs shall be broken-out by cost items including, but not limited to, fixed maintenance costs, labour depreciation and financing costs (interest, and separately the cost of capital).
3. **Variable costs**
Variable costs shall be broken-out by cost items including, but not limited to, variable maintenance costs and fuel. The aforementioned approach shall be designed such that fuel costs shall be sensitive to input fuel price in a nature that fuel costs can be varied using adjustable fuel price trajectories.
4. **Decommissioning costs**
Decommissioning costs shall include costs associated with decommissioning of a unit within a power plant, and costs associated with overall decommissioning of a typical power plant consisting of four power generating units.
5. **Total levelised cost of electricity (LCOE)**
The Contractor shall adopt a method for the calculation of the LCOE. The method for calculation of the LCOE shall be either the preferred method of LCOE calculation or an alternate method proposed by the Contractor. In the case where an alternate method of calculation of the LCOE is

proposed by the Contractor, the Contractor shall submit a justification and detailed description of the alternate method to the Departmental Representative, in writing, for acceptance and approval. The aforementioned alternate method shall be approved by the Departmental Representative prior to that alternate method being adopted by the Contractor.

In the absence of an alternate LCOE calculation method proposed by the Contractor, the preferred method of LCOE calculation shall be as follows:

$$LCOE = \frac{\text{Overnight Capital Cost} * CRF + \text{Fixed O\&M}}{8760 * \text{Capacity Factor}} + (\text{fuel costs} * \text{heat rate}) + \text{variable O\&M}$$

Where;

- **LCOE** = levelized cost of electricity, expressed in \$/megawatt hour (\$/MWh).
- **Overnight Capital Cost** is the initial investment per unit of capacity (i.e. cost of the plant), expressed in \$/Megawatt (\$/MW).
- **Capital Recovery Factor (CRF)** is a fraction that transforms the overnight capital expenditure into annual payments. The CRF is calculated as:¹²

$$CRF = \frac{r(1+r)^n}{(1+r)^n - 1}$$

where,

r = Discount rate: assumed effective rate at which future income streams are discounted.

n = is the assumed lifetime of a new plant and the period over which the investment is computed.

- 8760 is the number of hours in a year
- **Capacity Factor** is expressed as a ratio between 0 and 1. It is calculated by dividing the total amount of energy the plant produced during a period of time by the amount of energy the plant would have produced at full capacity.
- **Fixed Operations and Maintenance (O&M)** is the annual expenditure per unit of electricity generation capacity for operations and maintenance, expressed in \$/MW/year.
- **(fuel cost*heat rate)** is the expenditure for fuel, expressed in terms of \$/MWh. As illustrated, it is the product of the heat rate of the equipment and the fuel cost in native units; the heat rate is measured in british thermal units per kilowatt-hour (Btu/kwh) and fuel cost is expressed in dollars per million british thermal units (\$/MMBtu).
- **Variable O&M** is the expenditure per unit of generation for operations and maintenance, expressed in \$/MWh. This expenditure includes costs that are closely tied to the actual operating hours of the equipment.

Notes regarding the LCOE:

The Consultant should carefully evaluate the basis for choosing the discount rate and be prepared to describe and justify the aforementioned choice of discount rate.

The aforementioned approach developed by the Contractor, for the regional cost estimation of future new Canadian electricity generation plants, shall include, but not be limited to the:

1. **Expected lifetime,**
2. **Refurbishment schedule and costs of refurbishment**

The aforementioned approach for the regional cost estimation of new Canadian electricity generation plants shall include, but not be limited to, the following types of electrical generation units:

¹If the discount rate (r) is zero, then the following formula is used to calculate the CRF: CRF = 1/n.

² There is a positive correlation between the discount rate and the CRF.

1. **Conventional Coal**
2. **Coal with Carbon Capture and Storage (CCS)**
3. **Natural Gas Simple Cycle**
4. **Natural Gas Combined Cycle**
5. **Natural Gas Boiler**
6. **Biomass boiler**
7. **Compression-ignition Engine**
8. **Liquid Fuel Boiler (example: heavy fuel oil)**
9. **Onshore Wind**
10. **Offshore Wind**
11. **Solar Photovoltaic**
12. **Solar Thermal**
13. **Hydroelectric Dam (Reservoir type, Dispatchable)**
14. **Run-of-river Hydroelectric (Non-dispatchable)**
15. **Small Hydro (Dispatchable, approximately 1 MW of capacity)**
16. **Wave**
17. **Tidal**
18. **Battery Storage**
19. **Any other significant generation type in the Canadian electricity generation context**

The Contractor shall consider relevant differences between Canadian and American fleets of electric power generation facilities when developing the approach to estimating costs.

Task 4: Provide estimates of future regional Canadian capital and operational costs of new electricity generation plants and seek Environment and Climate Change Canada input.

The Contractor shall provide regionalized cost estimates of building future new electricity generating plants of various types in Canada. The aforementioned cost estimates shall include, but not be limited to, the cost information listed in **Task 3**, and shall include, but not be limited to, the types of electricity generation units listed in **Task 3**, including any other source significant in the Canadian electricity generation context. The aforementioned cost estimates shall include, but not be limited to, the capacity sizes of electricity generation units approved by the Departmental Representative and referred to in **Task 2**. The aforementioned cost estimates shall be regionalized according to each of the regions in **Task 3**. The Contractor shall consider relevant differences between Canadian and American fleets of electric power generation facilities when developing the aforementioned cost estimates for use in the Canadian context.

Task 5: Finalization and Submission.

The Contractor shall prepare and submit to the Departmental Representative finalized versions of project deliverables.

Task Notes

- The list of task elements in this document is comprehensive, but may not be exhaustive. The Contractor is encouraged and expected to provide any additional information discovered during the course of this work that is deemed relevant in fulfilling the objectives of this contract.
- All Task results are subject to approval of the Departmental Representative

LANGUAGE OF WORK

The Contractor shall provide written materials in English, including but not limited to written deliverables as described in the **DELIVERABLES** section of this document. The Contractor shall use a language style consistent with that used in the preparation of normal business dealings, e.g., submission of project tenders, equipment documentation, etc. The Contractor shall conduct oral communication in English.

DELIVERABLES

The Contractor shall provide the following **Deliverables**:

Deliverable 1: Project Work Plan and Annotated Table of Contents for Written Report

The Contractor shall prepare and submit to the Departmental Representative, in written form via electronic mail, a project work plan to be applied in this project and an annotated table of contents for the subsequent draft project reports referred to in **Deliverables 3** and **4**. The aforementioned discussion of methodology and approach shall include identification of any data sources outside of the Contractor's control and the collection methods the Contractor intends to use to obtain any such data. The aforementioned annotated tables of contents shall include sufficient detail to understand the nature of the elements included.

The Contractor shall prepare and submit a detailed assessment of data the Contractor judges is needed to successfully complete the stated work. The assessment shall include, but not be limited to, a discussion on any information gaps and/or uncertainties associated with the aforementioned data that may compromise the Contractor's ability to complete the stated work. The aforementioned discussion shall include, but not be limited to, an assessment of how the aforementioned uncertainties and/or information gaps may affect the quality of the **Deliverables** and explain the impact of any approximations or workarounds on the manner in which the information may be used. The Contractor shall provide options, in writing, for resolving the aforementioned significant uncertainties and/or information gaps, for selection and written approval by the Departmental Representative. The aforementioned **Deliverable 1** shall be the product resulting from the completion of **Task 1**.

The aforementioned **Deliverable 1** shall utilize electronic media which can be read and modified by the Microsoft Windows Office Word program (version 2007 or later).

The aforementioned **Deliverable 1** shall be reviewed and commented on by Environment and Climate Change Canada and comments shall be provided to the Contractor within 2 weeks after receipt of **Deliverable 1**. Subsequent report drafts are to reflect the comments provided.

Deliverable 2: List of Electricity Generation Unit Capacity Sizes for Approval

The Contractor shall provide to the Departmental Representative, in written form via electronic mail, a list of capacity sizes for each type of electricity generation unit technology listed in **Task 3**, including any other source significant in the Canadian electricity generation context. The aforementioned **Deliverable 2** shall be the product resulting from the completion of **Task 2** and shall be subject to the written approval of the Departmental Representative.

The aforementioned **Deliverable 2** shall utilize electronic media which can be read and modified by the Microsoft Windows Office Word program (version 2007 or later).

Deliverable 3: First Draft of Written Report

Building upon Environment and Climate Change Canada's comments concerning the previous **Deliverable 1**, the Contractor shall prepare and submit to the Departmental Representative, in written form, a draft report that includes, but is not limited to, the elements contained in the aforementioned table of contents in **Deliverable 1**. The aforementioned **Deliverable 3** shall be the product resulting from the work undertaken by the Contractor as per **Task 3**.

Deliverable 3 shall be reviewed and commented on by Environment and Climate Change Canada for further development. Comments shall be provided to the Contractor by Environment and Climate Change Canada within 2 weeks after receipt of the **Deliverable 3**.

Either the Contractor or Environment and Climate Change Canada may request a teleconference meeting to discuss the development of the aforementioned **Deliverable 3**. The time and date of the aforementioned teleconference meeting shall be negotiated between the Contractor and Environment and Climate Change Canada and shall be subject to the approval of the Departmental Representative.

The aforementioned **Deliverable 3** shall utilize electronic media which can be read and modified by the Microsoft Windows Office Word program (version 2007 or later).

Deliverable 4: Presentation of the Draft User Adjustable Cost Estimation Tool and Second Draft of Written Report

Building upon Environment and Climate Change Canada's comments concerning the previous **Deliverables 1, 2, and 3**, the Contractor shall prepare and conduct a meeting with the Departmental Representative and other Environment and Climate Change designates. The aforementioned **Deliverable 4** shall be the product resulting from the work undertaken by the Contractor as per **Task 4**.

The aforementioned meeting shall present the results of the work undertaken by the Contractor to prepare a second draft written report and a draft user adjustable cost estimation tool. The aforementioned meeting shall include, but not be limited to, a presentation of the draft user adjustable cost estimation tool and the highlights of the second draft of the written report.

The aforementioned meeting shall be a face-to-face meeting held at a time and location approved by the Departmental Representative. The time, location, and date of the aforementioned teleconference meeting shall be negotiated between the Contractor and the Departmental Representative.

The aforementioned **Deliverable 4** shall allocate time for the Contractor to field questions and discuss the presented material and/or project. The Contractor shall record questions and comments made and, in consultation with the Departmental Representative, determine further amendments, if any, to the draft final report and/or draft user adjustable cost estimation tool.

The aforementioned **Deliverable 4** shall utilize electronic media which can be read and modified by the Microsoft Windows Office Powerpoint program (version 2007 or later). A copy of the aforementioned **Deliverable 4** shall be submitted by the Contractor to the Departmental Representative in electronic format not later than one (1) day before the meeting.

The draft user adjustable cost estimation tool shall be capable of being easily modified to enable the calculation of alternative future cost estimates as well as sensitivities to those cost estimates. To facilitate the latter requirements, the electronic media shall derive cost estimates on a per unit basis where economic parameters, e.g., expected life, can be varied on a per unit basis and shall be structured in such a way as to allow easy replacement, or parallel addition, of assumptions including but not limited to, interest rates, capital costs, operating costs, exchange rates, depreciation rates, and expected rate of return on investments, if and when applicable.

All costs shall be given as 2018 dollars. Additionally, the following parametric values shall be used as needed in preparing cost estimates:

1. average Canadian-American exchange rate of 1.00 with sensitivity analysis of $\pm 30\%$
2. annual rate of inflation in construction prices is to be the (regional as applicable and described in **Task 3**) construction price increases from the year used for the estimate of the reference unit cost.
3. the rate of return on investments is to be the blended rate of the ratio (to be determined by the contractor) of the utilities typical cost of capital (to be determined by contractor) and the utilities typical cost of debt (to be determined by contractor) with sensitivity analysis at 5%, 10% and 15%;
4. the decommissioning costs, in the absence of specific authoritative costs to be proposed by the contractor shall be the IEA generic costs of 15% of the initial construction cost for nuclear plants and 5% of the initial construction costs for all other technologies
5. total levelised cost of electricity – in the absence of specific authoritative costs proposed by the contractor, the levelised costs are to assume IEA harmonized expected lifetimes of 25 years for wind and solar plants, 30 years for gas-fired power plants, 40 years for coal fired

and geothermal plants, 60 years for nuclear plants and 80 years for hydropower. They are also to be calculated based on a load factor of 85% for nuclear, coal and natural gas power plants.

Alternate parameters may be used if the Contractor first provides to the Departmental Representative a written rationale for their use, and that rationale is approved by the Departmental Representative.

Deliverable 4 shall be reviewed and commented on by Environment and Climate Change Canada for further development. Comments shall be provided to the Contractor by Environment and Climate Change Canada within 2 weeks after receipt of the **Deliverable 4**. For the purposes of comment, copies of the aforementioned second draft written report of **Deliverable 4** and of the aforementioned draft user adjustable cost estimation tool shall be submitted by the Contractor to the Departmental Representative in electronic format not later than one (1) day before the meeting.

The aforementioned second draft written report of **Deliverable 4** shall utilize electronic media which can be read and modified by the Microsoft Windows Office Word program (version 2007 or later). The aforementioned draft user adjustable cost estimation tool of **Deliverable 4** shall utilize electronic media which can be read and modified by the Microsoft Windows Office Excel program (version 2007 or later).

Deliverable 5: Final Written Report and Final User Adjustable Cost Estimation Tool

Building upon Environment and Climate Change Canada's comments concerning previous **Deliverables 1, 2, 3, and 4**, the Contractor shall prepare and submit to the Departmental Representative a final written report and final user adjustable cost estimation tool.

The aforementioned **Deliverable 5** shall be the result of work undertaken by the Contractor as per **Task 5**.

The aforementioned final written report of **Deliverable 5** shall adopt a practical format targeted toward an audience with a wide range of experience, education, knowledge of the electrical generation sector. An effective use of textual, visual (e.g. schematics) and mathematical information formats shall be incorporated throughout the aforementioned final written report of **Deliverable 5** and important gaps in information and uncertainties, where they exist, shall be identified throughout.

The Contractor shall submit to the Departmental Representative two (2) electronic copies of the final written report of **Deliverable 5**. One of the aforementioned electronic copies shall be in the Portable Document Format (.pdf), and the other having Microsoft Word format (version 2007 or later, e.g. .docx) as well as Microsoft Excel format (version 2007 or later) for applicable sections.

Five (5) colour-printed and bound copies of the aforementioned final written report shall be submitted to the Departmental Representative by the Contractor.

The Contractor shall submit to the Departmental Representative one (1) electronic copy of the aforementioned **Deliverable 5** final user adjustable cost estimation tool in a format compatible Microsoft Excel format (version 2007 or later).

The aforementioned **Deliverable 5** shall be subject to the acceptance and approval of the Departmental Representative.

Acceptance Criteria

All **Deliverables** produced by the Contractor shall be subject to review in draft form by the Departmental Representative or designated persons, to be identified upon contract award. All work is to be performed to the satisfaction of the Departmental Representative.

Submission of draft interim and/or final **Deliverables** shall be reviewed by the Departmental Representative and/or members of a Project Advisory Committee. The review shall generate comments to improve the draft **Deliverables** for final delivery. The Contractor shall take into consideration the comments provided on the draft **Deliverables** and incorporate them, where appropriate, into their work and the final **Deliverables**.

If the Contractor judges that an aforementioned comment cannot be satisfactorily addressed without adversely affecting the scope, timeline, or cost the project, then the Contractor shall prepare a written justification explaining why the comment cannot be addressed and suggesting alternative solutions to the Departmental Representative. The Contractor shall not adopt any changes that affect the scope, timeline, or cost without having first received written authorization from the Departmental Representative.

General Instructions

All the sources of information shall be documented, and an electronic (or printed copy if electronic version is not available) of each source shall be submitted to the Departmental Representative.

SCHEDULE

Deliverable	Activities	Proposed Dates ³
-	• Project kick-off meeting	Week 1 (fiscal year 2018/2019)
1	• Project Work Plan and Annotated Table of Contents for Written Report	Week 3 (fiscal year 2018/2019)
2	• List of Electricity Generation Unit Capacity Sizes for Approval	Week 4 (fiscal year 2018/2019)
3	• First Draft of Written Report	Week 7 (fiscal year 2018/2019)
4	• Presentation of the Draft User Adjustable Cost Estimation Tool and Second Draft of Written Report	Week 11 (fiscal year 2018/2019)
5	• Final Written Report and Final User Adjustable Cost Estimation Tool	Week 14 (fiscal year 2018/2019)

Sufficient flexibility is required of the Contractor to respond to changing schedules and developments. The Contractor shall keep the Departmental Representative apprised of the progress of this project and other relevant information at regular intervals (approximately every two weeks) via teleconference calls with Environment and Climate Change Canada. The services of the Contractor shall be retained from contract award to no later than March 15, 2019.

TRAVEL

This project shall require at least two half-day meetings with the Environment and Climate Change Canada project team: one half-day meeting for the kick-off and a second half-day meeting for the face-to-face presentation (**Deliverable 4**).

The aforementioned kick-off meeting may have a face-to-face or teleconference meeting format. The format of the kick-off meeting shall be negotiated between the Contractor and the Departmental Representative and subject to the approval of the Departmental Representative. The time, location (if applicable), and date of the aforementioned teleconference meeting shall be negotiated between the Contractor and the Departmental Representative and shall be subject to the approval of the Departmental Representative.

Excepting the aforementioned face-to-face meetings, the Contractor's work shall take place at the Contractor's location.

Travel shall be at the request of the Departmental Representative and reimbursements shall be consistent with Treasury Board Secretariat and Federal Government Travel Guidelines.

³ Number of weeks after all parties signing contract, or otherwise specified.

CROWN INPUT

Environment and Climate Change Canada shall not furnish any equipment, facilities, and services to the Contractor for the performance of the contract. Moreover, while Environment and Climate Change Canada shall not grant general access to information to the Contractor, Environment and Climate Change Canada shall provide to the Contractor information that is relevant to the contract, is already within Environment and Climate Change Canada's possession, and is not classified in a manner as to preclude its release.

**ANNEX B
BASIS OF PAYMENT**

(to be completed at contract award)