

Return Bids to:

Natural Resources Canada
 Bid Receiving
 See herein for bid submission instructions

Request for Proposal (RFP)**Proposal To: Natural Resources Canada**

We hereby offer to sell to His Majesty the King 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 therefor.

Comments**Issuing Office**

Natural Resources Canada
 Finance and Procurement Management Branch

Title Carbonization of wet biowastes to support CMAT BECCS researches	
Solicitation No. NRCan- 5000079484	Date
Requisition Reference No. 180759	
Solicitation Closes: at 2 p.m. (Eastern Standard Time (EST)) on May 6, 2024	
Address Enquiries to: Shazeen.Dhanani@NRCan-RNCan.gc.ca	
Telephone No. 343-575-6324	
Destination – of Goods and Services: Natural Resources Canada	
Security THERE ARE NO SECURITY REQUIREMENTS ASSOCIATED WITH THIS REQUIREMENT.	
Vendor/Firm Name and Address	
Telephone No.:- No. de téléphone: Email – Courriel :	
Name and Title of person authorized to sign on behalf of Vendor/Firm (type or print)	
Signature	Date



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The Articles contained in this document are mandatory in their entirety, unless otherwise indicated. Acceptance of these Articles, in their entirety, as they appear in this document, is a Mandatory requirement of this RFP.

Suppliers submitting a proposal containing statements implying that their proposal is conditional on modification of these clauses or containing terms and conditions that purport to supersede these clauses or derogate from them will be considered non-responsive.

Bidders with concerns regarding the provisions of the Bid Solicitation document (including the Resulting Contract Clauses) should raise such concerns in accordance with the Enquiries provision of this RFP.

By signing its bid, the bidder confirms that they have read the entire bid solicitation including the documents incorporated by reference into the bid solicitation and certifies that:

1. The Bidder considers itself and its proposed resources 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.



PART 1 - GENERAL INFORMATION

1.1 Introduction

The bid solicitation is divided into seven parts plus attachments and annexes, as follows:

- Part 1 General Information: provides a general description of the requirement;
- Part 2 Bidder Instructions: provides the instructions, clauses and conditions applicable to the bid solicitation;
- Part 3 Bid Preparation Instructions: provides Bidders with instructions on how to prepare their bid;
- Part 4 Evaluation Procedures and Basis of Selection: indicates how the evaluation will be conducted, the evaluation criteria that must be addressed in the bid, and the basis of selection;
- Part 5 Certifications and Additional Information: includes the certifications and additional information to be provided;
- Part 6 Security, Financial and Other Requirements: includes specific requirements that must be addressed by Bidders; and
- Part 7 Resulting Contract Clauses: includes the clauses and conditions that will apply to any resulting contract.

The Annexes include the Statement of Work, the Basis of Payment, - Certification, and any other annexes. The appendixes include the evaluation criteria and financial bid presentation sheet.

1.2 Summary

By means of the RFP, Natural Resources Canada (NRCan) is seeking proposals from bidders for a research contract to conduct detailed investigations on: (1) HTC of representative industrial and municipal biowastes; (2) the thermal combustion properties of the resultant hydrochar; (3) further conversion of hydrochar into syngas for gas-fired combustions; and (4) the toxicity and corrosivity of HTC and combustion processes for safe lab operation on planned CMAT corrosion tests.

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

1.3 Debriefings

Bidders may request a debriefing on the results of the bid solicitation process. Bidders should make the request to the Contracting Authority within fifteen (15) working days from receipt of the results of the bid solicitation process. The debriefing will be done in writing, by email.



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](#) (2022-03-29) Standard Instructions - Goods or Services - Competitive Requirements, are incorporated by reference into and form part of the bid solicitation.

- **In the complete text content (except Section 1 and 3)**
Delete: "Public Works and Government Services Canada" and "PWGSC"
Insert: "Natural Resources Canada." and "NRCan"
- **At 02 Procurement Business Number:**
Delete: "Suppliers are required to"
Insert: "It is suggested that suppliers"
- **At 08 Transmission by facsimile or by Canada Post Corporation's (CPC) Connect service, article 1:**
Delete: in its entirety
- **At 08 Transmission by facsimile or by Canada Post Corporation's (CPC) Connect service, article 2a:**
Delete: : The only acceptable email address to use with CPC Connect for responses to bid solicitations issued by PWGSC headquarters is: tpsgc.pareceptiondessaoumissions-apidReceiving.pwgsc@tpsgc-pwgsc.gc.ca. or, if applicable, the email address identified in the bid solicitation.
Insert: The only acceptable email address to use with CPC Connect for responses to bid solicitation issued by NRCan is: procurement-provisionnement@NRCan-RNCan.gc.ca
- **At 08, Transmission by facsimile or by Canada Post Corporation's (CPC) Connect service, article 2b:**
Delete: "six business days"
Insert: "five business days"
- **At 20, Further information, article 2b:**
Delete: in its entirety

2.2 Submission of Bids

Bidders must submit all proposals using the Canada Post Canada (CPC) Connect service. Given the current constraints on NRCan's networks, the electronic mail system has a limit of 1GB per single message received and a limit of 20GB per conversation.

Bids must be submitted no later than the date and time indicated on page 1 of the bid solicitation.

Only bids submitted using CPC Connect service will be accepted.



At least five (5) business days before the bid solicitation closing date, it is necessary for the Bidder to send an email requesting to open CPC Connect conversation to the following address:

procurement-provisionnement@NRCAN-RNCAN.gc.ca

Note 1: Bids will not be accepted if e-mailed directly to this address. This e-mail address is to be used to open CPC Connect conversation, as detailed in the Standard Instructions [2003 \(article 08, paragraph 2\)](#), or to send bids through CPC Connect message if the bidder is using its own licensing agreement for CPC Connect.

Note 2: Send as early as possible in order to ensure a response, Requests to open a CPC Connect conversation received after that time may not be answered.

IMPORTANT: It is requested that you write the bid solicitation number in "Subject" of the email:
[NRCAN RFP 5000079484 - Carbonization of wet biowastes](#)

NRCAN will not assume responsibility for proposals directed to any other location.

The onus is on the Bidder to ensure that the bid is submitted correctly using CPC Connect service. Not complying with the instructions may result in NRCAN's inability to ascertain reception date and/or to consider the bid prior to contract award. Therefore, NRCAN reserves the right to reject any proposal not complying with these instructions.

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

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 the information required below before contract award. If the answer to the questions and, as applicable the information required have not been received by the time the evaluation of bids is completed, Canada will inform the Bidder of a time frame within which to provide the information. Failure to comply with Canada's request and meet the requirement within the prescribed time frame will render the bid non-responsive.

Definitions

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

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

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



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

Former Public Servant in Receipt of a Pension

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

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

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

By providing this information, Bidders agree that the successful Bidder's status, with respect to being a former public servant in receipt of a pension, will be reported on departmental websites as part of the published proactive disclosure reports in accordance with [Contracting Policy Notice: 2019-01](#) and the [Guidelines on the Proactive Disclosure of Contracts](#).

Work Force Adjustment Directive

Is the Bidder a FPS who received a lump sum payment pursuant to the terms of the Work Force Adjustment Directive? **Yes** **No**

If so, the Bidder must provide the following information:

- a) name of former public servant;
- b) conditions of the lump sum payment incentive;
- c) date of termination of employment;
- d) amount of lump sum payment;
- e) rate of pay on which lump sum payment is based;
- f) period of lump sum payment including start date, end date and number of weeks;
- g) number and amount (professional fees) of other contracts subject to the restrictions of a work force adjustment program.

2.4 Enquiries - Bid Solicitation

All enquiries must be submitted in writing to the Contracting Authority no later than 5 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 5 calendar days before the bid closing date. Canada will have the right to accept or reject any or all suggestions.

2.9 Basis for Canada's Ownership of Intellectual Property

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

1. Where the main purpose of the Crown Procurement Contract, or the deliverables contracted for, is:
 - o 4.1 To generate knowledge and information for public dissemination.

2.10 Bid Challenge and Recourse Mechanisms

- (a) Several mechanisms are available to potential suppliers to challenge aspects of the procurement process up to and including contract award.
- (b) Canada encourages suppliers to first bring their concerns to the attention of the Contracting Authority. Canada's [Buy and Sell](#) website, under the heading "[Bid Challenge and Recourse Mechanisms](#)" contains information on potential complaint bodies such as:
 - Office of the Procurement Ombudsman (OPO)
 - Canadian International Trade Tribunal (CITT)
- (c) Suppliers should note that there are **strict deadlines** for filing complaints, and the time periods vary depending on the complaint body in question. Suppliers should therefore act quickly when they want to challenge any aspect of the procurement process.



PART 3 - BID PREPARATION INSTRUCTIONS

3.1 Bid Preparation Instructions

The Bidder must submit its bid electronically, Canada requests that the Bidder submits its bid in accordance with section 08 of the 2003 standard instructions. The CPC Connect system has a limit of 1GB per single message posted and a limit of 20GB per conversation.

Canada requests that the Bidder submits its bid in separately saved documents as follows:

- Section I: Technical Bid
- Section II: Financial Bid
- Section III: Certifications

Due to the nature of the bid solicitation, bids transmitted by facsimile will not be accepted. 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 hard copy of their bid:

- (a) 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) Include all environmental certification(s) relevant to your organization (e.g., ISO 14001, Leadership in Energy and Environmental Design (LEED), Carbon Disclosure Project, etc.)
- 2) Include all environmental certification(s) or Environmental Product Declaration(s) (EPD) specific to your product/service (e.g., Forest Stewardship Council (FSC), ENERGYSTAR, etc.)
- 3) Unless otherwise noted, bidders are encouraged to submit bids electronically. If hard copies are required, bidders should:
 - a. 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
 - b. 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, duo tangs 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.

Section II: Financial Bid

Bidders must submit their financial bid in accordance with the Financial Bid Presentation Sheet in Appendix 2.

Section III: Certifications

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



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

4.1.1 Technical Evaluation

Mandatory evaluation criteria are included in Appendix 1 – Evaluation Criteria.

4.2 Basis of Selection

4.2.1 Mandatory Technical Criteria

A bid must comply with the requirements of the bid solicitation and meet all mandatory technical evaluation criteria to be declared responsive. The responsive bid with the lowest evaluated price will be recommended for award of a contract.



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 [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 Contractor must provide with its bid the required documentation, as applicable, to be given further consideration in the procurement process.

All applicants, regardless of their status under the policy, must have the following information at the time to participate in a procurement process:

- Suppliers that are corporate entities, including those bidding as joint ventures, must provide a complete list of the names of all current directors or, for a privately owned corporation, the names of the owners of the corporation;
- Suppliers bidding as sole proprietors, including sole proprietors bidding as joint ventures, must provide a complete list of the names of all owners;
- Suppliers that are a partnership do not need to provide a list of names.

Supplier’s Legal Name: _____

OR

Name of each member of the joint venture:

Member 1: _____



Member 2: _____

Member 3: _____

Member 4: _____

Organizational Structure:

- corporate entity (shareholders) - provide the names of the current Board of directors
- privately owned corporation - provide a list of the owner's names
- sole proprietor - provide a list of the owner's names

LIST OF NAMES

LAST NAME	FIRST NAME	TITLE

5.2.3 Additional Certifications Precedent to Contract Award

5.2.3.1 Status and Availability of Resources

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

5.2.3.2 Education and Experience

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

5.2.3.3 Former Public servant

<p>Former Public Servants</p> <p>See the Article in Part 2 of the bid solicitation entitled Former Public Servant for a definition of "Former Public Servant".</p>	<p>Is the Bidder a FPS in receipt of a pension as defined in the bid solicitation?</p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/> If yes, provide the information required by the Article in Part 2 entitled "Former Public Servant"</p>
	<p>Is the Bidder a FPS who received a lump sum payment under the terms of the Work Force Adjustment Directive?</p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/> If yes, provide the information required by the Article in Part 2 entitled "Former Public Servant"</p>



SIGNATURE for CERTIFICATION

The Contractor certifies having read and understood the information included in the present document and acknowledges receipt.

Name

Date

Signature of Authorized Representative



PART 6 – SECURITY, FINANCIAL AND OTHER REQUIREMENTS

6.1 Security Requirements

There are no security requirements associated with this procurement.



PART 7 - RESULTING CONTRACT CLAUSES

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

7.1 Statement of Work

The Contractor must perform the Work in accordance with the Statement of Work at Annex A and the Contractor's technical bid entitled _____, dated _____. (*to be completed at contract award*)

7.2 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.

7.2.1 General Conditions

[2010B](#) (2022-12-01), General Conditions - Medium Complexity – Professional Services, apply to and form part of the Contract. [If applicable, replace references to Public Works and Government Services Canada (PWGSC) with Natural Resources Canada (NRCan)]

7.3 Security Requirements

7.3.1 There is no security requirement applicable to the Contract.

7.4 Term of Contract

7.4.1 Period of the Contract

The period of the Contract is from date of Contract to _____ inclusive (*fill in end date of the period*).

7.5 Authorities

7.5.1 Contracting Authority

The Contracting Authority for the Contract is:

Name: Shazeen Dhanani
Title: Procurement Specialist
Organization: Natural Resources Canada
Telephone: 343-575-6324
E-mail address: Shazeen.Dhanani@NRCan-RNCan.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.

7.5.2 Project or Technical Authority

The Project Authority for the Contract is:

Name: _____ (*to be filled out at contract award*)
Title: _____
Organization: _____



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

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

7.5.3 Contractor's Representative

Name: _____ (to be filled out at contract award)
Title: _____
Organization: _____
Address: _____
Telephone: ____ - ____ - ____
E-mail address: _____

7.6 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: 2019-01](#) of the Treasury Board Secretariat of Canada.

7.7 Payment

7.7.1 Basis of Payment - Firm Price, Firm Unit Price(S) or Firm Lot Price(s)

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

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.

7.7.3 Method of Payment.

Milestone Payments

Canada will make milestone payments in accordance with the Schedule of Milestones detailed in article S.W.4.0. of Annex A and the payment provisions of the Contract if:

- a. an accurate and complete claim for payment, and any other document required by the Contract have been submitted in accordance with the invoicing instructions provided in the Contract;
- b. all work associated with the milestone and as applicable any deliverable required has been completed and accepted by Canada.

7.8 Invoicing Instructions

Invoices shall be submitted using **the following method:**

E-mail: Invoicing-Facturation@nrcan-rncan.gc.ca



Note: Attach "PDF" file. No other formats will be accepted

Invoices and all documents relating to a contract must be submitted on the Contractor's own form and shall bear the Contract number: _____

Invoicing Instructions to suppliers: <http://www.nrcan.gc.ca/procurement/3485>

7.9 Certifications and Additional Information

7.9.1 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.

7.10 Applicable Laws

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

7.11 Priority of Documents

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

- (a) the Articles of Agreement;
- (b) the general conditions 2010B (2022-12-01, Professional Services (medium complexity));
- (c) Annex A, Statement of Work
- (d) Annex B, Basis of Payment;
- (e) the Contractor's bid dated _____, *(insert date of bid at contract award)*

7.12 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.

7.14 Dispute Resolution

- (a) The parties agree to maintain open and honest communication about the Work throughout and after the performance of the contract.
- (b) The parties agree to consult and co-operate with each other in the furtherance of the contract and promptly notify the other party or parties and attempt to resolve problems or differences that may arise.
- (c) If the parties cannot resolve a dispute through consultation and cooperation, the parties agree to consult a neutral third party offering alternative dispute resolution services to attempt to address the dispute.



- (d) Options of alternative dispute resolution services can be found on Canada's Buy and Sell website under the heading "[Dispute Resolution](#)".



ANNEX “A” STATEMENT OF WORK

Natural Resources Canada (NRCan) is committed to making the department more inclusive for everyone and fostering an equitable workplace culture that values diversity and creates an environment that is welcoming and rewarding for all. We encourage the businesses that work with us to reflect these values. More information can be found at: <https://www.canada.ca/en/government/publicservice/wellness-inclusion-diversity-public-service/diversity-inclusion-public-service2.html>

SW.1.0 TITLE

Carbonization of wet biowastes to support CMAT BECCS researches.

SW.2.0 BACKGROUND

Global warming and severe environmental contamination have forced NRCan to develop innovative applicable technologies on the management of huge amounts of industrial and municipal biowastes and the significant reduction of CO₂ emission at thermal combustion systems. Bioenergy with carbon capture and storage (named as BECCS) is developed as a set of the most viable and cost-effective negative CO₂ emission technologies to address these serious challenges. Generally, BECCS involves the two major components in which CO₂ is captured from a bioenergy production source and then transported to suitable sites for permanently storage. Among the developed BECCS routes, the use of industrial and municipal biowastes for energy production associated with carbon capture and storage (CCS) provides the most promising outcomes for both bioenergy and power industries.

However, direct combustion of the biowastes in a BECCS combustion system for clean energy production is not suitable because of the poor thermal and chemical properties (such low heating value, high moisture content, unpleasant odor, poor dewaterability, and high corrosivity) of these biowastes. For instance, traditional combustion of black liquor, a major biowaste at pulp and paper mills, had led to unaffordable operation cost and severe corrosion damage to recovery boiler systems. Thus, it is of great practical significance to pretreat these biowastes before their used as fuel feedstocks at a BECCS plant. Among the proposed pretreatment methods, hydrothermal carbonization (HTC) is the most appropriate method as it only uses water to convert various wet biowastes producing coal-like biocarbon fuel (hydrochar) associated with effectively removing undesirable side-products at moderate temperature and pressure. According to NRCan's literature survey, how to achieve cost-effective hydrochar production from the biowastes with desired combustion properties remains a challenge.

Therefore, due to NRCan's limited ability and laboratory facility, CMAT needs an external research contractor to conduct detailed investigations on: (1) HTC of representative industrial and municipal biowastes; (2) the thermal combustion properties of the resultant hydrochar; (3) further conversion of hydrochar into syngas for gas-fired combustions; and (4) the toxicity and corrosivity of HTC and combustion processes for safe lab operation on planned CMAT corrosion tests. This contract shall significantly support CMAT on the development of cost-effective materials technology solutions for the commercialization of BECCS technology at Canadian bioenergy and power sectors.

SW.3.0 OBJECTIVES

This research contract aims to support CanmetMATERIALS to fill important fundamental knowledge gaps as describe above for the deployment of BECCS technology at Canadian bioenergy and power industry. The contract will include the following important activities: (1) to hydrothermally carbonize representative industrial and municipal biowastes (such as black liquor, food wastes, and yard wastes) and develop optimum HTC conversion parameters (such as operating temperature, pressure, duration and catalysts); (2) to investigate the combustion properties of hydrochar produced from the hydrothermal carbonization processes and determine their application potential at BECCS plants; (3) to study the gasification of the resultant hydrochar into syngas for gas-fired combustion; and (4) to identify the toxicity and corrosivity under the HTC and



hydrochar combustion conditions. In general, this research contract can importantly support CMAT on the successful delivery of the approved BECCS project.

SW.4.0 PROJECT REQUIREMENTS

SW.4.1 Tasks, Deliverables, Milestones and Schedule

Milestone	Tasks/Activities	Deliverables	Time Schedule
#1	Literature review and Preliminary study on hydrothermal carbonization of representative industrial and municipal biowastes	A confidential report including (1) a comprehensive review; (2) Preliminary results of hydrothermal carbonization of black liquor	May 15, 2024
#2	(1) Optimization of hydrothermal carbonization processes (2) Investigation of the produced carbon fuel in terms of direct thermal combustion.	A confidential report including (1) an optimal hydrothermal carbonization process; (2) detailed characterization of produced carbon for the assessment of direct thermal combustion	March 15, 2025
#3	(1) Development of gasification process for converting resultant carbon to syngas (2) support CMAT corrosion studies within hydrothermal carbonization conditions.	A confidential report including (1) Recommend a gasification process for gasifying the resultant carbon to syngas. (2) toxicity and corrosivity of HTC and combustion processes	March 15, 2026

Note: The Contractor may use the results conceived, developed, or produced by the Contractor as part of the Work for educational and non-commercial internal research purposes.

SW.4.2 Reporting Requirements

Bi-weekly meetings will be required between the Contractor and CMAT for progress tracking purpose. Meetings can be coincided with the date when a report is due. A report that summarizes the accomplished work corresponding to the tasks/activities will be required for submission on or before the scheduled time.

SW.4.3 Method and Source of Acceptance

All deliverables and services rendered under any contract are subject to inspection by the Project Authority.

The Project Authority have the right to reject any deliverables that are not considered satisfactory or require their correction before payment will be authorized.

SW.5.0 OTHER TERMS AND CONDITIONS OF THE SOW

SW.5.1 Contractor’s Obligations

The Contractor shall:

- 1) Keep all documents and information in a safe and easily retrievable location;
- 2) Return all materials belonging to NRCan upon completion of the Contract;
- 3) Submit all written reports electronically Microsoft Office Word or Corel WordPerfect format;
- 4) Participate in teleconferences, as needed.



In satisfying the requirements of this contract, the Recipient is encouraged to comply with the provisions and intent of the NRCAN Scientific Integrity Policy (SIP) and to discharge its contractual obligations in support of research, science, or related activities in a manner consistent with all relevant NRCAN SIP provisions. For more information on the Scientific Integrity Policy, please visit the NRCAN website at: <https://www.nrcan.gc.ca/scientific-integrity/21665#a20>.

SW.5.4 Location of Work, Work Site and Delivery Point

The work is expected to be completed at Contractor's place of business and the deliverables will be delivered to CanmetMATERIALS by email.

SW.5.5 Language of Work

The work will be conducted in English.



ANNEX “B” BASIS OF PAYMENT.

(Will be completed at contract award)



APPENDIX “1” - EVALUATION CRITERIA

Bidders are advised to address these criteria in the following order and in sufficient depth in their proposals to enable a thorough assessment. NRCan’s assessment will be based solely on the information contained within the proposal. NRCan may confirm information or seek clarification from bidders.

Bidders are advised that only listing experience without providing any supporting data to describe responsibilities, duties and relevance to the criteria will not be considered demonstrated for the purpose of this evaluation.

The Bidder should provide complete details as to where, when (month and year) and how (through which activities/ responsibilities) the stated qualifications/experience were obtained. Experience gained during formal education shall not be considered work experience. All criteria for work experience shall be obtained in a legitimate work environment as opposed to an educational setting. Co-op terms are considered work experience provided they are related to the required services.

Bidders are also advised that the month(s) of experience listed for a project whose time frame overlaps that of another referenced project will only be counted once. For example: project one, time frame is July 2001 to December 2001; project two, time frame is October 2001 to January 2002; the total months of experience for these two project references is seven (7) months.

1. Technical Criteria

1.1 Mandatory Evaluation Criteria

The Mandatory Criteria listed below will be evaluated on a simple pass/fail basis. Proposals which fail to meet the mandatory criteria will be deemed non-responsive.

Criterion ID	Mandatory Criteria	Proposal Page #	Pass/Fail
M1	<p>The Bidder must have a minimum of 10 years experience gained in the last 15 years conducting research related to biomass thermochemical conversion</p> <p>To demonstrate this experience, bidders must provide at least one of the following:</p> <ul style="list-style-type: none"> - Projects they have led - Scientific journal papers they have published; - Technical reports they have published 		
M2	<p>The Bidder must have experience with waste biomass management and treatment.</p> <p>To demonstrate this experience, bidders must provide at least one of the following:</p> <ul style="list-style-type: none"> - Projects they have led - Scientific journal papers they have published - Technical reports they have published 		



Criterion ID	Mandatory Criteria	Proposal Page #	Pass/Fail
M3	<p>The Bidder must provide clear images to demonstrate that they have the necessary facilities to complete the required tasks (hydrothermal carbonization, hydrochar combustion, and hydrochar gasification).</p> <p>The images must provide the following:</p> <ol style="list-style-type: none">1. An overview of the entire facilities2. Associated information such as manufacturer, model #, serial #, temperature and pressure rating etc.		
M4	<p>The contractor must own or have access to facilities to characterize:</p> <p>(1) the thermochemical conversion products (gas, liquid, and solid). Required equipment include GC, GCMS and in-situ FTIR for pressurized hot gas analysis. Equipment with similar functions is acceptable.</p> <p>(2) catalysts. Required equipment include SEM/EDS, TEM, nitrogen adsorption/desorption, TPR/TPD, chemisorption and atomic layer deposition instrument. Equipment with similar functions is acceptable.</p> <p>Bidders must provide the names and images of these advanced characterization facilities in their proposal.</p>		



APPENDIX “2” - FINANCIAL BID PRESENTATION SHEET

1. Firm Price - Milestone Payments

Bidder tendered all-inclusive firm price to perform the work is in Canadian funds, applicable taxes excluded. Any Travel and Living Expenses and other miscellaneous expenses must be included in the firm price.

The bidder must complete the schedule below indicating the firm proposed amounts for each Milestone.

Milestone #	Description of Milestone	Firm Price (Applicable Taxes Excluded)
1	A confidential report including (1) a comprehensive review; (2) Preliminary results of hydrothermal carbonization of black liquor	\$ _____
2	A confidential report including (1) an optimal hydrothermal carbonization process; (2) detailed characterization of produced carbon for the assessment of direct thermal combustion	\$ _____
3	A confidential report including (1) Recommend a gasification process for gasifying the resultant carbon to syngas. (2) toxicity and corrosivity of HTC and combustion processes	\$ _____
Total Firm Price for Financial Proposal Evaluation:		\$ _____