

RETURN BIDS TO:
RETOURNER LES SOUMISSIONS À:
**Bid Receiving - PWGSC / Réception des
soumissions - TPSGC**
11 Laurier St. / 11, rue Laurier
Place du Portage , Phase III
Core 0A1 / Noyau 0A1
Gatineau, Québec K1A 0S5
Bid Fax: (819) 997-9776

**REQUEST FOR PROPOSAL
DEMANDE DE PROPOSITION**

**Proposal To: Public Works and Government
Services Canada**

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

**Proposition aux: Travaux Publics et Services
Gouvernementaux Canada**

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

Comments - Commentaires

Title - Sujet Expertise Residential, Commercial	
Solicitation No. - N° de l'invitation 23229-129462/A	Date 2013-08-20
Client Reference No. - N° de référence du client 23229-129462	
GETS Reference No. - N° de référence de SEAG PW-\$\$\$Q-007-26342	
File No. - N° de dossier 007sq.23229-129462	CCC No./N° CCC - FMS No./N° VME
Solicitation Closes - L'invitation prend fin at - à 02:00 PM on - le 2013-10-03	
Time Zone Fuseau horaire Eastern Daylight Saving Time EDT	
F.O.B. - F.A.B. Plant-Usine: <input type="checkbox"/> Destination: <input type="checkbox"/> Other-Autre: <input type="checkbox"/>	
Address Enquiries to: - Adresser toutes questions à: Wheeler-Fournier, P. A.	Buyer Id - Id de l'acheteur 007sq
Telephone No. - N° de téléphone (819) 956-1352 ()	FAX No. - N° de FAX (819) 997-2229
Destination - of Goods, Services, and Construction: Destination - des biens, services et construction: DEPARTMENT OF NATURAL RESOURCES 13TH FL. 580 BOOTH ST ATTN: JOEL ALLARIE OTTAWA Ontario K1A0E4 Canada	

Instructions: See Herein

Instructions: Voir aux présentes

Vendor/Firm Name and Address
**Raison sociale et adresse du
fournisseur/de l'entrepreneur**

Issuing Office - Bureau de distribution
Science Procurement Directorate/Direction de l'acquisition
de travaux scientifiques
11C1, Phase III
Place du Portage
11 Laurier St. / 11, rue Laurier
Gatineau, Québec K1A 0S5

Delivery Required - Livraison exigée See Herein	Delivery Offered - Livraison proposée
Vendor/Firm Name and Address Raison sociale et adresse du fournisseur/de l'entrepreneur	
Telephone No. - N° de téléphone Facsimile No. - N° de télécopieur	
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 Request for Standing Offers (RFSO) is divided into seven parts plus attachments and annexes, as follows:

- (i) Part 1, General Information: provides a general description of the requirement;
- (ii) Part 2, Offeror Instructions: provides the instructions applicable to the clauses and conditions of the RFSO;
- (iii) Part 3, Offer Preparation Instructions: provides offerors with instructions on how to prepare their offer to address the evaluation criteria specified;
- (iv) Part 4, Evaluation Procedures and Basis of Selection: indicates how the evaluation will be conducted, the evaluation criteria which must be addressed in the offer, and the basis of selection;
- (v) Part 5, Certifications: includes the certifications to be provided;
- (vi) Part 6, Financial and Insurance Requirements: includes specific requirements that must be addressed by offerors; and
- (vii) Part 7: 7A, Standing Offer, and 7B, Resulting Contract Clauses;

7A: includes the Standing Offer containing the offer from the Offeror and the applicable clauses and conditions;

7B: includes the clauses and conditions which will apply to any contract resulting from a call-up made pursuant to the Standing Offer.

The Annexes include the Statement of Requirement, the Basis of Payment and any other annexes.

2. Summary

The Housing, Buildings and Communities and other groups of CANMET Energy Ottawa (CE-O) of Natural Resources Canada (NRCan), are extensively involved in research and development, demonstration and dissemination activities related to the residential stock, both domestically and internationally. The various activities seek to commercialize energy-efficient and environmentally friendly technologies and systems to increase overall efficiency, ensure healthy environments and accelerate their adoption in the marketplace. Projects and programs carried out by CE-O have contributed to Canada being recognized as being one of the leaders in energy-efficiency. The execution of a wide array of activities in a timely and cost-effective manner requires in part the availability of expertise for specific projects. The multiple Standing Offers in building expertise will provide flexibility in the completion of tasks in a timely manner, shift focus when needed and provide knowledge for recent areas of research. The volume of the Work exceeds the capacity of any one supplier, in this regard, forty-six (46) areas of expertise (AE) have been established with the objective of having up to three offerors for each of the AE's.

3. Estimated Utilization

The estimated usage per area of expertise is \$258,000.00 (applicable taxes extra) for the initial three (3) year period.

The responsive offers with the three (3) lowest firm all-inclusive hourly rates under each of the areas will share the estimated usage of \$258,000.00 (applicable taxes extra) per area of expertise for the initial three (3) year period in accordance with the following:

- (a) the lowest price offer will share 50% of the estimated total cost per area of expertise (\$129,000.00 for the three year period of the SO);

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- (b) the 2nd lowest price offer will share 30% of the estimated total cost per area of expertise (\$77,400.00 for the three year period of the SO); and
- (c) the 3rd lowest price offer will share 20% of the estimated total cost per area of expertise (\$51,600.00 for the three year period of the SO).

In the event that only two offerors are deemed responsive:

The two (2) lowest firm all-inclusive hourly rates under the area of expertise will share the estimated usage of \$258,000.00 (applicable taxes extra) per area of expertise for the initial three (3) year period in accordance with the following:

- (a) the lowest rate will share 60% of the estimated total cost per area of expertise (\$154,800.00 for the three year period of the SO); and
- (b) the 2nd lowest rate will share 40% of the estimated total cost per area of expertise (\$103,200.00 for the three year period of the SO).

In the event that only one offeror is deemed response under the area of expertise it will be allocated 100% of the estimated total cost per area of expertise (\$258,000.00 for the three year period of the SO).

The same usage as mentioned above will apply to any extension period exercised.

The level of service specified herein is only an approximation of requirements given in good faith.

Services are required for a period of three (3) years commencing from the date of authorization to use the Standing Offer. Canada may authorize the use of the Standing Offer beyond its initial period, for four (4) additional one (1) year periods. Should Canada authorize the use of the Standing Offer beyond its initial period, the rates will be calculated in accordance with the Consumer Price Index specified herein.

The Work will be allocated in accordance with article 7, "Allocation of Work", under Part 7 of the Standing Offer Resulting Contract Clauses.

Pursuant to section 01 of Standard Instructions 2006, Offerors must submit a complete list of names of all individuals who are currently directors of the Offeror. Furthermore, as determined by the Special Investigations Directorate, Departmental Oversight Branch, each individual named on the list may be requested to complete a Consent to a Criminal Record Verification form and related documentation.

For services requirements, Offerors 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 Request for Standing Offers (RFSO)

This requirement is limited to Canadian goods and/or services.

4. Communication Notification

As a courtesy, the Government of Canada requests that successful offerors notify the Standing Offer Authority in advance of their intention to make public an announcement related to the issuance of a standing offer.

5. Debriefings

Offerors may request a debriefing on the results of the request for standing offers process. Offerors should make the request to the Standing Offer Authority within 15 working days of receipt of the results of the request for standing offers process. The debriefing may be provided in writing, by telephone or in person.

PART 2 - OFFEROR INSTRUCTIONS

1. Standard Instructions, Clauses and Conditions

All instructions, clauses and conditions identified in the Request for Standing Offers (RFSO) by number, date and title are set out in the *Standard Acquisition Clauses and Conditions Manual* (<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual>) issued by Public Works and Government Services Canada.

Offerors who submit an offer agree to be bound by the instructions, clauses and conditions of the RFSO and accept the clauses and conditions of the Standing Offer and resulting contract(s).

The 2006 (2013-06-01) *Standard Instructions - Request for Standing Offers - Goods or Services - Competitive Requirements*, are incorporated by reference into and form part of the RFSO.

Subsection 5.4 of 2006, *Standard Instructions - Request for Standing Offers - Goods or Services - Competitive Requirements*, is amended as follows:

Delete: sixty (60) days
Insert: one hundred and twenty (120) days

2. Submission of Offers

Offers must be submitted only to Public Works and Government Services Canada (PWGSC) Bid Receiving Unit by the date, time and place indicated on page 1 of the Request for Standing Offers.

Due to the nature of the Request for Standing Offers, transmission of offers by facsimile or electronic mail to PWGSC will not be accepted.

3. Former Public Servants (FPS)

Contracts awarded to former public servants (FPS) in receipt of a pension or of a lump sum payment must bear the closest public scrutiny, and reflect fairness in the spending of public funds. In order to comply with Treasury Board policies and directives on contracts with FPS, offerors must provide the information required below before the issuance of a standing offer.

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:

an individual;

an individual who has incorporated;

a partnership made of former public servants; or

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 Offeror a FPS in receipt of a pension? YES () NO ()

If so, the Offeror must provide the following information, for all FPS in receipt of a pension, as applicable:
name of former public servant; date of termination of employment or retirement from the Public Service.

By providing this information, Offerors agree that the successful Offeror'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 Offeror a FPS who received a lump sum payment pursuant to the terms of the Work Force Adjustment Directive? YES () NO ()

If so, the Offeror must provide the following information:

name of former public servant;

conditions of the lump sum payment incentive;

date of termination of employment;

amount of lump sum payment;

rate of pay on which lump sum payment is based;

period of lump sum payment including start date, end date and number of weeks;

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 - Request for Standing Offers

All enquiries must be submitted in writing to the Standing Offer Authority no later than ten (10) calendar days before the Request for Standing Offers (RFSO) closing date. Enquiries received after that time may not be answered.

Offerors should reference as accurately as possible the numbered item of the RFSO to which the enquiry relates. Care should be taken by offerors 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 questions or may request that offerors do so, so that the proprietary nature of the question is eliminated, and the enquiry can be answered with copies to all offerors. Enquiries not submitted in a form that can be distributed to all offerors may not be answered by Canada.

5. Applicable Laws

The Standing Offer and any contract resulting from the Standing Offer must be interpreted and governed, and the relations between the parties determined, by the laws in force in the Province of Ontario.

Offerors may, at their discretion, substitute the applicable laws of a Canadian province or territory of their choice without affecting the validity of their offer, 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 offerors.

6. Basis for Canada's Ownership of Intellectual Property

The Department of Natural Resources Canada (NRCAN) has determined that any intellectual property rights arising from the performance of the Work under the resulting contract will belong to Canada, on the

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following grounds: the main purpose of the resulting call-up, or of the deliverables contracted for, is to generate knowledge and information for public dissemination.

PART 3 - OFFER PREPARATION INSTRUCTIONS

1. Offer Preparation Instructions

Canada requests that offerors provide their offer in separately bound sections as follows:

Section I: Technical Offer (six (6) hard copies)
Section II: Financial Offer (two (2) hard copies)
Section III: Certifications (one (1) copy)

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

Offerors may submit offers for more than one (1) area of expertise specified in Annex A. If the Offeror is submitting an offer for more than one area of expertise, the Offeror must submit a separate offer for each area of expertise.

Canada requests that Offerors clearly identify in the first pages of their offer which area of expertise they are submitting an offer.

Each individual identified in the offer must only be named for a maximum of six (6) of expertise (i.e. If the Offeror wished to submit an offer for all 46 areas of expertise, the Offeror would have to name a minimum of eight (8) individuals).

Canada requests that Offerors follow the format instructions described below in the preparation of their offer.

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, Offerors should:

- 1) use 8.5 x 11 inch (216 mm x279 mm) paper containing fibre certified as originating from a sustainably-managed forest and containing minimum 30% recycled content; and
- 2) use an environmentally-preferable format including black and white printing instead of colour printing, printing double sided/duplex, using staples or clips instead of cerlox, duotangs or binders.

Section I: Technical Offer

In their technical offer, Offerors should explain and demonstrate how they propose to meet the requirements and how they will carry out the Work.

Section II: Financial Offer

ALL INFORMATION RELATED IN ANY WAY TO PRICE IS TO APPEAR ONLY IN THE FINANCIAL OFFER.

Pricing Basis

Offerors must submit their financial offer in accordance with the following:

A firm all-inclusive hourly rate for each area of expertise for the initial three (3) year period of the standing offer. The rates for the subsequent four (4) one (1) year possible extension periods would be adjusted in accordance with the consumer price index (refer to Part 7 Resulting Standing Offer, article 4.3 Consumer Price Index (CPI)).

The total amount of Applicable Taxes must be shown separately.

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No travel and living expenses will be paid for services provided within the National Capital Region (NCR). Further, Canada will not accept any travel and living expenses for travel between the contractor's place of business and the NCR. All of these costs are to be included in the firm all inclusive labour rates requested above.

The information should be provided in accordance with the "Financial Offer Presentation Sheet" in Attachment 1 to Part 4.

Section III: Certifications

Offerors must submit the certifications required under Part 5, Certifications.

PART 4 - EVALUATION PROCEDURES, MANDATORY REQUIREMENTS, POINT RATED TECHNICAL EVALUATION AND BASIS OF SELECTION

1. Evaluation Procedures

- (a) Offers will be assessed in accordance with the entire requirement of the Request for Standing Offers including the technical and financial evaluation criteria.
- (b) An evaluation team composed of representatives of Canada will evaluate the offers.

1.1 Technical Evaluation

2. Mandatory Technical Criteria

The Offeror must comply with the following Mandatory Technical Requirements and provide the necessary documentation to support compliance.

Any offer which fails to meet any of the following Mandatory Technical Requirements will be declared non-responsive. Each requirement should be addressed separately.

Except where expressly provided otherwise, the experience described in the bid must be the experience of one or more of the following:

- 1. the Bidder itself (which includes the experience of any companies that formed the Bidder by way of a merger but does not include any experience acquired through a purchase of assets or an assignment of contract); or
- 2. the Bidder's affiliates (i.e. parent, subsidiary or sister corporations, maximum of 2), provided the Bidder identifies and demonstrates the transfer of know-how, the use of toolsets and the use of key personnel from the affiliate for the applicable criterion; or
- 3. the Bidder's subcontractors (maximum of 2), provided the Bidder includes a copy of the teaming agreements and identifies the roles and responsibilities of all parties under the agreement and how their work will be integrated.

The experience of the Bidder's suppliers will not be considered.

In the event that the Bidder fails to submit any of the information pursuant to **M1, M2 and M3** below, the Contracting Authority may request it thereafter in writing, including after the closing date of the bid solicitation. It is mandatory that the Bidder provide the missing information within three (3) business days of the written request or within such longer period as specified by the Contracting Authority in the notice to the Bidder.

M1 The Offeror must clearly identify in its offer the area (s) of expertise for which it is submitting an offer (refer to Annex A).

M2 The Offeror must not propose the same individual for more than six (6) areas of expertise (refer to Appendix 1 to Annex A).

M3 The Offeror must demonstrate, for each of the proposed resources(s), that they have a minimum of three (3) years of experience within the last ten (10) years, (measured back from date of RFSO closing) related to each Area of Expertise (AE) for which they are submitting an offer.

2.1 Mandatory Financial Criteria

At bid closing, the Offeror must comply with the following Mandatory Financial Requirements and provide the necessary documentation to support compliance.

Any offer which fails to meet any of the following Mandatory Financial Requirements will be declared non-responsive. Each requirement should be addressed separately.

MF1

The Offer must submit one and only one firm all-inclusive hourly rate for each area of expertise being offered, for the initial three (3) year Standing Offer period, GST/HST extra.

3. Point Rated Technical Criteria

For those Technical Offers that meet all the Mandatory Requirements, each individual submitted under a particular area of expertise will be evaluated and scored separately in accordance with the following evaluation criteria.

Marks are assigned to each individual and marks of more than one individual cannot be combined.

For a complete "Overview" and "Description of Tasks" for each of the 46 categories of expertise, reference is made to Part 7, "STANDING OFFER AND RESULTING CONTRACT CLAUSES", at "ANNEX "A", STATEMENT OF REQUIREMENT".

3.1(a) Point Rated Criteria – Proposed Individual(s) Experience Exceeding Those Identified Under M4 above.

Each of the proposed individual(s) that exceed the related AE years experience identified under M4 above, will be scored. The Offeror will identify the individual's highest number of years experience (measured back from the date of RFSO closing).

A score of one (1) point to a maximum of ten (10) points for every year that exceeds M4.

3.1(b) Point Rated Criteria for Membership and Affiliations Related to Each AE.

For each of the proposed individual(s), the Offeror will identify the memberships and affiliations related to each AE.

The membership should be clearly specific to the AE; general memberships to associations whose role is not linked to the AE do not count.

Proposed individual(s) involved in multiple sub-committees or working groups (e.g. ASHRAE technical committees, Canadian Code Commission working-groups) can count involvement in each sub-group as a separate membership or affiliation.

Each membership or affiliation will be scored one (1) point to a maximum of five (5) points.

3.1(c) Point Rated Criteria – Quantitative Assessment for Each AE

For each AE that the Offeror has submitted an offer, a quantitative evaluation of experience for each individual(s) proposed, will be carried out as described in each of the AE tables below.

For each AE the maximum points available: 50

3.1(d) Point Rated Criteria – Qualitative Assessment for Each AE

For each AE that the Offeror has submitted an offer, the Offeror is to select one sample project provided in the responses under the Quantitative Assessment for each AE. In 250 words or less, a detailed description of the project's significance, methodology, and outcomes, as well as the individuals' role in the initiatives is to be provided, identifying how the project meets relevant components of the task requirements of the AE (refer to Categories 1 through 46 of Annex "A", SOR).

The detailed description will be scored according to the following rubric:

30 points: Project is relevant to the AE. It makes a significant contribution to industry's advancement in this area. Methodology is logical and the outcomes are described. Individual led or played a significant leading role in the project. Description inspires confidence that future efforts will be successful.

25 points: Project is relevant to the AE. Methodology is logical and outcomes are described. Individual led or played a significant role in project. Description inspires confidence that future efforts will be successful.

20 points: Project is relevant to the AE. Methodology is logical and outcomes are described. Individual led or played a significant role in project.

0 points: Project is not relevant to AE. Methodology and outcomes are not described. The role of the individual is unclear or insignificant in project.

Maximum points available: 30
Minimum points required to pass: 20

Category 1: Buildings - Advanced Integrated HVAC Systems

Quantitative Scoring

A quantitative evaluation of experience will be carried out as described in the table below. The Offeror should demonstrate that the individual(s) proposed meet(s) the requirements by providing relevant examples based on the individual(s) experience.

- **Each project can score points where all of the information requested is provided.**
- **No partial points will be awarded for projects where any of the requested information is missing.**
- **If more than the number requested of projects are provided, only the 1st number of requested projects identified under the following table will be evaluated.**

Category 1: Quantitative requirements table

Area	Experience per proposed individual	Maximum Points Available
1a.	<p>Using relevant example projects, demonstrate experience assessing HVAC simulation models and validating their level of accuracy for HVAC design.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed (start date and end date) • Overall Project Description (2 lines) • Individual's Relevant Project Contribution (2 lines) • HVAC make, model tested (HVAC component) • Simulation tool used • Validation method used (e.g. analytical validation, empirical validation, or comparative testing method such as ASHRAE 140) <p>List up to three (3) completed projects. Five (5) points will be awarded for each relevant project or activity.</p>	15
1b.	<p>Using relevant example projects, demonstrate experience field testing HVAC system performance.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed (start date and end date) • Overall Project Description (2 lines) • Individual's Relevant Project Contribution (2 lines) • HVAC make, model component tested • Standards and/ or protocols referenced <p>List up to three (3) completed projects. Five (5) points will be awarded for each relevant project or activity.</p>	15
1c.	<p>Using relevant example projects, demonstrate experience testing monitoring protocols for Energy Balance and IEQ.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed (start date and end date) • Overall Project Description (2 lines) • Individual's Relevant Project Contribution (2 lines) • Types and Number of buildings monitored • Monitoring protocol description • Monitoring duration, number of sensors and meters • IEQ parameters monitored <p>List up to two (2) completed projects. Four (4) points will be awarded for each</p>	8

Area	Experience per proposed individual	Maximum Points Available
	relevant project or activity.	
1d.	<p>Using relevant example projects, demonstrate experience assessing energy storage and/or heat recovery system performance.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed (start date and end date) • Overall Project Description (2 lines) • Individual's Relevant Project Contribution (2 lines) • Type of energy storage or heat recovery technology assessed • Description of the testing conditions (4 lines) • Parameters tested <p>List up to two (2) completed projects. Four (4) points will be awarded for each relevant project or activity</p>	8
1e.	<p>Self-authored or co-authored cite papers published within the past 3 years relating to one of the tasks listed under Annex "A", SOR, AE Category 1, Description task list.</p> <p>Each example must provide a complete citation, including:</p> <ul style="list-style-type: none"> • Title • Author(s) • Date • Journal or conference name • Volume, issue and/or number, if applicable <p>List up to four (4) papers. One (1) point will be awarded for each citation. If more than four (4) papers are provided, only the 1st four (4) papers will be evaluated</p>	4
Total		50

Qualitative Assessment

Select one of the sample projects provided in the responses above. In 250 words or less, provide a detailed description of the project's significance, methodology, and outcomes, as well as the individuals' role in the initiatives, identifying how the project meets relevant components of the task requirements of this AE (refer to Annex "A", SOR, Category 1).

Maximum Points available: 30 (refer to Part 4, article 3.1 (d) Point Rated Criteria – Qualitative Assessment).

Category 2: Building - Monitoring of Advanced and Renewable Energy Technologies

Quantitative Scoring

A quantitative evaluation of experience will be carried out as described in the table below. The Offeror should demonstrate that the individual(s) proposed meet(s) the requirements by providing relevant examples based on the individual(s) experience.

- Each project can score points where all of the information requested is provided.
- No partial points will be awarded for projects where any of the requested information is missing.
- If more than the number requested of projects are provided, only the 1st number of requested projects identified under the following table will be evaluated.

Category 2: Quantitative requirements table

Area	Experience	Maximum Points Available
2a.	<p>Using relevant example projects, demonstrate experience with specifying, installing, calibrating and commissioning monitoring equipment.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed (start date and end date) • Overall Project Description (2 lines) • Individual's Relevant Project Contribution (2 lines) • Project result(s) (2 lines): <p>List up to three (3) completed projects. Seven (7) points will be awarded for each relevant project or activity.</p>	21
2b.	<p>Using relevant example projects, demonstrate experience collecting data from monitoring equipment.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed (start date and end date) • Overall Project Description (2 lines) • Individual's Relevant Project Contribution (2 lines) • Project Result(s) (2 lines): <p>List up to three (3) completed projects. Three (3) points will be awarded for each relevant project or activity.</p>	9
2c.	<p>Using relevant example projects, demonstrate experience analyzing, presenting, and publishing results from monitored data.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization 	20

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Area	Experience	Maximum Points Available
	<ul style="list-style-type: none">• Year Completed (start date and end date)• Overall Project Description (2 lines)• Individual's Relevant Project Contribution (2 lines)• Project Result(s) (2 lines): Provide a link to the monitoring website, if available: <p>List up to two (2) completed projects. Ten (10) points will be awarded for each relevant project or activity.</p>	
	Total	50

Qualitative Assessment

Select one of the sample projects provided in the responses above. In 250 words or less, provide a detailed description of the project's significance, methodology, and outcomes, as well as the individuals' role in the initiatives, identifying how the project meets relevant components of the task requirements of this AE (refer to Annex "A", SOR, Category 2).

Maximum Points available: 30 (refer to Part 4, article 3.1 (d)Point Rated Criteria – Qualitative Assessment).

Category 3: Building - Integrated Design Process

Quantitative Scoring

A quantitative evaluation of experience will be carried out as described in the chart below. The Offeror should demonstrate that the individual(s) proposed meet(s) the requirements by providing relevant examples based on the individual(s) experience. A quantitative evaluation of experience will be carried out as described in the chart below. The individual will demonstrate that they meet the requirements by providing relevant examples from their experience.

- Each project can score points where all of the information requested is provided.
- No partial points will be awarded for projects where any of the requested information is missing.
- If more than the number requested of projects are provided, only the 1st number of requested projects identified under the following table will be evaluated.

Category 3: Quantitative requirements table

Area	Experience	Maximum Points Available
3a.	<p>Using relevant example projects, demonstrate experience using energy simulation in the development of whole building project performance criteria.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Individual's Relevant Project Contribution (2 lines) <p>List up to two (2) projects. Five (5) points will be awarded for each relevant project or activity.</p>	10
3b.	<p>Using relevant example projects, demonstrate experience assessing the impact of various energy efficiency measures against whole building energy performance trends.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Individual's Relevant Project Contribution (2 lines) <p>List two (2) projects. Five (5) points will be awarded for each relevant project or activity</p>	10
3c.	<p>Using relevant example projects, demonstrate experience facilitating integrated design processes, formal training in facilitation, or experience facilitating other collaborative processes.</p> <p>For each example, provide the following information:</p>	15

Area	Experience	Maximum Points Available
	<ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Individual's Relevant Project Contribution (2 lines) <p>List up to three (3) projects. Five (5) points will be awarded for each relevant project or activity.</p>	
3d.	<p>Using relevant example projects, demonstrate experience directing multi-disciplinary integrated design teams.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Individual's Relevant Project Contribution (2 lines) <p>List up to three (3) projects. Five (5) points will be awarded for each relevant project or activity.</p>	15
Total		50

Qualitative Assessment

Select one of the sample projects provided in the responses above. In 250 words or less, provide a detailed description of the project's significance, methodology, and outcomes, as well as the individuals' role in the initiatives, identifying how the project meets relevant components of the task requirements of this AE (refer to Annex "A", SOR, Category 3).

Maximum Points available: 30 (refer to Part 4, article 3.1 (d)Point Rated Criteria – Qualitative Assessment).

Category 4: Communities - Data Collection & Analysis

Quantitative Scoring

A quantitative evaluation of experience will be carried out as described in the chart below. The Offeror should demonstrate that the individual(s) proposed meet(s) the requirements by providing relevant examples based on the individual(s) experience. A quantitative evaluation of experience will be carried out as described in the chart below. The individual will demonstrate that they meet the requirements by providing relevant examples from their experience.

- Each example can score points where all of the information requested is provided.
- No partial points will be awarded for examples where any of the requested information is missing.
- If more than the number requested of projects are provided, only the 1st number of requested projects identified under the following table will be evaluated.

Category 4: Quantitative requirements table

Area	Experience	Maximum Points Available
4a.	<p>Using relevant example projects, demonstrate experience in developing models characterizing and enabling simulation of energy end-use, Green House Gas (GHG) emissions and costs associated with houses and buildings and/or transportation, and/or renewable energy technologies and/or district energy systems.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Individual's Relevant Project Contribution (2 lines) • Technologies modelled • Simulation platform(s) used to develop the datasets • The degree to which energy, emissions and costs were described in the datasets (2 lines) <p>List up to four (4) projects. Three (3) points will be awarded for each relevant project or activity.</p>	12

Area	Experience	Maximum Points Available
4b.	<p>Using relevant example projects, demonstrate experience using existing datasets and or collecting data using conventional means and or alternative data collection techniques for modelling and simulation of community energy and emissions.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Individual's Relevant Project Contribution (2 lines) • Data collection techniques used (2 lines) • Novel datasets used (2 lines) • Method(s) used to integrate these datasets with other datasets typically used to characterize community energy and emissions (4 lines) <p>List up to three (3) projects. Three (3) points will be awarded for each relevant project or activity.</p>	9
4c.	<p>Using relevant example projects, demonstrate experience with the integration of data from housing and building and/or renewable energy technology and/or district energy technology simulation tools and/or measured utility data or other novel datasets into Geographical Information Systems (GIS).</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Individual's Relevant Project Contribution (2 lines) • The technologies studied and the simulation platforms used (if any) to develop variables relating to them (2 lines) • the GIS platform used • Examples of approaches used to integrate the datasets (4 lines) <p>List up to four (4) projects. Four (4) points will be awarded for each project.</p>	16

Area	Experience	Maximum Points Available
4d.	<p>Using relevant example projects, demonstrate experience validating the predictions of Geographical Information Systems (GIS) based models and system designs through comparison to analytical solutions, measured data, or predictions from other models and community simulation software to ensure the reliability of results and recommendations.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Individual's Relevant Project Contribution (2 lines) • The models validated • Methods used to complete validation (4 lines) <p>List up to three (3) projects. Three (3) points will be awarded for each project.</p>	9
4e.	<p>Cite peer-reviewed papers the proposed resource has (co)authored describing development, validation, and/or application of datasets and/or GIS based community energy models. Each example must provide a complete citation, including:</p> <ul style="list-style-type: none"> • Title • author(s) • date • journal or conference name • volume, issue and/or number, if applicable <p>List up to four (4) papers. One (1) point will be awarded for each citation.</p>	4
Total		50

Qualitative Assessment

Select one of the sample projects provided in the responses above. In 250 words or less, provide a detailed description of the project's significance, methodology, and outcomes, as well as the individuals' role in the initiatives, identifying how the project meets relevant components of the task requirements of this AE (refer to Annex "A", SOR, Category 4).

Maximum Points available: 30 (refer to Part 4, article 3.1 (d)Point Rated Criteria – Qualitative Assessment).

Category 5: Communities - Regulatory and Policy Analysis

Quantitative Scoring

A quantitative evaluation of experience will be carried out as described in the chart below. The individual should demonstrate that they meet the requirements by providing relevant examples from their experience.

- Each example can score points where all of the information requested is provided.
- No partial points will be awarded for examples where any of the requested information is missing.
- If more than the number requested of projects are provided, only the 1st number of requested projects identified under the following table will be evaluated.

Category 5: Quantitative requirements table

Area	Experience	Maximum Points Available
5a.	<p>Using relevant example projects, demonstrate experience assessing, creating or analysing community-related regulations or bylaws for land use or planning purposes.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Municipality • Year Completed • Overall Project Description (2 lines) • Individual's Relevant Project Contribution (2 lines) • Project Result(s) (2 lines) <p>List up to four (4) examples. Five (5) points will be awarded for each relevant project or activity.</p>	20
5b.	<p>Using relevant example projects, demonstrate experience evaluating socio-economic externalities and economic impacts associated with the project development at the community level.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Socio-economic externalities considered: • Individual's Relevant Project Contribution (2 lines) • Project Result(s) (2 lines) <p>List up to four (4) examples. Five (5) points will be awarded for each relevant project or activity.</p>	20

Area	Experience	Maximum Points Available
5c.	<p>Using relevant example projects, demonstrate experience developing business models for community based energy systems.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Type and rated capacity of the community energy system • Individual's Relevant Project Contribution (2 lines) • Project Result(s) (2 lines) <p>List up to two (2) examples. Five (5) points will be awarded for each relevant project or activity.</p>	10
Total		50

Qualitative Assessment

Select one of the sample projects provided in the responses above. In 250 words or less, provide a detailed description of the project's significance, methodology, and outcomes, as well as the individuals' role in the initiatives, identifying how the project meets relevant components of the task requirements of this AE (refer to Annex "A", SOR, Category 5).

Maximum Points available: 30 (refer to Part 4, article 3.1 (d)Point Rated Criteria – Qualitative Assessment).

Category 6: Communities - Design

Quantitative Scoring

A quantitative evaluation of experience will be carried out as described in the chart below. The individual should demonstrate that they meet the requirements by providing relevant examples from their experience.

- Each example can score points where all of the information requested is provided.
- No partial points will be awarded for examples where any of the requested information is missing.
- If more than the number requested of projects are provided, only the 1st number of requested projects identified under the following table will be evaluated.

Category 6: Quantitative requirements table

Area	Experience	Maximum Points Available
6a.	<p>Using relevant example projects, demonstrate experience in the assessment of community energy consumption, land use planning, and available community energy resources in relation to the suitability for development and integration of district energy systems within the community.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Name of municipality and/or community • Project (or Activity) Title • Client Organization • Project Year Completion • Overall Project Description (2 lines) • Description of Your Relevant Project Contribution (2 lines) • Project Results (2 lines) <p>List up to four (4) projects. Five (5) points will be awarded for each relevant project or activity.</p>	20
6b.	<p>Using relevant example projects, demonstrate experience evaluating socio-economic externalities and economic impacts associated with the integration and operation of district energy type systems within a community.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Name of municipality and/or community • Project (or Activity) Title • Client Organization • Project Year Completion • Overall Project Description (2 lines) • Indicate at Least one Socio-economic Externality that was Assessed • Description of Your Relevant Project Contribution (2 lines) • Project Results (2 lines) <p>List up to two (2) project examples. Five (5) points will be awarded for each relevant project or activity.</p>	10

Area	Experience	Maximum Points Available
6c.	<p>Using relevant example projects, demonstrate experience in the design and integration of community energy systems, their construction and operation, and development of control strategies for their operation.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Name of municipality and/or community • Project (or Activity) Title • Client Organization • Project Year Completion • Overall Project Description (2 lines) • Description of Your Relevant Project Contribution (2 lines) • Project Results (2 lines) • Type and Rated Capacity of the Community Energy System <p>List up to two (2) project examples. Five (5) points will be awarded for each relevant project or activity.</p>	10
6d.	<p>Using relevant example projects, demonstrate experience in the technical and economic evaluation and/or design of community energy systems that included the integration of alternative and/or renewable energy resources and technologies.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Name of municipality and/or community • Project (or Activity) Title • Client Organization • Project Year Completion • Overall Project Description (2 lines) • Description of Your Relevant Project Contribution (2 lines) • Project Results (2 lines) • Description of the Type of Alternative or Renewable Technology Involved <p>List up to two (2) project examples. Five (5) points will be awarded for each relevant project or activity.</p>	10
Total		50

Qualitative Assessment

Select one of the sample projects provided in the responses above. In 250 words or less, provide a detailed description of the project's significance, methodology, and outcomes, as well as the individuals' role in the initiatives, identifying how the project meets relevant components of the task requirements of this AE (refer to Annex "A", SOR, Category 6).

Maximum Points available: 30 (refer to Part 4, article 3.1 (d)Point Rated Criteria – Qualitative Assessment).

Category 7: Communities - Technology Transfer

Quantitative Scoring

A quantitative evaluation of experience will be carried out as described in the chart below. The individual should demonstrate that they meet the requirements by providing relevant examples from their experience.

- Each example can score points where all of the information requested is provided.
- No partial points will be awarded for examples where any of the requested information is missing.
- If more than the number requested of projects are provided, only the 1st number of requested projects identified under the following table will be evaluated.

Category 7: Quantitative requirements table

Area	Experience	Maximum Points Available
7a.	<p>Using relevant example projects, demonstrate experience facilitating technical or scientific meetings or workshops on the topics of sustainability, energy or other community-based undertakings.</p> <p>Requirements for each example:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines max) • Your Relevant Project Contribution (2 lines max) • Name of municipality and/or community • Project Results (2 lines max) <p>List up to five (5) examples. Five (5) points will be awarded for each relevant project or activity.</p>	25
7b.	<p>Using relevant example projects, demonstrate experience developing scientific communication materials such as research bulletins, case studies, fact sheets, or presentations that convey R&D findings to stakeholders.</p> <p>Requirements for each example:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines max) • Your Relevant Project Contribution (2 lines max): • The type(s) of materials developed (e.g. presentation, fact sheet, case study) • The sector(s) and technologies discussed <p>List up to five (5) projects. Five (5) points will be awarded for each project.</p>	25
Total		50

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Qualitative Assessment

Select one of the sample projects provided in the responses above. In 250 words or less, provide a detailed description of the project's significance, methodology, and outcomes, as well as the individuals' role in the initiatives, identifying how the project meets relevant components of the task requirements of this AE (refer to Annex "A", SOR, Category 7).

Maximum Points available: 30 (refer to Part 4, article 3.1 (d)Point Rated Criteria – Qualitative Assessment).

Category 8: Residential - Industry and Innovation Strategy

Quantitative Scoring

A quantitative evaluation of experience will be carried out as described in the chart below. The individual should demonstrate that they meet the requirements by providing relevant examples from their experience.

- Each example can score points where all of the information requested is provided.
- No partial points will be awarded for examples where any of the requested information is missing.
- If more than the number requested of projects are provided, only the 1st number of requested projects identified under the following table will be evaluated.

Category 8: Quantitative requirements table

Area	Experience	Maximum Points Available
8a	<p>Using relevant example projects, demonstrate experience with innovative energy positive products:</p> <ul style="list-style-type: none"> • successfully commercialized while the proposed resource was managing a manufacturing company <u>or</u> • successfully integrated into homes while you were managing a construction company <p>These projects must relate to the first introduction of a new class of products, the first introduction of a significant innovation within a class of products, or early and innovative application of such products.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Individual's Relevant Project Contribution (2 lines) • Project Result(s) (2 lines) <p>List up to five (5) projects. Ten (10) points will be awarded for each relevant project or activity.</p>	50
Total		50

Qualitative Assessment

Select one of the sample projects provided in the responses above. In 250 words or less, provide a detailed description of the project's significance, methodology, and outcomes, as well as the individuals' role in the initiatives, identifying how the project meets relevant components of the task requirements of this AE (refer to Annex "A", SOR, Category 8).

Maximum Points available: 30 (refer to Part 4, article 3.1 (d)Point Rated Criteria – Qualitative Assessment).

Category 9: Residential - HVAC System Design

Quantitative Scoring

A quantitative evaluation of experience will be carried out as described in the chart below. The individual should demonstrate that they meet the requirements by providing relevant examples from their experience.

- Each example can score points where all of the information requested is provided.
- No partial points will be awarded for examples where any of the requested information is missing.
- If more than the number requested of projects are provided, only the 1st number of requested projects identified under the following table will be evaluated.

Category 9: Quantitative requirements table

Area	Experience	Maximum Points Available
9a.	<p>Using relevant example projects, demonstrate experience with designing HVAC systems for tract home developments.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Individual's Relevant Project Contribution (2 lines) • Project Result(s) (2 lines) <p>List up to four (4) projects. Five (5) points will be awarded for each relevant project or activity.</p>	20
9b.	<p>Using relevant example projects, demonstrate experience with onsite measurements used to show that you have commissioned residential HVAC systems effectively.</p> <p>Each example used must relate to a different HVAC technology. (Examples: furnaces, combination systems, heat pumps, and mini splits.)</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Type of Equipment installed • Description of Commissioning approach (2 lines) • Individual's Relevant Project Contribution (2 lines) • Project Result(s) (2 lines) <p>List up to three (3) projects. Five (5) points will be awarded for each relevant project or activity.</p>	15
9c.	Using relevant example projects, demonstrate experience developing guidelines	15

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Area	Experience	Maximum Points Available
	<p>for the installation of residential HVAC systems or their related distribution systems.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none">• Project (or Activity) Title• Client Organization• Year Completed• Overall Project Description (2 lines)• Individual's Relevant Project Contribution (2 lines)• Project Result(s) (2 lines) <p>List up to three (3) projects. Five (5) points will be awarded for each relevant project or activity.</p>	
	Total	50

Qualitative Assessment

Select one of the sample projects provided in the responses above. In 250 words or less, provide a detailed description of the project's significance, methodology, and outcomes, as well as the individuals' role in the initiatives, identifying how the project meets relevant components of the task requirements of this AE (refer to Annex "A", SOR, Category 9).

Maximum Points available: 30 (refer to Part 4, article 3.1 (d)Point Rated Criteria – Qualitative Assessment).

Category 10: Residential - Monitoring - Whole House

Quantitative Scoring

A quantitative evaluation of experience will be carried out as described in the chart below. The individual should demonstrate that they meet the requirements by providing relevant examples from their experience.

- Each example can score points where all of the information requested is provided.
- No partial points will be awarded for examples where any of the requested information is missing.
- If more than the number requested of projects are provided, only the 1st number of requested projects identified under the following table will be evaluated.

Category 10: Quantitative requirements table

Area	Experience	Maximum Points Available
10a.	<p>Using relevant example projects, demonstrate experience carrying out whole house monitoring studies where you installed monitoring equipment and analysed the data.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Individual's Relevant Project Contribution (2 lines) • Project Result(s) (2 lines) • Number of homes in study <p>The first two example projects provided must relate to studies that included at least 5 homes.</p> <p>List up to five (5) projects. Four (4) points will be awarded for each relevant project or activity.</p>	20
10b.	<p>Using relevant example projects, demonstrate experience in whole house monitoring studies where the proposed resource was the primary author of the resulting study.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Individual's Relevant Project Contribution (2 lines) • Project Result(s) (2 lines) • Alignment between planned and implemented methodology (2 lines) 	30

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Area	Experience	Maximum Points Available
	List up to five (5) projects. Six (6) points will be awarded for each relevant project or activity.	
	Total	50

Qualitative Assessment

Select one of the sample projects provided in the responses above. In 250 words or less, provide a detailed description of the project's significance, methodology, and outcomes, as well as the individuals' role in the initiatives, identifying how the project meets relevant components of the task requirements of this AE (refer to Annex "A", SOR, Category 10).

Maximum Points available: 30 (refer to Part 4, article 3.1 (d)Point Rated Criteria – Qualitative Assessment).

Category 11: Residential - Architectural Integration

Quantitative Scoring

A quantitative evaluation of experience will be carried out as described in the chart below. The individual should demonstrate that they meet the requirements by providing relevant examples from their experience.

- Each example can score points where all of the information requested is provided.
- No partial points will be awarded for examples where any of the requested information is missing.
- If more than the number requested of projects are provided, only the 1st number of requested projects identified under the following table will be evaluated.

Category 11: Quantitative requirements table

Area	Experience	Maximum Points Available
11a.	<p>Using relevant example projects, demonstrate the proposed resource's experience as the prime consultant for Tract home design and construction documentation</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Your Relevant Project Contribution (2 lines) • Project Result(s) (2 lines) • Location • If applicable, Advanced Building Program Certification (Examples: Energy Star, R2000, LEED) <p>List up to five (5) projects. Five (5) points will be awarded for each relevant project or activity.</p>	25
11b.	<p>Using relevant example projects, demonstrate experience developing the technical specifications for Tract home projects.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Individual's Relevant Project Contribution (2 lines) • Project Result(s) (2 lines) • Project type: (single family, semi, multi family) • Advanced Building Program Certification (if applicable) Examples: (Energy Star, R2000, LEED) <p>List up to four (4) projects. Five (5) points will be awarded for each relevant project or activity.</p>	20
11c.	<p>Using relevant example projects, demonstrate experience providing advice to</p>	5

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Area	Experience	Maximum Points Available
	<p>builders on product improvements to enhance energy performance, durability and or marketability.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none">• Project (or Activity) Title• Client Organization• Year Completed• Overall Project Description (2 lines)• Individual's Relevant Project Contribution (2 lines)• Recommendations made to enhance performance as a result of reviewing product options (2 lines) <p>List one (1) project. Five (5) points will be awarded for an relevant project or activity.</p>	
	Total	50

Qualitative Assessment

Select one of the sample projects provided in the responses above. In 250 words or less, provide a detailed description of the project's significance, methodology, and outcomes, as well as the individuals' role in the initiatives, identifying how the project meets relevant components of the task requirements of this AE (refer to Annex "A", SOR, Category 11).

Maximum Points available: 30 (refer to Part 4, article 3.1 (d)Point Rated Criteria – Qualitative Assessment).

Category 12: Residential - Facilitation and Presentation

Quantitative Scoring

A quantitative evaluation of experience will be carried out as described in the chart below. The individual should demonstrate that they meet the requirements by providing relevant examples from their experience.

- Each example can score points where all of the information requested is provided.
- No partial points will be awarded for examples where any of the requested information is missing.
- If more than the number requested of projects are provided, only the 1st number of requested projects identified under the following table will be evaluated.

Category 12: Quantitative requirements table

Area	Experience	Maximum Points Available
12a.	<p>Using relevant example projects, demonstrate experience in group facilitation.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Individual's Relevant Project Contribution (2 lines) <p>List up to five (5) projects. Five (5) points will be awarded for each relevant project or activity.</p>	25
12b.	<p>Using relevant example projects, demonstrate experience developing some or all content for technical presentations related to housing technology.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Individual's Relevant Project Contribution (2 lines) • Applicants can provide up to two examples in each of the following areas: Renewable and Community; Mechanical and Electrical; Envelope and Construction <p>List up to four (4) projects. Four (4) points will be awarded for each relevant project or activity.</p>	16
12c.	<p>Using relevant example projects, demonstrate experience providing advice to builders on product improvement based upon both simulated and real world review of standard product.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title 	9

Area	Experience	Maximum Points Available
	<ul style="list-style-type: none"> • Client Organization • Year Completed • Overall Project Description (2 lines) • Individual's Relevant Project Contribution (2 lines) • Project Result(s) (2 lines) • The example should provide at least one of the following elements: <ul style="list-style-type: none"> ○ Recommendations: brief description of the type of recommendations made to enhance performance as a result of reviewing the product and the related test results, or, ○ Energy impacts of various measures: evaluation of technical measures for improving building energy efficiency, or, ○ Market impacts of various measures: cost/benefit analysis and market analysis to determine best pathway <p>List up to three (3) projects. Three (3) points will be awarded for each relevant project or activity.</p>	
	Total	50

Qualitative Assessment

Select one of the sample projects provided in the responses above. In 250 words or less, provide a detailed description of the project's significance, methodology, and outcomes, as well as the individuals' role in the initiatives, identifying how the project meets relevant components of the task requirements of this AE (refer to Annex "A", SOR, Category 12).

Maximum Points available: 30 (refer to Part 4, article 3.1 (d)Point Rated Criteria – Qualitative Assessment).

Category 13: Residential - Windows, Exterior Doors and Fenestrations

Quantitative Scoring

A quantitative evaluation of experience will be carried out as described in the chart below. The individual should demonstrate that they meet the requirements by providing relevant examples from their experience.

- Each example can score points where all of the information requested is provided.
- No partial points will be awarded for examples where any of the requested information is missing.
- If more than the number requested of projects are provided, only the 1st number of requested projects identified under the following table will be evaluated.

Category 13: Quantitative requirements table

Area	Experience	Maximum Points Available
13a.	<p>Using relevant example projects, demonstrate the proposed resource's experience conducting research into the performance of window, door and fenestration systems. Relevant projects may relate to the development of assembly specifications, energy and moisture modelling, costing analysis, or the assessment of solar shading or solar control devices.</p> <p>For each example, provide the following:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Your Relevant Project Contribution (2 lines) • Project Result(s) (2 lines) <p>List up to three (3) relevant projects. Five (5) points will be awarded for each project.</p>	15
13b.	<p>Using relevant example projects, demonstrate the proposed resource's experience with Canadian, North American, or international standards, or with product marketing programs such as ENERGY STAR.</p> <p>For each example, provide the following:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • The relevant standard(s) or marketing program(s) • Year Completed • Overall Project Description (2 lines) • Your Relevant Project Contribution (2 lines) • Project Result(s) (2 lines) <p>List up to two (2) relevant projects. Five (5) points will be awarded for each project.</p>	10

Area	Experience	Maximum Points Available
13c.	<p>Using relevant example projects, demonstrate the proposed resource's experience conducting field testing and monitoring of fenestration systems using recognized test standards or protocols, or analysing the results of such testing.</p> <p>Requirements for each example:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • The relevant test standard(s) or protocol(s) • The fenestration products tested • Year Completed • Overall Project Description (2 lines) • Your Relevant Project Contribution (2 lines) • Project Result(s) (2 lines) <p>List up to two (2) projects. Five (5) points will be awarded for each project.</p>	10
13d.	<p>Using relevant example projects, demonstrate the proposed resource's experience in developing best-practice guides and training modules, and/or providing technical assistance to builders and manufacturers on the design, specification, and/or installation of fenestration products</p> <p>Requirements for each example:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • The relevant fenestration product • Year Completed • Overall Project Description (2 lines) • Your Relevant Project Contribution (2 lines) • Project Result(s) (2 lines) <p>List up to three (3) projects. Five (5) points will be awarded for each project.</p>	15
Total		50

Qualitative Assessment

Select one of the sample projects provided in the responses above. In 250 words or less, provide a detailed description of the project's significance, methodology, and outcomes, as well as the individuals' role in the initiatives, identifying how the project meets relevant components of the task requirements of this AE (refer to Annex "A", SOR, Category 13).

Maximum Points available: 30 (refer to Part 4, article 3.1 (d)Point Rated Criteria – Qualitative Assessment).

Category 14: Residential - General R&D - Model Development

Quantitative Scoring

A quantitative evaluation of experience will be carried out as described in the chart below. The individual should demonstrate that they meet the requirements by providing relevant examples from their experience.

- Each example can score points where all of the information requested is provided.
- No partial points will be awarded for examples where any of the requested information is missing.
- If more than the number requested of projects are provided, only the 1st number of requested projects identified under the following table will be evaluated.

Category 14: Quantitative requirements table

Area	Experience	Maximum Points Available
14a.	<p>Using relevant example projects, demonstrate experience developing and implementing models for novel technologies in ESP-r and/or TRNSYS. Each example must include:</p> <ul style="list-style-type: none"> • The technology modelled • The simulation platform the model was implemented in • The role of the individual in the project • The client organization • The year completed <p>List up to five (5) projects. Three (3) points will be awarded for each project.</p>	15
14b.	<p>Using relevant example projects, demonstrate experience validating predictions from hourly building simulation software using analytical verification, empirical validation and/or comparative testing. Each example must include:</p> <ul style="list-style-type: none"> • The simulation platform(s) validated • The model(s)/features exercised • The validation method(s) • The role of the individual in the project • The client organization • The year completed <p>List up to five (5) projects. Three (3) points will be awarded for each project.</p>	15
14c.	<p>Using relevant example projects, demonstrate experience applying hourly building simulation software to study performance of novel technologies in a housing context. Each example must include:</p> <ul style="list-style-type: none"> • The simulation platform used • The technologies studied • The role of the individual in the project • The client organization • The year completed 	15

Area	Experience	Maximum Points Available
	List up to five (5) projects. Three (3) points will be awarded for each project.	
14d.	<p>Cite relevant peer-reviewed papers the proposed resource has (co)authored describing your development, validation, and/or application of hourly building simulation software. Each example must provide a complete citation, including:</p> <ul style="list-style-type: none"> • Title • Author(s) • Date • Journal or conference name • Volume, issue and/or number, if applicable <p>List up to ten (10) papers. One half (0.5) points will be awarded for each citation.</p>	5
Total		50

Qualitative Assessment

Select one of the sample projects provided in the responses above. In 250 words or less, provide a detailed description of the project's significance, methodology, and outcomes, as well as the individuals' role in the initiatives, identifying how the project meets relevant components of the task requirements of this AE (refer to Annex "A", SOR, Category 14).

Maximum Points available: 30 (refer to Part 4, article 3.1 (d)Point Rated Criteria – Qualitative Assessment).

Category 15: Residential - Building Envelope Assessments

Quantitative Scoring

A quantitative evaluation of experience will be carried out as described in the chart below. The individual should demonstrate that they meet the requirements by providing relevant examples from their experience.

- Each example can score points where all of the information requested is provided.
- No partial points will be awarded for examples where any of the requested information is missing.
- If more than the number requested of projects are provided, only the 1st number of requested projects identified under the following table will be evaluated.

Category 15: Quantitative requirements table

Area	Experience	Maximum Points Available
15a.	<p>Using relevant example projects, demonstrate experience developing envelope assembly specifications, energy and moisture modelling of assemblies and/or costing analysis.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Individual's Relevant Project Contribution (2 lines) • Project Result(s) (2 lines) <p>List up to four (4) projects. Five (5) points will be awarded for each relevant project or activity.</p>	20
15b.	<p>Using relevant example projects, demonstrate experience field testing and monitoring envelope components.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Individual's Relevant Project Contribution (2 lines) • Project Result(s) (2 lines) <p>List up to two (2) projects. Five (5) points will be awarded for each relevant project or activity.</p>	10
15c.	<p>Using relevant example projects, demonstrate experience of test protocols, monitoring equipment and data analysis.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title 	10

Area	Experience	Maximum Points Available
	<ul style="list-style-type: none"> • Client Organization • Year Completed • Overall Project Description (2 lines) • Individual's Relevant Project Contribution (2 lines) • Project Result(s) (2 lines) <p>List up to two (2) projects. Five (5) points will be awarded for each relevant project or activity.</p>	
15d.	<p>Using relevant example projects, demonstrate experience developing field-guides, best-practice guides, training modules, leading design evaluations for building envelopes, or providing technical assistance to builders and manufacturers.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Individual's Relevant Project Contribution (2 lines) • Project Result(s) (2 lines) <p>List up to two (2) projects. Five (5) points will be awarded for each relevant project or activity.</p>	10
Total		50

Qualitative Assessment

Select one of the sample projects provided in the responses above. In 250 words or less, provide a detailed description of the project's significance, methodology, and outcomes, as well as the individuals' role in the initiatives, identifying how the project meets relevant components of the task requirements of this AE (refer to Annex "A", SOR, Category 15).

Maximum Points available: 30 (refer to Part 4, article 3.1 (d)Point Rated Criteria – Qualitative Assessment).

Category 16: Residential - General R&D – Air Source Heat Pumps

Quantitative Scoring

A quantitative evaluation of experience will be carried out as described in the chart below. The individual should demonstrate that they meet the requirements by providing relevant examples from their experience.

- Each example can score points where all of the information requested is provided.
- No partial points will be awarded for examples where any of the requested information is missing.
- If more than the number requested of projects are provided, only the 1st number of requested projects identified under the following table will be evaluated.

Category 16: Quantitative requirements table

Area	Experience	Maximum Points Available
16a.	<p>Using relevant example projects, demonstrate experience developing models or performance simulation of energy systems (specifically heat pump systems if applicable).</p> <p>Requirements for each example:</p> <ul style="list-style-type: none"> • Project (or Activity) title • Simulation model used (e.g., TRNSYS) • Energy system type implemented (reference heat pump type implemented if applicable, e.g., split system air source, water source, etc.) • Date • Client • Overall project description (2 lines) • Description of your role in preparing the report • (2 lines) <p>List up to five (5) projects. Four (4) points will be awarded for each relevant project or activity.</p>	20
16b.	<p>Using relevant example projects, demonstrate experience conducting state-of-the-art market analysis and developing reports on technical or economic aspects of advanced HVAC and renewable energy systems.</p> <p>Requirements for each example:</p> <ul style="list-style-type: none"> • HVAC / renewable energy system type assessed (e.g., air source heat pump with solar pre-heat) • Date • Client • Report recipient(s) • Overall project description (2 lines) 	10

	<ul style="list-style-type: none"> Description of your role in preparing the report (2 lines) <p>List up to five (5) projects. Two (2) points will be awarded for each relevant project or activity.</p>	
16c.	<p>Using relevant example projects, demonstrate experience of or experience developing heat pump energy performance testing protocols or standards. Requirements for each example:</p> <ul style="list-style-type: none"> Protocol or standard title Date Standards body or related organization Description of your role in the project (2 lines) <p>List up to five (5) projects. Two (2) points will be awarded for each relevant project or activity.</p>	10
16d.	<p>Using relevant example projects, demonstrate experience providing advice to manufacturers on product improvements based upon review of either product field testing or lab test results. Requirements for each example:</p> <ul style="list-style-type: none"> Equipment: generic description of the product and what it does Testing reference: description of energy performance tests the product underwent – can use a reference to a standard where relevant Date: date when recommendations were made Client Recommendations: brief description of the type of recommendations made to enhance performance as a result of reviewing the product and the related test results (3 lines) Overall project description (2 lines) Description of your role in the project (2 lines) <p>List up to five (5) projects. Two (2) points will be awarded for each relevant project or activity.</p>	10
Total		50

Qualitative Assessment

Select one of the sample projects provided in the responses above. In 250 words or less, provide a detailed description of the project's significance, methodology, and outcomes, as well as the individuals' role in the initiatives, identifying how the project meets relevant components of the task requirements of this AE (refer to Annex "A", SOR, Category 16).

Maximum Points available: 30 (refer to Part 4, article 3.1 (d)Point Rated Criteria – Qualitative Assessment).

Category 17: Residential - Monitoring - Heating, Ventilation and Air-Conditioning (HVAC) Equipment

Quantitative Scoring

A quantitative evaluation of experience will be carried out as described in the chart below. The individual should demonstrate that they meet the requirements by providing relevant examples from their experience.

- Each example can score points where all of the information requested is provided.
- No partial points will be awarded for examples where any of the requested information is missing.
- If more than the number requested of projects are provided, only the 1st number of requested projects identified under the following table will be evaluated.

Category 17: Quantitative requirements table

Area	Experience	Maximum Points Available
17a.	<p>Using relevant example projects, demonstrate experience carrying out residential HVAC monitoring studies where you installed monitoring equipment and analysed the data.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Individual's Relevant Project Contribution (2 lines) • Project Result(s) (2 lines) • Number of homes in study <p>The first two example projects provided must relate to studies that included at least 5 homes.</p> <p>List up to five (5) projects. Four (4) points will be awarded for each relevant project or activity.</p>	20
17b.	<p>Using relevant example projects, demonstrate experience in residential HVAC monitoring studies where you were the primary author of the resulting study.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Individual's Relevant Project Contribution (2 lines) • Project Result(s) (2 lines) • Alignment between planned and implemented methodology (2 lines) <p>List up to five (5) projects. Six (6) points will be awarded for each relevant project or activity.</p>	30
Total		50

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File No. - N° du dossier
007SQ.23229-129462

Buyer ID - Id de l'acheteur
007SQ
CCC No./N° CCC - FMS No./N° VME

Qualitative Assessment

Select one of the sample projects provided in the responses above. In 250 words or less, provide a detailed description of the project's significance, methodology, and outcomes, as well as the individuals' role in the initiatives, identifying how the project meets relevant components of the task requirements of this AE (refer to Annex "A", SOR, Category 17).

Maximum Points available: 30 (refer to Part 4, article 3.1 (d)Point Rated Criteria – Qualitative Assessment).

Category 18: Residential - Laboratory Analysis and Standards - Heating, Ventilation and Air-Conditioning (HVAC) Equipment

Quantitative Scoring

A quantitative evaluation of experience will be carried out as described in the chart below. The individual should demonstrate that they meet the requirements by providing relevant examples from their experience.

- Each example can score points where all of the information requested is provided.
- No partial points will be awarded for examples where any of the requested information is missing.
- If more than the number requested of projects are provided, only the 1st number of requested projects identified under the following table will be evaluated.

Category 18: Quantitative requirements table

Area	Experience	Maximum Points Available
18a.	<p>Using relevant example projects, demonstrate experience developing HVAC energy performance testing protocols or standards.</p> <p>Requirements for each example:</p> <ul style="list-style-type: none"> • Protocol or standard title: • Date: • Standards body or related organization: • Description of your role in the project: <p>List up to five (5) projects. Four (4) points will be awarded for each relevant project or activity.</p>	20
18b.	<p>Using relevant example projects, demonstrate experience developing or advising on the development of HVAC product energy performance lab test reports.</p> <p>Applicants can provide up a maximum of two examples in each of the following areas: Heating, Water Heating, Ventilating, or Air Conditioning</p> <p>Requirements for each example:</p> <ul style="list-style-type: none"> • Equipment function • Type of equipment • Name of governing test standard or brief description of test • Date • Brief description of your role in testing and reporting. <p>List up to five (5) projects. Four (4) points will be awarded for each relevant project or activity.</p>	20
18c.	<p>Using relevant example projects, demonstrate experience providing advice to manufacturers on product improvements based upon review of lab test results.</p> <p>Requirements for each example:</p> <ul style="list-style-type: none"> • Equipment: generic description of the product and what it does (2 lines max) 	10

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007SQ.23229-129462

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007SQ
CCC No./N° CCC - FMS No./N° VME

	<ul style="list-style-type: none">• Testing reference: description of energy performance tests the product underwent – can use a reference to a standard where applicable• Date: date when recommendations were made• Recommendations: brief description of the type of recommendations made to enhance performance as a result of reviewing the product and the related test results (3 lines max) <p>List up to five (5) projects. two (2) points will be awarded for each relevant project or activity.</p>	
Total		50

Qualitative Assessment

Select one of the sample projects provided in the responses above. In 250 words or less, provide a detailed description of the project's significance, methodology, and outcomes, as well as the individuals' role in the initiatives, identifying how the project meets relevant components of the task requirements of this AE (refer to Annex "A", SOR, Category 18).

Maximum Points available: 30 (refer to Part 4, article 3.1 (d)Point Rated Criteria – Qualitative Assessment).

Category 19: Residential - Net Zero or Low Energy Housing

Quantitative Scoring

A quantitative evaluation of experience will be carried out as described in the chart below. The individual should demonstrate that they meet the requirements by providing relevant examples from their experience.

- Each example can score points where all of the information requested is provided.
- No partial points will be awarded for examples where any of the requested information is missing.
- If more than the number requested of projects are provided, only the 1st number of requested projects identified under the following table will be evaluated.

Category 19: Quantitative requirements table

Area	Experience	Maximum Points Available
19a.	<p>Using relevant example projects, demonstrate experience examining energy use in advanced, low-energy housing.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Individual's Relevant Project Contribution (2 lines max.) • The level of performance sought in the low-energy housing • The analysis methods and tools applied (e.g. HOT2000) <p>List up to five (5) projects. Two (2) points will be awarded for each project.</p>	10
19b.	<p>Using relevant example projects, demonstrate experience examining and/or optimizing integration of advanced building envelope and/or mechanical system technology into low-energy housing. For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Individual's Relevant Project Contribution (2 lines) • The level of performance sought in the low-energy housing • The technologies considered <p>List up to five (5) projects. Two (2) points will be awarded for each project.</p>	10
19c.	<p>Using relevant example projects, demonstrate experience examining integration of passive-solar, solar-thermal and/or solar electric renewable systems into residential housing. For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title 	10

Area	Experience	Maximum Points Available
	<ul style="list-style-type: none"> • Client Organization • Year Completed • Overall Project Description (2 lines) • Individual's Relevant Project Contribution (2 lines) • The level of performance sought in the low-energy housing • The technologies considered <p>List up to five (5) projects. Two (2) points will be awarded for each project.</p>	
19d.	<p>Using relevant example projects, demonstrate experience developing design guidelines and strategies for low-energy housing. For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Individual's Relevant Project Contribution (2 lines) • The level of performance sought in the low-energy housing • The scope of the project (e.g. whole-house design, building envelope design, solar-system design) • The technologies considered <p>List up to five (5) projects. Four (4) points will be awarded for each project.</p>	20
Total	50	

Qualitative Assessment

Select one of the sample projects provided in the responses above. In 250 words or less, provide a detailed description of the project's significance, methodology, and outcomes, as well as the individuals' role in the initiatives, identifying how the project meets relevant components of the task requirements of this AE (refer to Annex "A", SOR, Category 19).

Maximum Points available: 30 (refer to Part 4, article 3.1 (d)Point Rated Criteria – Qualitative Assessment).

**Category 20: Residential - Low-Rise Multi Residential Buildings
Quantitative Scoring**

A quantitative evaluation of experience will be carried out as described in the chart below. The individual should demonstrate that they meet the requirements by providing relevant examples from their experience.

- Each example can score points where all of the information requested is provided.
- No partial points will be awarded for examples where any of the requested information is missing.
- If more than the number requested of projects are provided, only the 1st number of requested projects identified under the following table will be evaluated.

Category 20: Quantitative requirements table

Area	Experience	Maximum Points Available
20a.	<p>Using relevant example projects, demonstrate your experience in Multi-Unit Residential Buildings (MURB) specific research related to energy analysis, retrofit specifications, HVAC design and development of assembly specifications or costing analysis.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Individual's Relevant Project Contribution (2 lines) • Any related technical publication(s) <p>List up to five (5) projects. Five (5) points will be awarded for each relevant project or activity.</p>	25
20b.	<p>Using relevant example projects, demonstrate experience field testing and monitoring MURB envelope and/or HVAC systems.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Short description of methodology including any related standards used (3 lines max) • Individual's Relevant Project Contribution (2 lines) • Any related technical publication(s) <p>List up to three (3) projects. Five (5) points will be awarded for each project. Each example must have a distinct methodology, not simply repeat a project on a different building.</p>	15
20c.	<p>Using relevant example projects, demonstrate your experience in developing field-guides, best-practice guides, training modules, or leading design evaluations</p>	10

Area	Experience	Maximum Points Available
	<p>for MURBs and/or providing technical assistance to builders and manufacturers.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> ▪ Project (or Activity) Title ▪ Client Organization ▪ Year Completed ▪ Overall Project Description (2 lines) ▪ Short description of methodology including any related standards used (3 lines max) ▪ Individual's Relevant Project Contribution (2 lines) ▪ Any related technical publication(s) <p>List up to two (2) projects. Five (5) points will be awarded for each relevant project or activity.</p>	
	Total	50

Qualitative Assessment

Select one of the sample projects provided in the responses above. In 250 words or less, provide a detailed description of the project's significance, methodology, and outcomes, as well as the individuals' role in the initiatives, identifying how the project meets relevant components of the task requirements of this AE (refer to Annex "A", SOR, Category 20).

Maximum Points available: 30 (refer to Part 4, article 3.1 (d)Point Rated Criteria – Qualitative Assessment).

Category 21: Residential - Communication Design and Implementation
Quantitative Scoring

A quantitative evaluation of experience will be carried out as described in the chart below. The individual should demonstrate that they meet the requirements by providing relevant examples from their experience.

- Each example can score points where all of the information requested is provided.
- No partial points will be awarded for examples where any of the requested information is missing.
- If more than the number requested of projects are provided, only the 1st number of requested projects identified under the following table will be evaluated.

Category 21: Quantitative requirements table

Area	Experience	Maximum Points Available
21a.	<p>Using relevant example projects, demonstrate experience developing graphics for housing-related R&D technical communications.</p> <p>For each example project , provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Individual's Relevant Project Contribution (2 lines) • Project Results (2 lines) • The medium (web, print, etc) • The audience (1 line) • Language <p>List up to five (5) projects. Three (3) points will be awarded for each relevant project or activity.</p>	15
21b.	<p>Using relevant example projects, demonstrate experience laying-out housing-related R&D technical publications or surveys.</p> <p>For each example project, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Individual's Relevant Project Contribution (2 lines) • Project Results (2 lines) • The medium (web, print, etc) • The audience (1 line) • Language <p>List up to five (5) projects. Four (4) points will be awarded for each relevant project or activity.</p>	20
21c.	<p>Using relevant example projects, demonstrate how you have given advice to clients regarding technical writing or illustration development or improvements</p>	15

Area	Experience	Maximum Points Available
	<p>based upon review of technical specifications. For each example project, provide the following information</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Individual's Relevant Project Contribution (2 lines) • Project Results (2 lines) • Describe what material the client provided you with (2 lines) • describe what improvements you recommended (2 lines) • Who were your direct clients (researchers, marketing, or both?) (1 line) • Describe which improvements your client accepted (2 lines) • Which communications media were the communications products prepared for? (web CLF 2.0; fact sheets, technical guidelines) (1-2 lines) <p>List up to three (3) projects. Five (5) points will be awarded for each relevant project or activity.</p>	
	Total	50

Qualitative Assessment

Select one of the sample projects provided in the responses above. In 250 words or less, provide a detailed description of the project's significance, methodology, and outcomes, as well as the individuals' role in the initiatives, identifying how the project meets relevant components of the task requirements of this AE (refer to Annex "A", SOR, Category 21).

Maximum Points available: 30 (refer to Part 4, article 3.1 (d)Point Rated Criteria – Qualitative Assessment).

Category 22: Residential - Renewable Energy System Technology Assessments

Quantitative Scoring

A quantitative evaluation of experience will be carried out as described in the chart below. The individual should demonstrate that they meet the requirements by providing relevant examples from their experience.

- Each example can score points where **all** of the information requested is provided.
- No partial points will be awarded for examples where any of the requested information is missing.
- If more than the number requested of projects are provided, only the 1st number of requested projects identified under the following table will be evaluated.

Category 22: Quantitative requirements table

Area	Experience	Maximum Points Available
22a.	<p>Using relevant example projects, demonstrate experience conducting residential renewable energy technology assessments. Requirements for each example:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Description of Relevant Project Contribution (2 lines) • Project Results (2 lines) <p>List up to four (4) projects. Five (5) points will be awarded for each project.</p>	20
22b.	<p>Using relevant example projects, demonstrate experience developing cost estimates or costing analysis for residential renewable energy systems.</p> <p>Applicants can provide up to two examples in each of the following areas: PV, solar DHW, solar thermal space heating (including solar-combis), passive solar design, PV/Thermal hybrid systems.</p> <p>Requirements for each example:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Description of Relevant Project Contribution (2 lines) • Project Results (2 lines) <p>List up to three (3) projects. Five (5) points will be awarded for each project.</p>	15
22c.	<p>Using relevant example projects, demonstrate experience designing, developing, specifying or supervising the installation of innovative renewable energy system designs or installations (such as PV, solar DHW, solar thermal</p>	10

Area	Experience	Maximum Points Available
	<p>space heating, passive solar design, or PV/Thermal hybrid systems).</p> <p>Requirements for each example:</p> <ul style="list-style-type: none"> ▪ Project (or Activity) Title ▪ Client Organization ▪ Year Completed ▪ Overall Project Description (2 lines) ▪ Description of Relevant Project Contribution (2 lines) ▪ Project Results (2 lines) <p>List up to two (2) projects. Five (5) points will be awarded for each project.</p>	
22d.	<p>Using relevant example projects, demonstrate experience developing renewable energy system performance predictions or comparisons.</p> <p>Requirements for each example:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Description of Relevant Project Contribution (2 lines) • Project Results (2 lines) <p>List one (1) project. Five (5) points will be awarded.</p>	5
Total		50

Qualitative Assessment

Select one of the sample projects provided in the responses above. In 250 words or less, provide a detailed description of the project's significance, methodology, and outcomes, as well as the individuals' role in the initiatives, identifying how the project meets relevant components of the task requirements of this AE (refer to Annex "A", SOR, Category 22).

Maximum Points available: 30 (refer to Part 4, article 3.1 (d)Point Rated Criteria – Qualitative Assessment).

Category 23: Residential - Mechanical and Electrical Technology Assessments

Quantitative Scoring

A quantitative evaluation of experience will be carried out as described in the chart below. The individual should demonstrate that they meet the requirements by providing relevant examples from their experience.

- Each example can score points where **all** of the information requested is provided.
- No partial points will be awarded for examples where any of the requested information is missing.
- If more than the number requested of projects are provided, only the 1st number of requested projects identified under the following table will be evaluated.

Category 23: Quantitative requirements table

Area	Experience	Maximum Points Available
23a.	<p>Using relevant example projects, demonstrate experience conducting mechanical or electrical technology assessments for residential applications. For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Individual's Relevant Project Contribution (2 lines) • Project Result(s) (2 lines) <p>List up to four (4) projects. Five (5) points will be awarded for each relevant project or activity.</p>	20
23b.	<p>Using relevant example projects, demonstrate experience performing cost estimation for residential HVAC systems for which the proposed resource was the primary cost analyst/estimator. Up to two examples in each of the following areas can be provided: Space Heating, Water Heating, Ventilating, Air Conditioning, or Energy Management.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Individual's Relevant Project Contribution (2 lines) • Project Result(s) (2 lines) <p>List up to three (3) projects. Five (5) points will be awarded for each relevant project or activity.</p>	15
23c.	<p>Using relevant example projects, demonstrate experience designing or specifying innovative mechanical or electrical systems. This could include</p>	10

Area	Experience	Maximum Points Available
	<p>design and specification of combo systems, IMS, ground source heat pumps, energy management systems, zoned forced-air systems, CHP, or installation supervision. For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Individual's Relevant Project Contribution (2 lines) • Project Result(s) (2 lines) <p>List up to two (2) projects. Five (5) points will be awarded for each relevant project or activity.</p>	
23d.	<p>Using relevant example projects, demonstrate experience making HVAC performance predictions or comparisons for which the proposed resource was the primary analyst.</p> <p>Requirements for each example</p> <ul style="list-style-type: none"> • Project (or Activity) Title: • Client Organization: • Year Completed: • Overall Project Description (2 lines): • Individual's Relevant Project Contribution (2 lines): • Project Result(s) (2 lines): <p>List one (1) project. Five (5) points will be awarded.</p>	5
	Total	50

Qualitative Assessment

Select one of the sample projects provided in the responses above. In 250 words or less, provide a detailed description of the project's significance, methodology, and outcomes, as well as the individuals' role in the initiatives, identifying how the project meets relevant components of the task requirements of this AE (refer to Annex "A", SOR, Category 23).

Maximum Points available: 30 (refer to Part 4, article 3.1 (d)Point Rated Criteria – Qualitative Assessment).

Category 24: Residential - Envelope Technology Assessments

Quantitative Scoring

A quantitative evaluation of experience will be carried out as described in the chart below. The individual should demonstrate that they meet the requirements by providing relevant examples from their experience.

- Each example can score points where all of the information requested is provided.
- No partial points will be awarded for examples where any of the requested information is missing.
- If more than the number requested of projects are provided, only the 1st number of requested projects identified under the following table will be evaluated.

Category 24: Quantitative requirements table

Area	Experience	Maximum Points Available
24a.	<p>Using relevant example projects, demonstrate experience conducting building envelop or construction technology assessments</p> <p>Requirements for each example:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Description of Relevant Project Contribution (2 lines) • Project Results (2 lines) <p>List up to four (4) projects. Five (5) points will be awarded for each project that meets all of the requirements.</p>	20
24b.	<p>Using relevant example projects, demonstrate experience developing cost estimates or cost analysis for residential building envelope construction.</p> <p>Provide only one example in each of the following areas: Stick framed walls, basements, ICF, SIPs, windows, double stud walls, exterior rigid insulation, spray foamed walls.</p> <p>Requirements for each example:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Description of Relevant Project Contribution (2 lines) • Project Results (2 lines) <p>List up to three (3) projects. Five (5) points will be awarded for each project that meets all of the requirements.</p>	15
24c.	Using relevant example projects, demonstrate experience developing designs or	10

Area	Experience	Maximum Points Available
	<p>specifications for building envelope components, such as wall or roof assemblies or window packages.</p> <p>Requirements for each example:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed (when design or installation was conducted) • Overall Project Description (2 lines) • Description of Relevant Project Contribution (2 lines) • Project Results (2 lines) • Product: generic brief description of the product and how it is innovative (2 lines) • Recommendations: installation, detailing, or application recommendations (2 lines) <p>List up to two (2) projects. Five (5) points will be awarded for each project that meets all of the requirements.</p>	
24d.	<p>Using relevant example projects, demonstrate experience developing building envelope performance predictions or comparisons.</p> <p>Requirements for each example:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Description of Relevant Project Contribution (2 lines) • Project Results (2 lines) <p>List one (1) project. Five (5) points will be awarded for each project that meets all of the requirements.</p>	5
Total		50

Qualitative Assessment

Select one of the sample projects provided in the responses above. In 250 words or less, provide a detailed description of the project's significance, methodology, and outcomes, as well as the individuals' role in the initiatives, identifying how the project meets relevant components of the task requirements of this AE (refer to Annex "A", SOR, Category 24).

Maximum Points available: 30 (refer to Part 4, article 3.1 (d)Point Rated Criteria – Qualitative Assessment).

Category 25: Residential - Archetype and Housing Stock Modelling

Quantitative Scoring

A quantitative evaluation of experience will be carried out as described in the chart below. The individual should demonstrate that they meet the requirements by providing relevant examples from their experience.

- Each example can score points where all of the information requested is provided.
- No partial points will be awarded for examples where any of the requested information is missing.
- If more than the number requested of projects are provided, only the 1st number of requested projects identified under the following table will be evaluated.

Category 25: Quantitative requirements table

Area	Experience	Maximum Points Available
25a.	<p>Home Energy Modelling and Analysis Using relevant example projects, demonstrate experience developing and applying models for residential housing using HOT2000, HOT3000 or similar analysis tools.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Individual's Relevant Project Contribution (2 lines) • Project Result(s) (2 lines) • The type (e.g R-2000, Energy Star, Code-minimum) and vintage of the home(s) considered • Modelling programs used <p>List two (2) projects. Five (5) points will be awarded for each relevant project or activity.</p>	10
25b.	<p>Statistical Analysis of Housing Stock Using relevant example projects, demonstrate experience using statistical data to estimate energy consumption for large stocks of housing.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Individual's Relevant Project Contribution (2 lines) • Sources of statistical data used • Segment(s) of housing stock examined <p>List up to four (4) projects. Five (5) points will be awarded for each relevant</p>	20

Area	Experience	Maximum Points Available
	project or activity.	
25c.	<p>Using relevant example projects, demonstrate your experience validating housing archetypes using data from statistical surveys or market analysis,</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Individual's Relevant Project Contribution (2 lines) • Sources of statistical data used • Segment(s) of housing stock examined <p>List one project. Five (5) points will be awarded for this project or activity.</p>	5
25d.	<p>Recommendations for future R&D efforts</p> <p>Using relevant example projects, demonstrate experience developing recommendations for future R&D efforts based on research combining findings from housing stock analysis and home energy modelling.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Individual's Relevant Project Contribution (2 lines) • Key Recommendation(s) for future efforts <p>List up to three (3) projects. Five (5) points will be awarded for each relevant project or activity.</p>	15
Total		50

Qualitative Assessment

Select one of the sample projects provided in the responses above. In 250 words or less, provide a detailed description of the project's significance, methodology, and outcomes, as well as the individuals' role in the initiatives, identifying how the project meets relevant components of the task requirements of this AE (refer to Annex "A", SOR, Category 25).

Maximum Points available: 30 (refer to Part 4, article 3.1 (d)Point Rated Criteria – Qualitative Assessment).

Residential – International

Category 26: International - Technology Assessment of Canadian Residential Technologies for Foreign Markets

Quantitative Scoring

A quantitative evaluation of experience will be carried out as described in the chart below. The individual should demonstrate that they meet the requirements by providing relevant examples from their experience.

- Each example can score points where all of the information requested is provided.
- No partial points will be awarded for examples where any of the requested information is missing.
- If more than the number requested of projects are provided, only the 1st number of requested projects identified under the following table will be evaluated.

Category 26: Quantitative requirements table

Area	Experience	Maximum Points Available
26a.	<p>Using relevant example projects, demonstrate the proposed resource's experience researching foreign regulatory requirements, performance and installation standards for housing, envelope and/or HVAC systems</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Individual's Relevant Project Contribution (2 lines) • Project result(s) (2 lines) • Main export market related to project <p>List up to two (2) projects. Five (5) points will be awarded for each relevant project.</p>	10
26b.	<p>Using relevant example projects, demonstrate the proposed resource's experience a) identifying technical barriers to, and b) proposing solutions for application of Canadian housing in foreign markets.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Individual's Relevant Project Contribution (2 lines) • Project result(s) (2 lines) • Main export market related to project <p>List up to two (2) projects. Five (5) points will be awarded for each relevant</p>	10

Area	Experience	Maximum Points Available
	project.	
26c.	<p>Using relevant example projects, demonstrate the proposed resource's experience identifying economic barriers to application of Canadian housing in foreign markets.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Individual's Relevant Project Contribution (2 lines) • Project result(s) (2 lines) • Main export market related to project <p>List up to two (2) projects. Five (5) points will be awarded for each relevant project.</p>	10
26d.	<p>Using relevant example projects, demonstrate the proposed resource's experience a) undertaking research adapting Canadian technologies to enhance their export potential, b) developing and/or updating technical standards for foreign markets, and/or c) adapting Canadian construction details to foreign building practices.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Individual's Relevant Project Contribution (2 lines) • Project result(s) (2 lines) • Main export market related to project <p>List up to four (4) projects. Five (5) points will be awarded for each relevant project.</p>	20
	Total	50

Qualitative Assessment

Select one of the sample projects provided in the responses above. In 250 words or less, provide a detailed description of the project's significance, methodology, and outcomes, as well as the individuals' role in the initiatives, identifying how the project meets relevant components of the task requirements of this AE (refer to Annex "A", SOR, Category 26).

Maximum Points available: 30 (refer to Part 4, article 3.1 (d)Point Rated Criteria – Qualitative Assessment).

Category 27: International - Foreign Market Technology Transfer, Training and Education via Marketing and Promotion

Quantitative Scoring

A quantitative evaluation of experience will be carried out as described in the chart below. The individual should demonstrate that they meet the requirements by providing relevant examples from their experience.

- Each example can score points where all of the information requested is provided.
- No partial points will be awarded for examples where any of the requested information is missing.
- If more than the number requested of projects are provided, only the 1st number of requested projects identified under the following table will be evaluated.

Category 27: Quantitative requirements table

Area	Experience	Maximum Points Available
27a.	<p>Technology Transfer, Training and Education via Marketing and Promotion using relevant example projects, demonstrate the proposed resource's experience in carrying out the main tasks listed above.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Individual's Relevant Project Contribution (2 lines) • Project result(s) (2 lines) • Main export market related to project <p>List up to five (5) projects. Ten (10) points will be awarded for each relevant project.</p>	50
Total		50

Qualitative Scoring

Select one of the sample projects provided in the responses above. In 250 words or less, provide a detailed description of the project's significance, methodology, and outcomes, as well as the individuals' role in the initiatives, identifying how the project meets relevant components of the task requirements of this AE (refer to Annex "A", SOR, Category 27).

Maximum Points available: 30 (refer to Part 4, article 3.1 (d)Point Rated Criteria – Qualitative Assessment).

Category 28: International - Quality Assurance, Monitoring and Evaluation

Quantitative Scoring

A quantitative evaluation of experience will be carried out as described in the chart below. The individual should demonstrate that they meet the requirements by providing relevant examples from their experience.

- Each example can score points where all of the information requested is provided.
- No partial points will be awarded for examples where any of the requested information is missing.
- If more than the number requested of projects are provided, only the 1st number of requested projects identified under the following table will be evaluated.

Category 28: Quantitative requirements table

Area	Experience	Maximum Points Available
28a.	<p>Using relevant example projects, demonstrate the proposed resource's experience in carrying out the main tasks listed above.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Individual's Relevant Project Contribution (2 lines) • Project result(s) (2 lines) • Main export market related to project <p>List up to five (5) projects. Ten (10) points will be awarded for each relevant project.</p>	50
	Total	50

Qualitative Scoring

Select one of the sample projects provided in the responses above. In 250 words or less, provide a detailed description of the project's significance, methodology, and outcomes, as well as the individuals' role in the initiatives, identifying how the project meets relevant components of the task requirements of this AE (refer to Annex "A", SOR, Category 28).

Maximum Points available: 30 (refer to Part 4, article 3.1 (d)Point Rated Criteria – Qualitative Assessment).

Category 29: Program Support - Building Sector Analysis

Quantitative Scoring

A quantitative evaluation of experience will be carried out as described in the chart below. The individual should demonstrate that they meet the requirements by providing relevant examples from their experience.

- Each example can score points where all of the information requested is provided.
- No partial points will be awarded for examples where any of the requested information is missing.
- If more than the number requested of projects are provided, only the 1st number of requested projects identified under the following table will be evaluated.

Category 29: Quantitative requirements table

Area	Experience	Maximum Points Available
29a.	<p>Using relevant example projects, demonstrate the proposed resource's experience in carrying out the main tasks listed above.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Individual's Relevant Project Contribution (2 lines) • Project result(s) (2 lines) • Main source of data <p>List up to five (5) projects. Ten (10) points will be awarded for each relevant project.</p>	50
Total		50

Qualitative Scoring

Select one of the sample projects provided in the responses above. In 250 words or less, provide a detailed description of the project's significance, methodology, and outcomes, as well as the individuals' role in the initiatives, identifying how the project meets relevant components of the task requirements of this AE (refer to Annex "A", SOR, Category 29).

Maximum Points available: 30 (refer to Part 4, article 3.1 (d)Point Rated Criteria – Qualitative Assessment).

Category 30: Program Support - Sector Related Strategic Planning

Quantitative Scoring

A quantitative evaluation of experience will be carried out as described in the chart below. The individual should demonstrate that they meet the requirements by providing relevant examples from their experience.

- Each example can score points where all of the information requested is provided.
- No partial points will be awarded for examples where any of the requested information is missing.
- If more than the number requested of projects are provided, only the 1st number of requested projects identified under the following table will be evaluated.

Category 30: Quantitative requirements table

Area	Experience	Maximum Points Available
30a.	<p>Using relevant example projects, demonstrate the proposed resource's experience in carrying out the main tasks listed above.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Individual's Relevant Project Contribution (2 lines) • Project result(s) (2 lines) • Main audience or sector <p>List up to five (5) projects. Ten (10) points will be awarded for each relevant project.</p>	50
	Total	50

Qualitative Scoring

Select one of the sample projects provided in the responses above. In 250 words or less, provide a detailed description of the project's significance, methodology, and outcomes, as well as the individuals' role in the initiatives, identifying how the project meets relevant components of the task requirements of this AE (refer to Annex "A", SOR, Category 30).

Maximum Points available: 30 (refer to Part 4, article 3.1 (d)Point Rated Criteria – Qualitative Assessment).

Category 31: Program Support - Desktop Publishing and Layout for Technology Transfer Activities

Quantitative Scoring

A quantitative evaluation of experience will be carried out as described in the chart below. The individual should demonstrate that they meet the requirements by providing relevant examples from their experience.

- Each example can score points where all of the information requested is provided.
- No partial points will be awarded for examples where any of the requested information is missing.
- If more than the number requested of projects are provided, only the 1st number of requested projects identified under the following table will be evaluated.

Category 31: Quantitative requirements table

Area	Experience	Maximum Points Available
31a.	<p>Using relevant example projects, demonstrate the proposed resource's experience in carrying out the main tasks listed above.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Individual's Relevant Project Contribution (2 lines) • Project result(s) (2 lines) • Main physical output(s) <p>List up to five (5) projects. Ten (10) points will be awarded for each relevant project.</p>	50
	Total	50

Qualitative Scoring

Select one of the sample projects provided in the responses above. In 250 words or less, provide a detailed description of the project's significance, methodology, and outcomes, as well as the individuals' role in the initiatives, identifying how the project meets relevant components of the task requirements of this AE (refer to Annex "A", SOR, Category 31).

Maximum Points available: 30 (refer to Part 4, article 3.1 (d)Point Rated Criteria – Qualitative Assessment).

Category 32: Simulation - Commercial Buildings Compliance Rules Developer

Quantitative Scoring

A quantitative evaluation of experience will be carried out as described in the chart below. The individual should demonstrate that they meet the requirements by providing relevant examples from their experience.

- Each example can score points where all of the information requested is provided.
- No partial points will be awarded for examples where any of the requested information is missing.
- If more than the number requested of projects are provided, only the 1st number of requested projects identified under the following table will be evaluated.

Category 32: Quantitative requirements table

Area	Experience	Maximum Points Available
32a.	<p>Using relevant example projects, demonstrate experience developing compliance rule sets within a DOE-2 engine platform. For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • The related energy standard modeled (examples: MNECB, ASHRAE90.1) • Description of the compliance section(s) for which rules were developed. (2 lines) • Individual's Relevant Project Contribution (2 lines) <p>List up to five (5) projects. Five (5) points will be awarded for each project.</p>	25
32b.	<p>Using relevant example projects, demonstrate experience working directly with the DOE-2 command keyword (BDL) syntax (manual modification of input files, user functions/parametric runs, interpretation of file formats, or debugging runtime errors). For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Description of the DOE2 command keyword syntax issue and approach to addressing it (2 lines) • Individual's Relevant Project Contribution (2 lines) <p>List up to three (3) projects. Five (5) points will be awarded for each project.</p>	15
32c.	<p>Using relevant example projects, demonstrate experience developing concise reports on building energy simulation findings and recommendations.</p> <p>For each example, provide the following information:</p>	10

Solicitation No. - N° de l'invitation
23229-129462/A
Client Ref. No. - N° de réf. du client
23229-129462

Amd. No. - N° de la modif.
File No. - N° du dossier
007SQ.23229-129462

Buyer ID - Id de l'acheteur
007SQ
CCC No./N° CCC - FMS No./N° VME

Area	Experience	Maximum Points Available
	<ul style="list-style-type: none">• Project (or Activity) Title• Client Organization• Year Completed• Overall Project Description (2 lines)• Description of the simulation project (2 lines)• Individual's Relevant Project Contribution (2 lines) <p>List up to two (2) projects. Five (5) points will be awarded for each project.</p>	
	Total	50

Qualitative Assessment

Select one of the sample projects provided in the responses above. In 250 words or less, provide a detailed description of the project's significance, methodology, and outcomes, as well as the individuals' role in the initiatives, identifying how the project meets relevant components of the task requirements of this AE (refer to Annex "A", SOR, Category 32).

Maximum Points available: 30 (refer to Part 4, article 3.1 (d)Point Rated Criteria – Qualitative Assessment).

Category 33: Simulation - Commercial Buildings Energy Simulation Analyst

Quantitative Scoring

A quantitative evaluation of experience will be carried out as described in the chart below. The individual should demonstrate that they meet the requirements by providing relevant examples from their experience.

- Each example can score points where all of the information requested is provided.
- No partial points will be awarded for examples where any of the requested information is missing.
- If more than the number requested of projects are provided, only the 1st number of requested projects identified under the following table will be evaluated.

Category 33: Quantitative requirements table

Area	Experience	Maximum Points Available
33a.	<p>Using relevant examples, demonstrate experience using DOE2.x and/or EnergyPlus (E+) for creating building input files and running building energy simulations.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Description of tools used • Short description of the building file created and its complexity (describe HVAC and plant configurations which have been developed, use of specific DOE2 keywords which were required, etc. for the building, etc. 4 lines) • Specify the analysis you were undertaking and your approach to finding flaws with your input file. What specific DOE2 / E+ output reports were used for analysis and how? (4 lines) • Individual's Relevant Project Contribution (2 lines) <p>List up to five (5) projects. Four (4) points will be awarded for each project.</p>	20
33b.	<p>Using relevant example projects, demonstrate experience creating and validating of reference building models based on interpretation of either the MNECB or the ASHRAE 90.1 standards.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • The energy standard modeled (MNECB, A90.1, etc.) • Name either an incentive program the project was submitted to and / or LEED certification achieved, if any. 	15

Area	Experience	Maximum Points Available
	<ul style="list-style-type: none"> • Individual's Relevant Project Contribution (2 lines) <p>List up to five (5) projects. Three (3) points will be awarded for each project.</p>	
33c.	<p>Using relevant example projects, demonstrate experience conducting parametric, trending studies, optimization and/or developing external work-arounds using DOE2.x or E+.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • A description of the tools used for analysis • Writing concise reports on simulation findings and recommendations • Individual's Relevant Project Contribution (2 lines) <p>List up to five (5) projects. Three (3) points will be awarded for each project.</p>	15
Total		50

Qualitative Assessment

Select one of the sample projects provided in the responses above. In 250 words or less, provide a detailed description of the project's significance, methodology, and outcomes, as well as the individuals' role in the initiatives, identifying how the project meets relevant components of the task requirements of this AE (refer to Annex "A", SOR, Category 33).

Maximum Points available: 30 (refer to Part 4, article 3.1 (d)Point Rated Criteria – Qualitative Assessment).

Category 34: Simulation - Commercial Buildings Energy Simulation Developer

Quantitative Scoring

A quantitative evaluation of experience will be carried out as described in the chart below. The individual should demonstrate that they meet the requirements by providing relevant examples from their experience.

- Each example can score points where all of the information requested is provided.
- No partial points will be awarded for examples where any of the requested information is missing.
- If more than the number requested of projects are provided, only the 1st number of requested projects identified under the following table will be evaluated.

Category 34: Quantitative requirements table

Area	Experience	Maximum Points Available
34a.	<p>Using relevant example projects, demonstrate experience using DOE2.x or EnergyPlus (E+) for creating building input files and running building energy simulations.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Individual's Relevant Project Contribution (2 lines) • Description of tools used • Short description of the building file created and its complexity (describe HVAC and plant configurations which have been developed, use of specific DOE2 keywords which were required, etc. for the building, etc. 2 lines max.) • Specify the analysis you were undertaking and your approach to finding flaws with your input file. What specific DOE2 / E+ output reports were used for analysis and how? (2 lines) <p>List up to five (5) projects. Five (5) points will be awarded for each project.</p>	25
34b.	<p>Cite relevant examples of peer-reviewed papers describing development, validation, and or application of hourly building simulation software. Each example must provide a complete citation, including:</p> <ul style="list-style-type: none"> • title • author(s) • date • journal or conference name • volume, issue and/or number, if applicable <p>List up to ten (10) papers. One half (0.5) points will be awarded for each citation.</p>	5

Area	Experience	Maximum Points Available
34c.	<p>Using relevant example projects, demonstrate experience developing simulation software source code.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Individual's Relevant Project Contribution (2 lines) • A short description of what new feature / enhancement or bug fix that you accomplished (2 lines) • Describe the testing methodology that was used to ensure proper functionality (2 lines) • Describe how the task was documented (in-code comments, external documentation and /or user manuals, 2 lines) <p>List up to four (4) projects. Five (5) points will be awarded for each project.</p>	20
Total		50

Qualitative Assessment

Select one of the sample projects provided in the responses above. In 250 words or less, provide a detailed description of the project's significance, methodology, and outcomes, as well as the individuals' role in the initiatives, identifying how the project meets relevant components of the task requirements of this AE (refer to Annex "A", SOR, Category 34).

Maximum Points available: 30 (refer to Part 4, article 3.1 (d)Point Rated Criteria – Qualitative Assessment).

Category 35: Simulation - Residential Simulations Developer

Quantitative Scoring

A quantitative evaluation of experience will be carried out as described in the chart below. The individual should demonstrate that they meet the requirements by providing relevant examples from their experience.

- Each example can score points where all of the information requested is provided.
- No partial points will be awarded for examples where any of the requested information is missing.
- If more than the number requested of projects are provided, only the 1st number of requested projects identified under the following table will be evaluated.

Category 35: Quantitative requirements table

Area	Experience	Maximum Points Available
35a.	<p>Using relevant example projects, demonstrate experience creating building input files and running building energy simulations for ESP-r, TRNSYS, HOT2000 or HOT3000.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines): • Individual's Relevant Project Contribution (2 lines) • Description of tools used • Short description of the building file created and its complexity (describe HVAC and plant configurations which have been developed, use of specific keywords which were required, etc. for the building, etc.) • Specify the analysis the proposed resource was undertaking and the approach to finding flaws with the input file. What specific output reports were used for analysis and how? <p>List up to five (5) projects. Five (5) points will be awarded for each project.</p>	25
35b.	<p>Cite number of peer-reviewed papers describing development, validation, and or application of hourly building simulation software. Each example must provide a complete citation, including:</p> <ul style="list-style-type: none"> • title • author(s) • date • journal or conference name • volume, issue and/or number, if applicable <p>List up to ten (10) papers. One half (0.5) points will be awarded for each citation.</p>	5
35c.	<p>Using relevant example projects, demonstrate experience developing simulation software.</p>	20

Area	Experience	Maximum Points Available
	<p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Individual's Relevant Project Contribution (2 lines) • Description of tools / engine used and the software language employed (i.e., Fortran, C, C++, etc.) (2 lines) • A short description of what new feature / enhancement or bug fix that you accomplished (2 lines) • Describe the testing methodology that was used to ensure proper functionality (2 lines) • Describe how the task was documented (in-code comments, external documentation and /or user manuals) (2 lines) • Describe what software was used to accomplish the tasks (compiler, IDE, etc) (2 lines) <p>List up to two (2) projects. Ten (10) points will be awarded for each relevant project or activity.</p>	
	Total	50

Qualitative Evaluation of Experience

Describe in detail **one** relevant project of your choice which addresses each of the areas a) and b) and c) above. The description should be 250 words or less **per area**. Applicants should submit only one project description for **each** AE. Additional project descriptions will not be evaluated (refer to Annex "A", SOR, Category 35).

Maximum Points available: 30 (refer to Part 4, article 3.1 (d)Point Rated Criteria – Qualitative Assessment).

Category 36: Simulation - Residential Simulation Analyst

Quantitative Scoring

A quantitative evaluation of experience will be carried out as described in the chart below. The individual should demonstrate that they meet the requirements by providing relevant examples from their experience.

- Each example can score points where all of the information requested is provided.
- No partial points will be awarded for examples where any of the requested information is missing.
- If more than the number requested of projects are provided, only the 1st number of requested projects identified under the following table will be evaluated.

Category 36: Quantitative requirements table

Area	Experience	Maximum Points Available
36a.	<p>Using relevant example projects, demonstrate experience creating building models and running energy simulations using HOT2000, HOT3000 or ESP-r.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Tool used (HOT3000, ESP-r) • Your Relevant Project Contribution (2 lines) • Description of building examined and resulting model (2 lines) • Project Result(s) (2 lines) <p>List up to five (5) projects. Five (5) points will be awarded for each project.</p>	25
36b.	<p>Using relevant example projects, demonstrate the proposed resource's experience conducting parametric analysis, trending studies, optimization, or developing external work-around solutions using building simulation software.</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Tool used (HOT3000, ESP-r) • Your Relevant Project Contribution (2 lines) • Description of building examined and resulting model (2 lines) • Project result(s) (2 lines) <p>List up to five (5) projects. Five (5) points will be awarded for each project.</p>	25
Total		50

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Qualitative Assessment

Select one of the sample projects provided in the responses above. In 250 words or less, provide a detailed description of the project's significance, methodology, and outcomes, as well as the individuals' role in the initiatives, identifying how the project meets relevant components of the task requirements of this AE (refer to Annex "A", SOR, Category 36).

Maximum Points available: 30 (refer to Part 4, article 3.1 (d)Point Rated Criteria – Qualitative Assessment).

General Context – Solar Thermal

Category 37: Active Solar Thermal Systems - Analysis Tools Development

Quantitative Scoring

A quantitative evaluation of experience will be carried out as described in the chart below. The individual should demonstrate that they meet the requirements by providing relevant examples from their experience.

- Each example can score points where all of the information requested is provided.
- No partial points will be awarded for examples where any of the requested information is missing.
- If more than the number requested of projects are provided, only the 1st number of requested projects identified under the following table will be evaluated.

Category 37: Quantitative requirements table

Area	Experience	Maximum Points Available
37a.	<p>Using relevant example projects, demonstrate experience in Solar Thermal Analysis Tools Development, including designing, developing, hard coding and implementing new models.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Your Relevant Project Contribution (2 lines) • Project Result(s) (2 lines) <p>List up to five (5) projects (or activities) relevant to solar thermal software development. Ten (10) points will be awarded for each relevant project or activity.</p>	50
Total		50

Qualitative Assessment

Select one of the sample projects provided in the responses above. In 250 words or less, provide a detailed description of the project's significance, methodology, and outcomes, as well as the individuals' role in the initiatives, identifying how the project meets relevant components of the task requirements of this AE (refer to Annex "A", SOR, Category 37).

Maximum Points available: 30 (refer to Part 4, article 3.1 (d)Point Rated Criteria – Qualitative Assessment).

Category 38: Active Solar Thermal Systems - Information Transfer and Outreach

Quantitative Scoring

A quantitative evaluation of experience will be carried out as described in the chart below. The individual should demonstrate that they meet the requirements by providing relevant examples from their experience.

- Each example can score points where all of the information requested is provided.
- No partial points will be awarded for examples where any of the requested information is missing.
- If more than the number requested of projects are provided, only the 1st number of requested projects identified under the following table will be evaluated.

Category 38: Quantitative requirements table

Area	Experience	Maximum Points Available
38a.	<p>Using relevant example projects, demonstrate experience in information transfer and outreach for solar thermal systems.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Your Relevant Project Contribution (2 lines) • Project Result(s) (2 lines) <p>List up to five (5) projects (or activities) relevant to solar thermal Information Transfer and Outreach. Ten (10) points will be awarded for each relevant project or activity.</p>	50
Total		50

Qualitative Assessment

Select one of the sample projects provided in the responses above. In 250 words or less, provide a detailed description of the project's significance, methodology, and outcomes, as well as the individuals' role in the initiatives, identifying how the project meets relevant components of the task requirements of this AE (refer to Annex "A", SOR, Category 38).

Maximum Points available: 30 (refer to Part 4, article 3.1 (d)Point Rated Criteria – Qualitative Assessment).

Category 39: Active Solar Thermal Systems - HVAC Components, Systems and Controls

Quantitative Scoring

A quantitative evaluation of experience will be carried out as described in the chart below. The individual should demonstrate that they meet the requirements by providing relevant examples from their experience.

- Each example can score points where all of the information requested is provided.
- No partial points will be awarded for examples where any of the requested information is missing.
- If more than the number requested of projects are provided, only the 1st number of requested projects identified under the following table will be evaluated.

Category 39: Quantitative requirements table

Area	Experience	Maximum Points Available
39a.	<p>Using relevant example projects, demonstrate experience conducting research on solar integrated HVAC components, systems and controls.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Your Relevant Project Contribution (2 lines) • Project Result(s) (2 lines) <p>List up to five (5) projects (or activities) relevant to solar integrated HVAC components, systems and controls. Ten (10) points will be awarded for each relevant project or activity.</p>	50
Total		50

Qualitative Assessment

Select one of the sample projects provided in the responses above. In 250 words or less, provide a detailed description of the project's significance, methodology, and outcomes, as well as the individuals' role in the initiatives, identifying how the project meets relevant components of the task requirements of this AE (refer to Annex "A", SOR, Category 39).

Maximum Points available: 30 (refer to Part 4, article 3.1 (d)Point Rated Criteria – Qualitative Assessment).

Category 40: Active Solar Thermal Systems - Thermo-Chemical Storage Materials Research and Development (R&D)

Quantitative Scoring

A quantitative evaluation of experience will be carried out as described in the chart below. The individual should demonstrate that they meet the requirements by providing relevant examples from their experience.

- Each example can score points where all of the information requested is provided.
- No partial points will be awarded for examples where any of the requested information is missing.
- If more than the number requested of projects are provided, only the 1st number of requested projects identified under the following table will be evaluated.

Category 40: Quantitative requirements table

Area	Experience	Maximum Points Available
40a.	<p>Using relevant example projects, demonstrate experience in Thermo-Chemical Storage Materials R&D.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Your Relevant Project Contribution (2 lines) • Project Result(s) (2 lines) <p>List up to five (5) projects (or activities) relevant to Thermo-Chemical Storage Materials R&D. Ten (10) points will be awarded for each relevant project or activity.</p>	50
Total		50

Qualitative Assessment

Select one of the sample projects provided in the responses above. In 250 words or less, provide a detailed description of the project's significance, methodology, and outcomes, as well as the individuals' role in the initiatives, identifying how the project meets relevant components of the task requirements of this AE (refer to Annex "A", SOR, Category 40).

Maximum Points available: 30 (refer to Part 4, article 3.1 (d)Point Rated Criteria – Qualitative Assessment).

Category 41: Active Solar Thermal Systems - Solar Water Heating, Space Heating and Cooling R&D

Quantitative Scoring

A quantitative evaluation of experience will be carried out as described in the chart below. The individual should demonstrate that they meet the requirements by providing relevant examples from their experience.

- Each example can score points where all of the information requested is provided.
- No partial points will be awarded for examples where any of the requested information is missing.
- If more than the number requested of projects are provided, only the 1st number of requested projects identified under the following table will be evaluated.

Category 41: Quantitative requirements table

Area	Experience	Maximum Points Available
41a.	<p>Using relevant example projects, demonstrate experience in Solar Water Heating, Space Heating or Cooling R&D.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Your Relevant Project Contribution (2 lines) • Project Result(s) (2 lines) <p>List up to five (5) projects (or activities) relevant to Solar Water Heating, Space Heating or Cooling R&D. Ten (10) points will be awarded for each relevant project or activity.</p>	50
Total		50

Qualitative Assessment

Select one of the sample projects provided in the responses above. In 250 words or less, provide a detailed description of the project's significance, methodology, and outcomes, as well as the individuals' role in the initiatives, identifying how the project meets relevant components of the task requirements of this AE (refer to Annex "A", SOR, Category 41).

Maximum Points available: 30 (refer to Part 4, article 3.1 (d)Point Rated Criteria – Qualitative Assessment).

**Category 42: Active Solar Thermal Systems - Performance Ratings for Solar Thermal Equipment
Quantitative Scoring**

A quantitative evaluation of experience will be carried out as described in the chart below. The individual should demonstrate that they meet the requirements by providing relevant examples from their experience.

- Each example can score points where all of the information requested is provided.
- No partial points will be awarded for examples where any of the requested information is missing.
- If more than the number requested of projects are provided, only the 1st number of requested projects identified under the following table will be evaluated.

Category 42: Quantitative requirements table

Area	Experience	Maximum Points Available
42a.	<p>Using relevant example projects, demonstrate experience in SDHW performance rating research and TRNSYS simulation.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Your Relevant Project Contribution (2 lines) • Project Result(s) (2 lines) <p>List up to five (5) projects (or activities) relevant to TRYNSYS performance simulation and ratings of solar thermal equipment. Ten (10) points will be awarded for each relevant project or activity.</p>	50
Total		50

Qualitative Assessment

Select one of the sample projects provided in the responses above. In 250 words or less, provide a detailed description of the project's significance, methodology, and outcomes, as well as the individuals' role in the initiatives, identifying how the project meets relevant components of the task requirements of this AE (refer to Annex "A", SOR, Category 42).

Maximum Points available: 30 (refer to Part 4, article 3.1 (d)Point Rated Criteria – Qualitative Assessment).

Category 43: Active Solar Thermal Systems - Monitoring and Instrumentation

Quantitative Scoring

A quantitative evaluation of experience will be carried out as described in the chart below. The individual should demonstrate that they meet the requirements by providing relevant examples from their experience.

- Each example can score points where all of the information requested is provided.
- No partial points will be awarded for examples where any of the requested information is missing.
- If more than the number requested of projects are provided, only the 1st number of requested projects identified under the following table will be evaluated.

Category 43: Quantitative requirements table

Area	Experience	Maximum Points Available
43a.	<p>Using relevant example projects, demonstrate experience in Solar Thermal Monitoring and Instrumentation.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Your Relevant Project Contribution (2 lines) • Project Result(s) (2 lines) <p>List up to five (5) projects (or activities) relevant to Solar Thermal Monitoring and Instrumentation. Ten (10) points will be awarded for each relevant project or activity.</p>	50
Total		50

Qualitative Assessment

Select one of the sample projects provided in the responses above. In 250 words or less, provide a detailed description of the project's significance, methodology, and outcomes, as well as the individuals' role in the initiatives, identifying how the project meets relevant components of the task requirements of this AE (refer to Annex "A", SOR, Category 43).

Maximum Points available: 30 (refer to Part 4, article 3.1 (d)Point Rated Criteria – Qualitative Assessment).

Category 44: Active Solar Thermal Systems - Industry Survey

Quantitative Scoring

A quantitative evaluation of experience will be carried out as described in the chart below. The individual should demonstrate that they meet the requirements by providing relevant examples from their experience.

- Each example can score points where all of the information requested is provided.
- No partial points will be awarded for examples where any of the requested information is missing.
- If more than the number requested of projects are provided, only the 1st number of requested projects identified under the following table will be evaluated.

Category 44: Quantitative requirements table

Area	Experience	Maximum Points Available
44a.	<p>Using relevant example projects, demonstrate experience in conducting industry surveys in support of research and development activities.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Your Relevant Project Contribution (2 lines) • Project Result(s) (2 lines) <p>List up to five (5) projects (or activities) relevant to Industries Survey. Ten (10) points will be awarded for each relevant project or activity.</p>	50
Total		50

Qualitative Assessment

Select one of the sample projects provided in the responses above. In 250 words or less, provide a detailed description of the project's significance, methodology, and outcomes, as well as the individuals' role in the initiatives, identifying how the project meets relevant components of the task requirements of this AE (refer to Annex "A", SOR, Category 44).

Maximum Points available: 30 (refer to Part 4, article 3.1 (d)Point Rated Criteria – Qualitative Assessment).

Category 45: Active Solar Thermal Systems - District Systems

Quantitative Scoring

A quantitative evaluation of experience will be carried out as described in the chart below. The individual should demonstrate that they meet the requirements by providing relevant examples from their experience.

- Each example can score points where all of the information requested is provided.
- No partial points will be awarded for examples where any of the requested information is missing.
- If more than the number requested of projects are provided, only the 1st number of requested projects identified under the following table will be evaluated.

Category 45: Quantitative requirements table

Area	Experience	Maximum Points Available
45a.	<p>Using relevant example projects, demonstrate experience in district system research activities, including designing, reviewing and implementing large scale district systems.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Your Relevant Project Contribution (2 lines) • Project Result(s) (2 lines) <p>List up to five (5) projects (or activities) relevant to district systems. Ten (10) points will be awarded for each relevant project or activity.</p>	50
Total		50

Qualitative Assessment

Select one of the sample projects provided in the responses above. In 250 words or less, provide a detailed description of the project's significance, methodology, and outcomes, as well as the individuals' role in the initiatives, identifying how the project meets relevant components of the task requirements of this AE (refer to Annex "A", SOR, Category 45).

Maximum Points available: 30 (refer to Part 4, article 3.1 (d)Point Rated Criteria – Qualitative Assessment).

**Category 46: Active Solar Thermal Systems - Solar Air Heating Research and Development
Quantitative Scoring**

A quantitative evaluation of experience will be carried out as described in the chart below. The individual should demonstrate that they meet the requirements by providing relevant examples from their experience.

- Each example can score points where all of the information requested is provided.
- No partial points will be awarded for examples where any of the requested information is missing.
- If more than the number requested of projects are provided, only the 1st number of requested projects identified under the following table will be evaluated.

Category 46: Quantitative requirements table

Area	Experience	Maximum Points Available
46a.	<p>Using relevant example projects, demonstrate experience in Solar Air Heating R&D.</p> <p>For each example, provide the following information:</p> <ul style="list-style-type: none"> • Project (or Activity) Title • Client Organization • Year Completed • Overall Project Description (2 lines) • Your Relevant Project Contribution (2 lines) • Project Result(s) (2 lines) <p>List up to five (5) projects (or activities) whose main objective addresses at least one of the above mentioned tasks. Ten (10) points will be awarded for each relevant project or activity.</p>	50
Total		50

Qualitative Assessment

Select one of the sample projects provided in the responses above. In 250 words or less, provide a detailed description of the project's significance, methodology, and outcomes, as well as the individuals' role in the initiatives, identifying how the project meets relevant components of the task requirements of this AE (refer to Annex "A", SOR, Category 46).

Maximum Points available: 30 (refer to Part 4, article 3.1 (d)Point Rated Criteria – Qualitative Assessment).

Total Overall Points Available under Each AE: 95

Minimum Points Required to Pass: 65

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4. Basis of Selection

To be considered responsive in any area of expertise, an offer must:

- (a) meet all of the Mandatory Requirements of the bid solicitation;
- (b) achieve at least the minimum pass mark under the point-rated criterion at article 3.1(d) Point Rated Criteria – Qualitative Assessment; and
- (c) achieve at least the minimum overall pass mark under the point-rated criteria for each individual. Marks of one individual cannot be combined with those of another.

Offers not meeting (a) or (b) or (c) above will be given no further consideration. Subject to the Offeror's compliance with the *Conditions Precedent to the Authorization to Use a Standing Offer* contained in Annex "C", for each area of expertise, it will be recommended to authorize the use of three lowest priced responsive offers shared in accordance with the "**ESTIMATED UTILIZATION**", clause of this RFSO. In the event of a tie, the Offeror with the highest technical score will be recommended. In the event of a second tie, the proposed resource with the most years experience identified under M3 will be recommended.

**Attachment 1 to Annex A
FINANCIAL OFFER PRESENTATION SHEET**

The Offeror must submit one and only one firm all-inclusive hourly rate for each area of expertise being offered (each individual may only be named for a maximum of six (6) areas of expertise), for the initial three (3) years of the Standing Offer period, GST/HST extra.

4.2 The rates for the subsequent four (4) one (1) year possible extension periods will be adjusted in accordance with the consumer price index (refer to Part 4, Consumer Price Index (CPI)).

CATEGORY OF EXPERTS		Firm all-inclusive hourly rate for the initial 3 year Standing Offer period
BUILDINGS		
1	Advanced Integrated HVAC Systems	\$
2	Monitoring of Advanced and Renewable Energy Technologies	\$
3	Integrated Design Process	\$
COMMUNITIES		
4	Data Collection and Analysis	\$
5	Regulatory and Policy Analysis	\$
6	Design	\$
7	Technology Transfer	\$
RESIDENTIAL		
8	Industry and Innovation Strategy	\$
9	HVAC System Design	\$
10	Monitoring - Whole House	\$
11	Architectural Integration	\$
12	Facilitation and Presentation	\$
13	Windows, Exterior Doors and Fenestrations	\$
14	General R&D - Model Development	\$
15	Building Envelope Assessments	\$
16	General R&D Heat Pumps	\$

CATEGORY OF EXPERTS		Firm all-inclusive hourly rate for the initial 3 year Standing Offer period
17	Monitoring - Heating, Ventilation and Air-Conditioning (HVAC) Equipment	\$
18	Laboratory Analysis and Standards - Heating, Ventilation and Air-Conditioning (HVAC) Equipment	\$
19	Net Zero or Low Energy Housing	\$
20	Low-Rise Multi Residential Buildings	\$
21	Communication Design and Implementation	\$
22	Renewable Energy System Technology Assessments	\$
23	Mechanical and Electrical Technology Assessments	\$
24	Envelope Technology Assessments	\$
25	Archetype and Housing Stock Modelling	\$
INTERNATIONAL		
26	Technology Assessment of Canadian Residential Technologies for Foreign Markets	\$
27	Foreign Market Technology Transfer, Training and Education via Marketing and Promotion	\$
28	Quality Assurance, Monitoring and Evaluation	\$
PROGRAM SUPPORT		
29	Building Sector Analysis	\$
30	Sector Related Strategic Planning	\$
31	Desktop Publishing and Layout for Technology Transfer Activities	\$
SIMULATION		
32	Commercial Buildings Compliance Rules Developer	\$
33	Commercial Buildings Energy Simulation Analyst	\$
34	Commercial Buildings Energy Simulation Developer	\$
35	Residential Simulations Developer	\$

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CATEGORY OF EXPERTS		Firm all-inclusive hourly rate for the initial 3 year Standing Offer period
36	Residential Simulation Analyst	\$
ACTIVE SOLAR THERMAL SYSTEMS		
37	Analysis Tools Development	\$
38	Information Transfer and Outreach	\$
39	HVAC Components, Systems and Controls	\$
40	Thermo-Chemical Storage Materials Research and Development (R&D)	\$
41	Solar Water Heating, Space Heating and Cooling R&D	\$
42	Performance Ratings for Solar Thermal Equipment	\$
43	Monitoring and Instrumentation	\$
44	Industry Survey	\$
45	District Systems	\$
46	Solar Air Heating Research and Development	\$

PART 5 - CERTIFICATIONS

Offerors must provide the required certifications and documentation to be issued a standing offer.

The certifications provided by offerors to Canada are subject to verification by Canada at all times. Canada will declare an offer non-responsive, will have the right to set-aside a standing offer, or will declare a contractor in default, if any certification is found to be untrue whether during the offer evaluation period, during the Standing Offer period, or during the contract period.

The Standing Offer Authority will have the right to ask for additional information to verify the Offeror's certifications. Failure to comply with this request will also render the Offer non-responsive or may result in the setting aside of the Standing Offer or will constitute a default under the Contract.

1. Mandatory Certifications Required Precedent to Issuance of a Standing Offer

1.1 Code of Conduct and Certifications - Related documentation

By submitting an offer, the Offeror certifies that the Offeror and its affiliates are in compliance with the provisions as stated in Section 01 Code of Conduct and Certifications - Offer of Standard Instructions 2006. The related documentation therein required will assist Canada in confirming that the certifications are true.

1.2 Federal Contractors Program for Employment Equity - Standing Offer Certification

By submitting an offer, the Offeror certifies that the Offeror, and any of the Offeror's members if the Offeror is a Joint Venture, is not named on the Federal Contractors Program (FCP) for employment equity "FCP Limited Eligibility to Bid" list (http://www.labour.gc.ca/eng/standards_equity/eq/emp/fcp/list/inelig.shtml) available from HRSDC-Labour's website.

2. Additional Certifications Precedent to Issuance of a Standing Offer

The certifications listed below should be completed and submitted with the offer, but may be submitted afterwards. If any of these required certifications is not completed and submitted as requested, the Standing Offer Authority will so inform the Offeror and provide the Offeror with a time frame within which to meet the requirement. Failure to comply with the request of the Standing Offer Authority and meet the requirement within that time period will render the offer non-responsive.

2.1 Canadian Content Certification

This procurement is limited to Canadian services.

The Offeror certifies that:

() the service offered is a Canadian service as defined in paragraph 2 of clause A3050T.

2.1.1 SACC Manual clause A3050T (2010-01-11) Canadian Content Definition

- 1. Canadian good:** A good wholly manufactured or originating in Canada is considered a Canadian good. A product containing imported components may also be considered Canadian for the purpose of this policy when it has undergone sufficient change in Canada, in a manner that satisfies the definition specified under the *North American Free Trade Agreement* (NAFTA) Rules

of Origin. For the purposes of this determination, the reference in the NAFTA Rules of Origin to "territory", is to be replaced with "Canada". (Consult Annex 3.6(9) of the *Supply Manual*.)

For photocopiers, computers and office equipment within Federal Supply Classification (FSC) groups 36, 70 and 74, see paragraph 6.(a)).

2. **Canadian service:** A service provided by an individual based in Canada is considered a Canadian service. Where a requirement consists of only one service, which is being provided by more than one individual, the service will be considered Canadian if a minimum of 80 percent of the total bid price for the service is provided by individuals based in Canada.
3. **Variety of goods:** When requirements consist of more than one good, one of the two methods below is applied:
 - a. aggregate evaluation: no less than 80 percent of the total bid price must consist of Canadian goods; or,
 - b. item by item evaluation: in some cases, the bid evaluation may be conducted on an item-by-item basis and contracts may be awarded to more than one supplier. In these cases, suppliers will be asked to identify separately each item that meets the definition of Canadian goods.
4. **Variety of services:** For requirements consisting of more than one service, a minimum of 80 percent of the total bid price must be provided by individuals based in Canada.
5. **Mix of goods and services:** When requirements consist of a mix of goods and services, no less than 80 percent of the total bid price must consist of Canadian goods and services (as defined above).

For more information on how to determine the Canadian content for a mix of goods, a mix of services or a mix of goods and services, consult Annex 3.6.(9), Example 2, of the *Supply Manual*.

6. **Other Canadian goods and services:**
 - a. For photocopiers, computers and office equipment within FSC groups 36, 70 and 74, only the products of the following firms are considered Canadian goods:
 - i. MERIT Partner under the MERIT Partnership Program (administered by Industry Canada [IC] and Public Works and Government Services Canada [PWGSC]);
 - ii. Companies which, on March 31, 1992, were allocated to Priority Group 1 under the Priority Groups Policy in effect at that time; or
 - iii. CIRCLE Canada companies as agreed on by IC and PWGSC.
 - b. Textiles: Textiles are considered to be Canadian goods according to a modified rule of origin, copies of which are available from the Clothing and Textiles Division, Commercial and Consumer Products Directorate.

2.2 Status and Availability of Resources

The Offeror certifies that, should it be issued a standing offer as a result of the Request for Standing Offer, every individual proposed in its offer will be available to perform the Work resulting from a call-up against the Standing Offer as required by Canada's representatives and at the time specified in a call-up or agreed to with Canada's representatives. If for reasons beyond its control, the Offeror is unable to provide the services of an individual named in its offer, the Offeror may propose a substitute with similar qualifications and experience. The Offeror must advise the Standing Offer 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 Offeror: death, sickness, maternity and parental leave, retirement, resignation, dismissal for cause or termination of an agreement for default.

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If the Offeror has proposed any individual who is not an employee of the Offeror, the Offeror 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 Offeror must, upon request from the Standing Offer Authority, provide a written confirmation, signed by the individual, of the permission given to the Offeror and of his/her availability. Failure to comply with the request may result in the offer being declared non-responsive.

3. Education – Proposed Resource(s)

The Offeror certifies that the proposed resource(s) has (have) successfully obtained, at a minimum, a high school diploma. Canada reserves the right to request copies of documents pertaining to the level of education achieved.

4. Certification

By submitting an offer, the Offeror certifies that the information submitted by the Offeror in response to the above requirements is accurate and complete.

PART 6 - FINANCIAL CAPABILITY - SACC Manual Clause M9033T (2011-05-16)

1. **Financial Capability Requirement:** The Offeror must have the financial capability to fulfill this requirement. To determine the Offeror's financial capability, the Standing Offer Authority may, by written notice to the Offeror, require the submission of some or all of the financial information detailed below during the evaluation of offers. The Offeror must provide the following information to the Standing Offer Authority within fifteen (15) working days of the request or as specified by the Standing Offer Authority in the notice:
 - 2.
 - a. **Audited financial statements**, if available, or the unaudited financial statements (prepared by the Offeror's outside accounting firm, if available, or prepared in-house if no external statements have been prepared) for the Offeror's last three fiscal years, or for the years that the Offeror has been in business if this is less than three years (including, as a minimum, the Balance Sheet, the Statement of Retained Earnings, the Income Statement and any notes to the statements).
 - b. If the date of the financial statements in (a) above is more than five months before the date of the request for information by the Standing Offer Authority, the Offeror must also provide, unless this is prohibited by legislation for public companies, the last quarterly financial statements (consisting of a Balance Sheet and a year-to-date Income Statement), as of two months before the date on which the Standing Offer Authority requests this information.
 - c. If the Offeror has not been in business for at least one full fiscal year, the following must be provided:
 - i. the opening Balance Sheet on commencement of business (in the case of a corporation, the date of incorporation); and
 - ii. the last quarterly financial statements (consisting of a Balance Sheet and a year-to-date Income Statement) as of two months before the date on which the Standing Offer Authority requests this information.
 - d. A certification from the Chief Financial Officer or an authorized signing officer of the Offeror that the financial information provided is complete and accurate.
 - e. A confirmation letter from all of the financial institution(s) that have provided short-term financing to the Offeror outlining the total of lines of credit granted to the Offeror and the amount of credit that remains available and not drawn upon as of one month prior to the date on which the Standing Offer Authority requests this information.
3. **If the Offeror is a joint venture**, the financial information required by the Standing Offer Authority must be provided by each member of the joint venture.
4. **If the Offeror is a subsidiary of another company**, then any financial information in 1. (a) to (e) above required by the Standing Offer Authority must be provided by the ultimate parent company. Provision of parent company financial information does not satisfy the requirement for the provision of the financial information of the Offeror, and the financial capability of a parent cannot be substituted for the financial capability of the Offeror itself unless an agreement by the parent company to sign a Parental Guarantee, as drawn up by Public Works and Government Services Canada (PWGSC), is provided with the required information.
5. **Financial Information Already Provided to PWGSC:** The Offeror is not required to resubmit any financial information requested by the Standing Offer Authority that is already on file at PWGSC with the Contract Cost Analysis, Audit and Policy Directorate of the Policy, Risk, Integrity and Strategic Management Sector, provided that within the above-noted time frame:
 - a. the Offeror identifies to the Standing Offer Authority in writing the specific information that is on file and the requirement for which this information was provided; and
 - b. the Offeror authorizes the use of the information for this requirement.

It is the Offeror's responsibility to confirm with the Standing Offer Authority that this information is still on file with PWGSC.

6. **Other Information:** Canada reserves the right to request from the Offeror any other information that Canada requires to conduct a complete financial capability assessment of the Offeror.
7. **Confidentiality:** If the Offeror provides the information required above to Canada in confidence while indicating that the disclosed information is confidential, then Canada will treat the

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information in a confidential manner as permitted by the *Access to Information Act*, R.S., 1985, c. A-1, Section 20(1) (b) and (c).

8. **Security:** In determining the Offeror's financial capability to fulfill this requirement, Canada may consider any security the Offeror is capable of providing, at the Offeror's sole expense (for example, an irrevocable letter of credit from a registered financial institution drawn in favour of Canada, a performance guarantee from a third party or some other form of security, as determined by Canada).

PART 7 - STANDING OFFER AND RESULTING CONTRACT CLAUSES

A. STANDING OFFER

1. The Offeror offers to fulfill the requirement in accordance with the Requirement at Annex "A".

2. Standard Clauses and Conditions

All clauses and conditions identified in the Standing Offer and resulting contract(s) by number, date and title are set out in the Standard Acquisition clauses and Conditions Manual (<http://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual>) Issued by Public Works and Government Services Canada.

3. General Conditions

2005 (2012-11-19) General Conditions - Standing Offers - Goods or Services, apply to and form part of the Standing Offer.

3.2 Standing Offers Reporting

The Offeror must compile and maintain records on its provision of goods, services or both to the federal government under contracts resulting from the Standing Offer. The data must be submitted on a semi-annual basis to the Public Works and Government Services Canada (PWGSC) Standing Offer Authority.

3.2.1 Periodic Utilization Reports

The following information is to be provided on a semi-annual basis for each call-up made pursuant to this Standing Offer.

Date of Call-up	Call-up Number	Name of Identified User	Call-up Total Value (GST/HST extra)
			\$\$
			\$\$
			\$\$
		Total	\$\$

All data fields of the report must be completed as requested. If some data is not available, the reason must be indicated in the report. If no goods or services are provided during a given period, the Offeror must still provide a "NIL" report. Failure to provide fully completed reports in accordance with the above instructions may result in the setting aside of the Standing Offer and the application of a vendor performance corrective measure.

4. Term of Standing Offer

4.1 Period of the Standing Offer

The period for making call-ups against the Standing Offer is for a three (3) year period from the date of issuance of the Standing Offer.

4.2 Extension of Standing Offer

If the Standing Offer is authorized for use beyond the initial period, the Offeror offers to extend its offer for an additional four (4) one (1) year period(s), under the same conditions and at the rates or prices calculated in accordance with the formula specified in the Standing Offer.

The Offeror will be advised of the decision to authorize the use of the Standing Offer for an extended period by the Standing Offer Authority at any time prior to the expiry of the initial period (or of any extension thereof, if applicable), by giving written notice to the Offeror.

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Any authorization of an extension will be confirmed by the Standing Offer Authority through the issuance of a "Revision to a Standing Offer" document.

5. Authorities

5.1 Standing Offer Authority

The Standing Offer Authority is:

Patricia A. Wheeler-Fournier
Supply Team Leader
Public Works and Government Services Canada
Acquisitions Branch
Science Procurement Directorate
11C1, Phase III
Place du Portage
11 Laurier Street
Gatineau, Québec
K1A 0S5

Telephone: (819) 956-1352
Facsimile: (819) 997-2229
E-mail address: patricia.wheeler-fournier@tpsgc-pwgsc.gc.ca

The Standing Offer Authority is responsible for the establishment of the Standing Offer, its administration and its revision, if applicable. Upon the making of a call-up, as Contracting Authority, he is responsible for any contractual issues relating to individual call-ups made against the Standing Offer by any Identified User.

5.2 Technical Authority

The Technical Authority for the Standing Offer is:

(will be named under the resulting Standing Offer)

The Technical Authority for the Standing Offer is identified in the call-up against the Standing Offer.

The Technical Authority is the representative of the department or agency for whom the Work will be carried out pursuant to a call-up against the Standing Offer and is responsible for all the technical content of the Work under the resulting Contract.

5.3 Offeror's Representative

(will be named under the resulting Standing Offer)

6. Identified Users

The identified User authorized to make call-ups against the Standing Offer is the Project Authority.

7. Allocation of Work

Call-ups will be issued on a proportional basis such that:

The areas of expertise that are authorized three (3) standing offers: the offeror with the lowest hourly rate receives 50 percent of the predetermined amount of the work, the second lowest hourly rate receives 30 percent of the predetermined amount of the work and the 3rd lowest hourly rate receives 20 percent of the predetermined amount of the work;

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The areas of expertise that are authorized two (2) standing offers: the offeror with the lowest hourly rate receives 60 percent of the predetermined amount of the work and the second lowest hourly rate receives 40 percent of the predetermined amount of the work;

The areas of expertise that are authorized one (1) standing offer: the offeror will receive 100 percent of the predetermined amount of the work.

Call-up activities will be monitored to ensure that call-ups are allocated in accordance with the predetermined work distribution specified herein.

The same usage as mentioned above will apply to any extension period exercised.

8. Call-up Instrument

The Work will be authorized or confirmed by the Identified User(s) using form *PWGSC-TPSGC 942, Call-up Against a Standing Offer* or an electronic version.

9. Limitation of Call-ups

Individual call-ups against the Standing Offer must not exceed \$80,000.00 (Applicable taxes included). For call-ups above \$80,000.00 (Applicable taxes included), Public Works Standing Offer Authority approval will be required prior to issuing the call-up.

10. Financial Limitation

The total cost to Canada resulting from call-ups against the Standing Offer must not exceed the sum of \$ _____ (Applicable taxes excluded) unless otherwise authorized in writing by the Standing Offer Authority. The Offeror must not perform any work or services or supply any articles in response to call-ups which would cause the total cost to Canada to exceed the said sum, unless an increase is so authorized.

The Offeror must notify the Standing Offer Authority as to the adequacy of this sum when 75 percent of this amount has been committed, or four (4) months before the expiry date of the Standing Offer, whichever comes first. However, if at any time, the Offeror considers that the said sum may be exceeded, the Offeror must promptly notify the Standing Offer Authority.

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 call up against the Standing Offer, including any annexes;
- b) the articles of the Standing Offer;
- c) the general conditions 2005 (2012-11-19), General Conditions - Standing Offers - Goods or Services;
- d) the general conditions 2040 (2013-06-27), General Conditions - Research and Development;
- e) Annex A, Statement of Requirement;
- f) Annex B, Basis of Payment;
- g) the Offeror's offer dated ____.

12. Specified Personnel

The services of the individual(s) named under Annex "B", "Basis of Payment", must be provided by the Offeror to perform the Work under any resulting call-up:

13. Certifications

13.1 Compliance

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Compliance with the certifications and related documentation provided by the Offeror is a condition of authorization of the Standing Offer and subject to verification by Canada during the term of the Standing Offer and of any resulting contract that would continue beyond the period of the Standing Offer. In the event that the Offeror does not comply with any certification, provide the related documentation or if it is determined that any certification made by the Offeror in its offer is untrue, whether made knowingly or unknowingly, Canada has the right to terminate any resulting contract for default and set aside the Standing Offer.

13.2 Canadian Content Certification

1. The Offeror warrants that the certification of Canadian Content submitted by the Offeror is accurate and complete, and that the goods, services or both to be provided under any call-ups against the Standing Offer are in accordance with the definition contained in clause A3050T.
2. The Offeror must keep proper records and documentation relating to the origin of the goods, services or both provided to Canada. The Offeror must not, without obtaining before the written consent of the Standing Offer Authority, dispose of any such records or documentation until the expiration of six (6) years after final payment under any contract resulting from the Standing Offer, or until settlement of all outstanding claims and disputes under the Standing Offer, whichever is later. All such records and documentation must at all times during the retention period be open to audit, inspection and examination by the representatives of Canada, who may make copies and take extracts. The Offeror must provide all facilities for such audits, inspections and examinations, and must furnish all such information as the representatives of Canada may from time to time require with respect to such records and documentation.
3. Nothing in this clause must be interpreted as limiting the rights and remedies which Canada may otherwise have pursuant any contract resulting from the Standing Offer.

14. Applicable Laws

The Standing Offer and any contract resulting from the Standing Offer must be interpreted and governed, and the relations between the parties determined, by the laws in force in _____.

B. RESULTING CONTRACT CLAUSES

The following clauses and conditions apply to and form part of any contract resulting from a call-up against the Standing Offer.

1. Statement of Requirement

The Contractor must perform the Work described in the call-up against the Standing Offer.

2. Standard Clauses and Conditions

2.1 General Conditions

The general conditions 2040 (2013-06-27), General Conditions - Research and Development, apply to and form part of the Contract.

3. Term of Contract

3.1 Period of the Contract

The Work must be completed in accordance with the call-up against the Standing Offer.

4. Payment

4.1 Procedures for issuing call-ups

A call-up made against this Standing Offer shall form a contract only for those goods or services, or both, which have been called-up, provided always that such call-up is made in accordance with the provisions of this Standing Offer.

Call-ups made against this Standing Offer will be authorized as follows:

1. The Technical Authority will provide the Offeror with a description of the Work to be performed.
2. The Offeror will submit to the Technical Authority a price proposal (i.e., a firm price, a ceiling price or a limitation of expenditure), and a delivery schedule for each task, with supporting details. The price of the Work to be performed will be established in accordance with the Basis of Payment attached hereto as **Annex "B"**. A ceiling price or a limitation of expenditure will be used instead of a firm price only in cases where the Work to be performed is not in sufficient detail to accurately establish a firm price.
3. The Offeror will be authorized by the Technical Authority to proceed with the Work by the issuance of a duly completed and **signed** Call-up form PWGSC-TPSGC 942. A description of the Work to be performed will be appended to the form PWGSC-TPSGC 942. The Offeror shall not commence any work until it has received a Call-up form PWGSC-TPSGC 942 **signed by** the Technical Authority. The Offeror acknowledges that any and all work performed in the absence of a **signed** call-up will be done at its own risk, and Canada shall not be liable for payment therefor.

4.2 Basis of Payment

The Basis of Payment attached hereto as **Annex "B"** must be used to price any call-up made pursuant to this Standing Offer.

Depending on the type of call-up, one of the following will apply:

- (a) For a Firm Price Call-up: In consideration of the Contractor satisfactorily completing all of its obligations under the call-up, the Contractor will be paid the firm price stipulated in the call-up, calculated in accordance with **Annex "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 Specifications will be authorized or paid to the Contractor unless such design changes, modifications or interpretations have been approved, in writing, by the Standing Offer Authority prior to their incorporation into the Work.

- (b) For a Call-up subject to a Ceiling Price: The Contractor will be paid its costs reasonably and properly incurred in the performance of the Work under the call-up, to the ceiling price specified in the call-up, which must be established in accordance with **Annex "B"**.

The ceiling price is subject to downward adjustment so as not to exceed the actual charges and costs reasonably incurred in the performance of the Work and computed in accordance with the Basis of Payment specified in the call-up.

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 Specifications will be authorized or paid to the Contractor unless such design changes, modifications or interpretations have been approved, in writing, by the Standing Offer Authority prior to their incorporation into the Work.

- (c) For a Call-up subject to a Limitation of Expenditure: The Contractor will be paid its costs reasonably and properly incurred in the performance of the Work under the call-up, in accordance with the Basis of Payment specified in the call-up, which must be established in accordance with **Annex "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 Specifications will be authorized or paid to the Contractor unless such design changes, modifications or interpretations have been approved, in writing, by the Standing Offer Authority prior to their incorporation into the Work. The Contractor shall not be obliged to perform any work or provide any service that would cause the total liability of Canada to be exceeded without the prior written approval of the Standing Offer Authority. The Contractor shall notify the Standing Offer Authority, in writing, as to the adequacy of this sum when:

- (i) it is 75 percent committed, or
- (ii) four (4) months prior to the call-up delivery date, or
- (iii) if the Contractor considers the funds provided in the call-up are inadequate for the completion of the Work,

whichever comes first.

In the event that the notification refers to inadequate funds, the Contractor must also provide to the Standing Offer Authority, in writing, an estimate for the additional funds required. Provision of such notification and estimate for the additional funds does not increase Canada's liability.

4.2 METHOD OF PAYMENT

Payments will be made not more frequently than once a month, provided that:

- (a) an invoice is submitted to Canada in accordance with the clause "Invoicing Instructions" hereafter; and
- (b) the invoice is approved by the Project Authority.

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For Firm Price Call-Ups

Depending on the method of payment specified in each individual "Firm Price" call-up, one of the following two clauses will apply:

Single Payment

Canada will pay the Contractor upon completion and delivery of the Work in accordance with the payment provisions of the Contract if:

- a. an accurate and complete invoice and any other documents required by the Contract have been submitted in accordance with the invoicing instructions provided in the Contract;
- b. all such documents have been verified by Canada;
- c. the Work delivered has been accepted by Canada.

- or -

Milestone Payments

Canada will make milestone payments in accordance with the Schedule of Milestones detailed in the call-up and the payment provisions of the Contract if all work associated with the milestone and as applicable any deliverable required has been completed and accepted by Canada.

For Call-Ups Subject to a Ceiling Price or a Limitation of Expenditure

Depending on the method of payment specified in each individual "Ceiling Price" or "Limitation of Expenditure" call-up, one of the following two clauses will apply. Backup documentation (time sheets, receipts) must be provided to support the invoice.

Single Payment

Canada will pay the Contractor upon completion and delivery of the Work in accordance with the payment provisions of the call-up if:

- a. an accurate and complete invoice and any other documents required by the Contract have been submitted in accordance with the invoicing instructions provided in the call-up;
- b. all such documents have been verified by Canada;
- c. the Work delivered has been accepted by Canada.

- or -

Progress Payments

1. Canada will make progress payments in accordance with the call-up Basis of Payment provided that the invoice is supported by back-up documentation as specified in the call-up and the Standing Offer.

2. The balance of the amount payable must be paid upon satisfactory completion of the Work and upon the delivery and acceptance of all deliverables, provided that a final invoice for such payment is submitted.
3. Progress payments must be regarded as interim payments only and Canada shall have the right to conduct interim cost/time verifications or audits and to make adjustments from time to time during the performance of the Work. Any overpayment resulting from such progress payments or otherwise must be refunded promptly to Canada.
4. Payment by Canada to the Contractor for the Work must be made:
 - (a) in the case of a progress payment other than the final payment, within thirty (30) days following the date of receipt of an invoice submitted in accordance with the instructions specified herein;
 - (b) in the case of a final payment, within thirty (30) days following the date of receipt of a final invoice submitted in accordance with the instructions specified herein, or within thirty (30) days following the date on which the Work is completed, whichever date is the later.
5. If Canada has any objection to the form of the invoice, within fifteen (15) days of its receipt, Canada shall notify the Contractor of the nature of the objection. "Form of the invoice" means an invoice which contains or is accompanied by such substantiating documentation as Canada requires. Failure by Canada to act within fifteen (15) days will only result in the date specified in subsection 4 of this clause to apply for the sole purpose of calculating interest on overdue accounts.

4.2 Procedures for Issuing Call-ups

A call-up made against this Standing Offer shall form a contract only for those goods or services, or both, which have been called-up, provided always that such call-up is made in accordance with the provisions of this Standing Offer.

Call-ups made against this Standing Offer will be authorized as follows:

1. The Technical Authority will provide the Offeror with a description of the Work to be performed.
2. The Offeror will submit to the Technical Authority a price proposal (i.e.. a firm price, a ceiling price or a limitation of expenditure), and a delivery schedule for each task, with supporting details. The price of the Work to be performed will be established in accordance with the Basis of Payment attached hereto as **Annex "B"**. A ceiling price or a limitation of expenditure will be used instead of a firm price only in cases where the Work to be performed is not in sufficient detail to accurately establish a firm price.
3. The Offeror will be authorized by the Technical Authority to proceed with the Work by the issuance of a duly completed and **signed** Call-up form PWGSC-TPSGC 942. A description of the Work to be performed will be appended to the form PWGSC-TPSGC 942. The Offeror shall not commence any work until it has received a Call-up form PWGSC-TPSGC 942 **signed by** the Technical Authority. The Offeror acknowledges that any and all work performed in the absence of a **signed** call-up will be done at its own risk, and Canada shall not be liable for payment therefor.

4.3 Invoicing Instructions

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1. The Contractor must submit invoices in accordance with the section entitled "Invoice Submission" of the general conditions. Invoices cannot be submitted until all work identified in the invoice is completed.
2. Invoices must be distributed as follows:
 - (a) An electronic copy to the Technical Authority identified in the resultant Standing Offer for certification and payment; and
 - (b) An electronic copy to be forwarded to the Standing Offer Authority identified under the section entitled "Authorities" of the Standing Offer.
5. **SACC Manual Clause G1005C (2008-05-12), Insurance.**

ANNEX "A" STATEMENT OF REQUIREMENT

Background

The Housing, Buildings and Communities and other groups of Canmet ENERGY-Ottawa (CE-O) of Natural Resources Canada (NRCan), are extensively involved in research and development, demonstration and dissemination activities related to the residential stock, both domestically and internationally. The various activities seek to commercialize energy-efficient and environmentally friendly technologies and systems to increase overall efficiency, ensure healthy environments and accelerate their adoption in the marketplace. Projects and programs carried out by CE-O have contributed to Canada being recognized as being one of the leaders in energy-efficient construction.

The success of research conveyed to the building industry and the public is in part based on the use of various mechanism/products and services to suit targeted audiences. For example, demonstration projects such as the Advanced Houses Program (1990's) have led to increased public awareness on innovative housing features and to direct technology transfer to builders, designers and housing component manufacturers. The Advanced Integrated Mechanical Systems (AIMS) initiative pooled the financial and technical resources of both government and private sector stakeholders towards the development of integrated mechanical systems, known as eKOCOMFORTTM products, now being field-tested. The creation of user-friendly software tools for the industry (e.g., HOT2000, HOT2 XP, EE4) reflects the need by stakeholders (e.g., utilities, builders and consulting profession) for tools that permit the assessment of innovative housing components in a cost effective manner. SBC's technical input and expertise to various agencies (e.g., R-2000 Initiative) and its involvement in collaborative projects (e.g. with the National Research Council, Canada Mortgage and Housing Corporation, Public Works & Government Services Canada) provide opportunities for shared resources towards building research of mutual interest.

Strong linkages with national and international associations have been established to ensure continuing Canadian influence in the building area. Proactively, the SBC initiated the Super E program, to encourage the export of Canadian products, technologies and services to residential markets via Super E Houses that meet R-2000 based technical criteria while respecting local codes, cultural tastes and housing trends. Japan was first targeted in the mid-90's and following its success, more recently, Super E is promoted in the United Kingdom with future plans for other European countries as well as emerging markets such as Mexico.

The execution of such a wide array of activities in a timely and cost-effective manner requires in part the availability of expertise for specific projects. In this regard, forty-six (46) Areas of Expertise (AE) have been established with the objective of having up to three offerors for each of the AE's.

Language Requirements

All written and verbal communications between the Offeror and the Technical Authority must be in English.

Category 1: Buildings - Advanced Integrated HVAC Systems

1: Overview

NRCan undertakes research on advanced integrated Heating, ventilation and air conditioning (HVAC) systems aiming to achieve net-zero or near net-zero energy consumption. This objective will be achieved by reducing cooling, heating and ventilation loads, electrical (plug) loads, with highly efficient internal equipment, improved lighting and occupant control systems and advanced energy recovery and energy storage systems.

2: Description task list:

The main tasks involved in this area of expertise (AE) are:

- Assessing HVAC simulation models and their level of accuracy for HVAC Design
- Field testing of HVAC performance (e.g. displacement ventilation)
- Testing of monitoring protocols for energy balance & indoor environment quality (IEQ)
- Assessing energy storage and heat recovery systems performance.

Components specific to the testing of monitoring protocols include, but not limited to:

- Collecting building data
- Defining monitoring boundaries
- Selecting metrics and relevant data required
- Establishing relationships between the selected performance metrics in order to reduce the number of measurements points
- Identifying suitable sensors and data acquisition systems
- Recognizing possible metering gaps and how to solve them
- Defining data quality check procedures
- Defining and implementing data post-processing (elaboration of performance indicators)

Subtasks specific to assessing energy storage and heat recovery system performance include, but not limited to:

- Evaluating miss matches between energy production and consumption
- Evaluating peak load reduction
- Evaluating, under specific operational conditions, system capacity, efficiency, specific cost, cycle life, safety, environmental impact and scarcity. Potential heat recovery, thermal and electrical storage technologies include water based technologies, molten salt, underground thermal storage, phase change materials, and other storage methods

Category 2: Building - Monitoring of Advanced and Renewable Energy Technologies

1: Overview

NRCan undertakes research on integrating renewable and other technologies (ex. process heat recovery systems) within the design of commercial buildings. The aim is to optimize building energy performance and reduce energy consumption, electrical demand and carbon emissions while approaching net-zero energy usage.

2: Description task list:

The tasks within this area of expertise (AE) relate to three primary activity areas:

- (1) Specifying, purchasing, installing, calibrating and commissioning of monitoring equipment

- (2) Collecting data from monitoring equipment
- (3) Analysing, presenting, and publishing results from monitored data

Subtasks related to activity area (1) include, but not limited to:

- Contrasting monitoring equipment capabilities to project requirements
- Identifying suitable sensors and data acquisition systems
- Preparing specifications for monitoring equipment and installations
- Procuring monitoring equipment
- Calibrating monitoring equipment
- Installing and commissioning monitoring and data acquisition systems

Subtasks related to activity area (2) include:

- Installing equipment for real-time transmission of monitored data to remote locations
- Collecting data from monitoring equipment
- Managing transmission and storage of monitored data
- Verifying data quality

Subtasks related to activity area (3) include:

- Developing, maintaining and arranging hosting for websites presenting monitored data
- Examining data and identifying relationships between measured parameters

Category 3: Building - Integrated Design Process

1: Overview

Through the work of Sustainable Buildings and Communities Commercial Buildings team, NRCan conducts research on integrated design processes (IDP) undertaken in the effort to achieve net-zero energy performance for commercial, institutional, and multi-unit residential buildings (larger than National Building Code of Canada, Part 9). A key part of this research is the application of IDP principles in real-world building design projects, and evaluation of IDP outcomes on improved building performance. To complete this research skills are required in design facilitation, interdisciplinary design coordination, project management, whole building energy modelling, design visualization, building physics and envelope design, and integration of renewable energy systems with the building envelope and mechanical or electrical systems.

2: Description task list

The tasks in this area of expertise (AE) contribute to a better understanding of building loads, the relationship between building form and envelope properties, and the interior lighting, ventilation, and space conditioning systems. These tasks pertain to three primary activity areas:

- (1) Building energy simulation tasks related to demonstrations of building science principles with multiple variables and systems
- (2) Integrated design process tasks
- (3) Development tasks for standardized approaches to integrated design

Subtasks related to activity area (1) include, but not limited to:

- Assessing how building heating and cooling loads change with changes in building form and fenestration-and-door to wall ratios
- Assessing how lighting power consumption changes with changes in building form and fenestration-and-door to wall ratios
- Assessing the impacts of space conditioning system selection (radiant versus air exchange) on the performance of the building envelope in terms of annual energy consumption, peak heating and cooling loads, and thermal comfort
- Assessing the ability of various renewable energy sources to match the demands produced by individual building designs

Subtasks related to activity area (2), integrated design process research include, but not limited to:

- Facilitating goal setting meetings
- Assisting with the development of building performance charters
- Developing meeting schedules
- Developing meeting objectives and agendas
- Facilitating design sessions
- Identifying, assisting with engaging, and introducing specialists to design meetings as necessary for individual project development
- Examining and documenting outcomes from IDP on building design, and recommending improvements

Subtasks related to activity area (3) include, but not limited to:

- Reviewing and commenting on the suitability of standard industry contract templates for use in IDP
- Adjusting standard industry contract templates for design to adapt them to differing work flows arising from the use of integrated design processes
- Liaising with professional associations and professional licensing bodies to investigate and develop the use of IDP in standard form contracts

Category 4: Communities - Data Collection & Analysis

1: Overview

NRCan undertakes research into the relationship between urban form and energy consumption patterns and associated greenhouse gas emissions and costs on a neighbourhood, community or regional basis. Collection and analysis of data characterizing the energy, greenhouse gas (GHG) and cost patterns within existing communities, including their energy systems, buildings, transportation networks, as well as simulation of future growth scenarios is important for planning and performance verification. These data, data models, integrated community energy models and associated case studies and fact sheets provide community energy managers with the information needed to conduct analysis within their own communities and make recommendations leading to the development of policies and actions to achieve energy efficiency, renewable energy technology and greenhouse gas targets.

In this area of expertise, contractors will develop, implement and validate new approaches and improve existing methods within the Geographical Information Systems (GIS) environment, and apply them to the analysis of neighborhood and community scale retrofit, renewable and district energy technology integration opportunities.

2: Description task list:

The main tasks related to this area of expertise (AE) are as follows:

- Developing datasets characterizing urban design and energy end-use, GHG emissions and costs associated with houses and buildings, transportation, renewable and district energy systems and equipment
- Researching alternative data collection techniques and novel datasets for modelling and simulating community energy use and emissions.
- Developing new approaches to the integration of data from housing, building, renewable and district energy technology simulation tools, measured utility data or novel datasets into (GIS)
- Validating the predictions of models and system designs through comparison to analytical solutions, measured data, or predictions from other models and community simulation software to ensure the reliability of results and recommendations
- Describing and graphically illustrating model theory, implementation, validation and application in presentations, research reports and peer-reviewed papers

Category 5: Communities - Regulatory and Policy Analysis

1: Overview

NRCan undertakes research into the relationship between urban form and energy consumption patterns, associated greenhouse gas emissions and costs on a community or regional basis. A key aspect of this work is the development of strategies and business models for Integrated Community Energy Solutions (ICES). This requires an understanding of the mandates and responsibilities of various stakeholders, and the relationships between them. This enables current and prospective system owners and operators as well as municipal officials to understand regulatory and financing options for pilot projects seeking to integrate district and renewable energy technologies or undertake retrofit measures in existing neighbourhoods and communities.

2: Description task list:

The main tasks related to this area of expertise (AE) are as follows:

- Evaluating regulations, bylaws and pricing options for commercial energy systems
- Researching and providing recommendations on partnership / ownership models and growth strategies relating to multi-source energy systems
- Researching energy utility regulations and policies at all levels of government
- Researching building and land use planning regulations and policies at all levels of government pertaining to energy supply and use in communities
- Researching approaches to financial and socio-economic analysis of ICES
- Researching municipal planning practices as they impact bylaw development related to the regulated operation of district or distributed energy systems
- Researching municipal planning practices as they impact bylaw development related to the retrofit of existing residential or commercial buildings on a neighbourhood or community basis
- Researching municipal planning practices as they impact bylaw development related to the integration of renewable energy technologies on a neighbourhood or community basis

Category 6: Communities – Design

1: Overview

NRCan undertakes research into the relationship between the urban form and its energy consumption patterns on a community or regional basis. A key aspect of this work is the design, development and

analysis of district energy systems and their components including their interconnection with the buildings themselves.

2: Description task list

Main tasks involved in this area of expertise (AE) include:

- Undertaking assessments of communities in regard to their land-use planning, energy consumption patterns and their suitability for district energy / thermal distribution networks
- Assessing local resources, their availability and potential for local energy systems
- Evaluating socio-economic externalities and economic impacts associated with the operation of district energy type systems within a community
- Evaluating the design and integration of the components of electrical and thermal energy systems, their construction and operation
- Developing control / dispatch strategies for district and distributed energy systems
- Evaluating alternative energy network configurations, their economic potential at the local, regional and national level and their interaction with traditional generation and distribution operating techniques
- Developing integration approaches for renewable energy technologies as they relate to integrated energy networks

Category 7: Communities - Technology Transfer

1: Overview

NRCan undertakes research into the relationship between the urban form and energy consumption patterns on a community or regional basis. A key aspect of this work is the development of information packages and the dissemination of specialised knowledge to the public and key decision-makers.

2: Description task list:

Main tasks involved in this area of expertise (AE) include:

- Facilitating technical and scientific meetings, soliciting opinions, fostering dialogue and forging consensus on community based energy related issues.
- Developing technical workshops related to community energy planning
- Identifying key participants and decision makers for technical workshops based on the scientific and technical material to be presented.
- Preparing scientific and technical information packages in a range of formats that relate directly to a diverse group of subject-matter experts, and developing a workable delivery strategy.
- Preparing and producing specialised scientific material (publication, web-based) that links federal research to the needs of communities.

Category 8: Residential - Industry and Innovation Strategy

1: Overview

Research to facilitate the development of new technologies requires that NRCan not only be focused upon the particular technologies but also how they relate to the business capabilities and opportunities of potential partners. NRCan needs the advice of consultants who have previously managed Heating Ventilating and Air Conditioning (HVAC) manufacturing companies and home building companies, and have had to balance various business needs in considering which research to undertake. NRCan research can be better targeted where advice has been obtained from those who have a track record for leading their companies through the innovation cycle, making decisions on which technologies to research, develop or implement, and where to market or apply them.

2: Description task list

The main tasks related to this area of expertise (AE) are as follows:

- assessing various technology opportunities
- defining the related barriers, opportunities for overcoming them, and priorities in order to support the technology entering the market
- assessing most likely entry market niches
- assessing potential types of partnering opportunities
- developing materials on targeted opportunities for manufacturing and home building decision makers most likely to take on these opportunities

Category 9: Residential - HVAC System Design

1: Overview

NRCan carries out research on how best to install residential Heating, Ventilating and Air Conditioning (HVAC) and renewable energy systems to minimize home energy use. This area of expertise (AE) pertains to those who have expertise evaluating home energy demands, and designing HVAC and renewable systems to meet these demands. It pertains to selecting equipment, designing the overall systems and the distribution systems. The Work relates to mainstream production builders as well as smaller custom home builders.

2: Description task list

The main tasks related to this area of expertise (AE) are as follows:

- Defining home HVAC design loads
- Developing approaches to efficient field installations that can utilize renewables and or make use of peak and off peak rates
- Designing example systems using specific technologies
- Developing design guidelines
- Working with home HVAC system designers to support improvements to their practices
- Evaluating HVAC system field performance through commissioning and one time measurements

Category 10: Residential - Monitoring - Whole House

1: Overview

The 'House as a system' approach is used to achieve high energy efficiency levels in homes. The interactive effects between one piece of equipment or system and other components plays an important role in determining the overall energy performance and long-term durability of homes. As part of developing sustainable and efficient technologies and systems, NRCan monitors the field performance of homes, carries out detailed analyses to evaluate the performance of equipment, systems and, overall home energy performance. Field surveys include in-house monitoring, utility (bill) data analysis, occupant comfort and visual evaluation of homes.

2: Description task list

The main tasks in this area of expertise (AE) include:

- developing a methodology and protocol to assess the operating performance of whole house including specific components and impact upon overall energy use
- developing monitoring equipment specifications and data analyses methods
- installing monitoring equipment, troubleshooting it, and collecting data
- conducting field surveys

- validating field measured data with the energy estimated determined using energy analysis programs
- developing reports documenting overall energy performance and customer satisfaction, explain issues found, provide recommendations for improvements, and extrapolate the results to provide meaning in the larger market context.

Category 11: Residential - Architectural Integration

1: Overview

NRCan facilitates the adoption of innovative technologies and products into the housing market through the development of market infrastructure. Some of these research and development activities require representative archetypes of local and regional housing as a starting point for illustrating the integration of these innovative technologies. NRCan requires contractors who can develop these types of representative examples both from a technical and market perspective for regions across Canada.

This category will focus specifically on the development of architectural drawings and specifications of regionally specific housing examples to support research activities associated with Net Zero or Low Energy Housing. The potential project activities include the creation of plans, sections, and elevations, specification consistent with the norms of the residential housing industry, 3D renderings and visualization of representative housing types. Candidates should have a working knowledge of NRCan programs (R2000 and Energy Star) house energy performance, and experience utilizing CAD software tools (AutoCAD, Archicad, Revit) to design to these standards and higher.

2: Description task list

Potential tasks in this area of expertise (AE) are as follows:

- Designing single, semi and multi family residential housing for research case studies
- Developing conceptual and detailed design drawings in CAD format, and preparing renderings and visualizations of the designs
- Researching and developing regionally specific housing typologies, including regional construction techniques and architectural elements
- Researching and developing specifications packages for local and regional codes, R2000, and Energy Star labelling programs

Category 12: Residential - Facilitation and Presentation

1: Overview

NRCan is actively involved in shepherding the adoption of innovative technologies and products into the housing market. These activities are carried out through technology scan and selection processes, builder forums, and research activities conducted with builders. NRCan requires contractors who can lead these types of initiatives and coordinate the technical resources in markets across Canada in residential construction markets.

2: Description task list

The main tasks related to this area of expertise (AE) are as follows:

- Coordinating seminars related to local home builder association events and activities
- Developing technical presentations on discrete technologies for builder groups
- Presenting Canmet ENERGY research findings on whole home design and building science to builder groups

- Acting as a liaison between members of the building community, manufacturers groups and NRCan
- Disseminating research results via various outreach activities such as workshops, charettes and forums
- Facilitating meetings with builders, manufacturers, municipal officials and participants from academia
- Explaining various NRCan programs (e.g., R2000, Energy Star) and initiatives related to the housing sector
- Providing advice to builders, from an economic and energy point of view, on product improvement based upon both simulated and real world review of standard product

Category 13: Residential - Windows, Exterior Doors and Fenestrations

1: Overview

NRCan undertakes research characterizing the performance of window, skylight and door fenestration. Using this work, NRCan will develop and refine strategies for fenestration selection on conventional and Net-Zero advanced energy homes, as well as improve window and home rating performance.

This category will specifically focus on residential windows, doors and skylights and commercial fenestration systems. Specifically: innovative frame and door materials; fenestration systems for small commercial and multi-residential buildings; field-testing and monitoring; and development of technical documents suitable for practitioners.

2: Description task list

The main tasks in this area of expertise (AE) include:

- Developing specifications for window and door systems and low energy housing and net-zero housing in both new construction and retrofit scenarios
- Developing and reviewing energy and moisture performance standards for windows, doors and fenestration components
- Researching, analyzing and developing innovative solar control and shading devices
- Identifying and assessing technologies applicable to windows, doors and fenestration products for energy efficiency and durability
- Analyzing fenestration product specifications and performance data to support the development of next-generation labeling and rating criteria (such as ENERGY STAR)
- Conducting and or analyzing results from field-testing and monitoring of window products
- Assessing life-cycle energy use of window products
- Developing of best practice guides and instruction modules for window design, selection and installation
- Developing communications materials that increasing public awareness of advances in windows, door and other fenestration products for publication on the internet
- Advising NRCan on the implications of proposed changes to standards and technical opportunities to enhance the energy performance of all types of fenestration products

Category 14: Residential - General R&D - Model Development

1: Overview

NRCan develops and distributes advanced residential simulation software based on the ESP-r and TRNSYS building simulation environments. This software provides home designers, builders and energy evaluators with the information needed to apply energy efficiency and renewable energy technologies with confidence. To respond to the changing needs of these groups and the emergence of novel technologies, NRCan must develop new models and algorithms within the software. In this area of expertise, contractors will develop, implement and validate new models and improve existing algorithms within the ESP-r and or TRNSYS environments, and apply them to the analysis of new residential energy technologies.

2: Description task list

The main tasks related to this area of expertise (AE) are as follows, but not limited to:

- Reviewing existing models described in academic literature, research reports and source code
- Devising new models and algorithms to predict the performance of emerging residential technologies
- Implementing models as new Fortran source code algorithms within the ESP-r and or TRNSYS simulation environments
- Validating the predictions of the new algorithms through comparison to analytical solutions, measured data, or predictions from other models and building simulation software
- Configuring new algorithms as part of whole-house system models in the ESP-r and/or TRNSYS simulation environment
- Applying whole-house system models for the performance analysis of emerging technologies
- Describing model theory, implementation, validation and application in peer-reviewed papers and research reports

Category 15: Residential - Building Envelope Assessments

1: Overview

With emphasis on achieve near net-zero energy consumption for homes by the year 2020, significant changes to building envelope components are required. For low-rise housing, even with the ERS 80 benchmark, the annual heat losses range from 80 to 130 GJ per year per dwelling depending on climate zone. To achieve cost-effective energy efficiency strategies, these heat losses must be further reduced by 50% to 60% or 40 to 70 GJ per house. The development of highly insulated above-grade and below-grade walls systems is important. Additional envelope thickness and cost premiums associated with additional labour, materials, loss of liveable floor space, are common barriers to large-scale adoption of high performance envelopes.

This category will specifically focus on building envelopes (excluding windows and doors) for low-rise residential buildings. The potential project activities will include development of specifications of above- and below-grade wall assemblies suitable for near- and net-zero energy new and existing housing; innovative insulation materials; design and construction of prototype wall assemblies with super insulation products; field-testing and monitoring of envelope components; and life-cycle energy use assessments of insulation products.

2: AE Description task list

The main tasks related to this area of expertise (AE) are as follows:

- Developing climate specific, durable and cost effective, constructible wall assemblies
- Modeling energy and moisture performance of envelope components
- Investigating new materials and technologies applicable to new above and below-grade walls for energy efficiency and durability

- Investigating residential retrofits involving building envelopes
- Field-testing and monitoring of envelope components, and life-cycle energy use assessments of insulation products.
- Participating in meetings of various Canadian and international code/standards bodies (e.g., National Building Code, Energy Codes, Canadian Standards Association, Canadian General Standards Board, American Society of Heating, Refrigeration and Air Conditioning Engineers, International Standards Organization) to further code development for envelope components
- Developing best practice guides and instruction modules
- Providing technical advice to NRCAN on the implications of proposed changes to standards, and the technical potential of various ways of enhancing energy performance of envelope components

Category 16: Residential - General R&D - Heat Pumps

1: Overview

NRCAN is undertaking research and development activities related to advanced heat pump systems and integration of renewable energy sources for residential applications. Key elements of this work involve assessing the techno-economic performance of advanced heat pump systems as well as the feasibility of integrating renewable energy sources in cold climates. This work would include using simulation models (e.g., TRNSYS) to assess system performance. The task may include assessing the applicability of current test standards to effectively characterise the operation of variable speed/multi-capacity cold climate heat pump systems. It may also include working with manufacturers to improve the performance of their products. Experience with advanced air source heat pump systems (e.g., inverter drive, multi-capacity) would be an asset.

2: Description task list

The main tasks related to this area of expertise (AE) are as follows:

- Working with simulation models (e.g., TRNSYS) to assess the performance of heat pump systems and renewable energy systems
- Undertaking market analysis to ascertain the state of existing products and those under development and report on claimed costs and performance
- Providing advice to NRCAN on the techno-economic performance of advanced heat pumps and renewable energy systems suitable for cold climate residential applications
- Reviewing existing test standards and providing technical advice to NRCAN on the suitability of such standards to properly characterise the performance of advanced cold climate heat pumps
- Advising manufacturers based on review of products tested and results of systems tested by Canmet ENERGY, at the Canadian Centre for Housing Technology or elsewhere in projects with Canmet ENERGY as partners

Category 17: Residential - Monitoring - Heating, Ventilation and Air-Conditioning (HVAC) Equipment

1: Overview

NRCAN monitors the performance of new and existing HVAC products in occupied homes to determine if they are functioning as intended and how efficient they are in meeting demands. Occupant surveys are

typically conducted at the same time to determine their level of understanding of what the product is supposed to be doing for them, and their satisfaction with the results.

2: Description task list

The main tasks in this area of expertise include:

- Developing an understanding of the particular product, its application, and the areas where performance is least understood
- Developing a methodology to assess the operating performance of the product and its impact upon overall home energy use
- Reviewing product installations and operation
- Installing monitoring equipment, troubleshooting it, and collecting data
- Conducting surveys
- Developing reports that evaluate overall energy performance and customer satisfaction, explain issues found, provide recommendations for improvements, and extrapolate the results to provide meaning in the larger market context.

Category 18: Residential - Laboratory Analysis and Standards - Heating, Ventilation and Air-Conditioning (HVAC) Equipment

1: Overview

NRCAN facilitates the development of innovative new products that are more energy efficient than typical current options. A key element of this work is developing new test protocols. This enables manufacturers to determine how energy efficient their new products are and where they need improvement. It also leads to third party test results that the market can use to consider performance in making purchasing decisions. This work may extend to developing test protocols into test standards, and to working with manufacturers to improve the performance of their products.

2: Description task list

The main tasks related to this area of expertise are as follows:

- Developing technical elements of test protocols and test standards for new types of HVAC equipment
- Overseeing third party lab testing, reviewing analysis, and providing advice upon how to improve test procedures, and prototype and product performance
- Providing technical advice to NRCAN on the implications of proposed changes to standards, and the technical potential of various ways of enhancing HVAC equipment energy performance

Category 19: Residential - Net Zero or Low Energy Housing

1: Overview

NRCAN develops advanced technologies, design strategies and construction practices for low-energy housing. A key goal in this activity is supporting the design and construction of Net-Zero Energy Houses (NZEH)—houses that produce as much renewable energy annually as they use. In this area of expertise, contractors will support NRCAN's efforts by analyzing and optimizing energy use in advanced net-zero energy house designs, identifying gaps in current NZEH technologies, and proposing improvements to the integration of these technologies in residential houses. In addition to energy performance and cost,

these efforts will also consider simplicity, durability, reliability and other qualitative criteria when evaluating technologies.

2: Description task list:

The tasks related to this area of expertise (AE) include:

- Characterizing the performance of individual technologies using published data, including manufacturer literature, laboratory reports and peer-reviewed publications
- Analyzing household energy consumption using HOT2000, ESP-r, TRNSYS, or similar building energy analysis programs
- Examining the relative contribution of building envelope, mechanical systems and renewable technologies to overall energy performance
- Optimizing energy performance of low- and net-zero energy housing through design improvements
- Examining cost-benefits of improved energy efficiency, and of comparative technologies
- Proposing improved technology integration strategies for innovative technologies
- Developing design guidelines for low-energy housing

Category 20: Residential - Low-Rise Multi Residential Buildings

1: Overview

This category will specifically focus on research, assessment and technology and field monitoring of low-rise Multi Unit Residential Buildings (MURBs). These comprise buildings that are three stories or less, the footprint is less than 600 square meters, there are a maximum of 20 units, at least 50% of the floor space, including the basement, is used for residential purposes, and there is no specialized commercial equipment.

2: Description task list

The main tasks related to this area of expertise (AE) are as follows:

- Assessing the performance and energy savings potential of new materials and technologies applicable to new and existing low rise MURBs
- Developing construction and retrofit specifications of building envelope, airtightness and HVAC systems to improve energy efficiency
- Assessing and analyzing impact of adopting energy targets set in next-generation R2000, ENERGY STAR for Homes and the EnerGuide Rating System
- Developing field evaluation methods for energy retrofits
- Field-testing and monitoring
- Developing best practice guides suitable for the construction and retrofit of low rise MURBs
- Providing technical advice to NRCan on the implications of proposed changes to standards, and the technical potential of various ways of enhancing energy performance of low rise MURBs

Category 21: Residential - Communication Design and Implementation

1: Overview

Facilitating the development of new technologies requires that NRCan not only be focused upon the particular technologies but also how they communicate the research results to the intended target audiences. NRCan needs the advice and services of graphic design practitioners who have previously created designs, layouts, and technical guidelines with technical illustrations to introduce new innovative technologies into Canada's housing sector. The provider must have produced materials in both English and French in MS Word format, as well as for the web that meet both the Common Look and Feel (CLF) 2.0 standards and accessibility guidelines (WCAG) for the Government of Canada. NRCan needs advice and services from those who have a track record in providing graphic services in support of the innovation cycle to business channels. Such services will assist in making decisions on which technologies to develop or implement. Additionally, communication products help increase awareness of current and upcoming research and development (R&D) efforts, and how, when and where the R&D will assist the market. Full knowledge of the branding guidelines for Government of Canada logos is required.

2: Description task list

The main tasks related to this area of expertise (AE) are as follows:

- Creating designs, layouts, and technical guidelines with technical illustrations to introduce new innovative technologies into Canada's housing sector

Category 22: Residential - Renewable Energy System Technology Assessments

1: Overview

NRCan's research and development (R&D) initiatives and housing programs assist and encourage home builders to build more efficient housing by providing technical resources, performance and cost analysis of innovative building products. NRCan's research and technology transfer efforts require in-depth investigation into the performance, durability and application of new technologies and building practices.

This Area of Expertise (AE) deals with technology assessments of renewable energy systems. This work generally consists of evaluating and describing the "soft" issues associated with integrating a given technology into a building (identifying initial and operating costs, applications, maintenance, code acceptance, etc).

A thorough understanding of both typical Canadian residential design and energy performance and of renewable energy systems and their application is critical for this work.

2: description task list

The main tasks related to this area of expertise (AE) are as follows:

- Assessing renewable energy technologies, through the lens of economic and regional relevance, as well as potential market adoption
- Benchmarking, undertaking energy and performance analysis, and developing cost estimates of various systems using of building simulation tools
- Developing best practise approaches for various (new and retrofit) renewable installations
- Soliciting suppliers, manufacturers, distributors and installers of products to obtain list prices or quotes on components, installation time and requirements and performing costing analysis
- Evaluating and describing the "soft" issues described above
-

Category 23: Residential - Mechanical and Electrical Technology Assessments

1: Overview

NRCan's R&D initiatives and housing programs assist and encourage home builders to build more energy efficient housing by providing technical resources and performance and cost analysis of innovative building products.

Several activities including NRCan's Net-Zero Energy Homes (NZEH) research as well as various technology transfer activities such as the Local Energy Efficiency Partnership (LEEP) initiative focus on the assessment of innovative technologies and building practises.

This Area of Expertise (AE) deals with technology assessments of mechanical and electrical systems. This work generally consists of evaluating and describing the "soft" issues associated with integrating a given technology into a building (identifying initial costs and operating costs, applications, maintenance, code acceptance, etc).

A thorough understanding of both typical Canadian residential HVAC design and operation and of innovative, highly efficient HVAC, electrical systems and energy management and control systems and their application is critical for this work.

2: Description task list

The main tasks related to this area of expertise (AE) are as follows:

- Assessing innovative mechanical systems, through the lens of economic and regional relevance, as well as potential market adoption.
- Benchmarking, energy analysis and performance vis-à-vis cost prediction of various systems by use of building simulation tools.
- Developing best practise approaches for various (new and retrofit) HVAC installations and control strategies.
- Soliciting suppliers, manufacturers, distributors and installers of products to obtain list prices or quotes on components, installation time and requirements and performing cost estimation analysis.
- Evaluating and describing the "soft" issues described above.

Category 24: Residential - Envelope Technology Assessments

1: Overview

NRCan's research and development (R&D) initiatives and housing programs assist and encourage home builders to build more efficient housing by providing technical resources, performance and cost analysis of innovative building products. NRCan's research and technology transfer efforts require in-depth investigation into the performance, durability and application of new technologies and building practices.

This area of expertise (AE) deals with technology assessments of building envelope and construction approaches. This work generally consists of evaluating and describing the "soft" issues associated with integrating a given technology into a building (identifying initial and operating costs, applications, maintenance, code acceptance, etc).

A thorough understanding of both typical Canadian residential construction approaches and innovative, highly energy efficient envelope technologies and their application is critical for this work.

2: Description task list

The main tasks related to this area of expertise (AE) are as follows:

- Assessing innovative envelope materials, products, and construction approaches through the lens of economic and regional relevance, as well as potential market adoption
- Benchmarking, analysing and predicting costs of various construction approaches using information from industry and building simulation tools
- Developing best practice construction and retrofit approaches for various envelope components and wall assemblies including insulation and air-sealing details, structural elements, and building component integration
- Soliciting suppliers, manufacturers, distributors and installers of building products to obtain list prices or quotes on materials, installation time and requirements and performing costing analysis
- Evaluating and describing the “soft” issues described above

Category 25: Residential - Archetype and Housing Stock Modelling

1: Overview

This area of expertise combines energy modelling and statistical analysis to estimate energy consumption of the Canadian housing stock based upon past and present housing stock data related to size, form, features, and energy sources. Both primary and secondary energy may be considered. This area of expertise also estimates the potential impacts of novel technologies when applied across a fraction of the applicable Canadian housing stock. These efforts help determine the magnitude of energy issues, and guide and prioritize future research efforts to ensure maximum effectiveness.

NRCan has developed archetypes that provide realistic examples of different kinds of Canadian houses. Part of this work includes the use of energy modelling results from these archetypes combined with statistical data about the housing stock and annual housing starts and completions to develop bottom-up estimates of energy consumption at national and regional levels.

2: Description task list:

Potential tasks for this area of expertise (AE) are as follows:

- Developing energy models for archetype energy designs using HOT2000, HOT3000 or similar energy analysis tools;
- Documenting past and present and predicting future trends of housing stock with the archetypes;
- Applying energy models to estimate energy consumption and savings potential of energy-efficiency and renewable energy measures;
- Extrapolating archetype modelling results to regional and national housing stocks using statistical data;
- Estimating energy consumption and energy savings potential for regional and national housing stocks, and for segments (e.g. row-houses) within those stocks;
- Analyzing effectiveness of different energy savings measures and recommendation of strategies for future R&D efforts;
- Estimating Canadian housing stock primary and secondary energy use based on a variety of technology options and forecasted market penetration rates;
- Estimating of greenhouse gas (GHG) and other air emissions;
- Examining energy-efficiency trends based on various parameters (such as vintage, type of heating fuel, etc) and comparing with other statistical data analyses (such as with Statistics Canada Household Surveys).

Residential - International

General Context

NRCan and Canada Mortgage and Housing Corporation (CMHC) are increasingly collaborating with various segments of the residential building industry to encourage stronger S&T bilateral agreements with foreign countries and the export of Canadian energy efficient products and services. Such activities focus on both mature industrialized countries, markets in transition and emerging or developing markets. Priority industrialized countries include Japan and the United Kingdom/Ireland but new countries are emerging including France and Spain. Emerging/developing country markets include Mexico, China and Korea.

For example, in regards to Japan, NRCan has been actively engaged in bilateral agreements with the Building Research Institute of Japan under the Canada-Japan Housing R&D Workshop. This bilateral agreement provides a mechanism to exchange advances in housing research and development between researchers in Canada and Japan. The model developed for Japan can also be considered for other countries such as UK/Ireland, China and Mexico.

NRCan also initiated the concept of a Super E house, whereby 60% of the dwelling is of Canadian origin and there are now approximately 100 Super E houses either constructed or completed in Japan. The Super E concept was first launched in 1999 in Japan and later introduced in the UK/Ireland (UK) market in 2001. A pilot phase was initiated in each of these countries which involved a series of demonstration homes; each one by a different Canadian exporter in partnership with their foreign partner. Each of these demonstrations homes involved significant marketing, public relations, ministerial events and press releases all creating significant interest and positive results for the Canadian and foreign partners.

The Super E Japan Program involves an integrated approach to the deployment of energy efficient technologies and systems into the Japan housing market. Based on the success in Japan and the identification of a unique market opportunity in both UK and Ireland, the Super E concept has been introduced to the United Kingdom and Ireland and is now being piloted in China. Based on the international response of this program, Canadian exporters are now successfully securing Super E contracts in other countries such as Iceland, Spain and France.

NRCan and CMHC interests in these markets include both commercial interests associated with the export of appropriate Canadian technology but also technical support to help developing countries in the establishment of a sustainable housing infrastructure (standards, technologies, technology transfer, demonstrations, etc) to transform traditional construction practices to more sustainable approaches at both the house and neighbourhood scale.

The international reputation that NRCan generated through Super E has attracted interest from other countries outside of NRCan and CMHC's priority countries (Japan, UK/Ireland and other Asian countries). This demands selected S&T support to respond to technical and commercial inquiries or opportunities.

The various categories and their outlined tasks are designed to support Super E and other collaborative projects involving various stakeholders such as Industry Canada.

Category 26: International - Technology Assessment of Canadian Residential Technologies for Foreign Markets

1: Overview

Many Canadian technologies have immediate opportunities for foreign markets, while others do not. Research into foreign climates, regulatory requirements, industry capacity, technical barriers and market conditions is critical for building an economic business case for exporting advanced Canadian technology. Outputs from these activities provide the Government of Canada with a road map for developing strategies to introduce Canadian technologies to foreign markets in partnership with industry.

For some products, technical adaptations are needed in order to respect local regulatory requirements and climactic differences. These adaptations are generally expressed in terms of technical standards (Super E) or guidelines.

2: Description task list

The main tasks related to this area of expertise (AE) are as follows:

- Researching the technical and economic appropriateness of Canadian products, systems and technologies for specific export markets
- Researching product specific regulatory requirements, and performance and installation standards for foreign export markets
- Identifying potential technical barriers in foreign markets (e.g. hot humid climates, fire codes, termites)
- Identifying current and future economic barriers such as affordability, fuel costs, exchange rates and labour costs that could impede the acceptance of Canadian technologies and systems
- Undertaking research and technical studies on the adaption of Canadian technologies materials and components to enhance the export potential of Canadian products
- Developing and updating technical standards for foreign markets (i.e. Super E Japan Standard, Super E UK Standard)
- Adapting Canadian construction details to foreign building practices

Category 27: International - Foreign Market Technology Transfer, Training and Education via Marketing and Promotion

1: Overview

This area of expertise relates to the design, development and implementation of technology transfer strategies for foreign markets. Using evidence from scientific research, technical analysis, and field monitoring, NRCan develops technology transfer materials to promote Canadian technologies in foreign markets.

These technology transfer activities are designed to address barriers to the acceptance of Canadian residential energy efficiency technologies (such as wood-frame construction) in foreign markets. They will create confidence in those marketplaces that Canadian approaches address local concerns and meet local expectations (including superior performance in hot, humid and/or damp regions), and that they are cost-competitive with local traditions (such as post and beam, and concrete construction techniques).

In addition, marketing and promotional activities are designed to maintain the public relations and marketing momentum of the initial demonstration homes and continuing to establish a strong brand image and recognition of Canada in foreign markets. For each foreign market, technology transfer and

promotional materials need to be tailored for local audiences, including builders, manufacturers, consumers, and the R&D community.

2: Description task list

The main tasks related to this area of expertise (AE) are as follows:

- Developing training curriculums in energy efficiency and sustainable housing based on Canadian research findings
- Delivering technical seminars, design charrettes, workshops and other training sessions to foreign industry, government and consumer stakeholders
- Developing hands-on tools, mock-ups and other physical or visual aids to communicate technical principles to trades, builders, and consumers
- Supporting on-site training to transfer building science principles to site trades and site supervisors
- Preparing camera-ready items in English with translation into foreign languages
- Undertaking design/layout and editing of technical and non-technical documents (e.g., fact sheets, highlights, brochures) for various international audiences including industry and consumers
- Undertaking design/layout and editing of materials related to technology transfer events (i.e. workshops and Super E forums), including technical proceedings, invitation letters and brochures, and material for publication on the internet
- Providing expertise to support the production of research articles and technical papers for conferences, seminars and technical presentations (e.g., Energy Efficient Buildings Association, Japan's Building Research Institute)
- Supporting public relations and media activities to promote Government of Canada's international activities in the host country (i.e. house openings, ministerial events, trade media articles, press releases, television and radio spots, etc)

Category 28: International - Quality Assurance, Monitoring and Evaluation

1: Overview

Government of Canada endorsement is an effective tool in differentiating Canadian exports from similar products from other countries. Government endorsement requires substantial due diligence to ensure those projects associated with the Government of Canada will not fail or compromise the credibility and reputation of Canada.

2: Description task list

The main tasks related to this area of expertise (AE) are as follows:

- Supporting research and evaluations of proposed projects for compliance with accepted technical standards, including moisture control, energy efficiency, indoor air quality, comfort and environmental responsibility
- Supporting assessment of completed projects for compliances against accepted technical standards
- Undertaking site audits to verify compliance against technical standards such as air tightness testing and ventilation system commissioning
- Developing and executing moisture, energy and indoor air quality monitoring protocols

- Developing and administering feedback and satisfaction surveys of projects undertaken by the Government of Canada

Category 29: Program Support - Building Sector Analysis

1: Overview

When planning future directions, the NRCan requires the identification and analysis of Canadian residential and commercial building data according to different aggregations (e.g. housing starts, demolition rates, retrofit activities) in order to identify trends and opportunities for R&D efforts. NRCan's planning is also based on combining technical assessments with macro- and micro-economic analysis and technology assessments to examine energy and emissions savings potential, market penetration potential, market readiness and R&D requirements of emerging technology.

2: Description task list

The main tasks related to this area of expertise (AE) are as follows:

- Collecting and analysing data related to various types of buildings (e.g., single homes, multi-residential buildings, office, arenas, supermarkets) to characterize segments of the built-environment
- Estimating energy consumption and emissions from segments of the built environment, and evaluating the energy savings and emission reduction potential of emerging technology in both new and retrofit scenarios
- Identifying trends and forecasting future characteristics of the built environment
- Forecasting energy consumption and emissions from the built environment based on hypothetical scenarios (e.g. fuel cost increases)
- Undertaking Strengths, Weaknesses, Opportunities and Threat analysis
- Developing methodologies for aggregating energy consumption and emissions by segments of the built environment, such as building type, use, vintage, or heating system
- Assessing the impact of new and emerging technologies on Canada's energy supply and energy security.

Category 30: Program Support - Sector Related Strategic Planning

1: Overview

NRCan's Housing, Buildings, Communities and Simulation (HBCS) group continually engages in strategic planning to guide its own research endeavors, those of programs it leads or supports, and those it shares with partners and stakeholders. Undertaking strategic planning for HBCS-related programs requires knowledge and experience in the built-environment, including:

- understanding of the sector, its stakeholders and its trends and drivers;
- familiarity with the operations of CanmetENERGY-Ottawa, NRCan, and other government agencies;
- expertise in building energy technologies;
- experience in activities throughout the innovation cycle, from R&D to full commercialization; and experience in strategic planning and associated activities.

These activities include internal planning exercises to ensure that the current resources within the Housing, Buildings, Communities and Simulation (HBCS) group are sufficient to meet short- and long-term objectives.

2: Description task list

The main tasks related to this area of expertise (AE) are as follows:

- Providing input to strategic planning documents and materials (such as spreadsheet analyses and other assessments or presentation files)
- Developing and reviewing recommendations from technology assessments, energy savings and emissions analyses and other technical materials for strategic and program directions and priorities
- Facilitating strategic planning sessions such as meetings and workshops
- Interviewing stakeholders and/or gathering information on their interests and needs
- Providing critique on and revising existing strategic plans and related materials
- Assessing current technical resources within NRCan

Category 31: Program Support - Desktop Publishing and Layout for Technology Transfer Activities

1: Overview

To enhance uptake of its technology-transfer efforts, NRCan requires graphic design, desktop publishing and layout support. NRCan develops technology transfer materials (such as logos, banners, posters, CD covers and booth displays) based on the technical outputs from its research and development efforts. The key goal of this activity is to clearly convey technical and research findings to various target audiences.

2: Description task list

The main tasks related to this area of expertise (AE) are as follows:

- Consulting with scientific researchers and technical personnel to determine the best ways to illustrate innovative concepts, research findings and project results
- Designing logos, diagrams and graphs that clearly illustrate concepts and research results according to the interests and needs of different target audiences (e.g. researchers, manufacturers, homebuyers)
- Developing layout specifications for different types of documents (e.g. brochures, fact-sheets) according to the according to the interests and needs of different target audiences
- Proposing different options for document design and use
- Conveying NRCan's technical messages in simple-to-understand copy
- Packaging copy and illustrations in documents and other materials for maximum impact
- Working with third parties to ensure satisfactory production of end-products

Category 32: Simulation - Commercial Buildings Compliance Rules Developer

1: Overview

The Housing, Buildings, Communities and Simulation (HBCS) team, of Natural Resources Canada, develops and disseminates advanced commercial building energy simulation software based on the Quest simulation environment. These software tools enable designers, builders and energy evaluators to assess the impact of various energy efficiency measures and renewable energy technologies on their

building's overall energy use. These applications are also used by utilities and provincial authorities across Canada as well as by certification programs such as Leadership in Energy and Environmental Design (LEED) administered by the Canadian Green Build Council in Canada.

Performance compliance analysis is the most common methodology for demonstrating the design energy performance of a proposed high performance building in Canada. The two most popular compliance standards being used in Canada today are the Model National Energy Code of Canada for Buildings 1997 (MNECB), and American Society of Heating Refrigerating and Air-Conditioning Engineers (ASHRAE) Standard 90.1 in various vintages. While some building authorities use the stock version of these standards, some opt to customize these standards for their jurisdiction or create their own standards.

To respond to the changing needs of these groups, NRCan must update, modify and develop new simulation rule sets for authorities planning to assess compliance with various standards which may be in effect across Canada.

The purpose of this category of the standing offer is to establish a list of suppliers qualified to interpret compliance rules from energy codes, energy standards or other mandatory or incentive-based energy programs and implement them in the required format into the DOE-2.2 compliance rules development environment. This will be used in tandem with the CAN-QUEST user interface.

2: Description task list

The main tasks related to this area of expertise (AE) are as follows:

- Interpreting the rules for proposed, reference or other case building types from energy codes or other documents.
- Determining if existing compliance rule set software code can be redesigned for efficiency and flexibility.
- Authoring new rule set software code as required by supplied building compliance code.
- Compiling and debugging rule sets.
- Documenting all assumptions relating to each rule and propose work-around procedures
- For each compliance rule, populating the rule set unit tester for each expected outcome and supply a whole building test-case input file.
- Correcting or modifying the rules where necessary until their implementation in CAN-QUEST is correct.

Category 33: Simulation - Commercial Buildings Energy Simulation Analyst

1: Overview

The Housing Buildings Communities and Simulation group (HBCS) Simulation team, of Natural Resources Canada, develops and disseminates advanced commercial buildings energy simulation software. These software tools provide designers, energy evaluators, and building code authorities with the information needed to assess the impact of various energy efficiency and renewable energy technologies on a building's overall energy use. These applications provide technical support to utilities and provincial authorities across Canada as well as to certification programs such as Leadership in Energy and Environmental Design (LEED) administered by the Canadian Green Build Council in Canada. The HBCS Simulation team is the leading authority on commercial building simulation in Canada, and provides simulation support to other groups within HBCS for their building energy modeling needs.

The purpose of this category of the standing offer is to establish a list of suppliers qualified to provide advanced modelling support for research activities using commercial building energy simulation tools.

2: Description Task list

The main tasks related to this area of expertise (AE) are as follows:

- Reading and interpreting building plans, drawings, cut sheets, and mechanical diagrams, and inputting this data into building energy simulation tool interfaces.
- Selecting the appropriate building energy simulation tool to be used based on feature set, time constraints, resources and information available.
- Developing alternative building energy modelling strategies and work-arounds for emerging technologies and construction methods, either in simulation code or external tools such as spreadsheets.
- Performing sensitivity analysis and parametric runs.
- Testing new features and bug fixes implemented by simulation developers.
- Authoring clear and concise reports on findings, complete with executive summary, and detailed technical information.
- Providing recommendations on improvement to simulation software and/or simulation models where required.
- Interpreting codes such as ASHRAE 90.1, NBC and ASHRAE 189.1 as they relate to simulation programs.

Category 34: Simulation - Commercial Buildings Energy Simulation Developer

1. Overview

The Housing, Buildings, Communities and Simulations (HBCS) Simulation team, of Natural Resources Canada, develops and disseminates advanced commercial simulation software. These software tools provide designers, builders and energy evaluators with the information needed to assess the impact of various energy efficiency and renewable energy technologies on their building's overall energy use. These applications provide technical support to utilities and provincial authorities across Canada as well as to certification programs such as LEED administered by the Canadian Green Building Council in Canada. The HBCS Simulation team is the leading authority on commercial building simulation in Canada, and provides simulation support to other groups within HBCS for their building energy modeling needs.

The purpose of this category of the standing offer is to establish a list of suppliers qualified to provide advanced development support for commercial simulation tools software.

2: Description task list:

The main tasks related to this area of expertise (AE) are as follows:

- Developing alternative building energy modelling strategies and work-arounds either in simulation code or external methods such as spreadsheets.
- Performing sensitivity analysis and parametric runs.
- Implementing and testing new features and conducting bug fixes on commercial simulation software such as DOE2.x and EnergyPlus.
- Authoring clear and concise reports on findings, complete with executive summary, and detailed technical information.
- Providing recommendations on improvement to energy simulation software and/or energy simulation models where required.
- Working with DOE2.x and EnergyPlus Command / Keyword Structured Language.

- Debugging, building and compiling FORTRAN source code within the context of energy modeling software.
- Adding new features / enhancements to DOE2.x or EnergyPlus
- Writing technical support documentation.
- Developing unit tests to ensure requirements have been achieved.
- Conducting Code walkthroughs of all code authored and developing test cases and test plans for newly added functionality in conjunction with HBCS staff on a milestone basis.

Category 35: Simulation - Residential Simulations Developer

1: Overview

The Housing Building, Communities and Simulation (HBCS) team, of Natural Resources Canada, develops and disseminates advanced residential simulation software. These software tools provide residential designers, builders and energy evaluators with the information needed to assess the impact of various energy efficiency and renewable energy technologies with confidence. These applications provide technical support to utilities and provincial authorities across Canada as well as to certification programs such as the EnerGuide for Houses Rating System (ERS). The HBCS simulation team is the leading authority on residential building energy simulation in Canada, and provides simulation support to other groups within HBCS for their building energy modeling needs.

2: Description task list:

The purpose of this category of the standing offer is to establish a list of suppliers qualified to provide advanced development support for residential simulation tools software. Tasks included, in this area of expertise (AE), but are not limited to:

- Developing alternative building energy modelling strategies and work-arounds either in simulation code or external methods such as spreadsheets;
- Performing sensitivity analysis and parametric runs;
- Implementing and testing new features and conducting bug fixes on residential simulation software such as HOT2000, HOT3000, ESP-r and TRNSYS;
- Authoring clear and concise reports on findings, complete with executive summary, and detailed technical information;
- Providing recommendations on improvement to energy simulation software and/or energy simulation models where required;
- Modifying HOT2000, HOT3000, ESP-r and TRNSYS files;
- Debugging, building and compiling FORTRAN, C or C++ source code;
- Adding new features / enhancements to HOT2000, HOT3000, ESP-r and creation of TRNSYS types;
- Writing technical support documentation as on-line help or user and technical reference manuals;
- Developing unit tests to ensure NRCan requirements have been achieved;
- Conducting Code Walkthrough of all code authored with tests cases with HBCS staff on a milestone basis.

Category 36: Simulation - Residential Simulation Analyst

1: Overview

The Housing Building, Communities and Simulation (HBCS) team, of Natural Resources Canada, develops and disseminates advanced residential simulation software. These software tools provide residential researchers, designers, builders and energy evaluators with the information needed to assess the impact of various energy efficiency and renewable energy technologies with confidence. In addition to supporting government and academic research, these applications provide technical support to utilities and provincial authorities across Canada as well as to certification programs such as the EnerGuide for Housing Rating System (ERS). The HBCS simulation team is the leading authority on residential building energy simulation in Canada, and provides simulation support to other groups within HBCS for their building energy modeling needs.

The purpose of this category of the standing offer is to establish a list of suppliers qualified to provide advanced research and modelling support using residential simulation tools.

2: Description Task List

The main tasks related to this area of expertise (AE) are as follows:

- Researching the suitability and limitations of these software tools when applied to analysis of residential buildings
- Developing alternative building energy modelling strategies and work-arounds either in simulation code or external methods such as spreadsheets.
- Reading and interpreting building plans, drawings, cut sheets, and mechanical diagrams, and inputting this data into building energy simulation tool interfaces.
- Selecting the appropriate building energy simulation tool to be used based on feature set, time constraints, resources and information available
- Performing sensitivity analysis and parametric runs.
- Testing new features and bug fixes implemented by simulation developers.
- Authoring clear and concise reports on findings, complete with executive summary, and detailed technical information.
- Providing recommendations on improvement to simulation software and/or simulation models where required.
- Working with a suite of simulation engines including HOT2000, ESP-r, DOE-2, E+ and TRNSYS.

General Context – Active Solar Thermal Systems

Description

The Solar Thermal R&D Program within NRCan is the lead program within the Federal Government for the development of solar thermal technologies in Canada. The primary objective of the program is to accelerate the development and commercialization of solar thermal energy technologies which have significant potential to be more cost-effective, efficient, and less polluting than conventional technologies.

These areas of expertise in the standing offer will establish an approved list experts on solar thermal technologies and related specialties to provide professional services to CanmetENERGY-Ottawa, in support of activities related to solar thermal research, development, and demonstration projects for Natural Resources Canada.

Categories 37 to 46 outline the specific areas of expertise (AE).

Category 37: Active Solar Thermal Systems - Analysis Tools Development

Description task list

Potential tasks in this area of expertise (AE) include:

- Researching and reviewing existing models of active solar thermal systems as described in academic literature, research reports and energy simulation source code
- Designing and developing new models and algorithms to predict the performance of emerging solar thermal technologies.
- Implementing new models as source code algorithms in NRCan's solar thermal computer analysis tools: SWIFT, Watsun and Enerpool.
- Examining solar collector efficiency test data, and developing correlations for implementation into NRCan's solar thermal computer analysis tools.
- Validating the predictions of new algorithms through comparison to analytical solutions, measured data, or predictions from other models and solar simulation tools
- Describing model theory, implementation, validation and application in peer-reviewed papers and research reports

Category 38: Active Solar Thermal Systems - Information Transfer and Outreach

Description task list

Potential tasks in this area of expertise (AE) include:

- Describing research findings and project outcomes in fact sheets and documents for the solar industry, building industry, utilities, and the public
- Writing and evaluating technology transfer documents related to solar thermal systems (e.g., training material, consumer-based brochures)
- Providing expertise on the production of technical papers for solar related conferences and technical presentations
- Developing, participating in, facilitating, and supporting workshops and seminars related to solar heating and cooling,
- Identifying key participants and decision makers for solar heating and cooling workshops based upon of the scientific and technical material presented.

- Linking with pertinent industry associations
- Networking and gathering data related to the net zero or low energy buildings and communities
- Designing of web applications to store and manage projects documentation and reports
- Designing of web applications for transferring monitoring data and live display of solar thermal system performance

Category 39: Active Solar Thermal Systems - HVAC Components, Systems and Controls

Description task list:

Potential tasks in this area of expertise (AE) include:

- Developing optimum strategies, configurations and controls for integration of solar thermal components and systems with building HVAC components and systems
- Developing test methods for solar thermal integrated HVAC components and systems
- Testing, commissioning, and troubleshooting services for HVAC components, systems, and controls

Category 40: Active Solar Thermal Systems - Thermo-Chemical Storage Materials Research and Development (R&D)

Description task list:

Potential tasks in this area of expertise (AE) include:

- Assessing technical and economic market potential for compact thermo-chemical materials (TCM's) for solar seasonal storage applications in Canada and abroad
- Developing optimum integration strategies, configurations and controls for solar seasonal storage systems using TCM's
- Developing TCM reactor designs for Canadian retrofit and new home applications
- Carrying out construction and testing of prototype TCM reactor and heat exchange systems
- Developing linkages with manufacturers, utilities, energy service providers, industry associations and Provinces on collaborative initiatives to accelerate TCM development for solar seasonal storage applications
- Participating on various Canadian and international code/standards committees (e.g., Canadian Standards Association (CSA), American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), International Standards Organization (ISO)) related to TCM storage systems and components
- Participating on International Energy Agency (IEA) Tasks related to TCM storage.

Category 41: Active Solar Thermal Systems - Solar Water Heating, Space Heating and Cooling R&D

Description task list:

Potential tasks in this area of expertise (AE) include:

- Assessing the technical and economic market potential for solar water heating, space heating and cooling and industrial process heating systems in Canada and abroad
- Developing optimum integration strategies, configurations and controls
- Developing solar heating concepts in support of net zero or low energy buildings and communities
- Developing linkages with manufacturers, utilities, energy service providers, industry associations and Provinces on collaborative initiatives to accelerate solar technology development

- Participating on various Canadian and international code/standards committees (e.g., Canadian Standards Association (CSA), American Society for Heating Refrigerating and Air-conditioning Engineers (ASHRAE), International Standards Organization (ISO) related to solar water heating systems and components
- Participation on International Energy Agency (IEA) Tasks related to solar water heating, space heating and cooling and industrial process heating.

Category 42: Active Solar Thermal Systems - Performance Ratings for Solar Thermal Equipment

Description task list:

Potential tasks in this area of expertise (AE) include:

- Analyzing the performance of solar domestic hot water systems (SDHW) under CSA F379 standard conditions using TRNSYS simulation software
- Validating SDHW simulation results with measured results from CSA F379 testing at the National Solar Test Facility
- Developing and calibrating TRNSYS models SDHW system components (heat exchangers, collectors, tanks, pumps) using published performance data
- Consulting with manufacturers to confirm system design and operation.
- Estimating SDHW performance ratings using simulations and measured data
- Developing TRNSED models of SDHW systems for use by NRCan, private industry and the public

Category 43: Active Solar Thermal Systems - Monitoring and Instrumentation

Description task list:

Potential tasks in this area of expertise (AE) include:

- Specifying, implementing and installing monitoring equipment for solar thermal systems
- Developing analysis algorithms for data collected on solar thermal systems
- Managing field monitoring campaigns and assessment of solar thermal components and systems
- Upgrading of instrumentation, and measurement analysis algorithms and software at the National Solar Test Facility.
- Managing data storage, monitoring and post processing of measured data
- Implementing and managing user-friendly web displays of monitored data.

Category 44 Active Solar Thermal Systems - Industry Survey

Description task list:

Potential tasks in this area of expertise (AE) include, but not limited to:

- Developing survey documents and questionnaires to determine industry needs and future research priorities
- Developing contact list of solar thermal companies active in Canada and distributing the survey and collecting responses
- Summarizing and analyzing the data aggregated to protect confidentiality
- Obtaining third party alternative statistics data for validation of the survey results
- Preparing reports describing collected data and analysis thereof, as well as presenting the results to NRCan staff and industry as required

Category 45: Active Solar Thermal Systems - District Systems

Description task list:

Potential tasks in this area of expertise (AE) include:

- Designing and reviewing community district heating and cooling systems to optimize the use of renewable energy and in particular solar heating in new and retrofit applications
- Developing novel piping and substation designs for reducing the cost of community district heating and cooling systems
- Specifying and reviewing low cost, reliable remote energy metering for district heating and cooling systems

Category 46: Active Solar Thermal Systems - Solar Air Heating Research and Development

Description task list

Potential tasks in this area of expertise (AE) include, but not limited to:

- Assessing technical and economic market potential for solar air heating, including building and process heat applications in Canada and abroad
- Developing optimum integration strategies, configurations and controls
- Developing solar heating concepts in support of net zero or low energy buildings
- Developing linkages with manufacturers, utilities, energy service providers, industry associations and provinces on collaborative initiatives to accelerate solar air technology development
- Participating on various Canadian and international code/standards committees (e.g., Canadian Standards Association, America Society of Heating, Refrigeration and Air-Conditioning Engineers, International Standards Organization) related to solar air heating systems and components
- Participating on International Energy Agency (IEA) tasks related to solar air heating

**Appendix 1 TO ANNEX "A"
List of Proposed Individuals**

One individual can be named in six (6) areas of expertise, however multiple individuals could be proposed.

AREA OF EXPERTISE		NAME OF PROPOSED INDIVIDUAL(S)
BUILDINGS		
1	Advanced Integrated HVAC Systems	
2	Monitoring of Advanced and Renewable Energy Technologies	
3	Integrated Design Process	
COMMUNITIES		
4	Data Collection and Analysis	
5	Regulatory and Policy Analysis	
6	Design	
7	Technology Transfer	
RESIDENTIAL		
8	Industry and Innovation Strategy	
9	HVAC System Design	
10	Monitoring - Whole House	
11	Architectural Integration	
12	Facilitation and Presentation	
13	Windows, Exterior Doors and Fenestrations	
14	General R&D - Model Development	
15	Building Envelope Assessments	
16	General R&D Heat Pumps	
17	Monitoring - Heating, Ventilation and Air-Conditioning (HVAC) Equipment	
18	Laboratory Analysis and Standards - Heating, Ventilation and Air-Conditioning (HVAC) Equipment	

AREA OF EXPERTISE		NAME OF PROPOSED INDIVIDUAL(S)
19	Net Zero or Low Energy Housing	
20	Low-Rise Multi Residential Buildings	
21	Communication Design and Implementation	
22	Renewable Energy System Technology Assessments	
23	Mechanical and Electrical Technology Assessments	
24	Envelope Technology Assessments	
25	Archetype and Housing Stock Modelling	
INTERNATIONAL		
26	Technology Assessment of Canadian Residential Technologies for Foreign Markets	
27	Foreign Market Technology Transfer, Training and Education via Marketing and Promotion	
28	Quality Assurance, Monitoring and Evaluation	
PROGRAM SUPPORT		
29	Building Sector Analysis	
30	Sector Related Strategic Planning	
31	Desktop Publishing and Layout for Technology Transfer Activities	
SIMULATION		
32	Commercial Buildings Compliance Rules Developer	
33	Commercial Buildings Energy Simulation Analyst	
34	Commercial Buildings Energy Simulation Developer	
35	Residential Simulations Developer	
36	Residential Simulation Analyst	
ACTIVE SOLAR THERMAL SYSTEMS		
37	Analysis Tools Development	
38	Information Transfer and Outreach	
39	HVAC Components, Systems and Controls	

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Buyer ID - Id de l'acheteur
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AREA OF EXPERTISE		NAME OF PROPOSED INDIVIDUAL(S)
40	Thermo-Chemical Storage Materials Research and Development (R&D)	
41	Solar Water Heating, Space Heating and Cooling R&D	
42	Performance Ratings for Solar Thermal Equipment	
43	Monitoring and Instrumentation	
44	Industry Survey	
45	District Systems	
46	Solar Air Heating Research and Development	

Annex "B"
Basis of Payment (to be adjusted to reflect AEs of each SO)

The Contractor will be paid in accordance with the following Basis of Payment for the Work pursuant to each approved Call-up against the Standing Offer. For the entire Standing Offer period, the following rates will apply. Firm all-inclusive hourly rate, GST/HST extra, FOB destination, as applicable.

The rates for the subsequent four (4) one (1) year possible extension periods would be adjusted in accordance with the consumer price index.

CATEGORY OF EXPERTS		Firm all-inclusive hourly rate for year 1 to 3	Firm all-inclusive hourly rate for year 4	Firm all-inclusive hourly rate for year 5	Firm all-inclusive hourly rate for year 6	Firm all-inclusive hourly rate for year 7
BUILDINGS						
1	Advanced Integrated HVAC Systems	\$	\$	\$	\$	\$
2	Monitoring of Advanced and Renewable Energy Technologies	\$	\$	\$	\$	\$
3	Integrated Design Process	\$	\$	\$	\$	\$
COMMUNITIES						
4	Data Collection and Analysis	\$	\$	\$	\$	\$
5	Regulatory and Policy Analysis	\$	\$	\$	\$	\$
6	Design	\$	\$	\$	\$	\$
7	Technology Transfer	\$	\$	\$	\$	\$
RESIDENTIAL						
8	Industry and Innovation Strategy	\$	\$	\$	\$	\$
9	HVAC System Design	\$	\$	\$	\$	\$
10	Monitoring - Whole House	\$	\$	\$	\$	\$
11	Architectural Integration	\$	\$	\$	\$	\$
12	Facilitation and Presentation	\$	\$	\$	\$	\$
13	Windows, Exterior Doors	\$	\$	\$	\$	\$

CATEGORY OF EXPERTS		Firm all-inclusive hourly rate for year 1 to 3	Firm all-inclusive hourly rate for year 4	Firm all-inclusive hourly rate for year 5	Firm all-inclusive hourly rate for year 6	Firm all-inclusive hourly rate for year 7
	and Fenestrations					
14	General R&D - Model Development	\$	\$	\$	\$	\$
15	Building Envelope Assessments	\$	\$	\$	\$	\$
16	General R&D Heat Pumps	\$	\$	\$	\$	\$
17	Monitoring - Heating, Ventilation and Air-Conditioning (HVAC) Equipment	\$	\$	\$	\$	\$
18	Laboratory Analysis and Standards - Heating, Ventilation and Air-Conditioning (HVAC) Equipment	\$	\$	\$	\$	\$
19	Net Zero or Low Energy Housing	\$	\$	\$	\$	\$
20	Low-Rise Multi Residential Buildings	\$	\$	\$	\$	\$
21	Communication Design and Implementation	\$	\$	\$	\$	\$
22	Renewable Energy System Technology Assessments	\$	\$	\$	\$	\$
23	Mechanical and Electrical Technology Assessments	\$	\$	\$	\$	\$
24	Envelope Technology Assessments	\$	\$	\$	\$	\$
25	Archetype and Housing Stock Modelling	\$	\$	\$	\$	\$
INTERNATIONAL						
26	Technology Assessment of Canadian Residential	\$	\$	\$	\$	\$

CATEGORY OF EXPERTS		Firm all-inclusive hourly rate for year 1 to 3	Firm all-inclusive hourly rate for year 4	Firm all-inclusive hourly rate for year 5	Firm all-inclusive hourly rate for year 6	Firm all-inclusive hourly rate for year 7
	Technologies for Foreign Markets					
27	Foreign Market Technology Transfer, Training and Education via Marketing and Promotion	\$	\$	\$	\$	\$
28	Quality Assurance, Monitoring and Evaluation	\$	\$	\$	\$	\$
PROGRAM SUPPORT						
29	Building Sector Analysis	\$	\$	\$	\$	\$
30	Sector Related Strategic Planning	\$	\$	\$	\$	\$
31	Desktop Publishing and Layout for Technology Transfer Activities	\$	\$	\$	\$	\$
SIMULATION						
32	Commercial Buildings Compliance Rules Developer	\$	\$	\$	\$	\$
33	Commercial Buildings Energy Simulation Analyst	\$	\$	\$	\$	\$
34	Commercial Buildings Energy Simulation Developer	\$	\$	\$	\$	\$
35	Residential Simulations Developer	\$	\$	\$	\$	\$
36	Residential Simulation Analyst	\$	\$	\$	\$	\$
ACTIVE SOLAR THERMAL SYSTEMS						
37	Analysis Tools Development	\$	\$	\$	\$	\$
38	Information Transfer and	\$	\$	\$	\$	\$

CATEGORY OF EXPERTS		Firm all-inclusive hourly rate for year 1 to 3	Firm all-inclusive hourly rate for year 4	Firm all-inclusive hourly rate for year 5	Firm all-inclusive hourly rate for year 6	Firm all-inclusive hourly rate for year 7
	Outreach					
39	HVAC Components, Systems and Controls	\$	\$	\$	\$	\$
40	Thermo-Chemical Storage Materials Research and Development (R&D)	\$	\$	\$	\$	\$
41	Solar Water Heating, Space Heating and Cooling R&D	\$	\$	\$	\$	\$
42	Performance Ratings for Solar Thermal Equipment	\$	\$	\$	\$	\$
43	Monitoring and Instrumentation	\$	\$	\$	\$	\$
44	Industry Survey	\$	\$	\$	\$	\$
45	District Systems	\$	\$	\$	\$	\$
46	Solar Air Heating Research and Development	\$	\$	\$	\$	\$

Consumer Price Index (CPI)

CPI Rate Adjustment for the Subsequent four (4) one (1) year Possible Extension Periods

In the event that the first of the four one year extensions is exercised, the rate adjustment for January 1, 2017 to December 31, 2017 will be based on the following. Any prices or rates in the contract for the period of January 1, 2016 to December 31, 2016 will be adjusted by the annual average percentage change expressed in the Consumer Price Index (CPI) for the city of Ottawa in the December, 2016 Statistics Canada publication described below.

In the event that the second of the four one year options is exercised, for the prices or rates for January 1, 2018 to December 31, 2018, the same would apply to the January 1, 2017 to December 31, 2017 rates and prices based on the annual average percentage change in the CPI expressed in the December, 2017 Statistics Canada publication.

In the event that the third of the four one year options is exercised, for the prices or rates for January 1, 2019 to December 31, 2019, the same would apply to the January 1, 2018 to December 31, 2018 rates and prices based on the annual average percentage change in the CPI expressed in the December, 2018 Statistics Canada publication.

Solicitation No. - N° de l'invitation
23229-129462/A
Client Ref. No. - N° de réf. du client
23229-129462

Amd. No. - N° de la modif.

File No. - N° du dossier
007SQ.23229-129462

Buyer ID - Id de l'acheteur
007SQ
CCC No./N° CCC - FMS No./N° VME

In the event that the fourth of the four one year options is exercised, for the prices or rates for January 1, 2020 to December 31, 2020, the same would apply to the January 1, 2019 to December 31, 2019 rates and prices based on the annual average percentage change in the CPI expressed in the December, 2019 Statistics Canada publication.

Details:

The CPI is the "All-items Consumer Price Index (Not Seasonally Adjusted) by City" (Catalogue no. 62-001-XPB entitled "The Consumer Price Index" from Statistics Canada). See the "Annual average" Column of the December catalogue for the applicable year. The release date for December publications is approximately the third week in January. The publication is available in electronic format from www.statcan.ca.

Calculation Example:

To calculate the rates and prices of the first option year, should it be exercised by Canada, take the annual average for the previous year (2016 in this example) which is 124.9 and subtract it from the annual average of the year previous to the previous year (2015 in this example) which is 121.9. The difference in this example is an increase of 3 percent which would be applied to the fourth year rates and prices. Similarly, for the each of the other option years, should they be exercised by Canada, the CPI adjustment would be applied to the rates and prices of the previous option year.