Natural Resources Canada | Ressources naturelles Canada

Energy Innovation Program

Request for Project Proposals

National Energy Systems Modelling Call

Applicant Guide

Office of Energy Research and Development

December 2023

Canada

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Energy Innovation Program – National Energy Systems Modelling Call – Applicant Guide

1. Objectives

1.1 Office of Energy Research and Development

The Office of Energy Research and Development (OERD) leads the Government of Canada's efforts in delivering energy research, development, and demonstration (RD&D) funding, accelerating efforts in energy innovation and cleantech programming. With a focus on influencing the pace and direction of energy system transformation, OERD targets the most impactful technologies to maximize environmental and economic outcomes. Leveraging over forty years of experience and unique science and technology expertise, OERD invests in thirteen federal departments and agencies to undertake RD&D, as well as a wide range of Canadian small and medium enterprises, utilities, industry, and other firms, all in support of Canada's energy innovation and climate change goals.

1.2 Energy Innovation Program National Energy Systems Modelling Call for Proposals

Energy systems modelling is a critical element of informed Canadian energy and climate action. It provides a quantitative framework to explore the potential role and impacts of different energy technologies on Canada's energy future. Models provide important opportunities to "experiment" with how new technologies could accelerate the transition to net zero, as well as impacts on the larger energy system. However, the accelerating pace of technological change can make it a challenge to incorporate a full range of energy technologies into energy systems modelling activities. This is especially true of emerging technologies which:

1) Are available but not yet widely used.
2) Do not yet exist in a commercial setting but may become available in the future.
3) Have performance characteristics which cannot be projected based on historical trends.

This call for projects intends to provide support for energy modellers as they address these challenges and develop new insights on individual and combined energy technologies that could produce lowest-cost pathways to net zero. Furthermore, this call seeks to encourage transparency in modelling projects (e.g., modelling code, input and output data) to expand opportunities to compare results and better understand the impacts of different assumptions and methodologies.

It is important to recognize the complexity and interconnectedness of emerging low-carbon technologies and systems, as well as the value in accurately reflecting them in models. In Canada, this includes the diverse resources and energy systems across provinces and territories. This can help inform the public discussion of how best to leverage Canada's breadth of natural resources, existing infrastructure, and emerging opportunities.

Models can help Canadians understand the diverse portfolio of technological approaches which can mitigate potential costs and identify key opportunities for the transition. There have been considerable advances in energy modelling in Canada in recent years. However, the continued and accelerating transformation of the energy system suggests that efforts to enhance modelling must be continued. Therefore, there is value for Canadian energy system modellers to continue to:

1. Devote resources to the parameterization of emerging technologies,
2. Explore structural changes to the current energy system to enable the adoption of new technologies, and
3. Conduct modelling exercises which explore the implications of potential structural changes to current energy systems.

1.3 National Energy Systems Modelling Call Focus Area Objectives

The National Energy Systems Modelling Call aims to support public discussion and action on clean energy and climate change by:

- **Improving societal understanding of the energy system:** Energy modelling projects can help improve our understanding of the energy system, including how different technologies might impact energy supply, demand, and prices. Energy modelling can help identify key challenges and opportunities related to energy technology innovation as part of the energy transition.

- **Enhanced decision-making:** Modelling provides an opportunity to explore possible outcomes and futures. Modelling also requires explicit assumptions regarding the future and produces consistent outcomes, which is key to an evidence-based approach.

- **Transparency and accessibility:** Investment in the Canadian public modelling landscape will improve access to, and the transparency of the key tools required to participate meaningfully in Canadian energy discussions. Insight into modellers' data collection and calibration processes will spur constructive conversation around user assumptions and uncertainty.

- **Representation of new technologies:** Models should be updated to represent the latest developments in energy technology. Energy modelling can be used to explore technological gaps, but the initial representation of the technology in an up-to-date model is key to determining its long-term impacts.

- **Improved evidence base:** A robust, transparent ecosystem of models and practitioners serves to grow the evidence base around energy technologies, which is critical given the breadth of the energy transition challenge ahead.

2. Eligible recipients

2.1 Eligible Canadian recipients

Eligible Canadian Recipients will be:

1) Legal entities validly incorporated or registered in Canada including:
   - For profit and not for profit organizations;
   - Community groups; and
   - Canadian academic institutions.

2) Provincial, territorial, regional and municipal governments and their departments and agencies where applicable.

3) Indigenous:
   - Indigenous communities or governments
   - Tribal Councils or entities that fulfill a similar function (e.g., general council)
   - National and regional Indigenous councils, and tribal organizations
   - Indigenous (majority owned and controlled by Indigenous people) for-profit and not-for-profit organizations
   - For the purposes of this Applicant's Guide, the term "Indigenous" is understood to include Inuit, Metis, First Nation, Status Indian and non-Status Indian individuals, or any combination thereof

3. Eligible projects

3.1 Quantitative modelling of Canada's energy system at a national level

The National Energy Systems Modelling Call is open to projects which conduct quantitative modelling (e.g., simulation, optimization) of Canada's energy system at a national level, showing trajectories to net zero and how these are/could be affected by technological innovation.

Projects may focus on specific aspects of the energy system (e.g., buildings, electricity, industrial subsector) but must produce national, economy-wide GHG and energy results to demonstrate consistency with net zero.

The Call is designed to provide RD&D support to energy modellers focussed on technology in Canada. This Call funds both modelling exercises as well as model development. **These terms are defined below:**

Energy System Model R&D

Model Development: Defined as the development of executable computer code which can be used to analyze and manipulate data representing Canada's national energy system so that national greenhouse gas and primary energy supply and demand projections can be made at least until 2070.

- This can include the development of new models or the adaptation or further development of existing models.

- Please note that minor adjustments to existing models are a key component of any modelling exercise. For a project to be defined as completing "model development," it must be either a new model or a major structural revision of an existing one.
    - This could also include the development of a modelling system using existing models so that the objective (national greenhouse gas and primary energy supply and demand projections) can be met.

- Model development must specifically address limitations of existing models related to reflecting the impact of technological innovation.

- Model development must include dataset development.

All model R&D projects must demonstrate the model and/or dataset by including a modelling exercise as per requirements outlined below. R&D project evaluation will be weighted heavily toward this demonstration component.

Dataset Development: Defined as the development of quantitative and structural/qualitative information related to representing Canada's national energy system so that national greenhouse gas and primary energy supply and demand projections can be made at least until 2070 using an existing model.

- This can include primary data collection and/or desk research for the creation of synthetic data. Datasets must be developed in reference to a specific existing model, or a model being developed as part of the project.

- Key examples include the development of data on the electricity system, energy end-use, technology assumptions, or macroeconomic/demographic information of high relevance to energy system objectives.

- Please note that minor adjustments to existing datasets are a key component of any modelling exercise; for a project to be defined as completing "dataset development," it must be either a new dataset or a major revision to an existing one.

- Dataset development must specifically address limitations of existing models related to reflecting the impact of technological innovation.

All model R&D projects must demonstrate the model and/or dataset by including a modelling exercise as per requirements outlined below. R&D project evaluation will be weighted heavily toward this demonstration component.

Modelling Exercises/Model Demonstrations

Modelling Exercise: National-scale techno-economic and/or socio-technical analysis of modelling results related to the role of innovative technologies and practices in meeting national climate objectives, in the form of a report or other communication medium. Modelling results must be based on the outputs of executable computer code, which is designed to analyze and manipulate a dataset representing Canada's national energy system, so that national greenhouse gas and primary energy supply and demand projections can be made at least until 2070. Research questions and related sensitivity analysis must be clearly outlined. Output data must be presented and publicly available via an online visualization platform.

Model Demonstration: Identical to the above but using a model and/or dataset developed as part of the project.

3.2 Inclusivity, equity, diversity, and accessibility

3.2.1 Project governance and operations plan

NRCan recognizes the importance of a diverse and inclusive workforce to the resilience of Canada's economy and for the benefit of Canadian society. To support a diverse and inclusive energy technology sector, applicants will be required, as part of their EOI application, to indicate whether their organization has an Equity, Diversity, and Inclusion (EDI) Plan and, if so, what this plan entails. Applicants will also be asked if their organization has signed on to public equity and diversity initiatives such as Equal by 30.

While this information will not be evaluated, it may inform NRCan's efforts to select a balanced portfolio of projects across the country. This information may also be used by NRCan to track progress on increasing workforce diversity and to inform future program and policy development. Successful applicants will be asked to continue reporting on progress toward EDI in their organization through annual reporting during project funding and thereafter.

4. Funding and support

The National Energy Systems Modelling Call is open to projects that **request a minimum of $100,000 over a period of up to 3 years, up to a maximum contribution of $1 million**. The EIP provides non-repayable contributions.

Level of Funding	Eligibility	Maximum Project Length
Up to $1,000,000	Provided for model R&D or modelling exercises with the following conditions:	3 Years

	• all input (i.e., dataset) and output data is made publicly available so that the project can be replicated • all modelling code, interfaces, and resources are made publicly available	(preference will be given to shorter projects)
Up to $750,000	Provided for model R&D or modelling exercises with the following conditions: • **some input data* (however, all technology parameter input data must be made available), all output data, and all modelling code** are made publicly available, so that the project can be replicated using the same model if open source, or another model if not. • preference will be given to models/modelling systems and datasets which follow open-source principles	
Up to $500,000	Provided for model R&D or modelling exercises with the following conditions: • all output data is made publicly available**	

** Input data (i.e., dataset) is defined in the broadest possible terms, so that it could be used with a structurally similar model to replicate the analysis.*

*** All projects which qualify as 'dataset development' must release the full dataset, in addition to the conditions above.*

****Publicly available is defined as online access through a link or search engine without requiring any permission from or communication with the project team.*

Note: The MIT License is an open-source software license that proponents should utilize for modelling R&D (to qualify for up to $1,000,000 in funding). See below:

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the rights to use, copy, modify, merge, publish, distribute, sublicense,
and/or sell copies of the Software, and to permit persons to whom the
Software is furnished to do so, subject to the following conditions:
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4.1 Contributions

The minimum contribution, maximum contribution, maximum government stacking percentage, and project life are outlined in the table below:

Maximum Contribution Percentage (% of Total Eligible Project Cost)	Minimum Contribution	Maximum Contribution	Maximum Government Stacking Percentage (% of Total Eligible Project Cost)	Project Life
100%	$100,000	$1,000,000	100%	Up to 3 years

Total Project Cost refers to the total cost of the project and includes both Eligible Expenditures (defined in Section 5.1) and Ineligible Expenditures (defined in section 5.2). (Total Project Cost) = (Eligible Expenditures) + (Ineligible Expenditures). Total project cost does not include non-permissible expenditures (defined in section 5.3).

Maximum Contribution Percentage (% of Total Project Cost) refers to the maximum percentage of funding provided by the Energy Innovation Program for total project cost (cannot exceed the Maximum Contribution). The balance is to be leveraged and funded by the Recipient.

Minimum Contribution refers to the minimum amount of funding provided by the Energy Innovation Program for eligible project costs and must also align with the contribution percentage limitations.

Maximum Contribution refers to the maximum amount of funding provided the Energy Innovation Program for eligible project costs and must also align with the contribution percentage limitations.

Maximum Government Stacking Percentage (% of Total Eligible Expenditures) refers to the maximum level of total Canadian government funding (stacking) authorized by this call. Prior to signing contribution agreements, a Recipient will be required to disclose all anticipated sources (Canadian and non-Canadian) of funding for the proposed project, including approved in-kind funding, clearly identifying contributions from other Canadian government sources (federal, provincial, territorial, and municipal) and their associated stacking limits. **S**tacking limits must be respected when assistance is provided. In the event that actual Total Government Assistance to a Recipient exceeds the eligible

stacking limit listed in this guide, Natural Resources Canada (NRCan) will adjust its level of contribution (and seek reimbursement, if necessary) so that the stacking limit is not exceeded. Eligible expenditures are defined in Section 5.1. Note that other programs may have different stacking limits for federal funding, and it is the responsibility of the applicant to ensure that they are within the eligible range for their project across all funding programs they apply to.

4.2 In-kind contributions

In-kind contribution means a cash-equivalent contribution in the form of an asset for which no cash is exchanged but that is essential to the project and that would have to be purchased by the project proponent on the open market, or through negotiation with the provider, if it were not provided by the project proponent.

The call for proposals accepts in-kind contributions (defined in Section 9. In-kind Contributions – Costing Memorandum) as part of Total Project Costs, subject to the definitions and limitations described in Section 9. As per section 5.2 Ineligible Expenditures, in-kind support is ineligible for reimbursement.

4.3 Further distribution

Eligible recipients may further distribute funding to conduct approved project activities. Eligible Recipients will have independence in their choice of the additional recipients to which they further distribute funding, with minimal guidance from NRCan (as set forth in this Applicant's Guide) and will not be acting as an agent of the government in making distributions.

The roles and responsibilities of Eligible Recipients, including compliance with this Applicant's Guide, will be established through a contribution agreement with NRCan.

An Eligible Recipient that further distributes funding may incur up to a maximum of 15% of NRCan's Contribution to manage activities related to further distribution under a Contribution Agreement of this type and minimum of 85% to be further distributed.

5. Eligible, ineligible, and non-permissible expenditures

5.1 Eligible expenditures

Eligible Expenditures for an approved project must be directly related to, and necessary for, the implementation and conduct of a project and will include:

- Salaries and benefits for employees on the payroll of the Recipient for the actual time spent by the employees on the project
- Training and workshops
- Professional, scientific, technical and contracting services
- Travel expenditures, including meals and accommodation, based on National Joint Council Rates, adjusted to reflect costs in Northern and remote areas, where appropriate.
- Capital expenditures such as the purchase, installation, testing and commissioning of qualifying equipment, materials and products, including diagnostic, testing tools and instruments, and original equipment manufacturer equipment warranty (including extended warranties where deemed appropriate to mitigate risk and lack of capacity).
- Other expenses including:

    - Laboratory and field supplies, and materials;
    - Printing services and translation;
    - Data collection services, including processing, analysis and management;
    - Facility costs for seminars, conference room rentals etc. (excluding hospitality);
    - Construction Insurance;
    - Accreditation;
    - License fees and permits;
    - Honoraria;
    - Training; and
    - Field testing services.
- Overhead expenditures, provided they are directly related to the conduct of the project and can be attributed to it. Overhead expenditures can be included in the total project costs to a maximum of 15% of eligible expenditures. Overhead expenditures include:
    - Administrative and corporate support provided directly to the project by the Recipient's employee(s), valued on the same basis as professional staff time;
    - Routine laboratory and field equipment maintenance, based on the actual expenditure to a Recipient;
    - Office operating expenses directly related to the conduct of the project (e.g. faxes, telephone, photocopies, internet, SAT phones, and office equipment);
    - Costs associated with further distribution of funding.
    - A predetermined overhead percentage (based on evidence provided by the recipient of expected overhead expenditures at the time of contribution agreement negotiation), may be set and subsequently applied to each claim, in order to avoid unnecessary administrative burden to funding recipients.
- GST, PST or HST, net of any tax rebate to which the Recipient is entitled.

Further details are described in Section 8. Eligible Expenditures – Costing Memorandum.

5.2 Ineligible expenditures

Ineligible expenditures count toward total project costs and are included in a calculation of a program's contribution to a project, but cannot be reimbursed by the program.

The following costs are ineligible for reimbursement by the Program (but permitted as part of the proponent's contribution to the total project costs):

- All costs incurred within the Total Project Cost period but outside the Eligible Expenditure Period are considered as ineligible expenditures. All ineligible expenditures must follow the guidelines established in Section 5, Eligible Expenditures – Costing Memorandum.
- Overhead expenses exceeding 15% of eligible expenditures may be included as ineligible expenditures and count toward the proponent's portion of the total project costs, provided that the sum of overhead expenses (eligible plus ineligible) does not exceed 15% of the Total Project Costs.
- The reimbursable portion of federal and provincial taxes.
- In-kind contributions.

5.3 Non-permissible expenditures

Expenditures ineligible either for reimbursement or for inclusion as part of the total project costs (non-permissible costs) will be listed in the application materials. At minimum, the following costs are considered non--permissible:

- Purchase of land.

6. Application process

6.1 How to apply

As the National Energy Systems Modelling Call has a **reoccurring intake process**, please refer to the Modelling web page for the most up-to-date information on timelines for the current intake. The National Energy Systems Modelling call under the Energy Innovation Program has two phases:

- Expression of Interest (EOI) phase, open to all eligible applicants
- Full Project Proposal (FPP) phase, open to invited applicants only

Phase 1. Expression of Interest (EOI)
1. **Determine your eligibility to apply** – Review the Applicant Guide. 2. **Complete and submit an EOI.** 3. **EOI Evaluation** – Your EOI will be reviewed by a technical review committee. 4. **EOI Results** – NRCan notifies applicants of the EOI evaluation results and invites successful applicants to the FPP phase.
Phase 2. Full Project Proposal (FPP) – Invited Applicants Only
5. **Complete and submit an FPP.** 6. **FPP Evaluation** – Your FPP will be reviewed by a technical review committee. 7. **Project Selection** – NRCan notifies applicants of the FPP evaluation results.

To apply, applicants must complete and submit their **Expression of Interest (EOI)** via the application portal by **11:59 a.m. PT on the date shown in the Timeline table of the Modelling web page.**

Applicants are responsible for ensuring that they meet the eligibility criteria and that their EOI is fully completed and successfully submitted by the deadline. If applicants cannot meet the deadline of the current EOI intake period, they can resubmit at the next available date.

NRCan reserves the right to apply the following additional criteria when selecting projects at the EOI and FPP stages:

- Projects that support departmental priorities such as regional balance in Canada, advancing IDEA in the natural resources sector, and socio-economic considerations.

<< CLICK HERE TO ACCESS EOI PORTAL >>

6.2 Next steps and timelines

6.2.1 Full project proposal phase

NRCan will notify the applicants who are invited to the FPP phase and send them information on the FPP timelines and submission requirements.

Applicants must provide all mandatory information to be considered for funding. An invitation to the FPP phase does not represent a funding commitment from NRCan.

NRCan may request supplementary information at various points in the review process.

6.2.2 Due diligence assessment

All applicants selected for funding will undergo a due diligence assessment, which will include four main components: financial, technical, legal and regulatory due diligence. Selected applicants will have two months to fulfill all due diligence requirements.

As part of financial due diligence, selected applicants will be asked to complete a detailed budget and statement of work template which will be thoroughly assessed by the assigned NRCan project team. Applicants may also be selected by NRCan for a 3rd party financial audit or be asked to provide their three major financial statements (Cash Flow, Income & Balance Sheet) to evaluate the organization's financial health. Applicants will be asked to provide documentation to support budget estimates. Technical due diligence will be assessed by reviewing the applicant's detailed budget and statement of work template. A panel of science and technology advisors will evaluate project complexity, feasibility and timelines.

Applicants will be asked to provide legal proof of registration in Canada as part of the legal due diligence. Within the detailed budget and statement of work, there are sections dedicated to permits and conflict of interest, which are also part of the legal due diligence performed by NRCan.

As per sections 82 and 83 of the Impact Assessment Act (2019), NRCan must not provide financial assistance to any person for the purpose of enabling a project to be carried out, in whole or in part, on federal lands and/or outside Canada, unless NRCan determined that the carrying out of the project is not likely to cause significant adverse environmental effects. Thus, NRCan must perform regulatory due diligence by performing an environmental assessment and evaluating the duty to consult with indigenous groups. The full project proposal and detailed budget and statement of work template contain areas that are specifically used to fulfill this requirement.

Applicants undergoing due diligence will be notified whether their project passes the due diligence assessment. Applicants whose projects pass the due diligence assessment will be invited to work with NRCan to draft, sign, and execute a contribution agreement.

6.2.3 Contribution agreement

Any funding under the call will be contingent upon the execution of a contribution agreement. Until a written contribution agreement is signed by both parties, no commitment or obligation exists on the part of NRCan to make a financial contribution to any project, including any expenditure incurred or paid prior to the signing of such contribution agreement.

More information on NRCan contribution agreements will be made available to successful applicants following notification of the proposal results.

6.2.4 Timelines

As this call is intended to reoccur on an annual basis, please refer to the landing page for the latest timelines. NRCan, at its sole discretion, reserves the right to modify these anticipated timelines.

6.2.5 Service standards

NRCan maintains a suite of service standards on the expected timelines for each phase of program delivery. The service standards for NRCan's programs are available at the following link: https://natural-resources.canada.ca/transparency/reporting-and-accountability/plans-and-performance-reports/natural-resources-canadas-service-standards-for-transfer-payment-programs/22265.

7. Definitions

Accessibility: an overarching goal to realize a barrier-free environment through the proactive identification, removal and prevention of barriers in an organization's policies, programs, practices and services. A barrier could include anything that hinders the full and equal participation in society regardless of their distinct identities and needs. Removing accessibility barriers ensures all members of society are fully supported and have opportunities to advance

Contribution: means funding provided by Canada under the contribution agreement toward Eligible Expenditures.

Distribution system: is the portion of the electric system that is composed of medium voltage (or lower) sub-transmission lines, substations, feeders, and related equipment that transport the electricity commodity to and from customer homes and businesses and that link customers to the high-voltage transmission system.

Diversity: means the acceptance and respect of various human dimensions including race, gender, sexual orientation, ethnicity, socio-economic status, religious beliefs, age, physical abilities, political beliefs or other ideologies.

Due diligence start date: means the date on which the proponent was notified that it succeeded to the Due Diligence stage.

Eligible expenditure period: means that recipients will be allowed to start incurring eligible expenditures from the date a recipient's project has been conditionally approved (and pending a due diligence review) or April 1 of the fiscal year in which the contribution agreement is signed and ending on the contribution agreement completion date. Retroactive expenditures will be limited to 30% of NRCan's contribution.

Eligible expenditures: means those costs incurred within the Eligible Expenditure Period, either directly by the Proponent or through a third party, which are cash disbursements made with respect to the activities set out in the Proposal.

Equity: A condition or state of fair, inclusive and respectful treatment of all people based on their distinct identities and needs; removing systemic barriers to ensure all members are fully supported and have

opportunities to advance. Equity does not mean treating people the same without regard for individual differences.

IDEA: inclusion, diversity, equity and accessibility.

Inclusion: means the extent to which diverse members of a group (society/organization) feel valued and respected.

Indigenous: is understood to include Inuit, Métis, First Nation, Status Indian and non-Status Indian individuals, or any combination thereof.

Indigenous recipient: means an Indigenous community or government, Tribal Council, National and regional Indigenous councils, and Tribal organizations, and majority owned and controlled for-profit and not-for-profit organizations.

Indigenous-owned project: means a Project where there exists Meaningful Ownership by an Indigenous organization that is greater than or equal to 51%.

Meaningful ownership: means that the Indigenous share of ownership is significant enough to result in generational benefits for Indigenous communities

Northern communities: communities located north of the limit of isolated permafrost – approximately 50° north latitude

Remote communities: communities that are not currently connected to the North American electrical grid or the piped rural gas network and are a permanent or long-term (five years or more) settlement with at least 10 dwellings

Rural communities: communities that have a population of less than 5,000 people and a population density of less than 400 people per square kilometre and are not connected to the North American piped natural gas network.

Profit: means in relation to the project, net operating profit as determined by Generally Accepted Accounting Principles .

Project: means the Applicant's proposal, as submitted to NRCan.

Total project costs: means the Contribution and other verifiable contributions either received or contributed by the Proponent from the Due Diligence Start Date to the Completion Date and directly attributable to the Project.

8. Eligible expenditures – costing memorandum

8.1 Salaries and benefits

8.1.1 Salaries

Salaries include wages for all personnel with direct involvement in the project such as engineers, scientists, technologists, draftsmen, researchers, laboratory, experimental and shop labour. All eligible personnel must be employees on the Proponent's payroll. Payment in terms of shares, stock, stock

options and the like are not eligible. The amount invoiced shall be actual gross pay for the work performed and shall include no markup for profit, selling, administration or financing.

The eligible payroll cost is the gross pay of the employee (normal periodic remuneration before deductions). Normal periodic remuneration rates are the regular pay rates for the period excluding premiums paid for overtime or shift work. The payroll rate does not include any reimbursement or benefit conferred in lieu of salaries or wages. When hourly rates are being charged for salaried personnel, the hourly rates shall be the periodic remuneration (annual, monthly, weekly, etc.), divided by the total paid hours in the period including holidays, vacation, paid sickness time.

Labour claims must be supported by suitable records such as time sheets and records, and be held for verification at time of audit. Management personnel are required to maintain appropriate records of time devoted to the project.

8.1.2 Benefits

Benefits are defined as a reasonable prorated share of expenses associated with the direct labour cost such as the employer's portion of Canada Pension Plan, Quebec Pension Plan and Employment Insurance, employee benefits such as health plan and insurance, Worker's Compensation, sick leave and vacation plus any other employer paid payroll related expenses. Items such as salary bonuses and other salary incentives, stock options or vehicle use, which have no relationship to the project or which have been charged on an indirect basis are non-eligible. The determination of the fringe benefits amount shall be in accordance with generally accepted cost accounting principles. In general, fringe benefits rate provided in the project estimate shall be computed once during the life of the project and agreed on prior to the signing of the Agreement. If retroactive adjustments are made, these must be indicated on claims for progress payments for NRCan approval.

8.2 Professional, technical, and scientific contracting services

Sub-Contractors and Consultants: The nature of goods or services to be acquired shall be set out in the proposal estimate. The amount eligible from a sub-contractor or a consultant shall be the actual contract amount.

8.3 Travel, meals, and accommodation costs

Unless stated otherwise in the Contribution Agreement between the NRCan and the proponent, National Joint council rates that are in effect at the time of expenditure incurrence shall be used in reimbursing the following expenses:

Travel, food and lodging costs to meet with NRCan officials.

Travel, food and lodging costs necessary for other project activities, e.g. field trials and demonstrations at locations away from the proponent's usual location; project planning and review meetings between the principal proponent and its partner(s).

8.4 Capital expenditures

8.4.1 Materials

Materials include those consumed in carrying out the project, including those utilized in the production and operation of models, prototypes and pilot plants. Only utilities consumed to operate equipment or

processes are eligible and may be metered and reported separately from the total utility cost. Utilities used for buildings are not eligible.

Materials purchased solely for the project and issued from the Proponent's inventory are eligible. All materials shall be charged to the project at the net price excluding GST after deducting all trade discounts and similar credits. Surplus materials shall be credited to the project at the original purchase price.

8.4.2 Equipment

Equipment consists of equipment acquired or constructed exclusively for the project. In order to be eligible, such equipment must be identified in the project cost estimate, and approved by the Minister. All such equipment shall be charged to the project at the net price (excluding GST) after deducting all trade discounts and similar charges.

Where such equipment is obtained from another division of the Proponent or from a related company, the eligible expenditures shall not exceed fair market value and shall not include any markup for profit, administration, selling or financing expense.

8.5 Other expenses

8.5.1 Testing services

Eligible testing services are those conducted by testing organizations or accredited laboratories, such as the Canadian Standards Association, Underwriters Laboratories and must be essential to the success of the project. Testing services shall be charged at actual cost. Regulatory costs, where required may be eligible e.g. testing to comply with Environmental Standards. All such costs should be identified in the original proposal cost estimates.

8.5.2 Overhead expenses

With regard to Overhead Expenses, they may include:

- Administrative support provided directly to the project by the proponent's employee(s), valued on the same basis as professional staff time;
- Routine laboratory and field equipment maintenance, based on the actual cost to the proponent that is directly related to the project;
- Heat, hydro, and office operating costs (e.g. faxes, telephone), provided that they are directly related to the project.

Overhead costs will be negotiated and agreed to on an individual basis with project proponents before signing a contribution agreement. They will not exceed 15% of Eligible Expenditures.

9. In-kind contributions – costing memorandum

9.1 Purpose, definitions, eligibility, and value

9.1.1 Important note

The Program accepts in-kind contributions (defined below) as part of Total Project Costs, subject to the definitions and limitations described in this section. As per section 5.2 Ineligible Expenditures, in-kind support is ineligible for reimbursement.

Proposed in-kind contributions that are deemed acceptable by NRCan officials must be supported by a formal commitment from the project proponent to provide them, prior to any commitment on Program funding to the proposed project being made.

9.1.2 Purpose

The purpose of this section is to identify the kinds of non-cash contributions ("in-kind support") that are acceptable as part of the overall funding for the project from the project proponent, and to provide guidance on how to put a value on those contributions.

9.1.3 Definitions for this section

In-kind contribution means a cash-equivalent contribution in the form of an asset for which no cash is exchanged but that is essential to the project and that would have to be purchased by the project proponent on the open market, or through negotiation with the provider, if it were not provided by the project proponent.

Fair market value means the average dollar value the project proponent could get for a contributed asset in an open and unrestricted market, between a willing buyer and a willing seller (the proponent) who are acting independently of each other. As a guide, it should approximately represent the original cost minus the depreciation.

Most favoured customer means a customer given the deepest discount from the normal selling price for a good or service sold to it by the project proponent.

Project proponent refers to the funding recipient and its partners and collaborators.

Asset section means a useful and valuable good, service or other support provided to the project.

Internal rate means the rate that would be charged by the component of the project proponent that provides the service to the component of the proponent that receives it.

9.1.4 Eligibility of in-kind contributions

To be eligible as an in-kind contribution:

- The contributed asset must be from one of the categories identified below under the heading "Categories of Eligible In-kind Support".
- It must be essential to a project's success and would otherwise have to be purchased by the project proponent.
- Its value must be determinable and verifiable.
- Its valuation must be confirmed by NRCan officials or its auditors, and agreed upon by the project applicant and NRCan.

9.1.5 Assessing the value of in-kind contributions

Two different approaches to the valuation of in-kind support are possible:

Using the fair market value, as described above.

Using the incremental cost – the cost to the project applicant or its partners and collaborators of providing the contributed asset over and above normal operating costs.

9.2 Categories of eligible in-kind support

9.2.1 Salaries and benefits

This category addresses the provision of the project partner's employees' time to undertake work, such as research, technology development and assessment, and expert analysis that is wholly and directly in support of the project.

The value of services of an employee of the project's partner provided to the proponent should be at fair market value for the type of service provided and that these services are consistent with the duty for which the employee is normally paid.

9.2.2 Professional, scientific, and contracting services

This category addresses the provision of analytical and technical services. Analytical and technical services include routine laboratory and field technical services such as data collection, laboratory analyses and measurements, and field measurements, exclusive of equipment maintenance. These services may be provided by a component of the project proponent's overall organization, or provided to the project proponent by a third party.

The value of analytical and technical services provided by or to the proponent should be the lesser of the project proponent's internal rate for the service if that service is provided internally (i.e., within the project proponent's organization), or the incremental cost to the project proponent if it is provided by a third party.

9.2.3 Provision of equipment and laboratory and field supplies and materials

This category includes equipment, laboratory supplies and field supplies that are provided by or to the project proponent, and the provision of access to, and use of, proprietary software and databases owned by or provided to the project proponent.

Values assessed for equipment and laboratory and field supplies and materials provided to the project must meet the following criteria:

- The value of supplies and materials shall not exceed the selling price to the provider's most favored customer at the time of provision.
- The value of equipment shall not exceed the fair market value of equipment of the same age and condition at the time of provision.
- If the equipment is special purpose, one-of-a-kind, its value shall not exceed the cost to the provider of its design, testing and manufacture.
- The value of access to, and use of, proprietary software and databases should be the incremental costs to the project proponent of providing that access and use, such as staff time involved, including providing any required instruction on their use. Costs associated with developing the software or databases are ineligible as an in-kind contribution.

9.2.4 Travel, meals, and accommodation costs

Unless stated otherwise in the Contribution Agreement between the NRCan and the proponent, National Joint council rates that are in effect at the time of expenditure incurrence shall be used in assigning a value to the following expenses.

- Travel, food and lodging costs to meet with NRCan officials.

- Travel, food and lodging costs necessary for other project activities, e.g. field trials and demonstrations at locations away from the proponent's usual location; project planning and review meetings between the principal proponent and its partner(s).

9.2.5 Overhead expenses

With regard to Overhead Expenses, they may include:

- Administrative support provided directly to the project by the proponent's employee(s), valued on the same basis as professional staff time (as described under category 1);
- Routine laboratory and field equipment maintenance, based on the actual cost to the proponent that is directly related to the project;
- Heat, hydro, and office operating costs (e.g. faxes, telephone) telephone, provided they are directly related to the project.
- Overhead costs will be negotiated on an individual basis with project proponents. The total of overhead expenses (Eligible and Ineligible) will not exceed 15% of Total Projects Costs.

10. Reporting requirements

10.1 Outcome reporting

After entering into a contribution agreement with NRCan, proponents of successfully funded projects will be required to report on a quarterly and yearly basis to ensure that targets and objectives are being met.

As some outcomes may only be realized after funding has ended, ongoing data collection and assessment will be required for a period of three years following the project's completion date.

The frequency of reporting will be determined based on the risk of the recipient/project as established by the departmental risk management model but will include, at a minimum, annual reporting.

The reporting requirements for Recipients will be as follows:

10.2 On a regular basis

- A financial report signed by the Chief Financial Officer or Duly Authorized Officer of the organization which outlines eligible expenditures incurred;
- A project cash flow statement and/or budget;
- A report using a template supplied by NRCan that shall provide a status of activities in sufficient detail to allow progress to be evaluated and periodic tracking of performance indicators. The report should identify any concerns that NRCan should be made aware of, and explain how they are being addressed.

10.3 At the end of the project:

It will be considered to be the 'end of the project' once the final (if more than one) reporting, as outlined in the contribution agreement, has been completed to the satisfaction of NRCan. Reports may include:

- A financial declaration as to the total amount of contributions or payments received from other sources in respect of the Project;

- A financial declaration as to the total amount of Canadian government funding received in respect of the Project;
- A project completion report to describe how project activities have contributed to the achievement of the objectives of the project, which may include confidential information for internal government use only, including:
  - A review of the results of the project in comparison to the original deliverables and work plan, with explanations of any deviations;
  - A review of the project's performance measures to describe the benefits that have or will accrue as a result of the project including energy efficiency, environmental impact, costs and paybacks, and any other appropriate measures such as productivity and quality improvements;
  - A description of the Recipient's knowledge dissemination activities and/or tech transfer activities (where applicable); and
  - A final project cost table.
- A public report*-that describes the project and its results, which may be translated by NRCan and be made available to the Recipient for public dissemination by the Recipient and/or NRCan; and
- Where applicable, copies of any non-proprietary reports requested by NRCan arising from and prepared during the course of the project.

* Alternative means of public reporting that are more context and culturally appropriate may be substituted for Indigenous recipients.

10.4 For a period of 3 years following the end of the project

Annually, an updated Outcomes Report, using a template supplied by NRCan, to report on short term, intermediate term, and, to the extent possible, long-term outcomes. Regular communication between NRCan and the Recipients will be established to monitor progress.

10.5 Non-repayable contributions

Contributions under these programs will be non-repayable, as they will be for pre-commercial (Technology Readiness Level 1-9) activities and the benefits from the contribution will be accrued broadly rather than to the recipient. The projects being supported under these programs are pre-commercial in nature and thus not anticipated to generate revenues as the technologies require further adaptation, improvements, and de-risking to be commercially profitable.

This is in accordance with the Directive on Transfer Payments, Appendix E, Section E-15, which permits non--repayable contributions under such circumstances when "the benefits from the contribution accrue broadly rather than to the recipient". The benefits of these contributions will accrue broadly: the environmental benefits will include more efficient energy usage, increased renewable energy production, reduced impacts on air, water, and soil, among others, and these environmental goods will benefit Canadians as a whole. In the long term, the competitive benefits resulting from the program will also result in more sustainable employment. And economic development opportunities for Canadians, including Indigenous communities, in the natural resource sectors. Primary activities are also intended to provide input into policies, codes, standards, and regulations while enabling the transfer of knowledge

and building of capacity through implementing green technologies in Canada. This is of particular importance in Canada's remote communities.

10.6 Other terms and conditions

Approved projects may be subject to one or more external audits (recipient audits) to ensure that the terms of the contribution are respected. The requirements for recipient audits will be determined on a risk-based assessment on a project-by-project basis. This process is described in the Performance Measurement and Risk Strategy for the Program.

The conditions related to the disposition of assets acquired by the Recipient with funding provided by NRCan shall be identified in the contribution agreement.

11. Regulatory, reporting, and other requirements

11.1 Inclusion, diversity, equity, and accessibility (IDEA) workplaces and policies

NRCan recognizes the importance of a diverse and inclusive workforce for the resilience of Canada's economy and the benefit of Canadian society. To better understand applicants' approaches to creating more equitable and inclusive workplaces and policies, NRCan is collecting voluntary information that will be aggregated and anonymous. This information will be used to inform future outreach, program development, and efforts to promote IDEA in the clean energy sector.

11.2 Duty to consult

NRCan has a legal duty to consult with Indigenous groups when a contemplated Crown conduct, such as the provision of funding, may have adverse impacts on existing or potential Aboriginal or Treaty rights. Federal departments and agencies are responsible for understanding how and when an activity could have an adverse impact on Aboriginal or treaty rights, and consultation should occur prior to the federal government taking any action.

While applicants are not required to consult with Indigenous groups under EIP as part of the application process, they will be required to report at the FPP phase if they have already conducted consultation or engagement activities in relation to the project proposal or as part of their ongoing operations or corporate commitments.

11.3 Impact Assessment Act

As per the *Impact Assessment Act*, NRCan is required to assess whether RD&D projects carried out, in whole or in part, on federal lands are likely to cause significant adverse environmental effects. At the FPP phase, applicants will be asked to identify if the project will be carried out in whole or in part on federal lands. If so, an impact assessment may be required during due diligence for successful applicants.

11.4 Information-sharing permissions

During the application process, applicants will confirm whether they provide permission for NRCan to share their application with other relevant funding organizations. For projects that may not obtain funding under the Program, this will allow the Program to provide the opportunity for maximum exposure and guidance across other federal funding programs or providers.

11.5 The Clean Growth Hub

The Clean Growth Hub is a whole-of-government focal point for clean technology focused on supporting companies and projects, coordinating programs and tracking results.

Should you consent, the information you provide may be shared across federal departments/agencies, including but not limited to the departments and agencies represented in the Clean Growth Hub, with a view to assisting you in determining the federal programs/supports best suited to your needs. Pursuant to Paragraph 20(1) of the Access to Information Act, the Clean Growth Hub will not publicly disclose any information without permission.

11.6 Trusted partners

To facilitate co-funding with provincial/territorial and industry funders, NRCan is working in collaboration with a network of other funding organizations across Canada. By giving NRCan the authority to share your proposal with our "Trusted Partners" (TP), you allow NRCan to explore possible co-funding opportunities, referrals, or follow-on funding opportunities.

Please note that NRCan will only share these applications with TPs where NRCan has a non-disclosure agreement in place and for the purposes of referring proposals for funding consideration or exploring the possibility of co-funding.

11.7 Contact us

For any questions regarding the call, please contact NRCan at eipmodelling-piemodelisation@nrcan-rncan.gc.ca. During regular operations, NRCan will strive to respond within two business days.

11.8 Other conditions

- No Member of the House of Commons shall be admitted to any share or part of the contribution agreements, or any resulting benefit.
- Where appropriate, projects will be subject to appropriate environmental assessments prior to the release of any funds.
- The Proponent will comply with the *Conflict of Interest Act*, the Conflict of Interest and Post-Employment Code for Public Office Holders.
- Funding may be cancelled or reduced in the event that departmental funding levels are reduced by Parliament. Agreements will include provisions to this effect.
- Proponents will be required to acknowledge the financial support of Canada in all public information produced as part of the project.
- As part of project monitoring requirements, NRCan will have the right to visit and inspect all project sites, upon providing a reasonable notice to project proponents.

11.9 Confidentiality and security of information

The Access to Information Act (the "Act") governs the protection and disclosure of information, confidential or otherwise, supplied to a federal government institution. This Act is a law of public order; as such the Government of Canada, including NRCan, cannot contract out of it.

Paragraph 20 (1) (b) of the Act states that:

a government institution [such as NRCan] shall refuse to disclose any record requested under the Act that contains financial, commercial, scientific or technical information that is confidential information supplied to a government institution by a third party and is treated consistently in a confidential manner by the third party.

Pursuant to Paragraph 20 (1) (b) of the Act, NRCan will protect the applicant's confidential information supplied to NRCan from disclosure if:
The applicant's information supplied to NRCan contains financial, commercial, scientific or technical information; and
The applicant consistently treats such information in a confidential manner.

Accordingly, NRCan will protect the applicant's confidential information in its possession to the same extent as the applicant protects said confidential information in its own establishment: if the applicant chooses to send the proposal or other confidential information to NRCan by e-mail, NRCan will respond to the Proposal by e-mail. Similarly, if the applicant's correspondence is through regular mail, NRCan's response will be in like manner. However, in all cases, NRCan will use e-mail correspondence to the applicants for all non-confidential matters.

NRCan recognizes that e-mail is not a secure means of communication, and NRCan cannot guarantee the security of confidential information sent via e-mail while it is in transit. Nonetheless, applicants who regularly use e-mail to communicate confidential information within their own organizations may choose to interact with the program via the program's email address: at eipmodelling-piemodelisation@nrcan-rncan.gc.ca.

For more information on this subject, a careful reading of the entire section 20 of the Access to Information Act is greatly encouraged.

12. Disclaimer

NRCan reserves the right to alter or cancel any call for expressions of interest, call for proposals, funding amounts and/or deadlines associated with any program component, or to cancel any application process at its sole discretion. Any changes will be communicated to registered applicants via the NRCan website.

Any costs incurred for the submission of any EOI or of FPP are at the project applicant's own risk. In all cases, any funding under any submission, review and assessment process will be contingent upon the execution of a contribution agreement.

Until a written contribution agreement is signed by both parties, no commitment or obligation exists on the part of NRCan to make a financial contribution to any project, including any expenditure incurred or paid prior to the signing of such contribution agreement.