

Intake Guidelines Document for Round 5 Applicants

Cleantech Competition for Natural Gas Production

Natural Gas Innovation Fund
Investment Intake Stage
Expression of Interest

Submission: email to application@ngif.ca

Submission Due Date: 3PM Eastern Standard Time December 19, 2019

BIRCHCLIFF
ENERGY


Canadian Natural


Chevron


PERPETUAL
ENERGY


PETRONAS



 **TOURMALINE**
OIL CORP.

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LEGAL NOTICE

By submitting an NGIF Expression of Interest, you confirm that you read, understand and accept the information contained below, in that each of you, the applicant (the “Applicant”) and any project partners, agree as follows:

- a) The Natural Gas Innovation Fund (NGIF) may at any time suspend, terminate, cancel, withdraw, amend or alter all or any portion of the NGIF Expression of Interest requirements, including the NGIF Expression of Interest selection and review process and the NGIF Expression of Interest eligibility criteria.
- b) The NGIF reserves the unqualified right to accept or reject any or all NGIF Expression of Interests for any reason. The NGIF is not required to accept the highest-ranked NGIF Expression of Interest nor is it required to accept any NGIF Expression of Interest recommended for advancement to the NGIF Investment Proposal stage by the applicable evaluators.
- c) The final decision with respect to the projects to be included in the NGIF Expression of Interest shortlist rests solely with the NGIF Investment Committee (“Investment Committee”). The evaluation of the NGIF Expression of Interest may be based on, but is not in any way limited to, the criteria set out in this NGIF Expression of Interest. The NGIF Investment Committee may consider any criteria determined to be relevant to the mandate of the NGIF, regardless of whether such additional criteria have been disclosed to the Applicant.
- d) NGIF Expression of Interests that do not comply with the requirements described in this document may be rejected in whole or in part or not considered by the NGIF. The NGIF reserves the unqualified right to accept or reject a non-compliant NGIF Expression of Interest.
- e) This NGIF Expression of Interest Intake process is by invitation only. It is not an offer, and the submission of an NGIF Expression of Interest does not create a contract or agreement of any kind between the NGIF and the Applicant.
- f) No conduct, act or omission of NGIF, or their directors, officers, consultants, project advisors, agents, servants and their respective successors and assigns (collectively the “Funding Parties”) other than a notice to the Applicant in writing signed by an authorized person for NGIF, will constitute an acceptance of an NGIF Expression of Interest.
- g) Acceptance of an NGIF Expression of Interest does not create any binding contract between the NGIF and the Applicant. The NGIF shall not be obligated in any matter whatsoever to any Applicant until a written contribution agreement (“Contribution Agreement”) between the NGIF and the Applicant has been duly executed relating to an approved NGIF Investment Proposal.
- h) As between the parties, the NGIF Expression of Interest and all documents and materials you submit to the NGIF in connection with the NGIF Intake stage (other than information relating to the Applicant incorporated in the NGIF Expression of Interest but not directly connected to the NGIF Expression of Interest Intake process) are the exclusive property of the NGIF immediately upon delivery to the NGIF. For clarity, this refers to the materials themselves, not to any technology or innovations disclosed or discussed in them. Intellectual property

developed during the course of the project will be addressed through the Contribution Agreement and will normally be owned by the Applicant.

- i) You, the Applicant, and any Project Partners, being organizations responsible for carrying out specific project activities in the manner and scope as agreed between partners with lead partner being the Applicant, will keep the NGIF Expression of Interest (other than information relating to the Applicant incorporated in the NGIF Expression of Interest but not directly connected to the NGIF Expression of Interest Intake process) confidential and will not use, reproduce or distribute it, any portion of it, or any data, information, drawings, or specifications included in or provided with it except as necessary to prepare an Investment Proposal as requested by the NGIF.
- j) The NGIF will not have any liability whatsoever to you, the Applicant or any Project Partners, or any of them, in connection with this NGIF Expression of Interest Intake process or NGIF Investment Proposal in response to it.
- k) You, the Applicant, and any Project Partners will not make a claim against the NGIF for any reason whatsoever or howsoever relating to the NGIF Expression of Interest Intake process. You are undertaking the expenditures required to prepare and submit an NGIF Expression of Interest entirely at your own risk, and you waive any right relating to, and release the NGIF from, any demands, liability, claim or recovery for costs, expenses, or damages incurred whatsoever or howsoever arising out of or relating to this NGIF Expression of Interest Intake stage or any NGIF Investor Presentation in response to it, whether such right or claim arises in contract, negligence or otherwise.
- l) The NGIF takes no responsibility for the accuracy of the information supplied in the NGIF Expression of Interest Intake process by the NGIF.

1 INTRODUCTION

1.1 Natural Gas Innovation Fund

The **Natural Gas Innovation Fund** (“NGIF”) was created by the Canadian Gas Association (CGA) to advance cleantech innovations in the natural gas value chain. NGIF has a mandate to fill technology development gaps in the sector and invest in enabling solutions for current and emerging challenges facing the industry. Our focus is to advance clean technologies that improves environmental outcomes, increases economic competitiveness and eliminate/ reduce barriers for prolonged sustainability.

NGIF is funded by the natural gas industry. Our Natural Gas Production investors include Birchcliff Energy Ltd., Canadian Natural Resources Limited, Chevron Canada Limited, Perpetual Energy Inc., PETRONAS Energy Canada Ltd., Shell Canada Limited and Tourmaline Oil Corp. Our Natural Gas Distribution investors include ATCO, Enbridge Gas Distribution Inc., FortisBC Inc., Pacific Northern Gas Ltd. and SaskEnergy.

With access to pooled capital, leveraged intelligence and a combined backyard across Canada to field test innovation, the natural gas industry can identify and accelerate cleantech projects led by startups and organizations with the right innovation for market uptake and commercial viability.

1.2 Round 5 – Cleantech Competition for Natural Gas Production

NGIF is making up to \$3.0 million (CAD) in reimbursable grant funding available to advance cleantech solutions directed at sustainable production and operations, and improving environmental stewardship in the production of natural gas (upstream sector) in Canada. NGIF is offering up to \$1.0 million (CAD) per project, representing as much as 25% of a project’s eligible expenses.

This **Round 5 – Cleantech Competition for Natural Gas Production** (“Funding Call”) will allow NGIF to select high-quality projects for potential funding. Each proposal undergoes a two-stage application and evaluation process.

Stage-1 NGIF Investment Intake	“Expression of Interest”
Stage-2 NGIF Investment Evaluation	“Investment Proposal”

This document provides information, guidance and requirements for submission of Expression of Interest for Stage 1 NGIF Investment Intake Stage. Only successful applicants from NGIF’s Investment Intake Stage 1 - Investor Deck will be invited for submission of Investment Proposal. No unsolicited Investment Proposals will be accepted. An overview of NGIF’s Investment process can be found on the NGIF website at: <http://www.ngif.ca/process/>

NGIF's Cleantech Competition for production of Natural Gas presents an opportunity to work together with our trusted partner, Emissions Reduction Alberta (ERA), to explore co-funding opportunities and reduce administrative burden for applicants. NGIF's competition is particularly well-aligned with ERA's Natural Gas Challenge, that is advancing innovative technology solutions that reduce GHG emissions across Alberta's natural gas value chain, including **upstream, midstream, and downstream operations**.

The deadline for submissions of NGIF Expression of Interest is 3 PM Eastern Standard Time, Thursday, December 19, 2019. Applicants are required to submit their application through email to application@ngif.ca

2 Call for Proposals Scope

2.1 Strategic Investment Area

The focus for this funding call, directed at natural gas production (Upstream), is to advance leading technologies in Canada. NGIF intends to accelerate technology with near-term market potential (<5 years).

- **Focus Area 1 – Sustainable Production and Operations:**

Breakthrough and emerging clean technologies that can improve the environmental performance and economics of subsurface assets, field development, and operating facilities including surface facilities. Technologies of interest include (but are not limited to):

- New technologies that can lower freshwater use associated with energy resource extraction.
- New clean technologies in field processes and equipment optimization; including energy efficiency improvements; water reduction/reuse, electrification; waste heat recovery and utilization; additional enabling technologies including sensors, artificial intelligence; etc.

- **Focus Area 2 - Improving Environmental Stewardship:**

Breakthrough and emerging technologies that contribute to meet or exceed environmental regulations at significantly lower costs. Technologies of interest include (but are not limited to):

- New clean technology development including methane monitoring; full spectrum emissions mitigation; advanced waste and water management technologies; reduced land disturbances; etc.

**Cleantech (clean technologies): referring to any process, product, or service that reduces negative environmental impacts which are economically competitive with, if not superior to, their conventional counterparts and "beyond business as usual".*

Applicants must note that technologies of interest indicated above are not limited to examples specified. In case of any uncertainty on technology suitability and relevance, please contact us at application@ngif.ca.

2.2 Stage of Development

This call for proposal is seeking projects to advance clean technologies currently at the stage of **Technology Readiness Level (TRL)**:

- | | |
|------------------------------|-----------|
| 1. Sub-surface | : TRL 4-9 |
| 2. Surface facilities | : TRL 7-9 |
| 3. Environmental Stewardship | : TRL 4-9 |

For the purpose of this call for proposals, the Technology Readiness Level (TRL) is defined as below:

- **Prototype Development (TRL 4-5):** At this stage of development, the technological components have been integrated and the concept has been proven. Projects in this category include technology improvement, development of a prototype system, and prototype testing in a simulated operational environment.
- **Prototype Testing in relevant environment (TRL 6):** At this stage of development, the technology is tested in relevant environment. Projects in this category include testing a prototype, integrated with existing systems, if applicable, in a laboratory environment or in a simulated operational environment. Engineering feasibility demonstrated.
- **Field Pilot (TRL 7):** At this stage of development, the technology is ready to be field tested in an operational environment. Projects in this category include scale up of prototypes to representative pilot scale demonstration and subsequent in-field demonstration testing of pilot units.
- **Demonstration (TRL 8):** At this stage of development, the technology is approaching the final commercial product and representative systems have been built. Projects in this category include demonstration of near or fully-commercial scale systems in an operational environment.
- **Commercial Implementation (TRL 9):** At this stage, the technology is ready for commercial deployment. Projects in this category will involve design, construction, and operation of the technology in its final commercial form, with the intent to operate the technology for its full commercial life.

2.3 Project Category

NGIF Investor Decks must be for projects with clean technology in any of the strategic investment areas defined in section 2.1 and must demonstrate value for natural gas distribution industry

- Clean technologies can come from anywhere in the world.
- Reduce the quantity of GHG emissions, air quality impact, water usage, and/or other quantifiable environmental impacts resulting in clean air, clean water, and clean soil when producing the same or greater volume of natural gas.
- Demonstrate the first of its kind solutions in the natural gas industry.

NGIF encourages projects that are led by or partnered with First Nations organizations to apply. The ability to build effective and mutually beneficial relationships with Aboriginal and Indigenous People is considered an asset for project evaluations.

2.4 Project Financial Requirement

NGIF will execute a Contribution Agreement with the applicant once the applicant demonstrates that the balance of project funds is committed. The applicant shall submit contribution agreements, financial statements, bank statements, and any other information as requested by NGIF to establish whether this balance funding is secured.

2.5 Project Partner Requirement

The applicant can form a partnership with other organizations to carry out specific project activities in the manner and scope as agreed between parties. The lead partner in such a case shall always be the applicant. Partners can represent companies in the value chain of the technology to be developed and demonstrated.

3 TERMS OF FUNDING

NGIF funding is provided for completion of a project with well-defined objectives, milestones, deliverables and timelines. Applicants must clearly delineate the scope of the project for which the funding is being requested. Any related work completed before the project term or concurrently but outside the scope of the proposed project may be discussed in the proposal but should be clearly indicated as such.

3.1 Funds

The Natural Gas Innovation Fund (NGIF) is making up to \$3 million (CAD) in reimbursable grant funding available for this funding round. Eligible projects can apply for up to \$1 million (CAD) per project. Final approval of funding is subject to the discretion of the NGIF and the availability of funds.

If the technology or the product developed under the project is commercialized or used by the Recipient in a manner that provides economic benefits to the Recipient, Canadian Gas Association (CGA) will be entitled to a reimbursement of the CGA Contribution plus a percentage by receiving the payments from the share of the profits. The terms of the reimbursement will be discussed at the “Contribution Agreement” stage.

3.2 Cost Sharing

The maximum contribution by NGIF to a single project will be no more than **25%** of the project’s eligible expenses.

There must be a minimum contribution from the recipient to the project eligible cost in the form of cash, in-kind goods or services or the combination thereof that demonstrates the capacity and financial commitment of the recipient to the project.

For information about eligible expenses and costs, please refer to the NGIF’s *Eligible Expenses and Cost Instructions* document.

Note: Applicants must justify the amount of funding requested. NGIF may choose at its sole discretion to award project funding for less than the requested amount.

3.3 Project Term

The maximum project length for a funded project is **three (3) years**.

3.4 Eligibility

This is directed at Canadian or international small and medium-sized enterprises (SMEs), including technology development start-ups. The following definitions are used:

- Small and medium-sized enterprises are non-subsiary, independent technology development firms that employ fewer than 500 employees.

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- Technology development start-ups are non-subsidiary, independent technology development firms that employ fewer than 100 employees, generate less than CAD 25M in annual revenues and are focused on developing and scaling up pre-commercial technologies.

3.5 Project Initiation

Projects may commence at any time after the date on which the applicant is notified that NGIF has approved the project. However, no disbursements will be made before the execution of the NGIF Contribution Agreement. Project costs incurred before receiving notification of the NGIF decision will not be considered eligible as matching funds and will not be eligible for NGIF contributions. Furthermore, applicants are advised that project costs incurred prior to the execution of the NGIF Contribution Agreement will not be reimbursed by NGIF if an agreement is not executed or the costs fail to meet eligibility criteria (at the sole discretion of NGIF).

3.6 Project Location

The project must be demonstrated at a natural gas production site in Canada owned by one of the following natural gas producers:

- Birchcliff Energy Ltd.
- Canadian Natural Resources Limited
- Chevron Canada Limited
- Perpetual Energy Inc.
- PETRONAS Energy Canada Ltd.
- Shell Canada Limited.
- Tourmaline Oil Corp.

3.7 Trusted Partner Funding Leverage

NGIF is working in partnership with other funding organizations across Canada. In some cases, there may be an opportunity for NGIF to share applicants' proposals with trusted partners and explore possibilities to leverage funding available from these organizations.

During the submission process, applicants will have the opportunity to have their submissions shared with NGIF's trusted partners. Please note that NGIF will only share these applications for the purposes of exploring further funding leverage and with partners where NGIF has a non-disclosure agreement in place. An applicant's preference regarding whether to allow sharing of their application will not influence NGIF's assessment of their proposal.

NGIF has trusted partner relationship with:

- Natural Resources Canada (NRCan)
- Emissions Reduction Alberta (ERA)
- Alberta Innovates (AI)
- Province of British Columbia Innovative Clean Energy ICE Fund (ICE Fund)
- Innovation Saskatchewan
- Ontario Center of Excellence (OCE)

3.5.1 Emissions Reduction Alberta (ERA)

NGIF's *Cleantech Competition for Natural Gas Production* is particularly well-aligned with the Emissions Reduction Alberta's Natural Gas Challenge for cleantech innovation in the natural gas value chain (Upstream, Midstream, and Downstream). NGIF and ERA will work together to explore co-funding opportunities, reduce administrative burden for applicants, and provide innovators with access to potential industry partners.

ERA has launched a \$50 million Natural Gas Challenge call for proposals targeted toward start-ups, SMEs, industry, large organizations, universities, and individuals that will run in parallel with NGIF's *Cleantech Competition for Natural Gas Production*. ERA would consider opportunities that are able to demonstrate reductions in GHG emissions and have a plan for technology deployment in Alberta at commercialization.

Applicants who would like their NGIF proposal to be shared with ERA for consideration under the ERA call will have the opportunity to do so during NGIF's submission process by submitting "Consent to Disclosure of Information" along with their NGIF Expression of Interest. Similarly, applicants who submit proposals to ERA through their current \$50 million call may choose to be considered for NGIF funding if their applications meet all of the submission requirements described in Section 4 below and submit to ERA before NGIF's *Cleantech Competition* deadline. For further details about ERA's \$50 million call, please see <http://www.era.ca/>.

4 SUBMISSION DETAILS

4.1 Submission Deadline

All required content must be submitted via email to application@ngif.ca by 3 PM Eastern Standard Time **December 19, 2019**.

4.2 Submission Standards

Applicants shall submit a complete and comprehensive Expression of Interest in the template provided by NGIF. As this is a competitive process, the quality of submission in terms of clarity, completeness, and relevance to the natural gas upstream sector will be assessed. Applicants with incomplete and non-clear submissions will be rejected.

Applicants must submit their NGIF Expression of Interest via email to application@ngif.ca.

Applicants who would like their NGIF proposal to be shared with ERA for consideration under the ERA call will have the opportunity to do so during NGIF’s submission process by submitting “Consent to Disclosure of Information” along with their NGIF Expression of Interest.

The final Expression of Interest document must be submitted in PDF format and may be no more than twelve (12) letter-sized (8.5” x 11”) pages in length, including all text, graphics, and tables. Any extra pages beyond the limit will be removed from the document and will not be considered by the evaluators. The document must use Calibri (or Arial) 11-point font with a minimum of 1.0 line spacing. Margins must be no smaller than 2.54 cm (1”). Only one document may be uploaded per submission.

Note: Questions for the NGIF Investment Intake Stage - Expression of Interest process that is not fully addressed in this document can be sent to application@ngif.ca. Through this contact address, applicants will be directed to appropriate personnel within NGIF to address their questions.

4.3 Timeline

The following timelines are anticipated for NGIF’s full funding process. Note that NGIF reserves the right to alter or cancel the currently anticipated process and deadlines.

Date	Investment Process Step
October 30, 2019	NGIF’s Call for Funding Applications
December 19, 2019	Expression of Interests Due
February, 2020	Stage-1 Consensus Meeting, NGIF Innovation Committee
February, 2020	Invitation to Submit Investment Proposals (NGIF and/ or other “Participating Funding Partners”)
March, 2020	Investment Proposals Due
April, 2020	Site Visits
June, 2020	Applicants’ in-person Presentation to NGIF’s Innovation Committee
June, 2020	Stage 2 Consensus Meeting, NGIF Innovation Committee
July, 2020	NGIF Investment Committee Meeting – Investment Decision

5 EVALUATION

5.1 Evaluation Criteria

NGIF Expression of Interests will be evaluated based on the following five criteria:

1. Project objective and scope including
 - Technology innovation (scientific basis, intellectual property, competing technologies)
 - Output benefits (economic, environmental, social)
2. Relevance to the natural gas industry (value proposition for end-user, market size, business case – economic model, commercialization pathway, market roll-out)
3. Management capability of the company and the project partners
 - Strong and relevant technical and commercial experience, a track record of attracting investors and strategic partners, managing projects of similar size and complexity
 - Robust project management team with all relevant project delivery resources and partners
4. Project work plan - clear and appropriate workplan
5. Project finance and budget (project funding, financial strength, budget with risk management plan)

5.2 Screening Criteria

In addition to the evaluation criteria above, projects will be screened to ensure they meet the following factors:

- The applicant meets the eligibility criteria defined in section 3.4;
- The proposed development has sufficient potential for demonstration or deployment for application in to Canada's natural gas production sector;
- The proposed development carries the limited risk of detrimental side effects (e.g. environmental degradation);
- Sufficient information is provided for a proper evaluation;
- Technology Readiness Level (TRL) of the project (beginning and end);
- The NGIF Expression of Interest is comprehensible and easy to read;
- The NGIF Expression of Interest conforms to the submission standards (see Section 4);
- The project is innovative and advances business as usual in the natural gas production sector.

5.3 Evaluation Process and Next Steps

The applicants with NGIF Expression of Interests that are rated highly, determined to be of sufficient quality, and are well aligned with the NGIF mandate will be invited to submit an NGIF Investment Proposal as part of Stage 2.

Further information regarding the NGIF Investment Proposal submission, including evaluation criteria and timelines, will be made available at the time the NGIF Investment Proposal invitations are made.

5.4 Note on Proposal Quality

This is a highly competitive process, and not all projects will be short-listed. Success at the NGIF Expression of Interest stage depends on the quality of the NGIF Expression of Interest submitted. Only high-quality NGIF Expression of Interests will be invited to submit Investment Proposals to “Participating Prospective Funding Partners.” In this regard, “quality” means both the quality of the proposed project relative to the evaluation criteria and the quality of the written proposal (clarity, completeness, etc.).

6 INTELLECTUAL PROPERTY

Intellectual Property will be addressed through the NGIF Contribution Agreement negotiated between NGIF and the successful Applicant and will be specific to the circumstances of each project. However, a few general principles apply:

- Background IP (patents, copyright, software) and third-party technology remain with its original owner(s).
- All IP Rights in Project IP remains vested in the Recipient.
- NGIF retains rights to the project research results, including without limitation the technical data, reports, analysis, and discussion.

7 CONFIDENTIALITY

NGIF shall keep confidential all information disclosed to them by the other party relating to this invitation or approved project, except information which:

- Is part of the public domain;
- Becomes part of the public domain other than as a result of a breach of these provisions by either party;
- Either party is required to disclose pursuant to applicable Laws or by a Governmental Authority;
- Can be demonstrated to have been known or available to either party or independently developed by either party;
- Was received in good faith from an independent person who was lawfully in possession of such information free of any obligation of confidence; or
- Is released in accordance with the provisions of the NGIF Contribution Agreement or by the written authorization of both parties.