

Call for Proposals:
Monitoring Technologies for
Northern, Offshore & Oil Sands Environments

Application Deadline: 17 January 2014

LOOKNorth is soliciting proposals from small and medium sized enterprises (SMEs), researchers and academics based in Canada. Proposals are sought for technology demonstration projects, technology development projects that promote advancement of technology towards commercial readiness, and capability studies for remote sensing and in-situ monitoring technologies that can add significant value in the sustainable development of Canada's Northern, offshore and oil sands resources.

About LOOKNorth

LOOKNorth is a national Centre of Excellence for Commercialization and Research (CECR) under the Government of Canada's Network of Centres of Excellence program (www.nce-rce.gc.ca). LOOKNorth supports responsible, sustainable development of Canada's Northern natural resources through implementation of innovative remote sensing and monitoring technologies.

Funding for LOOKNorth is provided by the Government of Canada (through the CECR Program) and by the Province of Newfoundland & Labrador (through the Department of Innovation, Business and Rural Development and the Research & Development Corporation).

Program Description

LOOKNorth's Technology Validation Program (TVP) promotes development, demonstration and deployment of remote sensing and other monitoring technologies in support of the responsible, sustainable development of Canada's Northern natural resources including the Oil Sands and offshore oil and gas reserves. The objective of the TVP is to demonstrate and validate technology applications as a precursor to long-term implementation of these technologies to support resource development. Sectors of interest are oil & gas, mining, hydro-electric power generation, as well as transportation services and infrastructure that support these industries.

LOOKNorth invites Canadian SMEs and R&D organizations to submit proposals on priority themes or technical areas of interest that address information needs of the resource sector.

This call for proposals includes the opportunity for collaboration with the following partners: the Province of NL Innovation, Business and Rural Development (IBRD), the Research & Development Corporation (RDC) Newfoundland, and Atlantic Canada Opportunities Agency (ACOA). Proponents based in Newfoundland and Labrador may be eligible for complimentary funding based on their project's eligibility with the collaboration partner programs.

Interested applicants are strongly encouraged to consult with LOOKNorth to determine suitability of the project and optimize the submission process.

Eligibility

Proposals will be accepted from Canadian small and medium size enterprises (SMEs), research and development (R&D) organizations and academic researchers. All proposed projects considered for funding must demonstrate a strong commercialization component.

Proposals are invited for three project streams:

1. **Demonstration projects** are sought primarily from SMEs and should propose technologies that are at technology readiness level (TRL) 7 (http://esto.nasa.gov/files/trl_definitions.pdf) or above. Suitable performance metrics for successful projects and commercialization impacts can be defined.

For projects to be considered for funding under the **Technology Demonstration** stream, the proposal must demonstrate a confirmed commitment from an end user industry partner to support the project. As a minimum, the industry sponsor should recognize the information gap and the need for the proposed solution as well as commit to supporting the proposed field validation with a combination of cash and support in-kind. Preference will be given to projects where the industry sponsor indicates interest and willingness to adopt the technology within their operations if it is successfully validated.

2. **Development projects** are sought primarily from R&D organizations and academic researchers and should propose technologies considered to be at TRL 4 (http://esto.nasa.gov/files/trl_definitions.pdf) or above. These projects should advance the technology to higher TRL levels closer to a commercial-ready state. An end-user-defined gap and a commercialization strategy are critical to the success of these projects.

A demonstrated commitment of end user support is not mandatory for **Technology Development** projects. However, to be considered for LOOKNorth funding, proposals for technology development projects must address an information gap recognized and documented by one of the targeted resource industries and include a commercialization plan for the results that address this information gap.

3. **Technology reviews and capability studies** that result in a better understanding of the science and the current state of technology development in areas including but not necessarily limited to oil leak detection, mammal monitoring, water quality and quantity monitoring and gas emission, as they may apply to Northern resource development issues.

Technology reviews and capability studies will engage subject matter and technology experts to review and report on the current state-of-the-art technological capabilities to address the needs of the thematic areas. The solutions evaluated must make use of remote sensing technologies, defined as technologies that monitor from a distance with minimal local infrastructure requirements. These sensors can be mounted on EO satellite platforms, as well as aerial surface and underwater platforms depending on the application.

The technologies reviewed must address the specific needs of harsh remote environments such as Canada's Arctic and should be close to a pre-commercial technology or service, or the application of a technology that has not been demonstrated in the northern environment and is ready for commercial validation or demonstration to industry. Promising technological solutions may be matched with industry needs to form future Technology Validation Projects with the objective to bring technologies into commercial use by industry. Successful proponents of Technology reviews will be eligible to submit proposals for technology validation projects that may result.

Funding

LOOKNorth will contribute up to 50% of eligible project costs.

For **Demonstration** and **Development** projects led by Canadian SME and R&D organizations, the following conditions apply:

- LOOKNorth will fund up to 50% of eligible costs, to a maximum of \$200,000 of LOOKNorth funds per project.
- Projects should be no more than 24 months duration.
- Co-funding can be a combination of resource sector sponsor and SME cash and in-kind contributions. Preference will be given to projects with greater resource sector co-sponsorship, as this indicates strong end user interest and commercialization potential.

For **Demonstration** and **Development** projects led by Newfoundland and Labrador-based SMEs and R&D organizations that are eligible for complimentary funding, the following may also apply:

- LOOKNorth will fund up to 50% of eligible costs, to a maximum of \$200,000 of LOOKNorth funds per project, with opportunity for additional collaborative funding that will, together with LOOKNorth funding, support up to 75% of eligible costs for qualifying projects. Depending on the proponent and the nature of the project, elements of the project may qualify for collaborative funding from RDC, IBRD and/or ACOA.
- LOOKNorth will coordinate the submission with the partner organizations to support a collaborative funding approach.

For **Technology reviews and capability studies** the following conditions apply:

- LOOKNorth will fund up to 50% of eligible costs, to a maximum of \$25,000 of LOOKNorth funding per approved study.
- Review and study projects should be no more than 6 months duration.
- Co-funding can be a combination of resource sector and SME cash and in-kind contributions, with preference given to projects with matching SME or resource sector co-sponsor funding.

Intellectual Property

Any intellectual property developed as a result of a TVP project shall belong exclusively to the Proponent and LOOKNorth will not obtain or attempt to obtain any right, title or interest in the technology or products arising from the Project or in any intellectual property rights inherent therein.

LOOKNorth reserves the rights to access the data and results created as a result of the project for audit purposes.

Eligible Costs

Eligible costs are defined in the Tri-Agency Financial Administration Guide, which can be found at:

http://www.nserc-crsng.gc.ca/Professors-Professeurs/FinancialAdminGuide-GuideAdminFinancier/FundsUse-UtilisationSubventions_eng.asp

Generally, eligible costs include reasonable costs associated with performing the Project, such as: salaries for technical and professional staff (i.e., payroll costs plus a maximum of 20% burden); materials and supplies; and travel and accommodations for on-site demonstrations/validations.

For NL-based submissions, other costs may be considered as eligible depending on collaboration partner guidelines and can be discussed on a case-by-case basis.

Schedule

06 December 2013	Publication of Call from Proposals
17 January 2014	Deadline for proposal submission
21 February 2014	Approval and notification of successful projects

Note: proposals for projects that have a confirmed industry partner and are considered to have a time critical element may be submitted at any time. Proposals received in this manner will be evaluated by LOOKNorth staff and if recommended will be presented for approval at the first available opportunity.

Submission Instructions

Interested proponents must complete the Proposal template (located here:

https://looknorth.chagall.ucs.mun.ca/cms_content/files/files/Proposal%20Guidelines-with%20fillable%20cover%20page.pdf and Environmental Assessment Checklist (located here: [https://looknorth.chagall.ucs.mun.ca/cms_content/files/files/LOOKNorth-Environmental-Assessment-Process\(1\).pdf](https://looknorth.chagall.ucs.mun.ca/cms_content/files/files/LOOKNorth-Environmental-Assessment-Process(1).pdf)) on the LOOKNorth website. Instructions are included with the Proposal template.

Submissions are accepted until 23:59 hrs, January 17, 2014, Newfoundland Standard Time by email at: proposals@LOOKNorth.org or by fax to: 709-864-4021.

Clarifications

Please submit any requests for clarifications to proposals@LOOKNorth.org. LOOKNorth will respond to all questions. Only clarifications relevant to all submitters will be published on the website at the address above.

Contact:

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Priority Development Areas

Proposals are requested to address themes identified in the Priority Development Areas below. These areas have been identified through sector assessments conducted with the oil and gas, mining, and hydro-electric power generation industries.

- **Water Characterization**
 - **Water Quality**
 - Detection/quantification of contamination of water supplies. Indicators of water quality include sediments, brine content and hydrocarbons.
 - **Water Quantity**
 - Baseline quantification of surficial water levels and flows.
- **Air Characterization**
 - **Air Quality**
 - Baseline and monitoring of air quality. Indicators of air quality include green house gases, methane and ozone, as well as characterization and tracking of airborne contaminants or industrial by-products and their interaction with the ecosystem.
- **Surface Cover**
 - **Vegetation**
 - Mapping of abundance, diversity and quality of forests, ground cover and mammal habitats.
 - **Footprint disturbance**
 - Mapping of anthropogenic changes, revegetation growth, health and natural vegetation secession of linear features and area disturbances.
 - **Wetlands**
 - Map permanent and ephemeral wet areas, classification of wetland types.
 - **Surficial sediment maps**
 - Map bedrock, clays, organics, silts, aggregates, etc.
- **Mammal Monitoring**
 - **Abundance, movements, trends:**
 - Marine mammals, such as whales, seals, etc.
 - Terrestrial mammals, such as caribou, deer and predators.
- **Trace Hydrocarbon Detection**
 - **Leak Detection**
 - Detection of oil and/or oil-saturated earth under snow cover.
 - **Seepage Detection**
 - Detection of CO₂ and brine leaks for carbon capture system applications.
 - Detection and baselining of hydrocarbon seeps, onshore and/or offshore.



Mandatory Requirements

For Technology Demonstration and Technology Development

- **Technology readiness:**

The project must utilize and demonstrate a pre-commercial technology or service, or the application of a technology that has not been demonstrated in northern, oil sands or offshore environments. As a general guideline, the technology should be at a TRL 7 for the TVP Demonstration stream and TRL 4 for the TVP Development stream.
- **Co-Funding Requirement:**
 - a) Canadian proponents must demonstrate at least 50% cash or in-kind co-funding from the industry sponsor and/or the submitter. In-kind co-funding is limited to incremental activities directly associated with the project. LOOKNorth reserves the right to determine the reasonableness of the in-kind contributions based on the project details.
 - b) NL proponents that are also eligible for partner funding (RDC, IBRD and ACOA) must demonstrate at least 25% cash or in-kind co-funding should be provided by the industry sponsor and/or the submitter. In-kind is limited to incremental activities directly associated with the project. LOOKNorth reserves the right to determine the reasonableness of the in-kind contributions based on the project details.
 - c) Preference is given to projects that demonstrate a documented commitment of support from an industry sponsor in the form of cash contributions as well as an interest in using the technology in their operations.
- **Application area:**

The solution must be applicable to development of Northern resources, including those in the offshore and in the oil sands region of Alberta. The demonstration location must be in or representative of Northern, offshore, or oil sands environments. Typically, the North refers to the region from the Arctic to the southern extent of discontinuous permafrost.
- **Remote sensing or monitoring technology:**

The project must employ a remote sensing or monitoring technology, application or data product. This can include sensor platforms such as manned and unmanned aircraft and unmanned surface vehicles.
- **Duration:**

The project should be less than two years.
- **Eligible organizations:**

The proponent must be either a SME (*i.e.*, having 500 full-time employees or fewer, and revenue less than \$50M per annum) or an R&D organization based in Canada.
- **Industry sponsor:**

The proponent must have a resource industry sponsor from one of the following sectors:

 - Oil & Gas
 - Mining
 - Hydro-electric power generation
 - Transportation related to these

Proposals should identify the expected source and form of industry support for the proposed project. Invited proposals require a letter of support indicating the following:

 - the anticipated impact of the technology or service;
 - readiness to adopt a successfully demonstrated technology or service;
 - co-funding commitment to the project.
- **Environmental Assessment Checklist:**

The Environmental Assessment Checklist included in the Environmental Assessment Policy & Process, here (<http://www.looknorth.org/wp-content/uploads/2011/07/LN-Environmental-Assessment-Process1.pdf>) must be prepared and submitted with the proposal.



For Technology Reviews and Capability Studies

- **Remote sensing technology:**
The project must evaluate remote sensing technologies or remote sensing based data products. *Remote sensing* refers to monitoring from a distance with no local infrastructure requirements.
- **Co-Funding Requirement:**
At least 50% cash or in-kind co-funding must be provided from an industry sponsor and/or the submitter. LOOKNorth reserves the right to determine the reasonableness of the in-kind contributions based on the project details.
- **Application area:**
The project must evaluate technologies that address one or more of the thematic areas. These themes have been identified as critical areas for measuring and monitoring by mining, oil & gas and hydro-power operators.
- **Duration:**
The project should be less than six months.
- **Eligible organizations:**
The submitter must be a Canadian SME (i.e. Small-Medium Sized Enterprises, having 500 or fewer full-time employees and revenue less than \$50M per annum) or an academic group. Canadian technologies are preferred but not mandatory.
- **Commercial Interest:**
The proponent must disclose any vested interest in the success of a technology related to the theme(s) they propose to review.

Evaluation Criteria

To be considered for funding, proposals must satisfy the mandatory requirements stated above.

Proposals meeting the mandatory requirements will be assessed and ranked according to their Technical and Business Case merit criteria described below. For a more detailed description of the criteria, please refer to the TVP Proposal Submission Guidelines, here (<http://www.looknorth.org/wp-content/uploads/2011/07/TVP-Proposal-Guidelines-December-2013.pdf>).

LOOKNorth is seeking projects that have significant positive impacts on sustainable resource development, SMEs and Northern communities. Demonstrable impacts are the leading criteria for the selection of projects for funding.



For Technology Demonstration and Technology Development streams:

TECHNICAL CRITERIA		
Description	Point Criteria	Max.
1. Information Gap	Demonstrate an understanding of the issues by describing the challenge for the industry and defining the information gap.	30pts
2. Suitability of the Proposed Solution	a) Technical solution: Describe how the proposed solution will overcome the challenge.	15pts
	b) Technology limitations: Describe the limitations of the base technology and the proposed solution in addressing the challenge.	10pts
3. Industry Gap	Describe the current solutions or sources of information and indicate why these are inadequate to meet industry needs.	20pts
Total		75pts
BUSINESS CASE CRITERIA		
Description	Point Criteria	Max.
1. Impact of a Successful TVP	Describe the successful project contribution to: a) sustainable resource development (permits, cost, etc); b) benefit to SME (sales, jobs, etc); and c) socio-economic benefits to Northern communities.	60pts
2. Industry Sponsor Support	A commitment of 50% or more co-funding from the industry sponsor is preferred. However, a combination from the industry sponsor and project proponent co-funding will be accepted when necessary. Proposals for technology demonstration projects will be evaluated on: <ul style="list-style-type: none"> The documented commitment to support the field trial The amount and details of the financial commitment The interest in adopting the technology in its operations if the trial is successful. Proposals for technology development projects may be evaluated on the information gap and the commercialization plan for the results that address this information gap, in lieu of a commitment from an industry supporter.	50pts
3. Corporate Experience	The proponent should demonstrate a track record of successful similar projects over the past five (5) years. CVs are required for key project personnel.	20pts
4. Corporate Resources and Financial Stability	The proponent should demonstrate a clear project execution plan with risks and mitigations identified. Externally prepared financial records should be available on request	
TOTAL		150pts

For Technology Reviews and Capability Studies

TECHNICAL CRITERIA		
Description	Point Criteria	Max.
1. Theme(s) to be investigated	Describe the themes to be addressed and demonstrate knowledge of the subject matter.	20pts
2. Technological Solutions	Describe the technological areas to be investigated and the bidder experience with these technological areas.	20pts
3. Ranking Criteria	Describe the ranking criteria that are expected to be used to compare the suitability of one technology to another.	20pts
TOTAL		60pts
BUSINESS CASE CRITERIA		
Description	Point Criteria	Max.
1. Project Plan	Describe the plan to implement the project and the resources used to fulfill the contract.	20pts
2. Sponsor Support	Describe the source of the 50% co-funding. In-kind funding is permitted, but a commitment of 50% co-funding from a third party sponsor, preferably industry, is preferred.	20pts
3. Corporate Experience	The proponent demonstrates a track record of successfully completing similar projects in the past.	20pts
TOTAL		60pts

