

## Open Call for Proposals: *Monitoring Technologies for the Resource Sector*

*Since 2012 LOOKNorth has invested over \$2.2 million and supported 24 Technology Validation Projects with 34 partners across Canada, leveraging more than \$5 million in cash and in-kind support from industry and from other funding bodies. We are now soliciting proposals from small and medium sized enterprises (SMEs), researchers and academics based in Canada, for projects that promote commercialization of remote sensing and in-situ monitoring technologies that support sustainable development of Canada's natural resource sector and are of high priority for industry end users.*

*LOOKNorth will provide feedback on proposals **within 10 working days of receipt**. LOOKNorth will work with proponents to further develop and position the project for approval at the next scheduled meeting of the LOOKNorth Board. Projects with a demonstrated time critical component will be considered for fast tracked approval. **To be considered for funding approval at the October 2016 quarterly meeting of the LOOKNorth Board Committee, proposals must be received by 6 September 2016.***

### **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](http://www.nce-rce.gc.ca)). **LOOKNorth is a non-profit organization that identifies, evaluates, manages and accelerates the development of monitoring technologies that support sustainable natural resource development.**

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 Business, Tourism, Culture and Rural Development and the Research & Development Corporation).

### **Program Description**

LOOKNorth's Technology Validation Program promotes development, demonstration and deployment of remote sensing and other monitoring technologies in support of the responsible, sustainable development of Canada's natural resources including the Oil Sands and offshore oil and gas reserves. The objective of the program 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 and gas, mining, and hydro-electric power generation, and the transportation services and infrastructure that support them.

LOOKNorth invites Canadian small and medium size enterprises (SMEs) and research and development (R&D) organizations to submit proposals on priority themes or technical areas of interest that address information needs of the resource sector.

Interested applicants are strongly encouraged to consult with LOOKNorth to determine suitability of the project and optimize the submission process. Contact information is provided on page 3 of this document.

## **Eligibility**

Proposals will be accepted from Canadian SMEs, 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](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. At 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 and where LOOKNorth can play a role in marketing the technology.

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](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. **Studies** are sought that support technology commercialization through better definition of specific market requirements, complementary technologies, market sector access strategies or product definitions. Studies must demonstrate strong subject matter expertise and industry participation. Current areas of interest include pipeline monitoring and site remediation. Please feel free to consult with LOOKNorth on other areas.

## **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 \$50,000 of LOOKNorth funds per project.
- Projects should be no more than 12 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 **Studies** led by Canadian SMEs, the following conditions apply:

- LOOKNorth will fund up to a maximum of \$25,000 of LOOKNorth funds per project.
- Projects should be no more than 6 months duration.
- Studies must involve the participation of a minimum of five (5) resource sector users of the technology commercialization results.

### ***Intellectual Property***

Any intellectual property developed as a result of a funded project shall belong exclusively to the Proponent. NCE guidelines require LOOKNorth investments to generate the potential for both SME and Centre sustainability. Contribution agreements for successful proposals will include a strategy for commercialization of TVP project results.

LOOKNorth reserves the right to access the data and results created by the project for audit purposes.

### ***Eligible Costs***

Eligible costs are defined in the CECR Program Guide (pp.7-9), which can be found at:

[http://www.nce-rce.gc.ca/\\_docs/competitions/Comp\\_2010/Guide\\_CECR\\_2011\\_eng.pdf](http://www.nce-rce.gc.ca/_docs/competitions/Comp_2010/Guide_CECR_2011_eng.pdf)

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/study data collection.

### ***Submission Instructions***

Interested proponents must complete the Proposal template, located here:

[https://www.looknorth.org/cms\\_content/files/files/TVP-ProposalGuidelines\(April2016\)FillableCover2.pdf](https://www.looknorth.org/cms_content/files/files/TVP-ProposalGuidelines(April2016)FillableCover2.pdf)

and Environmental Assessment Checklist, located here: [https://www.looknorth.org/cms\\_content/files/files/LN-EAP&Checklist-Fillable.pdf](https://www.looknorth.org/cms_content/files/files/LN-EAP&Checklist-Fillable.pdf) on the LOOKNorth website. Instructions are included with the Proposal template.

### ***Questions or Clarifications***

Please submit any requests for clarifications to [proposals@LOOKNorth.org](mailto: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.

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### **Contact:**

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## ***Priority Development Areas***

Proposals may address themes identified in the Priority Development Areas below or other areas deemed of significant potential impact by resource industry users. The areas listed below 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 water supply contamination. Indicators of water quality include sediments, brine content and hydrocarbons.
  - ***Water Quantity***
    - Baseline quantification of surficial water levels and flows.
- **Air Characterization**
  - ***Air Quality***
    - Remote monitoring of air quality, particularly in conjunction with resource development activities, as well as characterization and tracking of airborne contaminants or industrial by-products and their interaction with the ecosystem. Indicators of air quality include greenhouse gases, methane and ozone.
- **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***
    - Mapping of permanent and ephemeral wet areas, classification of wetland types.
  - ***Surficial sediment maps***
    - Mapping of bedrock, clays, organics, silts, aggregates, etc.
- **Mammal Monitoring**
  - ***Abundance, movements, trends of:***
    - 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 CO<sub>2</sub> and brine leaks for carbon capture system applications.
    - Detection and baselining of hydrocarbon seeps, onshore and/or offshore.

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## **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) 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 beyond the LOOKNorth sponsored project.
- **Application area:**

The solution must be applicable to development of resources with oil and gas, mining, hydro-electric power generation, and the transportation services and infrastructure that support them.
- **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 satellites, manned and unmanned aircraft, and unmanned surface vehicles.
- **Duration:**

The project should be less than twelve (12) months.
- **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 ([https://www.looknorth.org/cms\\_content/files/files/LN-EAP&Checklist-Fillable.pdf](https://www.looknorth.org/cms_content/files/files/LN-EAP&Checklist-Fillable.pdf)) must be prepared and submitted with the proposal.

## **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 the 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: ([https://www.looknorth.org/cms\\_content/files/files/TVP-ProposalGuidelines\(April2016\)FillableCover2.pdf](https://www.looknorth.org/cms_content/files/files/TVP-ProposalGuidelines(April2016)FillableCover2.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:**

<b>Innovation</b>	Demonstrate an understanding of the issues by describing the challenge for the industry, defining the information gap and clearly showing how the proposed technology represents an innovative solution.	<b>25</b>
<b>Commercialization Strategy</b>	The proposal should clearly lay out a strategy to develop sustainable commercial business using the technology demonstrated. A commitment of 50% or more co-funding from the industry sponsor is preferred.	<b>25</b>
<b>Project plan and Proponent Track Record</b>	The proponent should demonstrate a clear project execution plan with risks and mitigations identified. Describe proponent's experience (corporate and individual) in the field including demonstrated successes. Externally prepared financial records should be available on request.	<b>25</b>
<b>Benefits to Canada</b>	Identify how the successful technology innovation will provide benefits to Canada by supporting sustainable resource development and creating commercial value. Describe any contribution of university research. Describe any unique technology or expertise brought to Canada.	<b>25</b>
<b>Total</b>		<b>100</b>