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Technology Demonstration Program



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Program Guide



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What is the Technology Demonstration Program?

The Technology Demonstration Program (TDP) provides non-repayable contributions in support of large-scale technology demonstration projects in the aerospace, defence, space and security sectors. Demonstration projects, led by an Original Equipment Manufacturer (OEM) or a Tier 1 company, require the integration of many technologies and the coordination of activities and resources from multiple project members. Projects funded through this program are expected to be the basis for next-generation manufacturing and services in Canada. The program will support technological development in areas that have significant potential for broad-based and long-term economic benefits to Canada.

Who is eligible to apply?

Eligible Recipient

Eligible recipients must be either an OEM or a Tier 1 company (supplying directly to an OEM). The eligible recipient must be a for-profit corporation, incorporated pursuant to the laws of Canada and carrying on business in Canada.

The applicant must demonstrate its ability to fund, lead and manage a large research and development (R&D) project that includes other industry and research members. A contribution agreement will be signed between the applicant and the Crown (at which point the applicant becomes a recipient). The recipient is responsible for managing the project, submitting claims, receiving the government contribution, flowing resources to project members, and reporting on results.

Eligible Project Members

Large-scale demonstration projects require collaborative effort involving various firms, universities, colleges and/or research institutions. Applicants must bring together project members, including at least one small or medium-sized (SME) Canadian-based corporation (fewer than 500 employees) to promote the development of the supply chain and at least one accredited Canadian university, college or affiliated research institute to promote knowledge transfer. The R&D must be performed in Canada. Limited funding from the program may support R&D outside of Canada when necessary for the project's success and when the R&D cannot otherwise be undertaken in Canada.

The recipient of an approved project will be responsible for receiving the government contribution and distributing a specified amount to the project members in order to maximize the contribution of all members and potential spill-over benefits. The program target is 50 percent. The actual amount proposed in the application will be included as a contractual commitment in the contribution agreement.

The recipient will be required to have an Intellectual Property (IP) agreement in place and endorsed by major project members, prior to the disbursement of any funding under the program. This pre-disbursement condition will be satisfied upon receipt of an IP agreement that outlines ownership and rights sharing arrangements that enable the project members to exploit the IP in a manner that achieves the benefits articulated in the proposal.

What is an eligible project?

Demonstration projects are expected to include activities up to the completion of Technology Readiness Level (TRL) 6. See Annex 1 for a description of the TRL scale. Demonstration projects cannot generally be directly commercialized upon project completion. Further technological development and investment is generally required to tailor, adapt, test and validate results for specific product/service applications.

The TDP may award a non-repayable contribution to support one large scale project per year, up to a maximum of \$54 million. The program will cover up to 50 percent of total eligible project costs over the multi-year life of the project. The duration of the R&D project is generally expected to be five years; on a case-by-case basis, a project with a shorter or longer duration will be considered.

The recipient will be expected to match the government's contribution (through its own investment and/or other source of funds). Assistance from all government sources (federal, provincial, territorial, municipal) shall not normally exceed 75 percent of eligible costs.

A significant portion of the project cost is expected to cover direct labour related to undertaking the R&D. Other eligible costs include materials, equipment, and overhead at a rate of 75 percent of direct labour. Proposals may request significant support for R&D infrastructure, particularly shared facilities accessible by all group members during the project that are broadly available afterwards to serve as ongoing innovation hubs. In the case of significant investment in infrastructure, the recipient will be expected to have a plan that allows the project's infrastructure to be maintained and made available for use after the project is completed.

Applicants will be expected to have a post-project strategy to further develop the technology that emerges from TDP projects into product-specific applications in order to achieve commercialization potential.

What is the application and approval process?

There will be an annual call for applications in April of each year. The table below provides more details on the 12 month application and approval process.

APPLICATION PROCESS AND TIMELINE	Duration
Statement of Interest (SOI)	3 months
Review of SOI Invitations to Selected Applicants	1 month
Project Proposal	3 months
Due Diligence	2 months
Approvals	2 months
Contribution Agreement	1 month

Statement of Interest

To apply, a Statement of Interest must be submitted by a specified due date. The Statement of Interest will be assessed by a committee of government officials from science-based departments against each of the evaluation criteria identified on the next page, with particular emphasis on anticipated economic benefits to Canada. Following this assessment, a select number of applicants will be invited to submit a full Project Proposal. Refer to the Statement of Interest Application Guide for more details.

Project Proposal

Project Proposals must be submitted by a specified due date. Proposals will be assessed against each of the evaluation criteria identified on the next page. Industry Canada will draw on internal and external experts when undertaking its due diligence, involving a site visit and meetings with the applicant and project members. Following due diligence, applicants will be informed of the status of their proposal. The Minister of Industry will exercise his or her discretion on which project to fund. The Minister will seek Treasury Board and Cabinet approval prior to authorizing contributions in excess \$20 million. Refer to the Project Proposal Application Guide for more details.

Contribution Agreement

Following project approval, a Contribution Agreement will be prepared for signature by the recipient and the Crown laying out the respective responsibilities and obligations of both parties.

What are the evaluation criteria?

Statements of Interest and Project Proposals are assessed against the following criteria.

1. Economic Benefits to Canada

- The applicant must demonstrate that the project is expected to benefit the lead corporation and each of the members of the project, be the basis for the next generation of manufacturing and/or services in Canada, and generate material economic benefits for Canada in the longer term.

2. Broader Benefits to Canada

- The applicant must demonstrate whether the project is expected to generate social, environmental, health, security or other benefits to Canada.

3. Collaboration

- The project must be led by an Original Equipment Manufacturer or a Tier 1 company.
- The project must include at least one Canadian small or medium-sized enterprise and one accredited Canadian university, college or affiliated research institute.

4. Innovation

- The applicant must demonstrate that the project is technologically feasible; that it can reasonably be expected to result in new technological capabilities that are essential to achieving the proposed benefits.

5. Management and Technological Capability

- The applicant must demonstrate that the lead corporation and the project members have the required managerial and technological capability and track record to successfully undertake the project.

6. Financial Capability

- The applicant must show that the lead corporation and its members have the financial capability to complete the project.
- The applicant must demonstrate that funding by the Technology Demonstration Program will lever incremental private sector investment in R&D.

7. Post-Project Commitment

- The applicant must show a commitment on the part of the lead corporation and its project members to further develop the technology for potential commercialization and sustain the infrastructure after project completion.

Given the nature of this program, more applications may be received than can be funded. In general, applications with the largest number of project members, highest degree of potential benefits to the members, largest potential spill-over economic benefits to Canada, strongest plan, most leverage in terms of private sector investment, and strongest post project planning to further invest for commercialization purposes, will be more favourably evaluated.

What are the reporting requirements during and after the project?

R&D Phase

During the R&D phase, the recipient must submit financial claims for reimbursement of eligible costs incurred on a quarterly or semi-annual basis, or at other frequencies as determined by a risk assessment. With each financial claim, the recipient must provide a report that documents the progress of the project.

Project review meetings will take place at least once a year at the recipient's location. Additional project reviews may be scheduled at the discretion of Industry Canada based on risk, size of the project or other factors.

On a yearly basis, the recipient will be required to provide a report on progress being made toward achieving the outcomes and benefits associated with the project.

Upon completion of the project, the recipient will be required to submit a final report documenting the results and status against the overall project goal.

Post-Project Phase

For five years after the project is completed, the recipient will be required to provide annual post-project reports to document longer-term benefits realized since the completion of the project. In this report, the recipient will also be required to demonstrate how it is furthering the development of the technology for potential commercialization and sustaining the infrastructure.

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For additional information on the ITO or the Technology Demonstration Program, please visit www.ito.ic.gc.ca.

Annex 1 - Technology Readiness Level (TRL) scale

Technology Readiness Level	Description
TRL 1 Basic principles observed and reported	Lowest level of technology readiness. Scientific research begins to be translated into applied research and development (R&D). Examples might include paper studies of a technology's basic properties.
TRL 2 Technology concept and/or application formulated	Invention begins. Once basic principles are observed, practical applications can be invented. Applications are speculative, and there may be no proof or detailed analysis to support the assumptions. Examples are limited to analytic studies.
TRL 3 Analytical and experimental critical function and/or characteristic proof of concept	Active R&D is initiated. This includes analytical studies and laboratory studies to physically validate the analytical predictions of separate elements of the technology. Examples include components that are not yet integrated or representative.
TRL 4 Component and/or breadboard validation in laboratory environment	Basic technological components are integrated to establish that they will work together. This is relatively "low fidelity" compared with the eventual system. Examples include integration of "ad hoc" hardware in the laboratory.
TRL 5 Component and/or breadboard validation in relevant environment	Fidelity of breadboard technology increases significantly. The basic technological components are integrated with reasonably realistic supporting elements so they can be tested in a simulated environment. Examples include "high-fidelity" laboratory integration of components.
TRL 6 System/subsystem model or prototype demonstration in a relevant environment	Representative model or prototype system, which is well beyond that of TRL 5, is tested in a relevant environment. Represents a major step up in a technology's demonstrated readiness. Examples include testing a prototype in a high-fidelity laboratory environment or in a simulated operational environment.
TRL 7 System prototype demonstration in an operational environment.	Prototype near or at planned operational system. Represents a major step up from TRL 6 by requiring demonstration of an actual system prototype in an operational environment (e.g., in an aircraft, in a vehicle, or in space).
TRL 8 Actual system completed and qualified through test and demonstration.	Technology has been proven to work in its final form and under expected conditions. In almost all cases, this TRL represents the end of true system development. Examples include developmental test and evaluation (DT&E) of the system to determine if it meets design specifications.
TRL 9 Actual system proven through successful mission operations.	Actual application of the technology in its final form and under mission conditions, such as those encountered in operational test and evaluation (OT&E). Examples include testing the system under operational mission conditions.

Based on the NASA TRL System