Clean Transportation System - Research & Development Program

APPLICANT'S GUIDE

1. Overview

In 2018, the transportation sector was the second largest source of greenhouse gas (GHG) emissions, accounting for 26% (187 Mt CO2 eq) of total national emissions. Between 1990 and 2018, GHG emissions from the transportation sector grew by 51%.

Canada has set aggressive GHG reduction targets for 2030 and 2050 as a part of its commitments under the Paris Agreement on Climate Change. In particular, the 2050 target of net-zero carbon emissions will require broad accessibility of commercially viable technologies capable of using zero-emission, or renewable-fuels. Although the aviation, marine, and rail modes account for a small percentage of total transportation emissions, the technologies that would position them for net-zero operations in 2050 are not yet commercially available.

Criteria Air Contaminants (CAC) emissions are produced from the combustion of fossil fuels used by the aviation, marine, and rail sectors. Compounds such as nitrogen oxides (NO_x), particulate matter (PM), carbon monoxide (CO), sulphur oxides (SO_x), and volatile organic compounds (VOCs) contribute to poor air quality and the formation of smog and acid rain. They can also be hazardous to human health and the environment.

Transport Canada established the Clean Transportation System - Research & Development (CTS-RD) Program (the Program) to support ongoing efforts to reduce emissions from the aviation, marine, and rail industries.

The Program funds research, testing and demonstration of clean transportation technologies, in order to advance scientific knowledge, and accelerate their safe and timely adoption in Canada.

2. Program Objectives

The Program's objective is to advance scientific knowledge, and the development of technologies, that reduce greenhouse gas (GHG), and/or criteria air contaminants (CAC) emissions from the aviation, marine, and rail modes of transportation. Each of these modes face different challenges in achieving significant emission reductions, and are at different levels of current technological maturity.

For the **marine and rail** transportation sectors, this call for proposals is seeking projects that would support the demonstration and pilot deployment of low-carbon and zero-emission technologies in real-world testing.

For **aviation**, this call for proposals is seeking research and technology development projects related to low-carbon and zero-emission technologies, or research that would contribute to the scientific understanding of the effects that GHGs and/or CACs, have on climate and human health or the formation of secondary emissions species.

3. Eligible Recipients

Eligible recipients include:

- Provinces and territories, including provincially-owned and territorially-owned entities
- Municipalities, including Municipality-owned entities, and local and regional governments
- Indigenous groups, communities, organizations and development corporations
- Public sector organizations

- Not-for-profit private sector organizations
- For profit private sector organizations
- Canadian Airport, Port (subject to section 25 of the *Canada Marine Act*), and Transit Authorities
- Academia
- International organizations (e.g. International Civil Aviation Organization, International Maritime Organization)
- Foreign states and foreign state entities (e.g. foreign departments of transportation, Federal Aviation Administration)*
- Individuals

*** foreign states and entities applying for grant funding must demonstrate how their project provides value and contributes to advancement of knowledge in Canada to support reduction of emissions (e.g., undertaking the project in Canada, sharing data with relevant Canadian stakeholders).**

4. Available Funding

- The total available CTS-RD funding is up to **$600,000 annually.**
- Funding is provided as grants to support projects focused on the Aviation, Marine, and Rail sectors.
- The maximum amount of funding supplied to an individual project cannot exceed $100,000 per year
- Recipients may be reimbursed up to 50% of eligible expenditures.
- Projects should begin upon approval by Transport Canada (TC), and must be completed by **March 31, 2024.**

** Total funding allocated under this call for proposals will be based upon the number of eligible projects submitted and their respective funding requirements. Depending on demand, a portion of funding could be reserved to support future call for proposals, or innovative transfer payment programs, e.g. competition/prizes through Impact Canada.*

5. Eligibility Assessment Criteria

5.1 Eligible activities

This section sets out the activities that are considered eligible for grant funding within the context of this call for proposals. ***PLEASE NOTE: The eligible activities for the marine and rail sectors are different from those for the aviation sector.***

5.1.1 Projects related to MARINE or RAIL

Eligible activities must **contribute to understanding the feasibility, design, development, or execution of demonstration projects for technologies with the potential to reduce GHG and/or CAC emissions from the marine, or rail transportation sectors**. For the purposes of this program, demonstration is defined as the objective of trialing a technology prototype in an operational environment that resembles those used in commercial operations for an extended period of time.

The following activities are eligible for funding:

- Feasibility studies, or pre-engineering studies necessary to define the appropriate scope, costs, and benefits of a demonstration project;
- Collection of the data necessary to design, monitor, or evaluate the effectiveness of the demonstration project;
- Development of industrial codes and standards required by industry to commercialize a clean technology;
- Assessments of the risks, hazards, and mitigation strategies for deploying the technology in a defined operating environment;
- Elements associated with the preparation, construction, acquisition, retrofit, improvement, and rehabilitation of assets necessary to carry out the demonstration project;
- Outreach, education, awareness, or stakeholder consultation necessary to ensure that relevant partners are well-informed and can support the project.

5.1.2 Projects related to Aviation

Eligible activities must **contribute to the reduction, measurement, or improved understanding of GHG and/or CAC emissions from the aviation sector**.

The following activities are eligible for funding:

- Research and knowledge-sharing related to the development, evaluation, or testing of emission-reducing "clean" transportation technologies or other solutions.
- Development of technologies or methodologies to improve the measurement of transportation-related emissions;
- Development, testing, demonstration, deployment and/or installation of innovative clean technologies in Canada;

5.2 Application Requirements

The applicant must demonstrate the following in the proposal (applicable to all modes):

- that the project will directly contribute to the Clean Transportation System – Research & Development Program's objectives (as described in Section 2);
- how the project's activities align with the eligible activities as described in Section 5.1;
- that the project's activities are central to the primary mandate of the eligible organization, (or in the case of an individual, that the individual is affiliated with an organization whose primary mandate is to conduct such activities);
- how the project activities to be undertaken will advance knowledge, or technology innovation, development, or adoption that contributes to reducing or measuring emissions, or reducing emission intensity
- that the project has established a clear methodology, project plan and timeline for reporting, including major milestones, as well as a plan to disseminate the results appropriately;
- that they have the knowledge, expertise and capacity required to complete the project; and
- that there are sufficient sources of financial resources to carry out the proposed project.

6. Eligible project duration and approvals

- All projects must be completed by March 31, 2024.

- Projects spanning a single-year (12 month) or multiple years are eligible.
- The applicant must demonstrate that they have sufficient cash flow available to complete the project.
- The applicant must identify all sources of project funding in their proposal (e.g., in-kind, third party). Letters from partner organizations that confirm financial support should be attached to the proposal.
- Projects may incur reimbursable eligible expenditures once approved and confirmed in writing by TC.

7. Eligible Expenditures

Eligible expenditures include:

- Staff salaries and benefits;
- Professional services (e.g. accounting, auditing, consulting, etc.);
- Translation costs;
- Expenditures related to the preparation, construction, improvement, installation, and rehabilitation of assets (e.g. improvements/modifications to aircraft/ vessels/ locomotives or facilities)
- Purchase or lease of assets, technology, equipment, and supplies;
- Licenses, and permits;
- Rents, leases, leasehold improvements and insurance;
- Expenditures for Indigenous consultations; specifically project-related consultation activities pursuant to the Crown's legal duty to consult, which may include expenditures associated with meetings, travel costs, preparation of consultation materials, honoraria payments for Indigenous person, communication, and translation costs;
- Administrative expenditures up to **15%** of total project costs (including general administration, expenditures, rent, insurance, office equipment rental, and membership fees);

- Travel expenditures (including the cost of accommodations, vehicle rental and kilometric rates, bus, train, airplane or taxi fares, allowances for meals and incidentals);
    - ***Note: Travel and per diem expenses cannot be more than the rates and allowances outlined in the Travel Directive of the National Joint Council.***
- Other expenditures that are, in Transport Canada's opinion, considered to be direct, reasonable, and incremental for the successful implementation of the project and have been approved in writing prior to being incurred.

The above eligible expenditures may, in certain circumstances, include cash-equivalent expenditures associated with in-kind contributions. These expenditures may take the form of:

- Goods, services or assets consumed by the recipient for which costs are incurred and no cash is exchanged.
- Donations of goods, services or assets to the recipient, for which no costs are incurred and no cash is exchanged.

Note: *In-kind contributions received from a third party are considered donations and may form part of the applicant's share toward the total eligible expenditures of the project, but are not eligible for reimbursement.*

8. Ineligible Expenditures

Certain expenditures are not eligible for funding and therefore will not be considered in the calculation of the total eligible expenditures of the proposed project, including:

- Costs incurred before the funding approval date or after the final claim date;
- Expenditures for Provincial Sales Tax and Goods and Services Tax, or the Harmonized Sales Tax, where applicable, for which the recipient is eligible for a rebate, and any other costs eligible for rebates;
- The cost of purchasing land and/or buildings, including associated real estate and other fees;

- Financing charges and interest payments on loans;
- Expenditures which have been reimbursed under other federal statutes or programs.

9. Merit Selection Criteria

TC will assess all grant applications to determine if they meet the Eligible Assessment Criteria (as described in Section 5). If eligible, the proposed project will then be assessed against the Merit Selection Criteria identified below.

Application templates are available upon request and must be used to apply for funding.

9.1 Applicants must provide the following information:

Relevance of the Project

How the proposed project relates to the Clean Transportation System – Research & Development Program's objectives, as described in Sections 1 and 2.

Applicant's relevant experience and capacity

Relevant experience and capacity relates to how well the applicant is able to complete the proposed project in terms of resources, personnel and expertise. More specifically, TC will consider the applicant's:

- mandate and/or experience and expertise;
- demonstrated commitment based on past or current projects; and
- institutional, management/organizational structures, financial controls and other support available to successfully deliver the proposed project

Quality of the proposal

The quality of the proposal refers to the degree to which the planned activities, schedule, budget, targeted results, roles and responsibilities are clear, realistic and consistent with the proposed project's objectives. TC will assess whether the proposed project has:

- clearly stated goals, objectives and outcomes;
- an achievable project plan, concrete deliverables, budget and timelines;
- a detailed analysis of the risks that could disrupt the ability to deliver the intended results of the project and a mitigation strategy for these risks; and
- an experienced and qualified project delivery team with roles and responsibilities clearly established, including a qualified Project Manager.

Value for money

The Applicant's proposal should demonstrate an efficient use of resources, including funding, to achieve the expected outcomes.

9.2 Project Categories

For each sector, please indicate the project category (PC) that applies. Identify secondary effects that the proposed project might have on future operations, safety, commercial feasibility, ecosystem and wildlife impacts, and adaptability to climate change.

***Note**: Projects may identify more than one project category. Consideration will be given to proposals that address more than one category.*

Marine and Rail Project Categories (MRC)

- **MRC 1 – Feasibility studies:** Studies intended to determine the viability of a proposed demonstration project. Examples of the scope of these studies are literature reviews, assessments of technological readiness, safety assessments, assessments of relevant codes and standards and regulatory implications, costs and benefits.
- **MRC 2 – Pre-engineering studies:** Studies necessary for designing the demonstration project or elements of the demonstration project, before undertaking any physical works or testing. Examples of the scope of these studies are: computer modelling of performance, digital design of the equipment or facilities, or assessment of physical equipment or facilities to determine their suitability for use in a demonstration.

- **MRC 3 – Safety Assessments:** Comprehensive review of the risks/ hazards associated with deploying the proposed technology compared to present-day designs, and the development of the necessary measures to mitigate the risks.
- **MRC 4 – Undertaking a demonstration project:** This includes the activities for deploying the technology in the demonstration project's testing environment. Examples of activities include the procurement of equipment, the conversion or construction of vessels/ locomotives, the preparation of testing facilities, collection of data, analysis of data, revisions to the equipment or testing procedure to adapt to lessons learned in the testing process,
- **MRC 5 – Stakeholder Consultation and Outreach:** Activities associated with identifying, and establishing collaborative relationships, or consortiums necessary to support the initiation, and success of a technology demonstration project. Examples include advising and working with first responders, federal, provincial/ territorial, and municipal governments, codes and standards bodies, labour unions, or public and communities located near the project site.
- **MRC 6 – Development of Codes and Standards:** Activities to identify existing codes and standards relevant to the proposed technology demonstration project, or to develop a pathway for addressing gaps in existing codes and standards that would be necessary to increase its successful implementation. This work could also include review of the proposed technology design within the scope of the proposed project to ensure that it incorporates relevant codes and standards that industry best practices are applied.

Aviation Project Categories (AC)

- **AC 1 – Emissions Reduction:** contribute to reduction, measurement, or improvement of the intensity of GHG and/or CAC emissions from the aviation sector

- **AC 2 – Technical improvements in aircraft or aircraft engine design:** contribute to the improvement of design and/or function that leads to reduction in GHGs and/or CACs
- **AC 3 – Infrastructure / Operational improvements**: contribute to improvement in aviation infrastructure / operations that lead to reduced emissions from the sector
- **AC 4 – Development of sustainable aviation fuels:** advance the development and deployment of alternative aviation fuels within the Canadian context, which can include fuel testing and evaluation, life cycle assessment, techno-economic assessment, and policy analysis
- **AC 5 – Improved scientific understanding:** of aviation emissions and impacts to the environment and/or to human health
- **AC 6 - Alternative propulsion technologies:** contribute to increasing Canadian knowledge base to support the development and deployment of next-generation electric/battery or hydrogen/fuel-cell powered aircraft

9.3 Additional criteria

Priority may be given to projects that:

- include a relevant transport operator as a partner for the project;
- for marine/ rail projects, are a part of a larger strategy to deploy the technology in a commercial setting long-term;
- contribute to the overall improvement of the Canadian transportation system by advancing innovative clean technologies, knowledge, practices, or codes and standards that can be used by multiple modes of transportation;
- can reasonably be expected to contribute to reducing, GHG and/or CAC emissions from the transportation sector at a reasonable cost;
- establish technology, knowledge, or practices that can be used by others;
- leverage the participation from other public and private entities;

- provide other environmental benefits such as reductions in noise and/or vibration, the preservation of wildlife and habitat, etc.;
- reduce operating costs;
- enhance integration, systems efficiency, and/or system capacity;
- improve productivity/innovation within the transportation system
- improve transportation system safety; and/ or
- include a plan to disseminate research findings to industry and academia

10. Notification

Once the project proposal has been evaluated, TC will inform the applicant as to whether or not they have been selected for funding. TC reserves the right to accept or reject any project proposal.

11. Service Standards

In an effort to continually improve our level of service, and to maintain a transparent process, TC has established service standards.

- Our goal is to provide applicants with written acknowledgement of receipt of their application and/or project proposal within 10 business days of the application deadline date.
- Our goal is to issue payments within 20 business days following the notification to the recipient that the requirements related to payment, as outlined in the funding agreement, have been fulfilled.

Note: *If the program cannot meet the above standards, TC will advise recipients in a timely manner.*

12.Funding Agreements

12.1 Grant agreements

A funding agreement signed by both the recipient and Transport Canada is required to receive the Program funding. The following sections highlight some of the key areas of the grant agreement under the Program.

12.2 Letter of funding approval for eligible activities

Eligible applicants will receive a letter or e-mail of funding approval. It will indicate when the eligible expenditures become eligible for reimbursement under the Program.

12.3 Project scope and agreement

- Only eligible expenditures incurred after the date *indicated in the letter of funding approval* will be eligible for reimbursement.
- Payments will be made as established in the funding agreement.
- The maximum amount of total government funding (municipal, provincial, and federal) cannot exceed 100% of total eligible expenditures.

Note: *For single year projects, reimbursements will be made to the applicant as a lump sum payment. For multi-year projects, a payment schedule will be established over the duration of the grant agreement*.

12.4 Annual progress reports

For multi-year projects, the recipient will be required to provide an annual progress report. Recipients will be required to report on the results achieved, to ensure that it continues to align with the objectives of the CTS-RD in general, and the call for proposal, in particular (Section 1 & 2). This will also assist TC to determine continued eligibility where a grant is paid by instalments.

12.5 Final reports

When the project is complete, recipients will be required to submit a final report. The final report includes a summary of project results that have been achieved. Under the funding agreement, TC must receive the final report before we provide final payment.

12.6 Other funding agreement clauses

Official languages

All recipients must respect the *Official Languages Act* when delivering a project funded under the Program. Linguistic requirements may apply to projects depending on their scope (national, regional or local), or on the specificity of the regions and targeted audiences of projects. TC will work with successful recipients to determine how this applies to their projects.

13. How to apply

The following sections list the documents required to submit a project proposal.

Application templates are available upon request and must be used to apply for funding.

Applicants will submit a completed project proposal which must include the following:

1. **Title of project and executive summary**
2. **Applicant information:**
    a. legal name of the organization
    b. name and position of the primary contact for applicant organization
    c. mailing address for all correspondence
    d. contact information such as office phone/, email/Internet address, etc.
3. **Organizational profile:**
    a. type of organization
    b. organizational structure and governance
    c. history of the organization
    d. mandate of the organization
    e. organizational activities
4. **Project management personnel**
    a. Each project must have a designated project manager; please include proof of their qualifications and contact information (if different from applicant organization)

5. **Declarations:**
    a. conflict of interest questionnaire
    b. declaration by applicant organization attesting to the accuracy of the project proposal and the commitment of the organization to carry out the project signed by an authorized agent
6. **Project description:**
    a. project eligibility information
    b. location of project delivery
    c. proposed start and completion dates
    d. major activities for the project
    e. project work plan
    f. partners and contributions
    g. risk assessment and mitigation measures
7. **Communications plan, if applicable**
8. **Letters of support, including financial support**
9. **Legal documentation of applicant organization**
10. **Budget information (as per eligible expenditures in Section 7) – To be added as an annex, see budget template**

14. Submitting your application

Application deadline

Project proposals must be received no later than **April, 15, 2021**.

Project proposals received after this date will not be considered for funding.

Note: All project proposals must be signed, complete, accurate, comprehensive and presented using the templates provided. All applicants **must provide legal documentation confirming their organization is a legal entity** (i.e. letters of patent, certificate of incorporation or other such legal documents). Missing or incomplete information will slow the processing of the application and may result in its rejection.

An application package may be submitted by email or by mail, at the applicant's discretion. However, due to Covid-19 restrictions in place at Transport Canada offices, **applicants are strongly encouraged to submit their project proposals by email.**

Email:

An electronic application package must be in MS Word, MS Excel or PDF format and **must include signatures**. Send the application to:

TC.CTSRD-STERD.TC@tc.gc.ca

Mail:

A signed hard copy may be sent by mail, and must be received in this office by the application deadline.

To maintain the transparency and fairness of the selection process, no extensions can be granted.

Mail applications to:

Clean Transportation System (R&D)
Transportation and Infrastructure Programs
Transport Canada
330 Sparks St., Place de Ville – Tower C (AHSA)
Ottawa, ON K1A 0N5

Transport Canada will confirm receipt of project proposals.