

EMISSIONS
REDUCTION
ALBERTA



ERA OIL SANDS INNOVATION CHALLENGE

Call for
Expressions of Interest

Online submissions:
www.ERAadmin.ca

Deadline:
September 7, 2017
5:00 PM MDT (UTC-6h)

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Legal Notice

Emissions Reduction Alberta is a registered tradename of the Climate Change and Emissions Management (CCEMC) Corporation and is referred to as ERA throughout this document. By submitting an Expression of Interest (“EOI”), you confirm that you have read, understand and accept the information contained in this Call for Expressions of Interest and, that each of you, the applicant (the “Proponent”), and any project partners agree as follows:

- a) ERA may at any time suspend, terminate, cancel, withdraw, amend or alter all or any portion of this request for proposals (“RFP”) EOI stage (“EOI Stage”), including but not limited to the EOI requirements, the EOI selection and review process and the EOI eligibility criteria.
- b) ERA reserves the unqualified right to accept or reject any or all EOIs for any reason. ERA is not required to accept the highest ranked EOI nor is it required to accept any EOI recommended for advancement to the full project proposal (“Full Project Proposal”) stage (“FPP Stage”) by the applicable ERA evaluators.
- c) The final decision with respect to the projects to be included in the EOI short-list rests solely with ERA Board of Directors (“Board of Directors”). The Board of Directors’ evaluation of EOIs may be based on, but is not in any way limited to, the criteria set out in this RFP. The Board of Directors may consider any criteria determined by the Board of Directors to be relevant to ERA’s mandate, regardless of whether such additional criteria have been disclosed to the Proponent.
- d) EOIs that do not comply with the requirements described in this RFP may be rejected in whole or in part or not considered by ERA. ERA reserves the unqualified right to accept or reject a non-compliant EOI.
- e) This EOI Stage is an invitation for EOIs only. It is not an offer and the submission of an EOI does not create a contract or agreement of any kind between ERA and the Proponent.
- f) No conduct, act or omission of CCEMC, CCEMC operating as ERA, or its directors, officers, consultants, project advisors, agents, servants and their respective successors and assigns (collectively the “ERA Parties”) other than a written notice to the Proponent in writing signed by an authorized person for ERA, will constitute an acceptance of an EOI.
- g) Acceptance of an EOI does not create any binding contract between ERA and the Proponent. ERA shall not be obligated in any matter whatsoever to any Proponent until a written contribution agreement (“Contribution Agreement”) between CCEMC operating as ERA and the Proponent has been duly executed relating to an approved FPP.
- h) As between the parties, the EOI and all documents and materials you submit to ERA in connection with the EOI Stage and all intellectual property in and to the foregoing are the exclusive property of ERA immediately upon delivery to ERA. 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 Proponent.

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- i) You, the Proponent and any project partners will keep this EOI Stage 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 FPP as requested by ERA.
 - j) Neither ERA nor any of ERA Parties will have any liability whatsoever to you, the Proponent or any project partners, or any of them, in connection with this EOI Stage or any EOI prepared in response to it.
 - k) You, the Proponent and any project partners will not make a claim against CCEMC, CCEMC operating as ERA or ERA Parties for any reason whatsoever or howsoever relating to this EOI Stage. You are undertaking the expenditures required to prepare and submit an EOI entirely at your own risk, and you waive any right and release ERA and ERA Parties from any demands, liability, claim or recovery for costs, expenses, or damages incurred whatsoever or howsoever arising out of or relating to this EOI Stage or any EOI prepared in response to it, whether such right or claim arises in contract, negligence or otherwise.
 - l) ERA takes no responsibility for the accuracy of the information supplied during this EOI Stage process by ERA or ERA Parties.

Neither ERA nor any of ERA Parties will have any liability whatsoever or howsoever to any one or more of you, the Proponent and any project partners, or any of them, in connection with this EOI Stage or any EOI prepared in response to it.

1 Introduction

1.1 ERA

Emissions Reduction Alberta (“ERA”) is a registered tradename of the Climate Change and Emissions Management (CCEMC) Corporation. ERA was established as a key partner of the government of Alberta to address Alberta’s Climate Leadership priorities. ERA has a mandate to identify and accelerate innovative solutions that secure Alberta’s success in a lower carbon economy. By supporting the next generation of clean technology, ERA helps Alberta build an open, sustainable and increasingly diversified economy that attracts investment, facilitates diversification, expands market access and delivers improved environmental outcomes.

1.2 Document Scope

This Call for Expressions of Interest (“Call”) is inviting project proposals to be evaluated in a competitive funding process. The process is divided into two stages: the Expression of Interest (“EOI”) stage and the Full Project Proposal (“FPP”) stage. These instructions provide information about the EOI stage only. Information specific to the FPP stage will be available when FPP invitations are made, which will address preparation and evaluation of FPPs for applicants who are successful at the EOI stage.

2 Call for Proposals Scope

2.1 Focus Area

This Call is designed to align with Alberta’s Climate Leadership Plan and the goals of the 100 Mt per year oil sands emissions limit. ERA is helping to create the conditions for Alberta’s oil sands industry to innovate and become more globally competitive. ERA’s investments will result in benefits to the province of Alberta, the public, and the oil sands industry.

This Call is seeking innovative technological solutions that reduce greenhouse gas (GHG) emissions and improve the cost competitiveness of bitumen production and processing. Proposals are invited for technology solutions related to in situ or mined oil sands operations, including both new developments and retrofit opportunities for existing operations. However, the focus of this Call is limited to new and innovative breakthrough solutions with significant GHG benefits. The scope of this Call does not include opportunities related to incremental optimization, energy efficiency improvement, deployment of existing ‘business as usual’ technologies, or technologies that do not reduce GHG emissions in Alberta

Examples of potential areas of interest for this Call include but are not limited to:

- Alternative steam generation methods for *in situ* recovery;

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- Advanced reservoir technologies including solvent recovery, electromagnetic systems, and hybrid processes;
 - Novel surface mining and bitumen ore processing technologies;
 - Improved bitumen upgrading and partial upgrading processes; and
 - Solutions for tailings reductions & management.

2.2 Project Structure

Funding made available through this process is provided for completion of projects with well-defined objectives, milestones, deliverables, and timelines. Applicants must clearly delineate the scope of the project for which ERA funding is being requested and the GHG reduction potential associated with that scope of work. Any related work completed concurrently or before the project term but outside the scope of the project may be discussed in the proposal but should be clearly indicated as such.

2.3 Stage of Development

This Call is limited to advancing and demonstrating oil sands technology that has been proven in concept but is not commercially operational in Alberta. The intent of the Call is to accelerate transformative technology with near-term and medium-term market potential (commercial deployment in 5-10 years). Expressions of interest are invited for demonstration projects at the stage of **Technology Readiness Level 6-8**, as described below. All projects must involve prototype testing, field piloting, commercial demonstration, or first-of-kind technology deployment.

- **Prototype Development and Testing (TRL 6):** At this stage of development, the technological components have been integrated and the concept has been proven. Projects in this category include development of representative prototypes and prototype testing in a simulated operational environment.
- **Field Pilot (TRL 7):** At this stage of development, a small-scale prototype system is ready to be field tested in an operational environment. Projects in this category include field testing of prototype units and small-scale field pilots.
- **Demonstration (TRL 8):** At this stage of development, a prototype system is ready to demonstrate at a commercially-relevant scale viability. Projects in this category include demonstration of actual system prototypes in an operational environment.

Note that all projects supported through this Call must involve a technology de-risking component. ERA will not fund projects that address only a financial barrier to deployment.

2.4 Project Location

All projects supported through this Call must demonstrate a clear and justified value proposition for reducing GHG emissions associated with Alberta's oil sands products. Technology solutions can originate from anywhere globally, but must be tested, piloted, demonstrated, or deployed in

Alberta. Consideration may be given to projects outside of Alberta where there is a well-justified value proposition and strong support from end users in Alberta (e.g. testing of Alberta bitumen at operational pilot facilities where significant existing infrastructure can be leveraged).

2.5 Eligible Applicants

This Call is open to all categories of lead applicant, including technology developers, industry, industrial associations, small and medium-sized enterprises, R&D organizations, universities, municipalities, not-for-profit organizations, government research labs, and individuals. **However, all projects *must* involve an Alberta oil sands operator, lease holder as the project lead or as a significant partner.**

Collaboration between multiple organizations is strongly encouraged for this opportunity. Collaboration between partners can often represent a strong value proposition by demonstrating opportunities for technology validation, commercialization, and sharing of results. This Call is focused on advancing technology solutions. As such, involvement from technology providers/developers is critical.

Applicants are encouraged to engage Alberta's post-secondary/research institutions and include them in the project consortium where appropriate. It is desirable for projects to attract & train highly qualified personnel who will be able to increase the innovation capacity of Alberta and its oil sands industry.

There are no restrictions on the number of EOIs that can be submitted by any applicant. Projects or portions thereof that have received ERA or CCEMC funding are not eligible to receive further ERA funding for the same development. However, applicants may request support for a new phase of development that builds on and sufficiently advances a previously-funded project.

<p>Note: Preference will be given to projects that involve and promote collaboration, knowledge transfer/sharing, and widespread deployment potential.</p>

3 Terms of Funding

3.1 Total Funds Available

The total funding available for projects supported through this Call is up to **\$50 million** Canadian Dollars (\$CAD), subject to the discretion of ERA and the availability of funds.

3.2 Cost Sharing

The maximum funding request to ERA for any one project is **\$10 million CAD**. ERA will only match contributions toward eligible expenses on a one-to-one (1:1) basis. As such, the maximum ERA contribution to a single project will be no more than **50%** of the project's eligible expenses.

ERA will not match other government funds (federal, provincial, international, etc.), offset credits or emissions performance credits associated with the project, tax incentives associated with the project (e.g. Canadian SR&ED credits), revenue from sales of the project's end-products (e.g. from offtake agreement), or non-eligible contributions. However, the presence of these revenue sources do not disqualify a project from ERA funding.

Although ERA will only match eligible contributions, any non-eligible contributions may be noted in the EOI, as the merits of these contributions will be taken into consideration during the evaluation.

For information about eligible expenses and costs, please refer to the ERA *Eligible Expenses and Cost Instructions* document available at <http://eralberta.ca/wp-content/uploads/2017/07/ERA-Cost-Guide-and-Instructions.pdf>. This document has recently been updated and provides additional clarity regarding ERA's contribution toward in-kind and cash expenses.

<p>Note: Applicants must justify the amount of funding requested. ERA may choose at its sole discretion to award project funding for less than the requested amount.</p>

3.3 Project Term

The maximum project length for projects funded under this Call is **three (3) years** from project commencement.

3.4 Project Initiation

Projects may commence after the date on which applicants are notified of ERA funding approval. However, no disbursements will be made prior to execution of a contribution agreement with ERA. Project costs incurred prior to receiving notification of ERA funding approval will be considered out of scope, will not be considered eligible project costs, and are not eligible for fund matching from ERA. Furthermore, project costs incurred prior to execution of a contribution agreement will not be reimbursed by ERA in the event that an agreement is not executed.

3.5 Trusted Partner Funding Leverage

ERA is working in partnership with other funding organizations in Alberta and across Canada. In some cases, there may be an opportunity for ERA 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 ERA's trusted partners. Please note that ERA will only share these applications with partners where ERA has a non-disclosure agreement in place and for the purposes of exploring the possibility of further funding leverage from such trusted partners.

4 Submission Details

4.1 Submission Deadline

The deadline for submission of EOIs in response to this Call is **Thursday, September 7, 2017 at 5:00 PM Mountain Daylight Time (UTC-6h)**. Late submissions will **not** be accepted. Applicants are encouraged to complete their submissions well in advance of the deadline. Furthermore, ERA will not accept partial or incomplete submissions. All required content must be uploaded and inserted into ERA's Emissions Reduction Information Management System ("ERIMS") at <https://erims.outcome-plus.com/> and the submission must be finalized by completing all necessary online steps in order for the EOI to be considered complete. Applicants will receive an automatically-generated email confirming receipt of the EOI upon submission.

4.2 Funding Application and Funding Proposal Schedule

The following timelines are anticipated for the full funding process.

Action	By Whom	Timing
EOI Submission Deadline	Applicants	September 7, 2017
EOI Shortlist Notification	ERA	October 23, 2017
FPP Submission Deadline	Applicants	December 15, 2017
FPP Oral Presentation	Applicants	January/February 2018
Funding Decision Notification	ERA	March 2018

4.3 Submission Content

EOIs must be submitted using the ERIMS at <https://erims.outcome-plus.com/>. Each submission must consist of the following:

- **Expression of Interest Document:** This document will form the basis of ERA's evaluation, and must fully address each of the evaluation criteria.
- **Letters of Support (optional):** Letters of support from partnering organizations, funding sources, site hosts, etc, may be uploaded as an appendix to the EOI document.
- **Online Information:** In addition the upload documents outlined above, applicants are also required to enter general information about the project into the ERIMS online system.

Note: Only the required documents may be provided. Any additional attachments or materials will not be considered.

4.4 Submission Standards

A response template will be provided on the ERIMS for the EOI document during the application process. Applicants **must** use the response template to ensure that all necessary information is provided in a consistent and practical manner.

The final EOI document must be uploaded in PDF format and may be no more than ten (10) 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 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: The ten-page limit does not include optional letters of support.

5 Evaluation

5.1 Evaluation Criteria

EOIs will be evaluated based on the following criteria. Each of the evaluation criteria is assigned a relative weighting. Applicants are encouraged to place more emphasis on the higher-weighted criteria.

Criterion	Description	Weight
Technology and Innovation	In this category, EOIs will be evaluated based on the strength of the proposed technology, including the scientific basis and novelty of the technology, the competitive advantages relative to incumbent technologies, and the expected technological advancement over the course of the project.	20
Impact	In this category, EOIs will be evaluated based on the potential for significant and sustainable GHG reductions in Alberta, as well as the potential for cost reductions relative to existing oil sands processes, and the potential for economic benefits to Alberta.	25
Market and Value Proposition	In this category, EOIs will be evaluated based on the opportunity for commercialization and widespread market adoption of the technology in Alberta, including alignment with market needs, the plan for knowledge transfer/sharing, and the expected pathway toward commercial deployment.	25
Project Team and Collaboration	In this category, EOIs will be evaluated based on the strength of the project team, including technical and management capacity, collaboration and partnerships, and the strength of support from oil sands operator(s).	20

Work Plan and Financing	In this category, EOIs will be evaluated based on the strength of the project plan, including achievability of project objectives and expected outcomes, current financial commitments for the project, and plan to obtain full financing.	10
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5.2 Screening Criteria

In addition to the evaluation criteria described above, projects may be screened out based on one or more of the following factors:

- Insufficient GHG reduction potential in Alberta;
- Inadequate benefit to Alberta;
- Insufficient alignment and/or engagement with Alberta’s oil sands industry;
- Risk of detrimental side effects (e.g. environmental impacts);
- Insufficient information provided;
- EOI not written in English;
- EOI not sufficiently readable or comprehensible;
- EOI does not conform to the submission standards;
- Proposed project is inconsistent with the intent or scope of this Call;
- Proposed development is assessed to be business as usual.

5.3 Next Steps

Some applicants whose EOIs are well aligned with ERA’s mandate, the goals of the Call, and the evaluation criteria will be invited to submit a detailed FPP. Further information regarding FPP submission will be made available at the time FPP invitations are made.

All applicants who submit an EOI through this Call will be notified of ERA’s decision when the EOI review process is complete. Applicants whose proposals are not accepted may arrange a short debrief phone call with ERA to receive feedback. Information about arranging a debrief phone call will be provided in the notification letter.

5.4 Note on Proposal Quality

This is a highly competitive process, and not all projects will be shortlisted. Success at the EOI stage depends on the quality of the EOI submitted. Only the highest quality EOIs will be invited to submit FPPs. 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 a Contribution Agreement between ERA and each 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 remains with its original owner(s).
- ERA retains rights to project results, including without limitation the technical data, reports, analysis, and discussion.
- Project outcomes, results and learning will normally be made publicly available at the conclusion of the project.
- Project technology (based on patent disclosures) developed as a part of the co-funded activities will be owned by the successful applicant. However, successful applicants will be expected to commercialize and/or make the technology available through reasonable commercial terms for the benefit of Alberta.

7 Confidentiality

ERA is subject to the *Freedom of Information and Protection of Privacy Act*, RSA 2000, c.F-25 in the course of performing duties and functions and exercising powers delegated to it. All data and records in the custody or under the control of ERA that are required in the performance of duties or functions or the exercise of powers delegated to ERA are subject to the *Records Management Regulation*, Alberta Regulation 244/2001.

Subject to the requirements described above, ERA is governed by a comprehensive Privacy, Data Security and Confidentiality Policy (the “Policy”). The Policy requires that any and all information concerning the business affairs of ERA and its directors, officers, employees and applicants is to be kept private, secure and confidential. Confidential information that is collected, used or disclosed by ERA will be handled in a manner that recognizes both the right of the individual to have his or her confidential information protected and the need of ERA to collect, use and disclose such information for purposes that are reasonable.

To read the entire Policy, visit <http://eralberta.ca/privacy>.