

PROGRAM GUIDE: Digital Innovation in Clean Energy (DICE) Program 2019

PROGRAM OVERVIEW

BACKGROUND

Alberta Innovates is a catalyst for innovation. As a Government of Alberta corporation and consistent with Government priorities, Alberta Innovates supports research and innovation that lead to economic diversification, enhanced environmental performance, and social well-being.

Specifically, Alberta Innovates is pursuing a strategic direction that focuses on emerging technologies that support multiple sectors across the province. A key innovation strategy is to embrace the digital future while leveraging Alberta's existing natural resources and human capacity, while continuing to enhance Alberta's knowledge workforce to ensure sustainable growth in an increasingly digital based economy.

The Digital Innovation in Clean Energy (DICE) Program is directed towards developing Projects that support existing Alberta Research and Innovation Framework (ARIF) goals while striving towards the strategic direction of the new Alberta economy. In developing a Digital Innovation in Clean Energy Program, the intent is to provide funding and research support for Projects that align with Alberta Innovates go-forward strategy, according to the following innovation platforms:



- 1) Data-Enabled Innovation – Transforming data into actionable information enables digital transformation.
- 2) Digital Tech for Business Transformation – Leveraging technology to sense and measure information across enterprise is changing the way we live and conduct business.
- 3) Clean Technology – Developing of novel and innovative pathways to meet our energy needs in a carbon-constrained future.
- 4) Innovative Production and Distribution – Innovating new products and accessing new markets is critical to competitiveness and continued prosperity in a globalized economy.

Projects that specifically address the following Alberta Innovates Clean Energy 2030 targets will be considered within the scope of this competition. In the following 2030 target focus areas, a 2015 baseline is used.

The ARIF targets outline the following goals that are relevant to this competition:

Focus Area	2030 Innovation Target
Reduce GHG Emissions	Support Alberta’s climate change goals by accelerating solutions to reduce methane emissions by 45% by 2025 and ensure a dynamic portfolio of GHG emission reduction technologies
Increase Value and Market Access	Support the successful commercialization of new value-added products to increase the market value of Alberta's oil and gas exports by 25% and expanding access to market
Improve Oil Sands Efficiency	Oil sands production efficiency and economics improve by decreasing fresh water use by 50%, GHG emissions by 50% on a per barrel basis, and supply cost of bitumen to be globally competitive
Renewable Energy	Renewable sources, like wind and solar, will contribute up to 30% of Alberta’s electricity generation
Conserving Biodiversity	Biodiversity is maintained or enhanced at levels relative to reference conditions
Restoring Alberta’s Landscapes	Reduce landscape disturbance intensity by 20% and accelerate reclamation of disturbed lands to promote native habitat and species recovery
Sustainable Water Management	Safe, secure, and reliable water resources, while enhancing the health of the aquatic ecosystems and improving overall water use efficiency by 30% (2010 base)
Grow Alberta’s Green Economy	Support the Cleantech sector to increase industry sales revenue by 25%, thereby increasing Alberta’s global market share by 20%
Advanced Manufacturing and Materials	The value of Alberta’s manufacturing sector will increase from \$18.8 billion to \$40 billion through the development of advanced materials, instrumentation and repurposing jobs (2014 basis)
Digital Economy	The ICT industry in Alberta generates more than \$20 billion in annual revenues and the province is the best in Canada for digital literacy and connectivity
Reduce Waste	50% reduction in organic waste to landfill through innovative technologies which produce value-added products.
Bioindustrial Investment	Industry operating in the value-added bioindustrial sector will attract an additional \$3 billion private sector investment in Alberta.

Program Details

Through the DICE Program 2019, Alberta Innovates is making available up to \$2 Million over two years to support Projects that align with the Program.

Alberta Innovates' role offers an opportunity to reduce innovation risk for Applicants, offset internal funding competition within organizations, enable collaboration beyond individual organizations and facilitate access to Highly Qualified Personnel (HQP) while developing additional skills and knowledge in the digital innovation ecosystem.

The Proposed Projects should have a clear and direct pathway to affecting tangible impacts in the operations of organization in Alberta. While the full market potential may not be reached as an outcome of the Project, technologies with high near-term market potential are of great interest. Applicants may focus on one or more technology or Project opportunities. Development of Project technologies should be able to either show direct measurable benefits or to reasonably quantify enabled/indirect benefits in at least one of the following areas:

- Cost reduction
- Increasing competitiveness
- Development on HQP
- GHG emissions reductions
- Water, land environmental impacts; clean air, water and soil
- Health related outcomes as they relate to environmental determinants of health and safety
- Direct or enabled improvements to meet 2030 ARIF targets
- Company creation
- New Product development
- Economic diversification

The preference will be for technologies and solutions that are currently at a Technology and Solution Readiness Level (TSRL) between 3-7; in other words beyond the conceptual stage but not advanced enough to be commercialized. The TSRL definitions to be used under this competition are provided at the link here:

Eligible Projects should clearly address one or more of the following Clean Energy targeted Project themes. This is an incomplete list, and consideration may be given to Project themes adjacent to these currently identified areas:

- Advanced Hydrocarbons
 - Production optimization and yield improvements
 - Operational efficiency improvements, improved economic efficiencies
 - Integrated operations solutions
 - Emissions reductions and environmental performance
 - Project execution, operational health and safety

- Cleantech
 - Smartgrid and distributed generation management and control
 - Renewable energy management and control
 - Integration of energy storage and renewable energy
 - Innovations related to contracts and settlements
 - Transportation system management and control
 - Green buildings technologies
- Environmental Innovation
 - Water treatment and management
 - Land and biodiversity monitoring
 - Tailings management
 - Management of environmental monitoring and public health
 - Workplace health and safety

HOW THE PROGRAM WORKS

Eligibility

(a) Applicant Eligibility Criteria

The DICE Program is open to technology developers, industry, industrial associations, small and medium-sized enterprises, research and development (R&D) organizations, post-secondary institutions, municipalities, not-for-profit organizations, and government research labs, providing they are legally able to execute the Investment Agreement. Applicants are not required to be based in Alberta but must demonstrate a clear value proposition for the province.

All corporate Applicants must:

- have a physical presence in Alberta, or intend to create a physical presence in Alberta;
- be a legal entity:
 - incorporated in Alberta; or
 - incorporated federally or in another jurisdiction AND extra-provincially registered in Alberta; or
 - a General Partnership, Limited Partnership or Limited Liability Partnership AND registered in Alberta;

All Applicants must:

- be in good financial standing with Alberta Innovates and its subsidiaries InnoTech Alberta and C-Fer Technologies; and
- demonstrate the relationship between the Applicant and the Project Partner(s) does not create a conflict of interest

Proposed Projects that demonstrate HQP capacity building in Alberta will receive additional consideration for funding.

Collaboration with other Project Partners is highly encouraged and Projects that demonstrate end user engagement and formal partnerships will receive additional consideration for funding.

(b) Project Partner Eligibility Criteria

The Project Partner(s) is(are) required to satisfy the following criteria:

- demonstrate a need or potential for use by Alberta industry;
- demonstrate the relationship between the Applicant and the Project Partner(s) does not create a conflict of interest;
- be in good financial standing with Alberta Innovates and its subsidiaries InnoTech Alberta and C-Fer Technologies;
- an industry Project Partner is recommended but not required for post-secondary institution applicants; and
- federal funding agencies (e.g. NSERC, NRCAN, etc.) are considered eligible Project Partners

(c) Project Eligibility Criteria

To qualify for funding all Projects must:

- be stepped with critical “go/no go” milestones;
- be completed within the two-year term; and
- submit to other criteria that Alberta Innovates may develop from time to time.

Program Objectives and Performance Measurement

Over the life of a Project, Alberta Innovates employs an active project management philosophy, regularly monitoring performance and supporting the Applicant to reach their objectives. Funding is tied to outcomes and achievement of results. For this reason, Alberta Innovates funds on a milestone completion basis. This means the Applicant are expected to submit a Progress Report before Alberta Innovates advances the next tranche of funds.

Once Projects are completed, Alberta Innovates continues to monitor performance to accurately evaluate the economic, social and environmental benefits realized for the province.

All Investment Agreements outline performance indicators tracked over the course of the Project and the responsibilities of the Applicant to report on outcomes subsequent to the completion of the Project. Alberta Innovates has a common set of performance metrics it monitors, both at the individual Project level and for the aggregate Program. These are highlighted on the next page.

Objectives and Performance Metrics



PROGRAM PERFORMANCE INDICATORS

- Support digital literacy and connectivity
- Support solutions to reduce methane emissions
- Illustrate a dynamic portfolio of GHG emission reduction technologies
- Decrease fresh water use in oil sands production
- Increase employment, resource revenues, economic diversification, and improved export potential.
 - Attract investment capital
 - Increase renewable sources
- Enhance the health of the aquatic ecosystems and improve overall water use
 - Increase industry sales revenue
 - Increase Alberta's global market share

SHORT TERM



PROGRAM SHORT TERM OUTCOMES

- Cost reduction
- Increasing competitiveness
- Development of HQP
- GHG emissions reductions
- Water, land environmental impacts
- Health improvements
- Company creation
- New Product development



APPLICANT OBJECTIVES

- Technology development & scale-up
 - Reduce innovation risk
 - Offset internal funding competition
- Enable collaboration beyond individual organizations
 - Facilitate access to Highly Qualified Personnel (HQP)
- Attracting partner funding for technology development and demonstration

LONG TERM



ALBERTA OBJECTIVES

- Economic Diversification
 - Reduce GHG Emissions
 - Improve Oil Sands Efficiency
- Grow Alberta's Green Economy
- Sustainable Water Management
 - Renewable Energy
 - Digital Economy

How Funding Works

(a) Project Funding

Alberta Innovates Investment to a successful Applicant can be up to but not exceeding \$200,000 in Canadian dollars.

The Program supports up to 50% of total Project costs, with remaining funding from the Applicant and/or other Project partners (including cash and in-kind support). For Projects involving post-secondary institution researchers, leverage from federal funding organizations (NSERC, etc.) is highly desirable.

Funding will be dispersed to successful Applicants at the end of each milestone, based on milestone proof, over the maximum two year term. **All Projects must be completed before September 1, 2021.**

Alberta Innovates encourages co-funding of Projects with other funding agencies and does not limit the amount of stacking towards the applicant's contribution.

(b) Eligible and ineligible expenses

Alberta Innovates only funds reasonable costs incurred subsequent to a signed Investment Agreement between Alberta Innovates and the Applicant. Any costs incurred prior to the signing of the Investment Agreement, or costs greater than market prices are deemed ineligible. Costs must be incurred between arm's length entities. Please refer to our standard form Investment Agreement found on our website to get an in-depth understanding of eligible and ineligible costs.

The chart on the next page provides a high-level summary of eligible and ineligible expenses.

Summary of Eligible and Ineligible Expenses

Category	Eligible Expenses	Ineligible Expenses
Labour	<ul style="list-style-type: none"> ✓ Labour costs for those individuals specifically identified as working on the Project 	<ul style="list-style-type: none"> ✗ Overhead costs ✗ Professional training & development ✗ Professional fees unless directly related to the Project
Materials	<ul style="list-style-type: none"> ✓ Reasonable material costs which can be specifically identified for use in the Project 	
Capital Assets & Software	<ul style="list-style-type: none"> ✓ Capital improvements ✓ Capital equipment ✓ Software or information databases <p><i>Note: Eligible costs will be pro-rated to the Project time frame based on the asset's expected economic life</i></p>	<ul style="list-style-type: none"> ✗ Acquisitions of land or buildings ✗ The undepreciated value of eligible capital costs which extends beyond the Project term
Travel	<ul style="list-style-type: none"> ✓ Travel, including mileage, low economy airfare, and accommodation for the purposes of executing the Project 	<ul style="list-style-type: none"> ✗ Passport or immigration fees ✗ Costs relating to meals, entertainment, hospitality and gifts ✗ Reimbursement for airfare purchased with personal frequent flyer programs ✗ Commuting costs between place of residence and place of employment
Sub-contractors	<ul style="list-style-type: none"> ✓ Services or products of another entity 	<ul style="list-style-type: none"> ✗ Costs associated with applying for government grants and Programs ✗ Provisions for contingencies, technical or professional journals ✗ Routine testing and maintenance
Other	<ul style="list-style-type: none"> ✓ Costs which Alberta Innovates pre-approves in writing as an eligible expense 	<ul style="list-style-type: none"> ✗ Collection charges, allowance for interest on debt, fines and penalties ✗ Federal and provincial income taxes, goods and services taxes ✗ Expenses for Projects or activities outside the approved Project

HOW TO APPLY



STEP 1 Application

This is a one stage application process. Applications will be submitted electronically using the Alberta Innovates online intake system; the link can be found on the Alberta Innovates website along with the competition timelines.



STEP 2 Evaluation

The evaluation process is highly competitive and only the highest-quality projects will be considered.

Details regarding Alberta Innovates' merit review can be found within the Webinar Slide Deck, but always, merit is determined against the Performance Indicators listed on page 4.



STEP 3 Project Management

Successful Applicants will execute an Investment Agreement with Alberta Innovates to proceed with the activities of the Project.

Alberta Innovates will provide on-going management, receiving and evaluating Applicants' reporting of milestones and payments on each milestone based on achievement of the objectives

Alberta Innovates continues to require information from the Applicant for five years following the completion of the Project in order to measure long-term benefits

EVALUATION PROCESS

Alberta Innovates leverages internal staff and external expert reviewers to evaluate Applications submitted. Alberta Innovates retains the sole right to determine the evaluation process and does not disclose the names of its external reviewers to ensure their objectivity and impartiality. All external parties are subject to confidentiality, non-disclosure, and conflict of interest policies set by Alberta Innovates. For a more detailed account of the evaluation process for this Program, see Appendix A.

The assessment criteria and all investment decisions are at the sole discretion of Alberta Innovates.

TERMS AND CONDITIONS

This Program Guide is intended as a high-level overview of the DICE Program. It provides interested parties with a roadmap of what to expect over the lifecycle of a Project, from the Application stage, during the Project and post-completion. Should you have any questions about this guide or what is expected, please contact Alberta Innovates. Please be aware Alberta Innovates may modify this guide from time to time in keeping with any changes to the Program.

Alberta Innovates will only correspond in writing and provide copies of the Application to the person named in the application form as the one authorized to speak for the Applicant.

Once we have evaluated and approved an Application for funding, Alberta Innovates will require the Applicant to sign our standard form Investment Agreement. A copy of the Investment Agreement is available on the Alberta Innovates website. The Investment Agreement sets out in detail the roles, responsibilities and obligations of the various Parties to ensure a successful Project. Alberta Innovates will not provide any funding until the Investment Agreement has been signed by all Parties.

Alberta Innovates will only fund Applicants who have satisfied all eligibility criteria. Meeting the eligibility criteria does not guarantee access to funding, and all funding decisions will be made by Alberta Innovates at its sole discretion.

DIVERSITY, EQUITY, AND INCLUSION

The Alberta research and innovation (R&I) ecosystem is stronger and more sustainable when it is broadly reflective of the overall diversity of our community. Alberta Innovates strives to ensure all interested and qualified parties have an equitable opportunity to participate and contribute. Historically, there have been a number of groups/populations that have been under-represented in the Alberta R&I landscape including:

- Women entrepreneurs/researchers;
- Indigenous entrepreneurs/researchers;
- Remote/small community entrepreneurs/researchers; and
- New immigrant entrepreneurs/researchers.

We are guided by the principles of:

- **Diversity** – both internal and external participants to our processes are comprised of a varied composition of demographics;
- **Equity** – our processes support equal access across all demographics; and
- **Inclusivity** – our processes proactively work to include underrepresented segments of the R&I landscape.

As part of its commitment to Diversity, Equity and Inclusion (DEI), Alberta Innovates will:

- Collect data in the grant application on a voluntary basis to better understand diversity;
- Provide grant application navigation support to applicants from under-represented groups; and
- Integrate a DEI focus into its due diligence processes including striving to have diverse review committees to foster unbiased decision making.

CONTACT INFORMATION

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