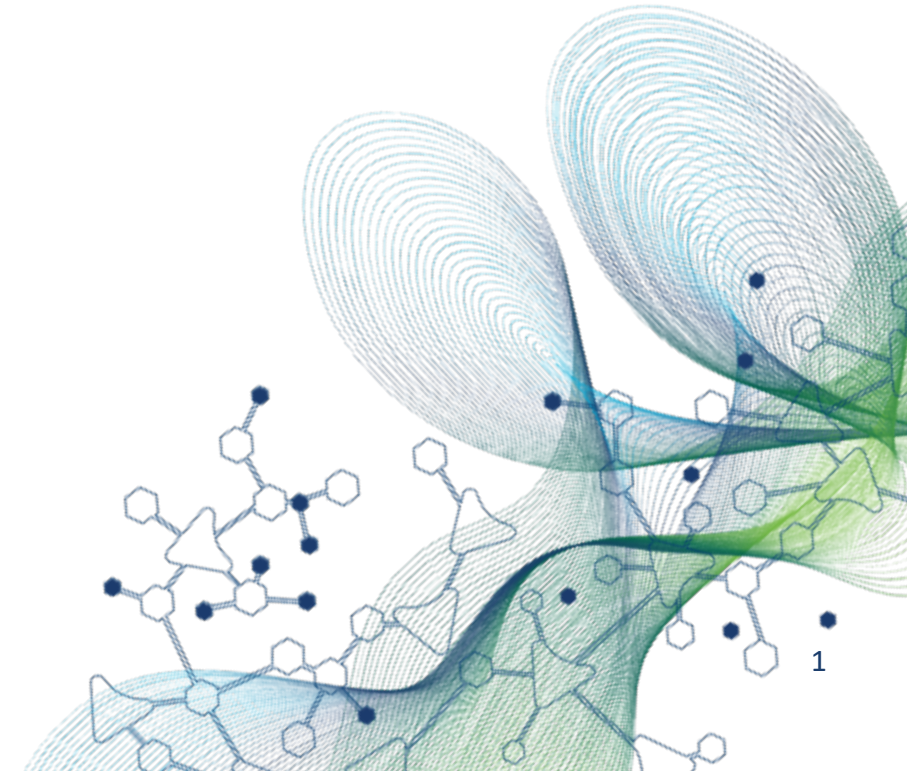


Digital Innovation in Clean Energy (DICE) 2.0 Open Competition

Program Webinar

Bruce Duong, Senior Manager, Digital and Recovery Technologies

October 28, 2021



Agenda

1. Housekeeping
2. Alberta Innovates Background
3. Digital Innovation in Clean Energy 2.0
4. Project Targets and Considerations
5. Applicant Eligibility
6. Submission Process
7. FAQs
8. Q&A

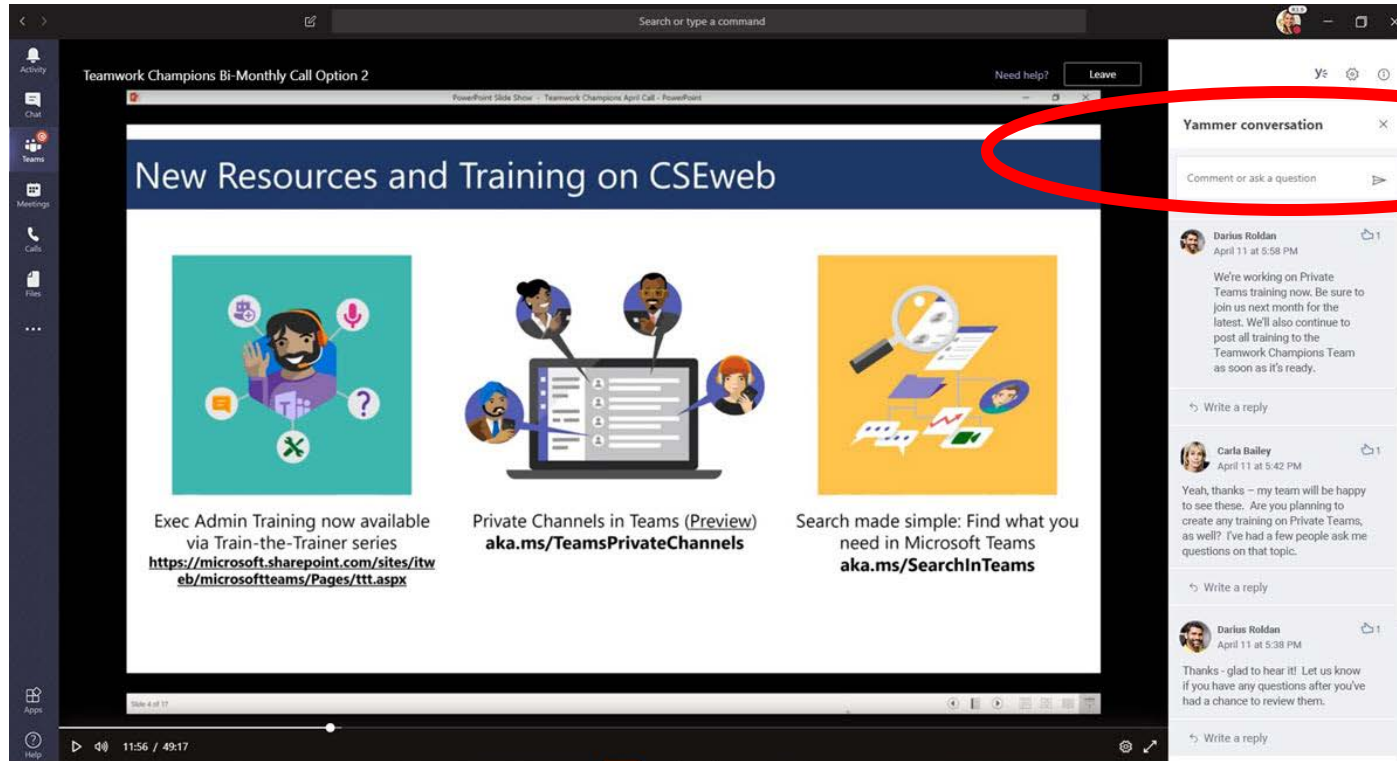
Housekeeping

The presentation and Q&A will be recorded and posted on the DICE program website within 24 hours of the end of the webinar.

- Microphones are muted, you are only able to listen to the audio and view the presentation.
- All questions are typed in the message box, directly under the “ask the moderator” section.
- Please ask your questions or vote up questions that may be repeated.
- Questions will be answered and recorded in the Q&A portion of the presentation.



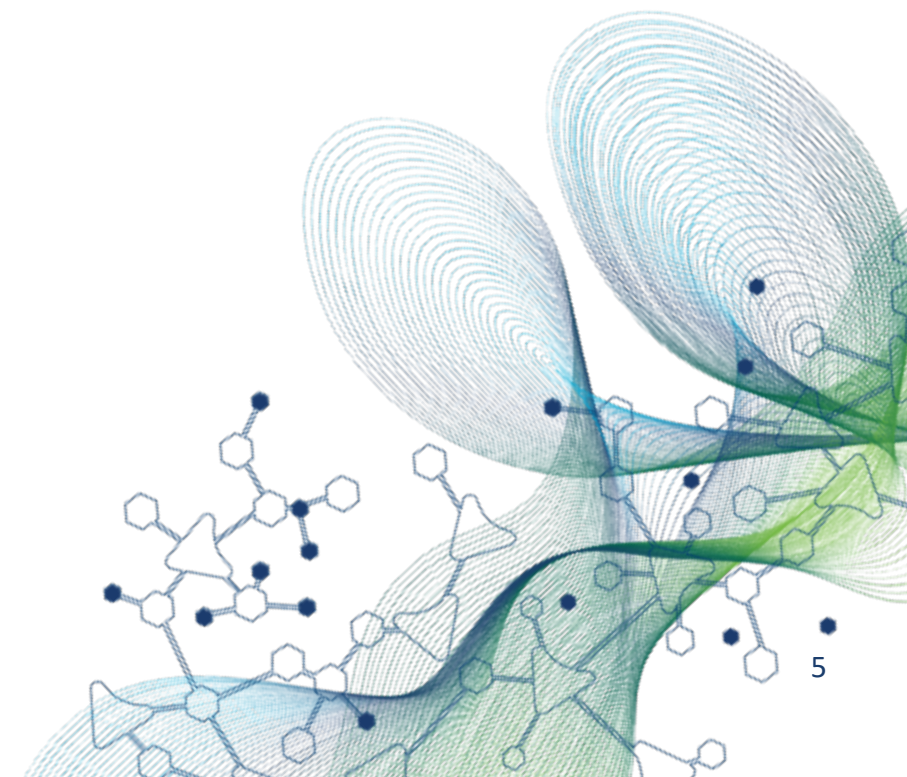
Housekeeping



- Click on the message box located at the top right corner and type in your question
- Hit enter or arrow icon to send question

Land Acknowledgement

We acknowledge the many First Nations, Métis and Inuit who have lived in and cared for these lands for generations. We are grateful for the traditional Knowledge Keepers and Elders who are still with us today and those who have gone before us. Alberta Innovates respectfully acknowledges that we are situated on traditional territory of the Treaty 6, Treaty 7, and Treaty 8 First Nations; home to Métis Settlements, the Métis Nation of Alberta, and Regions 2, 3 and 4 within the historical Northwest Métis Homeland. We respect the histories, languages, and cultures of First Nations, Métis, and Inuit whose presence continues to enrich our vibrant community.



Equity – Diversity – Inclusivity

We believe the Alberta Research and Innovation (R&I) ecosystem is stronger and more sustainable when it is broadly representative of the overall diversity of our community.

We strive to ensure that all interested and qualified parties have an equitable opportunity to participate and contribute to the ecosystem and that our processes are inclusive.

Historically, there have been several groups/populations that have been under-represented in the R&I landscape including:

- Women entrepreneurs/researchers
- Indigenous entrepreneurs/researchers
- Remote/small community entrepreneurs/researchers
- New immigrant entrepreneurs/researchers

We encourage ALL entrepreneurs/researchers to apply!

If you are a first time AI applicant, don't hesitate to reach out for navigation information.



Alberta Innovates at a Glance



“Alberta’s research and innovation engine, solving problems, creating possibilities”

Our Focus

Core Emerging Technology Areas



Our Focus

Clean Resources

Clean Resources

- Advanced Hydrocarbons
- Clean Technology
- Environmental Innovation
- Bio-Industrial Materials
- Smart Agriculture and Food

Aligned Priorities

- GHG (CCUS, CH₄, etc.)
- Water
- Land
- Tailings
- Wellsite Reclamation
- Biodiversity

Continuous
Intake

Open
Targeted
Calls

Alberta Research & Innovation Framework

2030 Targets



45%

reduction in methane emissions by 2025



30%

electricity from renewables



20%

reduction in landscape disturbance, accelerated reclamation



30%

increase in water efficiency and safe, secure water



\$40 billion

Alberta's manufacturing output



50%

per barrel decrease in fresh water use and GHG emissions



25%

increase in value of oil and gas exports



Biodiversity

maintained or enhanced



25%

revenue increase in cleantech



\$20 billion

Alberta's digital economy

Digital Innovation in Clean Energy (DICE)

Program Objectives

- Advancing technologies that benefit Alberta industry or public sector
- Funding novel technologies with the potential to achieve clean energy impacts, economic diversification, and employment opportunities
- Recruiting and developing highly skilled personnel to support the digital economy in Alberta

Overarching Alberta Research Innovation Framework Targets

- A 35% revenue increase in cleantech
- A \$40 billion increase in manufacturing output
- A \$20 billion digital economy in Alberta

Digital Innovation in Clean Energy (DICE)

Alberta Innovates is announcing a new round of funding under its Digital Innovation in Clean Energy (DICE) program. \$2.5 million in funding from Alberta Innovates is available, with up to \$350,000 available per project.

DICE funds the development of:

- Artificial intelligence, machine learning, industrial internet of things, augmented reality, and unmanned aerial vehicle technologies for use in Canada's energy industry.

DICE projects will:

- Develop technologies and accelerate them into market, improving the efficiency of energy production, reducing greenhouse gas (GHG) emissions, creating jobs in the digital economy, and contributing to environmental innovations in water and land management.

Digital Innovation in Clean Energy (DICE)

A new round of funding complements the investment provided to the first DICE projects in 2020, where 17 projects supported by \$3 million in DICE funding created \$16 million in project value.

Examples of previously funded projects in DICE include:

- Edmonton-based NTWIST is applying artificial intelligence for industrial process optimization and automation to help major resource producers reduce costs and environmental impacts. Full story [here](#).
- Galatea Technologies is creating a “Waste Coordinator” platform to increase workflow transparency, cost accuracy and provide actionable insights into the \$4 billion Canadian waste disposal market. Full story [here](#).
- Validere is using advanced analytics and machine learning based platform to measure emission reductions and produce actionable insights for buyers, sellers, and transporters of petroleum products, while improving operations efficiency and trading profits. Full story [here](#).

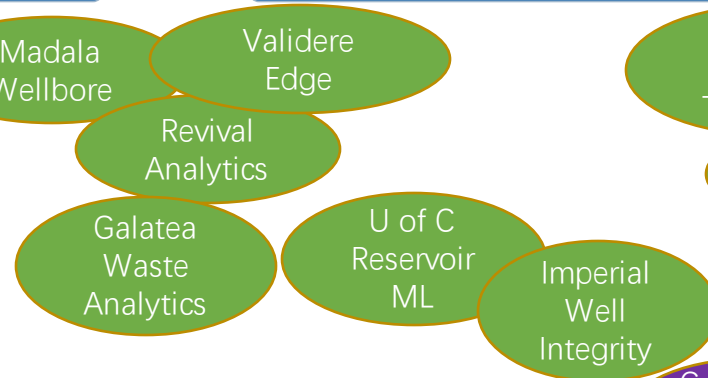
Current and Completed Projects



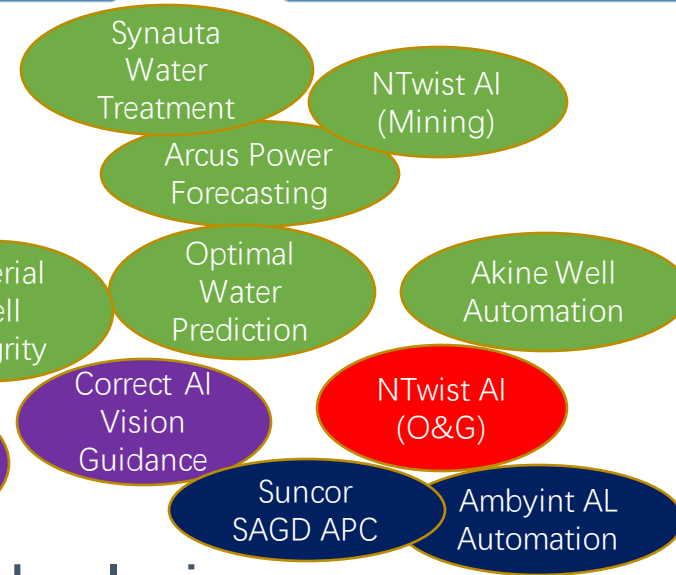
Internet of Things



Machine Learning



Artificial Intelligence



Ancillary and Supporting Technologies

VR/AR

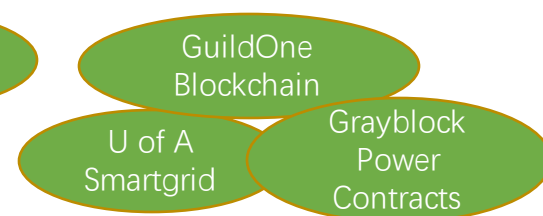


Rapid Prototyping

Robotics/UAV



Blockchain/DLT



Cloud/Data Management

- DICE Projects
- TIER Projects
- Base Projects
- ERA Projects

DICE 2.0 Timeline

Date	Planned Activity (dates subject to change at AI's discretion)
October 21, 2021	Launch of open call
October 28, 2021	Webinar (via videoconference)
December 22, 2021	Close of proposal submissions 3:00 PM MST
February 25, 2022	Announcement of funded projects
August 31, 2023	Latest completion date for funded projects

Project Targets and Considerations

Proposed solutions should be within a TSRL range of 3-7 at the beginning of the project

- **TSRL 1-3: Research and solution validation:** Research is primarily done in the lab and ranges from fundamental research to proof of concept in a lab setting. Theory and scientific principles are focused on knowledge and application to define the concept. A potential business model is outlined, with problem and solution validation required. A market and competitive analysis is performed to align the proposed solution with the market need.
- **TSRL 4-6: Development:** The basic technological components are integrated for testing in a simulated environment and include alpha testing of prototypes. Knowledge and operational practices (e.g., best management practices) are tested at small scales in the field. A roadmap for the solution's technical requirements is developed to complete a demonstration of design prototypes in specific applications.
- **TSRL 7: Field Pilot:** The prototype is tested in the field in an operational environment and is well integrated with other systems. The proposed solution package is tested by end-users to validate performance and integration.
- **TSRL 8-9: Demonstration:** The technology is scaled up and tested in its final form and under expected conditions. The solution has been developed to the stage of a minimum viable product, validating the proposed business model and confirming market applicability.

Project Targets and Considerations

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 of HQP
- GHG emission reductions
- Water, land environmental impacts; clean air, water, and soil
- Company creation and new product development
- Economic diversification

Project Targets and Considerations

Proposal Application Evaluation Criteria

The Innovation	Project Management	Impacts and Outcomes
Innovation Opportunity	Work Plan, Tasks, and Deliverables	Economic Impacts to Alberta
Market Opportunity and Competitive Analysis	Budget and Funding Commitment	Environmental Impacts
Proposed Commercialization Pathway	Project Team	Social Impacts
	Risk Analysis and Mitigation	

Project Targets and Considerations

Examples of potential projects

Product yield optimization and production efficiency

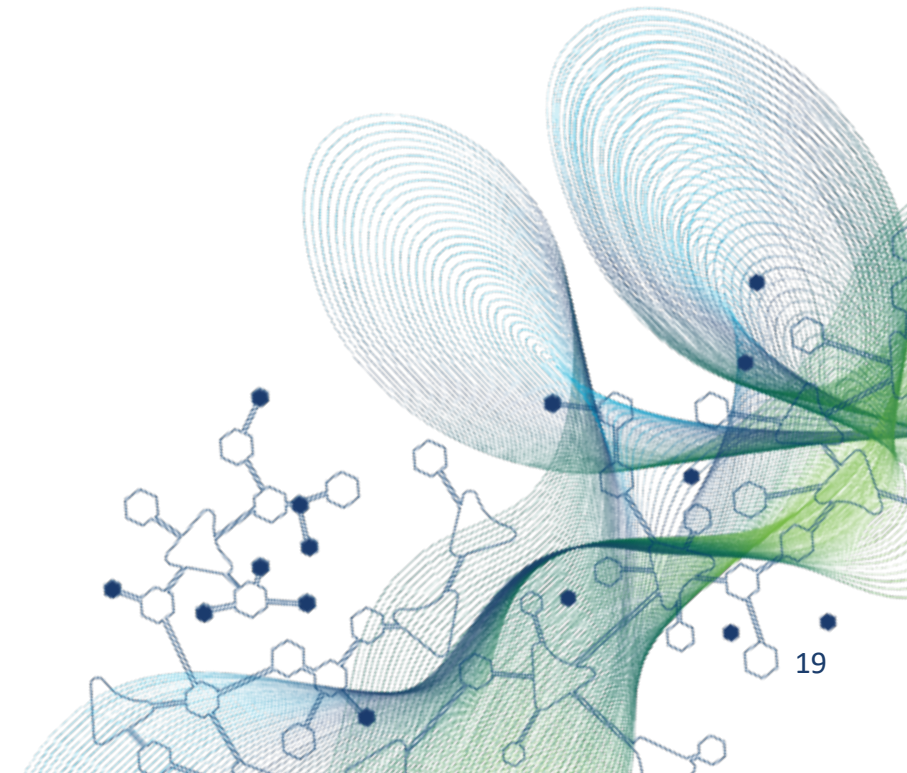
- Downhole/surface IoT data acquisition and control
- Artificial lift operation, pipeline operation automation
- Enhanced seismic data acquisition, real time reservoir history match
- Real time 3D imaging, fracturing optimization, reservoir optimization

Value creation and operational efficiency

- Scenario modeling, arbitrage, trading, product value realization
- Smart contracts, project execution optimization
- Simulation, production planning, projections

Automation

- IoT sensors, edge controllers; automated optimization
- UAVs and LIDAR, mapping and satellite technology
- Self-driving haulers, autonomous mining, autonomous transportation



Project Targets and Considerations

Examples of potential projects

Project execution and predictive maintenance

- Shutdown reduction, integrity issue avoidance
 - VR/AR/visualization - digital twins and project execution
 - IoT sensor analogs, computer vision, cameras
 - Integration with existing operational data; SCADA, fluid samples etc.
 - Innovative data collection technologies
- General digital technologies
 - Development of innovative hardware for data collection, analysis and management
 - Development of innovative software for data analytics, interpretation and prediction
 - Development of innovative predictive models
 - Development of innovative data workflows using existing data sources
 - Application of machine learning to specific data sets
 - Development of new ML/AI workflows, implementation of AI workflows for process automation

Project Targets and Considerations

Clean Resources Focus Areas

Advanced Hydrocarbons	Clean Technology	Environmental Innovation
Production optimization and yield improvements	Smartgrid, distributed generation, and renewable energy management and control	Water treatment and management
Operational efficiency improvements, improved economic efficiencies	Integration of energy storage and renewable energy	Land and biodiversity monitoring
Integrated operations solutions	Innovations related to contracts and settlements	Tailings management
Emissions reductions and environmental performance	Transportation system management and control	Management of environmental monitoring and public health
Project execution, operational health and safety	Green buildings technologies	

Applicant Eligibility

Project funding can be up to, but not exceeding \$350,000 per project

- Program normally supports up to 50% of total project costs (cash plus in-kind) with the balance of funding from other project partners
- Other public funding sources (NSERC, SDTC, NRCan, etc.) are acceptable as eligible partner funding – no stacking limit with other public funding
- All projects must be completed before August 31, 2023
- Funding is dispersed on an initial project approval, milestone, and project completion basis for successful applicants
- A summary of eligible and ineligible costs is available in the Program Guide

Applicant Eligibility

Applicant is required to be one of the following:

- Alberta-based technology developer
- A researcher(s) or research team within an Alberta post-secondary institution
- A stakeholder (e.g. government research lab, consortia, end-users, etc.) with identified opportunity to develop digital energy technology for application to critical industry or public sector needs

Collaboration with other project partners is highly encouraged. Consideration will be given during the review process for projects demonstrating end user engagement and formal partnerships.

Applicant Eligibility

If you're not sure of your eligibility, ask!

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

- Demonstrate a need or potential for use by Alberta Industry
- No conflict of interest between the Applicant and Partner(s)
- Have no outstanding balances to Alberta Innovates or subsidiaries

Additional Considerations:

- Federal funding agencies (e.g. NSERC, NRCan, etc.) are considered eligible project partners
- An industry partner is recommended but not required for post-secondary institution applicants

Submission Process

Online Portal Instructions

Step 1: Register as an applicant on SmartSimple: <https://albertainnovates.smartsimple.ca>

Step 2: Select the correct competition: Digital Innovation in Clean Energy : DICE 2.0 – Fall 2021

Step 3: Complete the single-stage application online, including attachments

Step 4: Submit before the deadline: **December 22, 2021: 3:00 p.m. MST**

Submission Process

Online Portal Instructions

Step 1: Register as an applicant on SmartSimple: <https://albertainnovates.smartsimple.ca>

A screenshot of the SmartSimple login and registration page. The page has a dark background with a blurred image of green leaves. On the left, there is a 'Login' section with two input fields: 'Email' (with an envelope icon) and 'Password' (with a magnifying glass icon). Below these fields is a blue 'Login' button. To the right of the 'Login' button is a link that says 'Forgot Password?'. Below the 'Login' section, there is a link that says 'New to the System?'. Below this link is a blue 'Register' button, which is circled in red. On the right side of the page, there is a 'Welcome' section with text about challenges and growth, and a 'Our new Po' section with text about related information and reports.

Organization Information

Instruction

Complete the fields below to complete your registration. Use the below lookup field to find your organization if it has already been registered in our system.

If you cannot find your organization in the box below, please click [here](#).

* Legal Name

Organization

If you select a company from the search above, please navigate to the Organization page after registration and verify that all of the information is up-to-date and complete.

Contact Information

* First Name

* Last Name

Title/Position

* Work Email

Submission Process

Online Portal Instructions

Step 2: Select the correct competition: Digital Innovation in Clean Energy: DICE 2.0 – Fall 2021


Welcome Bruce Duong

Organization Profile

Personal Profile

Change Password

Applications
Click here to view all of your applications.


Funding Opportunities

0
Draft Applications




0
Submitted Applications

0
Approved/Declined Applications

Funding Opportunities

**** Please ensure you have read the Program Guide for the Program you are applying for, and that you meet the eligibility requirements of the Program, prior to starting your Application. ****

NOTE: Unsubmitted Applications to Continuous Intake Programs (i.e. Programs with no Competition Deadline) will be automatically deleted if not modified in 90 days. Unsubmitted Applications to Program Calls will be automatically deleted in 30 days after the Competition Deadline.

 1-11 of 11  

Program Name	Competition Name	Competition Deadline	Program Guide	Program Home Page	
Ecosystem Development Program	EDP - 2021		Link	Link	Apply Now
Digital Innovation in Clean Energy	DICE 2.0 - Fall 2021	22/12/2021	Link	Link	Apply Now
Post Secondary Investments & Emerging Technologies Intake Form	PSIET Intake Form			Link	Apply Now
Alberta Nanofacilities	Alberta Nanofacilities - Continuous Intake	31/03/2021	Link	Link	Apply Now
AICE Market Access/Validate Intake Form	AICE Market Access/Validate Intake Form			Link	Apply Now
Clean Resources Continuous Intake Form	Clean Resources Continuous Intake Form		Link	Link	Apply Now

Submission Process

Online Portal Instructions

Step 3: Complete the single-stage application online, including attachments.

SAVE DRAFT FREQUENTLY ON SMARTSIMPLE!



212201436

Program Name: DICE

Cycle Name: DICE 2.0 - Fall 2021

The red * before a question indicates that it is mandatory for submission.

Generate Application PDF

INSTRUCTIONS AND DISCLAIMER

APPLICANT INFORMATION

REPRESENTATIVE INFORMATION

NON-CONFIDENTIAL SUMMARY

INNOVATION OPPORTUNITY

MARKET OPPORTUNITY

PROPOSED COMM



Instructions and Disclaimer

This Application form collects pertinent information about the Investment being requested. This enables Alberta Innovates to assess the merits of the proposed Application and its fit with our strategic priorities and corporate Application in its entirety. Applicants that fail to complete all mandatory sections may not be considered. It is essential that you read and understand the Program Guide before completing this Application. All capitalized words in this Application have the respective meaning as set out in the Program Guide or Investment Agreement. In this Application, the term "you" and "Applicant" are used interchangeably.

To complete this Application, move from left to right through the tabs above. If you require assistance in completing your Application, please contact the Alberta Innovates' representative listed in the Program Guide. If you are a grantee, contact _grants@albertainnovates.ca.

The Application will be reviewed by experts who are within and potentially outside of Alberta Innovates. These experts will provide their recommendations to Alberta Innovates and Alberta Innovates may, at its sole and absolute discretion, accept or reject the Application.

Submission Process

Online Portal Instructions


Step 4: Submit before the deadline: **December 22, 2021: 3:00 p.m. MST**

212201436

Program Name: DICE

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POSED COMMERCIALIZATION PATHWAY PROJECT OVERVIEW PROJECT WORKPLAN, BUDGET AND TEAM PROJECT RISK ANALYSIS AND MITIGATION IMPACTS **ATTACHMENTS** CONSENT EQUITY, DIVERSITY AND INCLUSION (EDI) F

Please Note: unless otherwise noted, the only files that can be uploaded are of the PDF file format. Please convert your files to PDF before uploading. PDFs may be combined prior to uploading, to reduce the number of uploaded files.

*** Alberta Innovates Work Plan and Budget Workbook:**

Please refer to the Project Work Plan, Budget and Team tab before uploading. Please upload as an excel document.



Supporting Documents Referenced in the Application:

Upload any documents that are referenced in the Application.



*** Resumes/CVs of Key Team Members:**

Please refer to the information in the Project Work Plan, Budget and Team section before uploading.



Letters of Support:

← BACK to the

javascript:openurl('/iface/ex/ax_index.jsp')

Save Draft

✓ Submit Application

Withdraw Application

FAQ

Advice for preparing a successful submission

- Read the Program Guide
- Use clear and concise language
- Define what problem you are trying to solve
- Position your proposal relative to competing technologies
- Address each question in the application and read the question guidance carefully
- **SAVE DRAFT FREQUENTLY ON SMARTSIMPLE!**
- **DON'T WAIT UNTIL THE LAST DAY(S) TO SUBMIT!**

FAQ

- What types of organizations are eligible?
- Can projects or funding occur outside the province?
- What are examples of “industry” partners?
- What costs are eligible for matching funding?
- Is there a minimum funding request?

For additional specific questions regarding this program please contact:

Bruce Duong, Senior Manager, Recovery Technologies:
bruce.duong@albertainnovates.ca

Questions

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THANK YOU

