

# INVESTING *FOR* IMPACT



## 2021-2022 **ANNUAL REPORT**

*June 1, 2021 – May 31, 2022*

EMISSIONS  
REDUCTION  
ALBERTA





Inside cover: Sunterra Greenhouse

Cover: Lafarge Exshaw Cement Plant



# CONTENTS

---

1 MESSAGE FROM DAVE COLLYER, ERA BOARD CHAIR

---

2 MESSAGE FROM JUSTIN RIEMER, ERA CEO

---

4 2021-22 HIGHLIGHTS-AT-A-GLANCE

---

5 OVERVIEW

---

11 STRATEGIC PRIORITY: ACCELERATE TECHNOLOGY

---

21 STRATEGIC PRIORITY: DRIVE COMMERCIALIZATION

---

25 STRATEGIC PRIORITY: MAXIMIZE IMPACT

---

35 EXECUTIVE TEAM

---

36 BOARD OF DIRECTORS

---

37 FINANCIALS

# MESSAGE FROM DAVE COLLYER, ERA BOARD CHAIR

2021-2022 was another very successful, albeit challenging, year for Emissions Reduction Alberta (ERA). If I had to choose two words to characterize the organizational traits that were essential over this past year to navigate disruptive market and geopolitical forces, they would be agility and adaptability. ERA has consistently exemplified both these traits in developing and implementing our strategy and operational plans.

The launch of the two new funding opportunities and the expanded focus of the Energy Savings for Business Program (ESB) are just two examples of ERA's work over the past year to reduce emissions and grow the economy. Cumulatively, these efforts, along with the other activities you will read about in this Annual Report, resulted in over \$50 million in new funding launched and an additional \$50 million in committed investments announced in 2021-2022.

Importantly, over the past year, ERA reviewed and updated our Technology Roadmap (TRM). This document sets the course for our investment and portfolio mix, keeping us on track in accelerating the development and deployment of technology and innovation toward a low-emissions future. With the input and validation of our key stakeholders, the TRM was updated to reflect our current landscape; one that has presented significant challenges from geopolitical turbulence, economic uncertainty, evolving investor interests, and, of course, a worldwide pandemic. The TRM's most significant change is its shift away from specific sectors. It now puts a spotlight on key cross-cutting technology areas that can be deployed across multiple sectors: carbon sequestration, future fuels, energy efficiency, industrial transformation, and circular economy.

The past few months have also been a period of significant leadership change at ERA. After more than six years with the organization, CEO Steve MacDonald made the decision to retire. Steve has been a transformational leader, greatly enhancing the organization's direct impact and making a significant contribution to the broader innovation system by increasing alignment and coordination across levels of government and industry. Justin Riemer took the helm as CEO in June at the beginning of our 2022-23 fiscal year. He has an impressive background in navigating Canada's innovation system, building relationships with industry and government inside and outside of Alberta, and delivering outcomes in economic development. The ERA Board looks forward to working with Justin to ensure that ERA continues to be an important contributor to diversification and growth of Alberta's economy and accelerating the transition to a low-emissions future.

Finally, I am proud that ERA is a trusted delivery partner for the Government of Alberta's Technology Innovation and Emissions Reduction (TIER) Fund and is supportive of its economic and environmental priorities. ERA continues to work with the Province to leverage funding announcements, impact stories, lessons learned, data and outcomes that demonstrate how its investment in innovation and technology is helping to stimulate the economy, grow businesses, and reduce GHG emissions in Alberta.



**Dave Collyer**  
ERA Board Chair

# MESSAGE FROM JUSTIN RIEMER, ERA CEO

I am extremely honoured to present ERA's Annual Report: my first as CEO of the organization. When I am asked about ERA and begin to describe how we seek out and invest in technologies for a low emissions future, I am as excited about the projects we have already funded as I am about the technologies that are just on the horizon. All of these innovations are an important part of our story and will help us reach our emissions targets, keep Alberta competitive, and deliver the technologies the world needs.

As you will read in the pages of this Report, in 2021-22 ERA continued to deliver incredible impact. The team designed and launched two funding opportunities, made important market driven adjustments to our ESB Program, developed new partnerships with international experts, enhanced our internal processes, and refined our organization's structure.

Equally as important as announcing new funding, thirteen ERA-funded projects were completed in 2021-2022. Since knowledge sharing is a significant element of ERA's value proposition, all recipients are required to report on project outcomes, achievements, and lessons learned including greenhouse gas (GHG) reductions, job creation, and other environmental, economic, and social benefits. These learnings are important to help scale-up critical technology solutions across sectors, ultimately allowing Alberta to share with the world.

Thanks to the funding provided to us by the Government of Alberta, since 2009, ERA has committed \$821 million toward 231 projects worth \$6.5 billion. These projects are helping

to reduce GHGs, create competitive industries, and are leading to new business opportunities in Alberta. When that's broken into economic impact, it stacks up to a \$4.9 billion GDP impact and 33,400 person-year-jobs in Alberta by 2025. What's most important is that these investments are anticipated to deliver 40 million cumulative tonnes of emissions reductions by 2030. It is an important part of the equation that ERA's investments must be matched by project partners. We are now seeing that for every dollar we've put committed, another \$6.90 has been invested by public and private partners.

ERA is rolling into its 13th year of operation. With a strong foundation in place and a business model that is completely unique, ERA is poised to deliver an even greater impact. In 2022-23, we plan to work more closely with both the federal and provincial governments to leverage funds that will support the acceleration of emissions reducing technology. We will focus on building stronger national and international networks and partnerships, and we will do even more to communicate Alberta's success stories globally. ERA is committed to playing a pivotal role in creating a low-emissions future that benefits Albertans, Canadians, and the world. I am so proud to be a part of it and I am grateful to the extraordinary team and stakeholders that are helping to create a low-emissions future.

Climate change is the defining crisis of our time. A sense of urgency is growing around the world and now is the time for a bold, collective approach. We can, and will, go farther and faster together.



**Justin Riemer**  
ERA CEO



SINCE 2009

COMMITTED OVER  
**\$821** MILLION TO

**231** TECHNOLOGY ACCELERATION PROJECTS

VALUED AT  
**\$6.5** BILLION

ENERGY SAVINGS FOR BUSINESS PROGRAM

- INVESTED \$38 MILLION
- CREATED 1,123 JOBS
- REDUCED 2.7Mt OF LIFETIME EMISSIONS
- CONTRIBUTED \$138 MILLION TO GDP

**\$4.9** BILLION

GDP IMPACT AND  
**33,400** PERSON-YEAR-JOBS IN ALBERTA BY 2025



**\$6.6** BILLION

GDP IMPACT AND  
**45,800** PERSON-YEAR-JOBS IN CANADA BY 2025

FOR EVERY DOLLAR

INVESTED BY ERA, ANOTHER  
**\$6.90** HAS BEEN INVESTED BY PUBLIC AND PRIVATE PARTNERS



IN 2021-22

ANNOUNCED OVER **\$40M** TO KICKSTART  
**\$20 BILLION** IN CARBON CAPTURE PROJECTS



PARTNERED WITH INTERNATIONAL CCUS INITIATIVE, ACT, TO LEVERAGE  
**\$19 MILLION** IN INVESTMENT FROM 8 COUNTRIES FOR 4 ALBERTA-BASED PROJECTS

PUBLISHED KEY FINDINGS FROM  
**12 COMPLETED** TECHNOLOGY ADVANCEMENT PROJECTS

LAUNCHED  
**\$50M** CIRCULAR ECONOMY CHALLENGE



SIGNED TWO NEW TRUSTED PARTNER AGREEMENTS

- CANADA INFRASTRUCTURE BANK (CIB)
- PRAIRIES ECONOMIC DEVELOPMENT CANADA (PRAIRIESCAN)

COMPETITION COORDINATOR FOR THE CLEAN RESOURCE INNOVATION NETWORK'S  
**\$50 MILLION** REDUCING ENVIRONMENTAL FOOTPRINT TECHNOLOGY COMPETITION

EXPANDED THE ELIGIBILITY FOR ITS  
**\$55M ESB PROGRAM**, ADDING TWO NEW FUNDING STREAMS

FINALIZED THE 4TH EDITION OF THE  
**TECHNOLOGY ROADMAP**

EXPANDED REACH BY ADDING  
**1,700** LINKEDIN FOLLOWERS AND INCREASING TRADITIONAL MEDIA COVERAGE BY **44%**

\* Carbon dioxide equivalent (CO<sub>2</sub>e) is a standard unit for measuring the impact of each different greenhouse gas; 98 Mega Tonnes is equivalent to greenhouse gas emissions from over 21 million gasoline-powered vehicles driven for one year.

# OVERVIEW

## ABOUT ERA

ERA was created in 2009 to help deliver on the province’s environmental and economic goals. ERA takes action on climate change and supports economic growth by investing in the development and deployment of clean technology solutions that reduce GHG emissions while lowering costs, attracting investment, and creating jobs in Alberta.

Alberta has an industrial carbon pricing and emissions trading system that has been in place since 2007. The province was one of the first jurisdictions in North America to put a price on carbon. On January 1, 2020, the Government of Alberta implemented its new TIER regulation. Under this carbon pricing mechanism, large emitters in Alberta are required to meet GHG emissions performance benchmarks.

Regulated facilities can comply with these benchmarks by making on-site reductions, using emissions performance credits from other facilities that have outperformed their benchmarks, using offset credits from prescribed emissions reduction activities outside of regulated facilities, or by paying into the TIER compliance fund. The price of TIER fund credits has increased from \$30 per tonne in 2020 to \$40 in 2021 and \$50 in 2022, and Alberta has committed to maintaining jurisdiction over industrial carbon pricing which includes increasing the fund price to align with the federal carbon price, scheduled to reach \$170 per tonne by 2030.

ERA remains a key delivery agent responsible for reinvesting these Government of Alberta funds into innovative technologies to accelerate emissions reductions.

## CORE VALUES

INNOVATION

COLLABORATION

TRANSPARENCY

INTEGRITY

### MANDATE

Reduce GHG emissions and grow Alberta’s economy by accelerating the development and adoption of innovative technology solutions.

### VISION

Alberta has a diversified, net-zero economy with competitive industries that attract investment and deliver sustainable environmental outcomes.

### VALUE PROPOSITION

ERA invests proceeds from carbon pricing paid by large industrial emitters to reduce GHG emissions and strengthen the competitiveness of new and incumbent industries in Alberta. Our investments help innovators develop and demonstrate GHG-reducing technologies. These technologies will lower costs, improve competitiveness, and accelerate Alberta’s transformation to a low emissions economy. ERA delivers results through a competitive, transparent, efficient, and outcomes-focused delivery model.

## STRATEGIC PRIORITIES

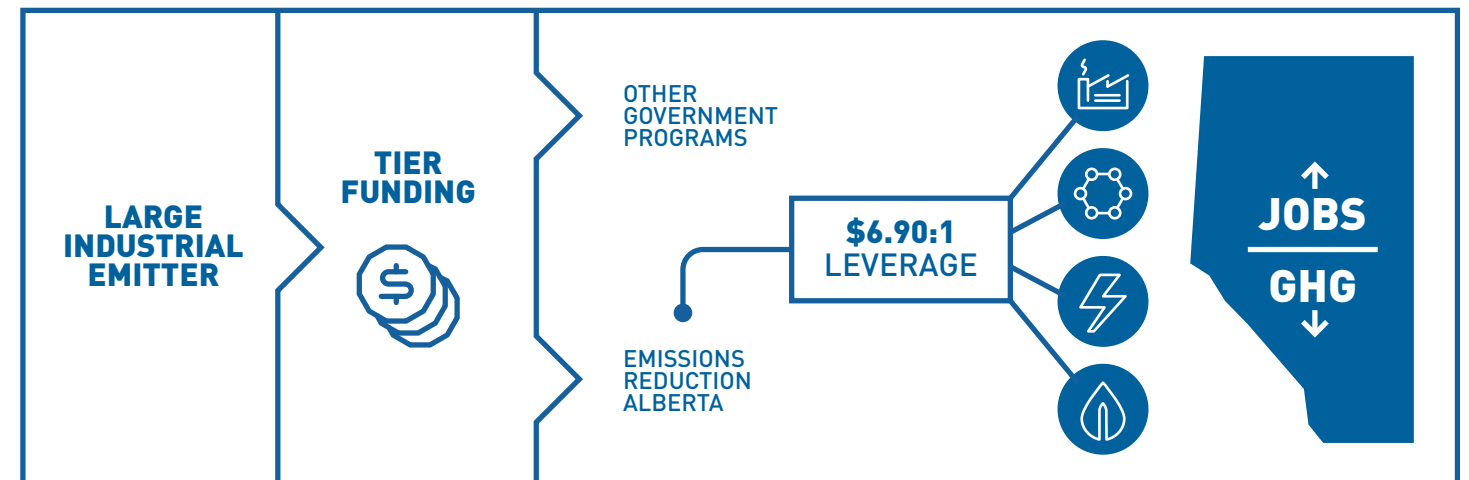
In 2021-22, ERA continued its focus on three strategic priorities that frame its activities:

- 1. Accelerate Technology:** Invest in GHG-reducing technologies that help Alberta grow existing industries and create new ones.
- 2. Drive Commercialization:** Convene the resources required to accelerate the adoption of technology solutions that lead to economic growth and GHG reductions in Alberta.
- 3. Maximize Impact:** Through leveraged funding, communications, and operational excellence.

## UNIQUE BUSINESS MODEL

While many jurisdictions have a mechanism to invest in clean technology, the ERA model is unique:

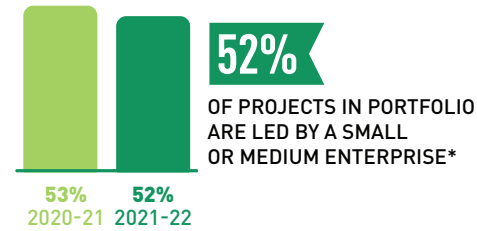
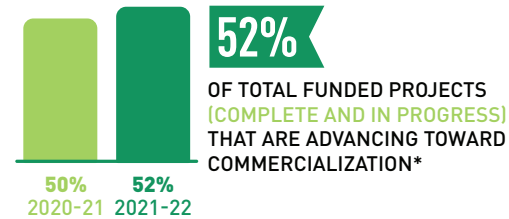
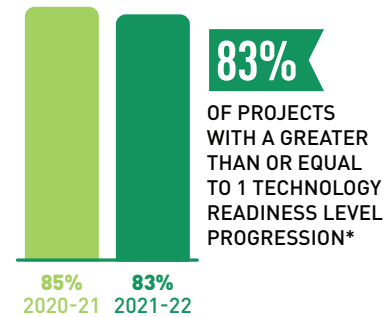
- ▶ It offers a clear line of sight from the carbon price paid by industry, under the TIER regulation, to investment in solutions needed to achieve GHG reduction goals.
- ▶ Funding is directed at accelerating innovation toward commercial deployment and adoption by de-risking technology in the crucial demonstration and first-of-kind deployment stages of development.
- ▶ Non-dilutive<sup>1</sup> grant funding allows ERA to share innovation risk with industry and private funders to accelerate the development and scale-up of compelling clean technologies through development stages.
- ▶ Its Delegated Administrative Organization (DAO) structure means ERA has no annual investment caps, can fund multi-year projects, can carry funding over from year-to-year, can reinvest funds when projects do not progress, and allows for decisions to be made arm’s length from policy creators.



<sup>1</sup> Non-dilutive funding is defined as funding that does not require giving up ownership or shares of the company or product.

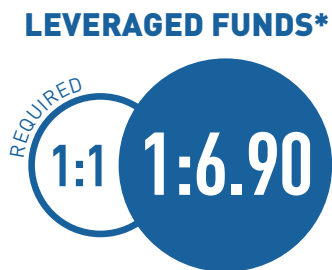
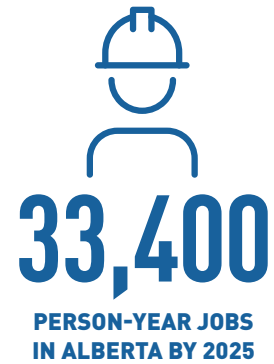
# KEY PERFORMANCE METRICS

## TECHNOLOGY

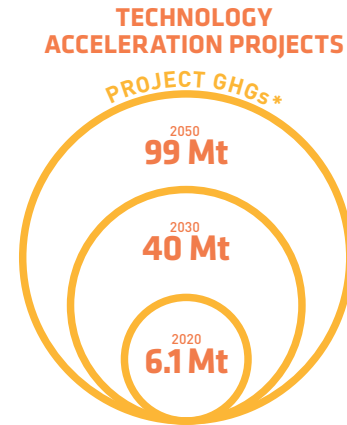


**60** COMMERCIAL READY TECHNOLOGIES SUPPORTED BY THE ESB PROGRAM

## ECONOMY



## ENVIRONMENT



**ENERGY SAVINGS FOR BUSINESS PROGRAM**  
2.7 Mt LIFETIME CO<sub>2</sub>e

**100%** OF PROJECTS ADDRESS 2 OR MORE SUSTAINABLE DEVELOPMENT GOALS (SDG'S)

\* Data does not include Energy Savings for Business Program

## COMMUNITY

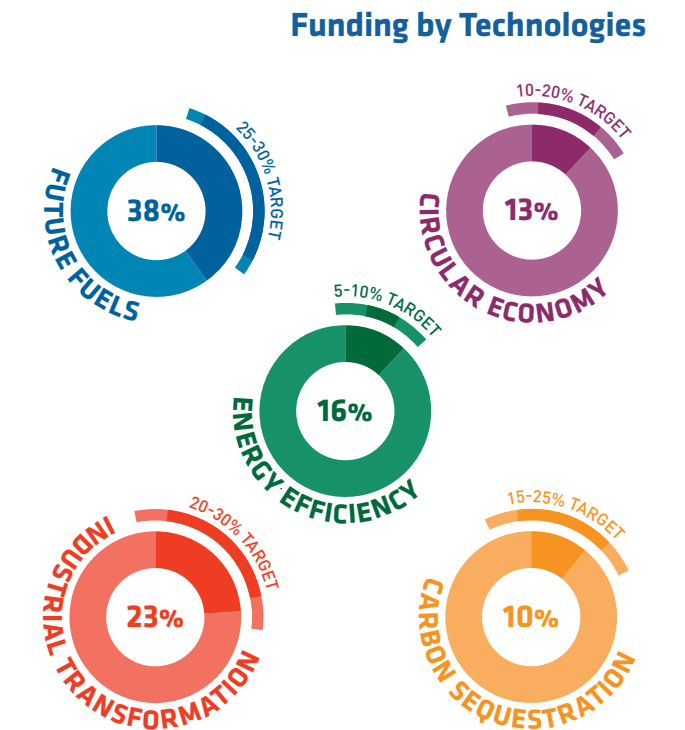
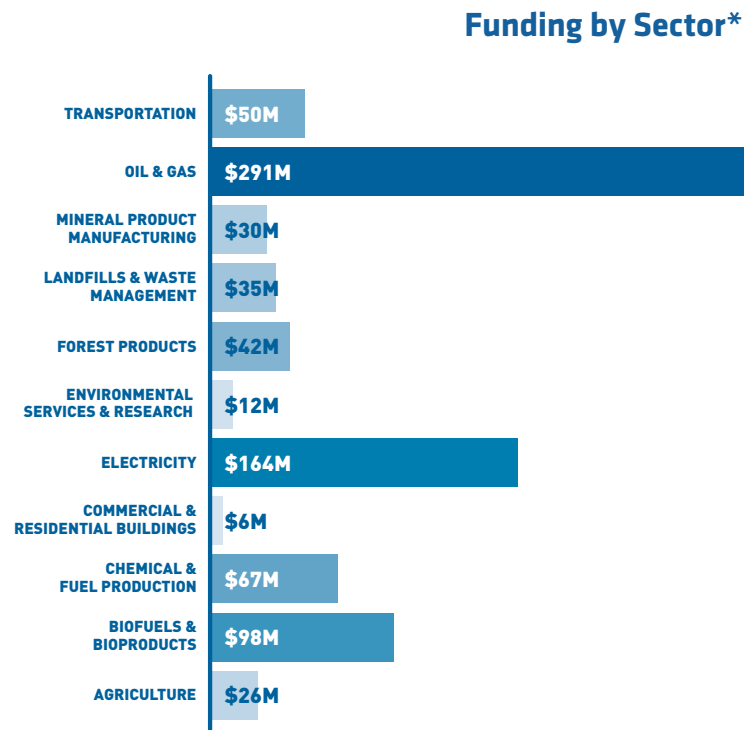
### TRUSTED PARTNERSHIP AGREEMENTS



**AUDIENCE REACH PARTICIPATED IN 43% MORE EVENTS TO REACH A LARGER AUDIENCE**

**89%** OF KEY STAKEHOLDERS SUPPORT ERA'S MANDATE

## BALANCED PORTFOLIO







ENMAX, Shepard Energy Centre, Carbon Capture Unit FEED Study

## GOVERNANCE

**ERA collaborates with and is accountable to the Government of Alberta. As a Delegated Administrative Organization (DAO), ERA operates under a Board of independent directors and is required to report annually on progress and outcomes delivered.**

**This structure allows ERA to:**

- ▶ Respond quickly to the needs of Alberta's innovation system
- ▶ Have independent oversight and the ability to select the best projects for funding
- ▶ Carry funds from one budget year to the next
- ▶ Ensure multi-year projects are feasible
- ▶ Reinvest funds when projects do not progress.

A commitment to best-in-class governance, operational practices, internal controls, and continuous improvement helps ERA function efficiently and independently.

### **New Board member appointed and two terms extended**

In 2021-22, Kate Rich was appointed as the newest member to ERA's Board of Directors. She is the Assistant Deputy Minister of Policy in Alberta Environment and Parks, accountable for the overall integration of the department's policy agenda, including legislative planning; air, climate change, water, and waste policy; delivery of climate regulatory programs; and facilitation of cross-government collaboration to support integrated resource management. Ms. Rich has led various strategies related to energy, climate change, water, air quality, and land management—all with a focus on sustainable development.

After each serving a three-year term, Johannes Dyring and David Moss were re-appointed to an additional term of two and three years, respectively. In May, Corrina Bryson completed her three-year term as a member of the Board of Directors. ERA

thanks her for her contributions. ERA also wishes to thank all of our Board members for the valuable wisdom, time, and energy in helping to guide our organization.

### **Changes to ERA executive team ensures continued delivery of extraordinary service**

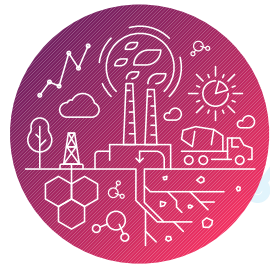
In 2021-22, ERA made changes to its structure, people, and capacity to support the continued delivery of extraordinary service to the innovation ecosystem. Heather Stephens, previously Chief Financial Officer, took on an expanded strategic role as ERA's Chief Operating Officer. Mark Summers, who had served as Executive Director of Technology and Innovation, moved into the role of Chief Strategy Officer. Justin Wheler joined the team as the Executive Director of Technology and Innovation. Robert Savage, Executive Director of Planning and Performance, retired after more than 30 years with the Government of Alberta, including the last two years with ERA.

### **New CEO announced**

In May 2022, Board Chair, Dave Collyer, announced Justin Riemer as ERA's next CEO. Riemer's appointment was the outcome of a comprehensive search process that started following the announcement that Steve MacDonald would be stepping down from the role after more than six years leading the organization. Riemer brings more than 25 years of experience to ERA, including leadership roles at the Government of Alberta, Alberta Health Services, and the Government of Canada. He has been recognized by his peers for the significant contributions he has made to economic development within Alberta. Riemer has a strong track record of delivering results in industry expansion, investment attraction, and innovation. He assumed the role on June 6, 2022.

# STRATEGIC PRIORITY: ACCELERATE TECHNOLOGY

Core to ERA's business is investing in innovative technologies that help existing and new industries in Alberta accelerate toward net-zero GHG emissions in the province. ERA funds these later-stage, innovative technology solutions through competitive funding calls and its Partnership Intake Program. In 2021-2022, ERA announced more than \$50 million to 16 projects worth a combined value of \$230 million and launched two new funding opportunities worth over almost \$53 million.



## Carbon Capture Kickstart to accelerate carbon capture projects in Alberta

In June 2022, ERA committed over \$40 million to 11 engineering studies worth \$194 million through its Carbon Capture Kickstart funding competition. The combined capital cost of these projects is expected to be around \$20 billion if they all proceed to construction and commissioning. Projects will take place at facilities across the province, from Medicine Hat to the Industrial Heartland, from Hinton to Exshaw, and several in the Alberta oil sands region. Funding recipients represent industrial sectors including power generation, cement, fertilizer, forest products, and oil and gas.

The funding opportunity was designed to accelerate development of industrial-scale carbon capture and transportation technology solutions. Many of these projects represent the first stage of significantly larger overall project plans. All funded projects plan to be up and running by 2030. A full list of projects can be found on [page 12](#).

The competition launched in January 2022 and was open to pre-construction studies related to carbon capture and transportation projects, with a focus on site-specific carbon capture, direct air capture, and CO<sub>2</sub> transportation infrastructure. This opportunity builds on the province's global leadership in carbon capture, utilization, and storage (CCUS), helping to fill key knowledge gaps, drive partnerships and innovation, and accelerate project financing and deployment in Alberta.

Carbon Capture Kickstart helps position Alberta companies to take advantage of the Federal Government's tax credit for capital invested in CCUS projects starting in 2022, the Government of Alberta's carbon sequestration hub approach, and aligns with the \$305 million over four years earmarked by the province for future carbon capture projects.

Natural Resources Canada (NRCAN) is also committing up to \$50 million through its CCUS Front-End Engineering Design (FEED) Studies funding program to 11 projects; five of these are Alberta-based projects also receiving funding from ERA (co-funded projects indicated in the table on Page 12 by \*). ERA and NRCAN worked closely to jointly leverage funds for projects based in Alberta.

RECIPIENT	PROJECT	PROJECT COST	ERA FUNDING
<b>STRATHCONA RESOURCES LTD.</b>	Feasibility and Front-End Engineering and Design (FEED) for Post-Combustion Flue Gas Carbon Capture at Strathcona Resources Ltd Cold Lake Region Steam Assisted Gravity Drainage (SAGD) Facilities	\$10,000,000	\$5,000,000
<b>CITY OF MEDICINE HAT*</b>	Project Clear Horizon	\$5,000,000	\$2,500,000
<b>SUNCOR ENERGY SERVICES INC.*</b>	FEED of Svante's Carbon Dioxide (CO <sub>2</sub> ) Capture Process for Suncor's Fluid Catalytic Cracker	\$9,500,000	\$950,000
<b>ENTROPY INC.</b>	Athabasca Leismer Carbon Capture	\$10,700,000	\$3,300,000
<b>VAULT 44.01*</b>	Hinton Bioenergy Carbon Capture and Storage Project	\$15,600,000	\$2,500,000
<b>CANADIAN NATURAL RESOURCES LIMITED*</b>	Oil Sands Carbon Capture, Utilization, Storage (CCUS) Pathways to Net Zero	\$46,300,000	\$5,000,000
<b>CAPITAL POWER CORPORATION</b>	Genesee CCS	\$12,400,000	\$5,000,000
<b>HEARTLAND GENERATION LTD.</b>	Innovative Integration of Carbon Capture for Clean Power	\$38,400,000	\$5,000,000
<b>LAFARGE CANADA</b>	Exshaw Cement Carbon Capture and Bow Valley Decarbonization	\$27,000,000	\$5,000,000
<b>AGRIUM CANADA PARTNERSHIP</b>	Nutrien Redwater Carbon Capture Study	\$12,600,000	\$3,300,000
<b>ENMAX CORPORATION</b>	Shepard Energy Centre Carbon Capture Unit FEED study	\$6,100,000	\$3,000,000

Note: Project descriptions are available on [eralberta.ca/projects](https://eralberta.ca/projects)





**\$50 million for projects to support Alberta’s circular economy**

In March 2022, ERA launched a \$50 million Circular Economy Challenge to reduce the impacts of material production, processing, and disposal, and support economic diversification. Under this call, funding of up to \$10 million per project was made available for piloting, demonstration, or first-of-kind implementation of circular economy technologies in Alberta.

A circular economy is designed to significantly reduce waste and pollution, keep products and materials in use, and regenerate natural systems. Product lifecycles are extended by reuse, recycling, upcycling, resource recovery, and low-impact design.

Globally, the circular economy is poised to unlock \$4.5 trillion of economic growth by 2030, and as much as \$25 trillion by 2050, according to research by Accenture Strategy. Circular economy approaches will make supply chains more resilient, significantly reduce GHG emissions, create jobs, and boost companies’ competitiveness and profitability.

Projects focused on waste-to-value-add products, high-value material extraction from waste streams, metals recycling and reuse, novel mineral sources, agriculture waste reduction, municipal waste, carbon dioxide conversion or utilization, and advanced plastics recycling and circular plastics technologies were invited to apply.

ERA received a total of 82 eligible Expressions of Interest, requesting \$384 million in funding for projects worth \$1.8 billion. Successful projects will be announced in early 2023.

**“To reach net zero, adopting a circular collaborative approach across industries is critical and the possibilities are endless. ERA’s circular economy funding will boost collaboration and invest in the creativity and innovation critical for meaningful emission reductions.”**

**Brian Vaasjo**  
President and CEO, Capital Power

**ERA partners in international CCUS initiative to leverage investment from 8 countries**

In March 2022, ERA announced over \$2 million for four carbon capture, utilization, and storage (CCUS) projects through an international partnership with Accelerating CCS Technologies (ACT).

In 2020, ERA announced a partnership with the global initiative to invest in world class innovation that can lead to safe and cost-effective CCUS technologies. ACT is coordinated by the Research Council of Norway (RCN) and is a collaboration of research and innovation funding organizations from 16 countries, including the United States, the United Kingdom, Germany, and others. Alberta, through ERA, is the first sub-national member.

These innovative Alberta-based projects were selected through the consortium ACTCall 3 funding opportunity and include investment from eight countries to support their commercialization in the province. Each project consists of a consortium of at least three eligible applicants from three countries.

RECIPIENT	PROJECT	TOTAL PROJECT VALUE	ERA COMMITMENT
UNIVERSITY OF ALBERTA	Effective Monitoring of Long-Term Site Stability for Transparent Carbon Capture and Storage Hazard Assessment	\$1,000,000	\$507,000
UNIVERSITY OF ALBERTA	Advanced Multitemporal Modelling and Optimization of CO <sub>2</sub> Transport, Utilization, and Storage Networks	\$1,890,000	\$754,000
CARBONOVA CORP.	Carbon Reforming to Economic Additives for Transitioning into Emission-Less Era	\$1,090,000	\$543,000
CMC RESEARCH INSTITUTES	Reusing Depleted Oil and Gas Fields for CO <sub>2</sub> Sequestration	\$690,000	\$345,000

Note: Project descriptions are available on [eralberta.ca/projects](http://eralberta.ca/projects). Total Project Values have decreased since announcement due to project scope changes

### Alberta continues to leverage global partnerships to support CCUS technologies

In its ongoing collaboration with the international ACT initiative, ERA also allocated \$2.85 million in a follow-on opportunity with the ACT consortium, to facilitate the deployment of CCUS technologies with strong potential for commercialization in Alberta. The total funds available for this global funding competition is \$19 million and is open to projects in participating regions: Germany, India, Norway, United States, and Alberta. The competition was launched in May 2022 with full proposals due by September 12, 2022.

Successful projects must enable the emergence of CCUS in the energy and industrial sectors with results ranging from reduced operational costs and lowered emissions to new technology, safe storage, and the optimization of existing infrastructure. Applications must include a minimum of two eligible partners from at least two of the funding countries. Funding is available for projects at the stages of technology scale-up, field pilot, commercial demonstration, or commercial implementation.

This partnership is important to help advance international CCUS-related activities through critically necessary knowledge sharing. ACT coordinates annual workshops and all funded projects are encouraged to participate in events, scientific publications, meetings with decision-makers, public open houses, and more.

### CRIN's Reducing Environmental Technology Competition Projects announced

On March 9, 2022, Clean Resource Innovation Network (CRIN) announced \$50 million for projects identified for funding as part of the Reducing Environmental Footprint Technology Competition. ERA was the competition coordinator, supporting both its design and the communication strategy. The competition was launched to advance technology solutions for high-priority environmental challenges across the oil and gas industry with the intent to export technologies internationally and for application within Canada's industrial sector. It focused on specific objectives in four priority areas: water technology development; methane emissions, monitoring, quantification, and abatement; novel hydrocarbon extraction; and land and wellsite reclamation.

This competition is part of a broader collaborative initiative by CRIN that will see \$80 million directed to fund a series of breakthrough clean energy technology competitions. This programming is made possible by the Government of Canada's Strategic Innovation Fund (SIF).

### Partnership Intake Program commits funding to Smarter Alloys

In addition to its competitive Call for Proposals process, projects can also be brought forward to ERA for consideration by Trusted Partners through the Partnership Intake Program. Trusted Partners are funding organizations with rigorous, fair, and transparent due-diligence processes comparable in principle to ERA's, including elements such as peer review and technical expertise.

In 2021-22, ERA was focused on delivering significant new funding challenges that stimulated economic activity and created jobs, while simultaneously advancing innovative technologies that reduce GHG emissions and support Alberta's transition to a low-emissions future. As a result, while deliberations are ongoing and other projects were considered, ERA committed funding to only one project through the Partnership Intake Program. The Partnership Intake Program remains a valuable tool for ERA to consider high-value projects to Alberta whose timelines did not align with the funding calls.

PROPONENT	PROJECT TITLE	TOTAL PROJECT VALUE	ERA COMMITMENT
SMARTER ALLOYS	Extract Energy Heat Engine	\$12,500,000	\$5,000,000

Note: Project description is available on [eralberta.ca/projects](http://eralberta.ca/projects).

**“Government of Alberta funding through ERA is enabling contribution among nations to address one of the most pressing challenges of our time, while providing an opportunity for Canadian developed innovation to be implemented globally.”**

**Mina Zarabian**

Co-founder and CEO, Carbonova Corp.



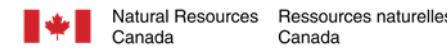


Canadian Pacific, Hydrogen Locomotive Program

### Two new Trusted Partner agreements signed

ERA has entered into formal Trusted Partner agreements with the Canada Infrastructure Bank (CIB) and Prairies Economic Development Canada (PrairiesCan). These partnerships will help leverage additional federal funding dedicated to enabling environmental and economic outcomes across Canada and in the Prairie provinces. This opportunity opens Alberta's ability to retrofit buildings and upgrade aging infrastructure to enable a more sustainable energy transition.

ERA now has 15 Trusted Partner agreements in place. These partnerships allow ERA to leverage funds and due diligence, share risk, and reduce administrative burden for applicants. ERA works with strategic trusted partnerships in Alberta, with the federal government, and across the country where appropriate. Trusted Partnerships allow ERA to evaluate referred projects and consider funding promising technologies outside its traditional call for proposal process.



(through the Canada First Research Excellence Fund)

(through the Canada First Research Excellence Fund)







Synergize, Cattle Feed Additive for Reducing Methane Emissions

### ERA updates its Technology Roadmap

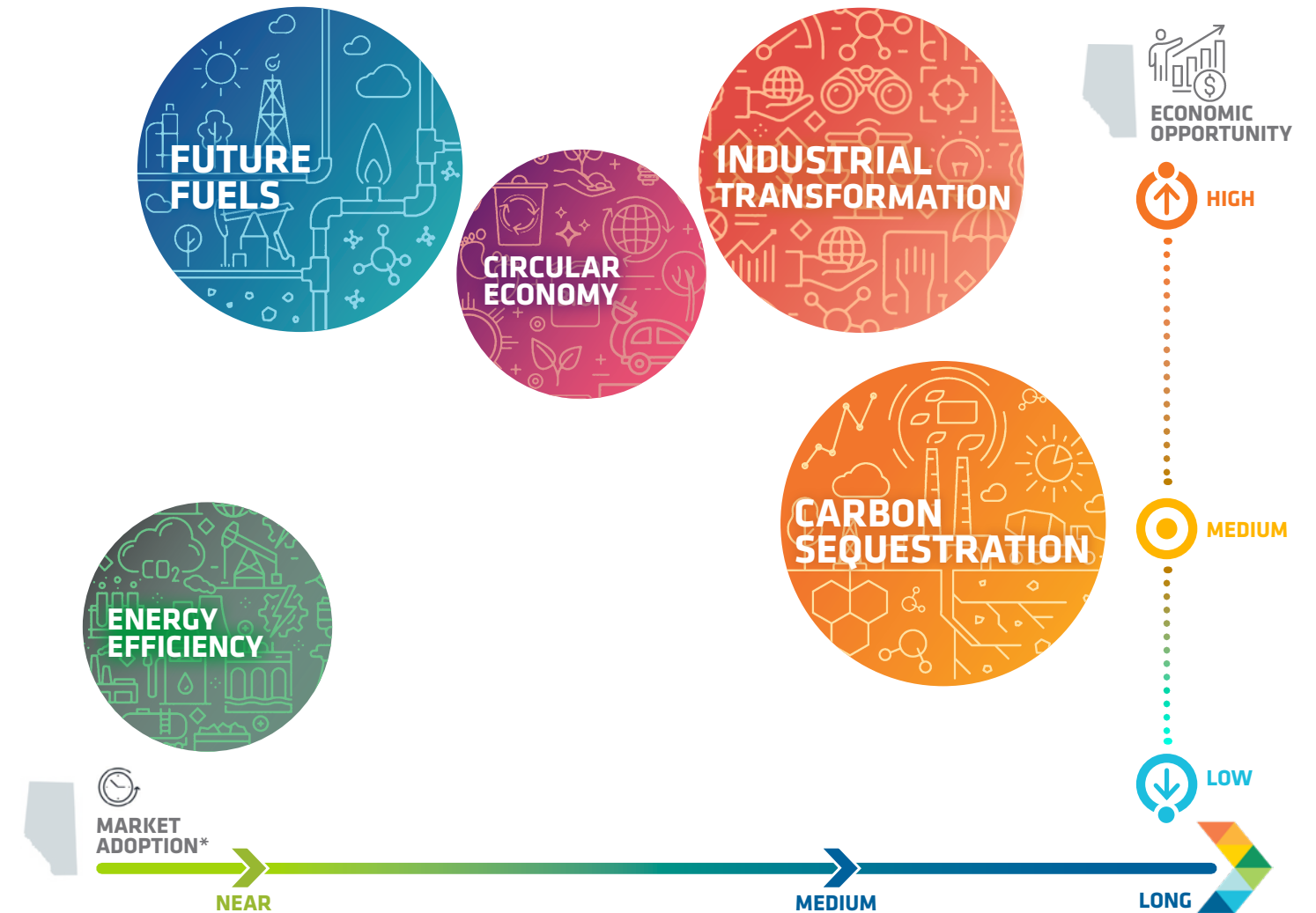
In 2021-22, ERA revised its TRM to reflect the significant disruptions felt locally and across the globe, characterized by geopolitical unrest, economic challenges, shifting investor focus, global health pandemics, and more. The TRM outlines the strategic direction for investments and ensures the advancement of the right mix of short-, medium-, and long-term technologies that will help Alberta realize its environmental and economic goals and support Canadian emissions targets.

Focusing on opportunities to reduce emissions requires the deployment of innovative technologies and solutions across all sectors. That is why, the most significant change made to the TRM is the focus on cross-cutting technology areas of investment that can be adapted and deployed across numerous industrial operations. These include:

- ▶ Carbon Sequestration
- ▶ Circular Economy
- ▶ Energy Efficiency
- ▶ Future Fuels
- ▶ Industrial Transformation.

Each technology area has unique investment and deployment needs. In the image on [page 20](#), we present ERA's high-level perspective of the technologies, their timeline to market adoption, GHG reduction potential, and anticipated economic benefits. The TRM revision was informed and validated by several engagement sessions with key stakeholders and thought leaders across Canada.

### MIX OF OPPORTUNITIES, PRIORITIES AND CHALLENGES ACROSS INDUSTRIES



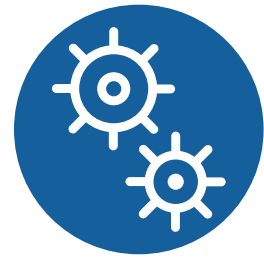
Depending on where you sit in the ecosystem, you may see the placement of these focus areas differently. Also, it's important to point out that although the focus areas are plotted at one spot along the market adoption timelines on this scale, there are technology solutions across different timescales in each area.

The size of the technology circles reflects the amount of potential they have in reducing GHG emissions

HIGH MEDIUM-HIGH



# STRATEGIC PRIORITY: DRIVE COMMERCIALIZATION



ERA works closely with the innovation ecosystem to convene and leverage the resources required to accelerate adoption of technology solutions that lead to economic growth and GHG reductions in Alberta. Its connections with both provincial and federal governments, as well as the private sector and academia, allow ERA to accelerate the commercialization and wide-spread adoption of technology solutions that can support economic growth and GHG reductions.

## 12 projects completed and key findings published

ERA is delivering on its mandate and demonstrating progress by reporting on outcomes, successes, and learnings from its investments. Each project that ERA funds must submit a project completion report. This report outlines key outcomes and details the unique learnings that ERA funding enabled. There were 12 projects completed in 2021-22.

PROPONENT	PROJECT TITLE	TOTAL PROJECT VALUE	ERA COMMITMENT	HIGHLIGHT
TETRA TECH, INC.	Biocovers for GHG Mitigation from Landfills	\$1,700,000	\$830,000	Currently being deployed at two other locations in Alberta and is near commercial stage.
MORGAN SOLAR INC.	10 MW Enbridge Sun Simba Power Plant - Alberta Solar One	\$22,000,000	\$10,000,000	Demonstrated viability of optical film technology necessary for increased PV efficiency.
TRANSALTA	Enabling Increased Intermittent Green Generation via Wind Energy Storage	\$15,600,000	\$7,000,000	Successfully deployed Alberta's first utility-scale battery energy storage system, constructed in less than seven months and under budget.
UNIVERSITY OF ALBERTA - CARLYLE	Identification of Regionally Appropriate Grazing Systems for the Reduction of Greenhouse Gasses in Alberta, now and in the Future	\$760,000	\$490,000	Established and completed a four-year study that experimentally manipulated drought and grazing conditions.
CANADIAN NATURAL RESOURCES LIMITED	Area Fugitive Emission Measurements of Methane & CO <sub>2</sub>	\$10,000,000	\$5,000,000	Tested and validated solutions to quantify fugitive emissions to enable novel, more efficient leak detection and CO <sub>2</sub> and methane elimination.

PROPONENT	PROJECT TITLE	TOTAL PROJECT VALUE	ERA COMMITMENT	HIGHLIGHT
DARKVISION	Downhole Imaging System for Identifying Wellbore Leakage	13,700,000	3,200,000	Successfully tested downhole imaging technology, leading to a commercial technology viable across industries.
CANADIAN NATURAL RESOURCES LIMITED	In-Pit Extraction Process	\$83,700,000	\$5,600,000	Increased efficiency of mined ore processing by demonstrating ability to treat ore close to the mine pit, reducing hauling and pumping distances for waste material.
CARBONCURE TECHNOLOGIES	Carbon Dioxide Utilization in Concrete	\$3,200,000	\$3,000,000	Successfully demonstrated commercial viability of CCUS technology in concrete.
AMBYINT INC.	Deploying Autonomous Oil & Gas Production Operations with an Adaptive Controller	\$7,900,000	\$2,000,000	Deployment demonstrated a 20% reduction in electricity consumption per well and enabled reduced vented emissions.
CARBON CORP.	Transformation of CO <sub>2</sub> to Valuable Carbon Nanotube Composites	\$14,000,000	\$3,000,000	Advanced from field pilot at the Alberta Carbon Conversion Technology Centre, to commercial-ready designs.
CARBON UPCYCLING TECHNOLOGIES	Carbon Nanoplatelet Production from Exhaust CO <sub>2</sub> Emissions	\$6,000,000	\$1,500,000	Demonstrated successful nanoplatelet production ahead of schedule, under budget, and with initial commercial success in Summer 2021.
LEHIGH CEMENT	Lehigh Cement Edmonton CCUS Feasibility Study Project	\$2,700,000	\$1,400,000	Produced critical capital and operating cost estimates for the addition of a carbon capture and compression plant.

Note: Project descriptions and completion reports are available on [eralberta.ca/projects](https://eralberta.ca/projects).



## ENERGY SAVINGS FOR BUSINESS

### Energy Savings for Business (ESB) in-market with expanded eligibility

To offer Alberta businesses more opportunity to invest in energy- and cost-saving technologies that will improve their operational efficiency and reduce emissions, ERA announced a series of updates related to its ESB Program.

In 2021-22, the incentive limit for parent companies under the core ESB offering was doubled, from \$500,000 to \$1 million. The ESB portfolio was also expanded to include two new funding streams: the Expanded Technologies Pilot (ETP) and Small Producers Energy Efficiency Deployment (SPEED). These new streams allow participants greater opportunities to take advantage of funding for new commercial technologies and expanded eligibility to small oil and gas producers with facilities in Alberta.

- ▶ **ETP:** Cost- and energy-savings technologies continue to evolve. ETP offers a new pathway for Alberta businesses to propose effective, commercially viable technologies not currently supported through ESB, that could offer a high return on investment. Successful proposals receive funding to support project implementation and will help expand ERA's understanding of the technology's performance, market potential, and how it could be best supported in future initiatives. Up to \$250,000 is available for each project with a maximum of \$1 million per parent company. Successful proposals will help expand ERA's understanding of the technology's performance, market potential, and how it could be best supported in future initiatives.

- ▶ **SPEED:** Through expanded eligibility and the addition of new technology types, SPEED is accelerating deployment of proven upgrades that help oil and gas producers decrease operating costs and increase competitiveness, boosting Alberta's economic recovery. This new funding stream enables increased participation from the oil and gas sector by including facilities that are regulated or opted-in to the Technology Innovations and Emission Reduction (TIER). This \$15 million investment will help producers reduce GHG emissions, decrease operating costs, and become more competitive. SPEED gives companies quick access to incentives up to \$1 million per parent company for cost-effective energy and cost-saving technologies. Applications closed on May 9, 2022, and successful projects will be notified in 2022-23.

The Government of Alberta is funding up to \$30 million for ESB through the TIER Fund. Up to \$25 million in additional funds will also be available from the Government of Canada's Low Carbon Economy Leadership Fund. This support will be leveraged with private funding.

The ESB program was designed to account for lifetime GHG reductions of 1.2 million tonnes of lifetime CO<sub>2</sub>e, create about 1,400 jobs, and drive \$385 million in economic activity—providing a positive five times benefit to Alberta's GDP. Uptake as of year-end indicates that the program will exceed the expected GHG reduction target.

### Lessons Learned Workshop hosted at GLOBE Forum focuses on battery storage project

ERA hosted its latest Lessons Learned Workshop on TransAlta's WindCharger Battery storage project at GLOBE Forum in March 2022. Representatives from TransAlta and Lafarge, who recently announced a power purchase agreement, discussed lessons learned from the project, which is Alberta's first utility-scale lithium-ion battery storage facility. ERA's Lessons Learned Workshops are a way to accelerate technology adoption by sharing insights from project proponents and industry leaders with those who are developing technology.

### Supporting early-stage researchers at the Universities of Alberta and Calgary

In October 2021, ERA hosted a free webinar for researchers with the University of Alberta and University of Calgary to learn how public innovation organizations in the province fund projects and ideas that deliver environmental and economic benefits. Co-hosted with Alberta Innovates, the Navigating Public Funding in the Innovation Ecosystem webinar shared details on who each organization funds, how they fund, and what they fund, as well as how and when they partner and steward projects through the various stages of technology readiness.

In May 2022, ERA hosted a follow-up session, connecting researchers from both universities with industry. The free Research in Action virtual event shone a spotlight on some of the most innovative technology-based research projects currently underway at the University of Alberta and University of Calgary. Following presentations by eight researchers, industry attendees had the opportunity to ask questions to better understand how these potential solutions could address current challenges.



# STRATEGIC PRIORITY: MAXIMIZE IMPACT

ERA maximizes the value of its funding by leveraging investments through partnerships with the federal government and other organizations focused on climate innovation and continuous improvement of operational excellence. For every dollar ERA invests, another \$6.90 is also invested by industry, innovators, and other project funders. ERA also maximizes its impact by delivering excellence in operations and through rigorous performance measurement and reporting.



## Mapping Key Performance Indicators

In December 2021 and January 2022, ERA held internal Key Performance Indicator (KPI) mapping sessions to confirm ERA's stakeholder groups and the measures needed to demonstrate a successful relationship. Outputs from these sessions helped the team determine whether to modify or add new KPIs to its suite of metrics. The work is ongoing and new metrics are forecast to be integrated by early 2023.

## Using software to visualize and analyze data

ERA uses the analytics platform Tableau to review and analyze its data. In 2021-22, ERA began exploring ways to enhance how it utilizes this software to leverage ERA's significant accumulation of data to help influence decision-making and shared learnings with the broader innovation community. As ERA finalizes these enhancements to its data, it will begin to include them in its public reporting.

## Expanding ERA's GHG metrics and reporting initiatives

In 2021-22, ERA added two new internal resources to help support its GHG quantification function, including reviewing and revising ERA's quantification policies and reporting requirements to ensure alignment with current practices in GHG accounting and reporting standards. ERA is enhancing its GHG database to ensure the data adheres to ISO 14064 principles. ERA team members were also trained on the principles themselves. ERA also added to its suite of GHG metrics, including recording enabled emissions reductions and mining data from post-project reports to better track commercialization of technologies and create a clearer line of sight to overall market emissions reductions.

## Reporting on the economic impact of ERA's Investments

To continue understanding how ERA's investments make an impact, Alberta Innovates carried out an updated Economic Impact Analysis and Cost-benefit Analysis\* on behalf of ERA. The study confirmed that ERA projects will have a total cumulative impact of almost 33,400 person-year\*\* jobs and add \$4.9 billion to Alberta's Gross Domestic Product (GDP) by 2025. While ERA boosts Alberta's economy, its impact can be felt across Canada as well. ERA projects will add \$6.6 billion

to Canada's GDP by 2025 and increase employment by over 45,800 person-year jobs. In addition, a cost-benefit analysis was undertaken to quantify the economic impact resulting from ERA's investments. ERA's funded projects were estimated to result in cumulative net GHG emissions reductions of 40 Mt CO<sub>2e</sub> by 2030 and 99 Mt CO<sub>2e</sub> by 2050. The avoided climate damages associated with these reductions are valued at over \$900 million by 2030 and over \$3.5 billion by 2050.

\* The monetization of emissions reduction is completed by using Environment and Climate Change Canada's Social Cost of Carbon (SCC) model, which assigns a monetary value to each tonne of CO<sub>2e</sub> reduced. The economic analysis is conducted by applying a Benefit-Cost Analysis approach. Due to data limitations, the quantification model only considers GHG emissions reduction as benefits, however the benefit of ERA-funded projects are more wide-reaching and include other environmental benefits.



Morgan Solar, Alberta Solar One



### Focusing on operational efficiencies

Since it was established in 2009, ERA's business needs have been carried out by a hybrid of highly-experienced staff and best-of-class service providers. This model allows for low overhead and a responsive organization. In 2021/22, operating costs were 2.3 per cent of the total funds committed to projects. This remains consistent with prior years despite the higher administration costs associated with the Energy Savings for Business program.

In 2021-22, ERA's Board and management worked to build capacity to support the existing and growing investment portfolio and programs, while also building sustainable long-term internal capacity for the organization.

ERA's funding process invites submissions for consideration through a competitive call for proposals. This process includes two stages of expert review prior to a Board decision. Project applicants have expressed a desire for more time to prepare their submissions and wanted a simplified Expression of Interest (EOI) application. In 2021-22, ERA ensured applicants had a minimum of seven weeks for EOI submission for both the Circular Economy Challenge and the Carbon Capture Kickstart: Design and Engineering funding call.

### OPERATIONAL HIGHLIGHTS



**7 MONTHS**  
FROM INTAKE TO  
DECISION TIME. MET  
TARGET TO REDUCE  
FUNDING DECISION  
TIME BY ONE MONTH

**OPERATING COSTS = 2.3%**  
OF TOTAL FUNDS  
COMMITTED TO  
PROJECTS



**CONTRACT EXECUTION**  
**146 DAYS\***

\*ERA continues to work on operational improvements to work with funding proponents to decrease the contract execution time to an average of 3 months (90 days) after funding notification.

\*\* Direct, indirect, and induced

### Ongoing commitment to operational excellence

In 2021-22, ERA added to its staff policies and training package to support the continued delivery of extraordinary service to the innovation ecosystem. All staff must now take training in cyber security and anti-harassment. In late 2022, to gain insights into its staff experience and learn how it supports development, ERA launched its first Employee Engagement and Satisfaction survey. The intent of the survey was to provide a confidential mechanism for staff to provide feedback, identify strengths and areas for improvement, and provide baseline data for ERA to track year-over-year results from the annual survey.

### Advancing an Equity, Diversity, and Inclusion (EDI) strategy

While GHG reductions are at the core of ERA's mandate and Alberta's climate and innovation policies, this is not the only measure of success. ERA recognizes that fostering an equitable, diverse, and inclusive culture leads to a more strategically and operationally effective organization. ERA remains committed to continuous improvement, including moving forward with EDI principles and how they apply to the values of the organization, ensuring we are attracting the best and brightest people, projects, and solutions to achieve ERA's vision. ERA remains committed to continuous improvement, including moving forward with EDI principles and how they apply to the values of the organization, ensuring we are attracting the best and brightest people, projects, and solutions to achieve ERA's vision.

In 2021-22, ERA moved forward with putting an EDI strategy into action, focusing on three main pillars.

#### Operational improvement:

- ▶ ERA formed a standing EDI Committee responsible for executing key priorities in the EDI Strategy and communicating its progress.
- ▶ Staff now have an EDI resources folder and anonymous suggestion box which provides an opportunity to access EDI materials and confidentially share comments or suggestions.
- ▶ A survey was sent to staff and Board members to obtain feedback around prior EDI knowledge and ERA's future EDI initiatives.

#### Training and knowledge:

- ▶ All staff, project advisors, and project reviewers have begun to complete unconscious bias training.
- ▶ ERA has scheduled internal lunch-and-learns to provide staff with additional EDI awareness.

#### Engagement and communication:

- ▶ ERA began collecting data from its new applicants to help inform its engagement strategy, including call scoping and outreach, call launch and webinar events, and knowledge transfer initiatives such as lessons learned.
- ▶ ERA has committed to drafting an EDI Communications Strategy, which will include appropriate use and acknowledgment of noteworthy EDI events or days of recognition, and purposeful release of an EDI Values Statement.

**In the spirit of reconciliation, we have the privilege of living, working, and investing on traditional territories, which include Treaty 6, Treaty 7, and Treaty 8 Nations; Metis Nations (Region 3 and 4); Inuit; and all others who live and care for these lands. We are dedicated to promoting a culture of collaboration and meaningful engagement.**

### ERA EDI STATEMENT

Achieving Alberta's environmental, economic, and social sustainability goals is complex, requiring a broad set of expertise and range of perspectives. Integrating equity, diversity, and inclusion principles ensures ERA remains a strategically and operationally effective organization.

- ▶ **Equity** – ERA will endeavour to ensure equity in access to funding opportunities and in attraction, development and retention of ERA staff.
- ▶ **Diversity** – ERA will incorporate diverse perspectives and experiences into its decision-making processes to advance innovative technologies and solutions.
- ▶ **Inclusion** – ERA will engage internal staff, service providers, and external stakeholders in a manner that allows them to fully contribute to achieving ERA's objectives.

### Bid prepared to host global GHG conference in Calgary

In 2021-22, ERA prepared a proposal to host the Greenhouse Gas Control Technologies (GHGT)-17 conference in Calgary in 2024. The GHGT conference series was initiated in 1997 by the International Energy Agency's Greenhouse Gas R&D Programme (IEAGHG). The bi-annual event has established itself as the principal and largest international conference on CCUS technologies, historically attracting 1,000 participants from more than 40 countries.

With input from a steering committee that included representatives from the Governments of Alberta and Canada, as well as Tourism Calgary, the bid document was submitted in March 2022.

As part of this, ERA presented the plan to the organizing committee in Italy. ERA will learn the final decision on the host city for GHGT-17 in October 2022.

### Telling Alberta's story

ERA shares Alberta's story through a variety of events, funding launches and announcements, media, social media, newsletter, and engagements to achieve its broader communication goals of raising awareness of the organization's mandate and funding opportunities. These efforts also help raise the profile of Alberta as a place for clean technology investment and a province taking real action to deliver the environmental and economic outcome the world needs.

## 2021-22 COMMUNICATION HIGHLIGHTS

**64%**  
INCREASE IN  
MEDIA MENTIONS



**1700+**  
NEW FOLLOWERS  
ON LINKEDIN



**43%**  
INCREASE IN STRATEGIC  
EVENT INVOLVEMENT



**35.4%**  
NEWSLETTER  
OPEN RATE



**1.43%**  
AVERAGE ENGAGEMENT  
ON TWITTER  
MEDIAN ACROSS  
INDUSTRIES IS **.045%**



### Speaking opportunities and events at both virtual and in-person

In 2021-2022, as countries around the globe moved out of COVID-19 restrictions and began to gather in person once again, ERA experts were involved in 63 online and virtual events. This represents a 43 per cent increase in strategic event involvement, which can be attributed to several factors, including:

- ▶ The emergence of new virtual and in-person events focused on net-zero emissions, hydrogen and CCUS
- ▶ Increased profile of ERA, which leads to additional expert speaking requests
- ▶ Involvement in more North American and international events
- ▶ An increase in stakeholder engagement activities related to the Energy Savings for Business Program.

**“ERA funding is allowing us to test its technology in Northern Alberta. This is the boreal forest, this a biome that scales across Canada, it’s the largest biome on earth. Winters are harsh, summers are short; what works here will work across the country.”**

**Bryce Jones**

CEO and Founder, Flash Forest



**A few highlights include:**

*UN Climate Change Conference (COP26), Glasgow, Scotland:* As part of the Canadian delegation and on behalf of Alberta, ERA's CEO at the time, Steve MacDonald, attended the UN Climate Summit in Glasgow, Scotland. He met with top Federal officials, including Federal Environment Minister Steven Guilbeault, and national delegates from around the world, gave panel presentations, and built relationships with some of the most influential people from industry and associations focused on climate change. MacDonald shared the stage with delegates from Brazil, Columbia, California, and more to discuss the latest in carbon pricing, investing, market trends and outlooks across the Americas at an International Emissions Trading Association (IETA) organized event.

*GLOBE Forum 2022, March 29-31, Vancouver, Canada:* The largest in-person conference event to be held in Vancouver since the beginning of the pandemic was GLOBE Forum 2022. ERA sponsored and was actively involved in the three-day event, including launching the Circular Economy Challenge, participating in a panel on the future of the circular economy, presenting a Lessons Learned Workshop, and taking part in the Leading Change event.

*World Government Summit 2022, GovTech Award Winner, March 31, 2022, Dubai, U.A.E:* ERA was awarded a GovTech Award in the Climate Change category at the World Government Summit in Dubai on March 30, 2022. The Prize is an annual global award designed to motivate world government entities and start-ups to create and innovate technology solutions that help solve common and pressing global challenges. ERA won the award alongside Flash Forest, an ERA-funded drone reforestation project. ERA was present to accept the honour.

*Canadian Hydrogen Convention, April 26-27, 2022, Edmonton, Alberta:* ERA participated on a panel at the Canadian Hydrogen Convention, which set out to uncover what is needed to supercharge the hydrogen industry while helping Canada reach its climate target of net zero by 2050. Mark Summers, Chief Strategy Officer, moderated a panel, The Producer Perspective: Navigating Through Uncertain Hydrogen Supply and Demand Needs. As part of this event, the Government of Alberta hosted a half-day Strategic International Investment Forum. Steve MacDonald, outgoing CEO, spoke with international delegates, highlighting Alberta's innovation leadership and sharing stories about ERA-funded hydrogen projects.

**Additional events ERA participated in include:**

- ▶ World Hydrogen Technologies Convention
- ▶ World Petroleum Conference
- ▶ Forward Summit
- ▶ Global Energy Show
- ▶ FL Policy Collaborative
- ▶ Solar and Storage
- ▶ Oil Sands Conference and Trade Show
- ▶ f-cell Canada Hydrogen & Fuel Cell Conference and Trade Fair
- ▶ New Economy Live.

**Producing ongoing podcasts and videos**

ERA continued to reach new audiences through its Carbon Copy podcast, which features interviews with experts and innovators on topics about technology, engineering, and the economics of a low carbon future. Six new episodes were released, including:

- ▶ [Storing Emissions in Roads, Bridges, and Buildings with](#) Rob Niven from CarbonCure
- ▶ [Rethinking Hydropower with Gia Schneider](#) from Natel Energy
- ▶ [The Zero Carbon Grid, Part 1](#) with Chelsea Donelon and Dan Martin of Transalta Energy
- ▶ [The Zero Carbon Grid, Part 2](#) with Joe Zhou of Quidnet
- ▶ [Cleaning the World's Wastewater](#) with Ben Sparrow of Saltworks
- ▶ [Making Sense of Data with AI](#) with Benjamin Kemp of Ambyint



**“Its about providing industry with technologies to meet water goals, regulatory requirements, and reduce the amount of wastewater from industrial processes. We need to make this project a demonstration for industry, a demonstration of Alberta’s capabilities, and then grow from there.”**

**Ben Sparrow**

CEO and Chief Engineer, Saltworks Technologies

Excerpt from Carbon Copy podcast, Episode 10

ERA also worked to bring stories of ERA-funded projects to life through video. In 2021-2022, seven new videos were produced and released. These included:

- ▶ [Capital Power to convert carbon into a versatile, highly valuable product](#)
- ▶ [Ceres Solutions turns brewery waste into gourmet mushrooms and enhanced cattle feed](#)
- ▶ [SYLVIS Environmental Services reclaims old mines to produce biomass feedstock](#)
- ▶ [Reducing cattle emissions up to 90 per cent through a feed additive](#)
- ▶ [Blindman Brewing adopts carbon capture and reuse technology](#)
- ▶ [ERA invests \\$1.8 million in drone reforestation technology pilot project](#)
- ▶ [CP looks to hydrogen locomotives to lead decarbonization of freight transportation sector](#)

### Securing Government of Alberta participation in funding announcements

As an enabler of the Government of Alberta's strategic communications outcomes, objectives, and activities, ERA ensures its funding call launches and project announcements are made by the Province. This includes in-person or digital media events with participation from the appropriate Minister and, where possible, the Premier of Alberta. It also includes a corresponding news release from the Government of Alberta. ERA works with the Province to make sure industry and innovator stakeholders participate in Government of Alberta announcements. In 2021-22, eight ERA announcements were delivered by the Government of Alberta.

### Earning media coverage

ERA received favourable media coverage by top-tier regional and national news organizations. ERA also leveraged its relationships with industry publications and non-traditional media influencers to be featured in several articles, television interviews, and podcast conversations.

Here are a few highlights:

- ▶ **Globe & Mail:** [Alberta announces raft of emissions-reduction projects](#), November 1, 2021
- ▶ **Globe & Mail:** [Alberta earmarks \\$30-million for carbon capture projects so technology is 'ready to go' ahead of federal tax credit](#), January 14, 2022
- ▶ **Globe & Mail:** [Alberta government gets flood of applications to use underground caverns for carbon capture](#), May 16, 2022
- ▶ **Financial Post:** [\\$50 million for projects to support Alberta's circular economy](#), March 30, 2022
- ▶ **Edify Edmonton:** [Carbon Burial](#), May 5, 2022
- ▶ **Real Talk with Ryan Jespersen**, interview with Chief Strategy Officer, Mark Summers
- ▶ **Edmonton Journal:** [Alberta announces \\$30 million for carbon capture development to speed up deployment](#), January 14, 2022
- ▶ **Edmonton Journal:** [New blue hydrogen energy complex in Edmonton announced with \\$1.3 billion investment](#), June 9, 2021
- ▶ **CBC:** [Alberta isn't alone in facing climate challenge, says province's COP26 representative](#), November 10, 2021
- ▶ **Calgary Herald:** [Alberta invests in Lethbridge facility that turns waste into biofuel](#), July 27, 2021
- ▶ **Calgary Herald:** [ENMAX adds two new electric vehicles, looking to electrify fleet](#), April 11, 2022

**“This really is an example of Alberta helping to close the gap between rhetoric and reality. These are real projects with real technologies, from carbon capture to hydrogen to energy efficiency. These are the solutions that the world needs.”**

**Steve MacDonald**

CEO, ERA

Excerpt from Globe & Mail article, Alberta announces raft of emissions-reduction projects

# EXECUTIVE TEAM



**Steve MacDonald**

CHIEF EXECUTIVE OFFICER



**Justin Riemer**

CHIEF EXECUTIVE OFFICER  
(Incoming CEO, June 6, 2022)



**Heather Stephens**

CHIEF OPERATING OFFICER



**Mark Summers**

CHIEF STRATEGY OFFICER



**Justin Wheler**

EXECUTIVE DIRECTOR, TECHNOLOGY AND INNOVATION



**Michelle Gurney**

COMMUNICATIONS AND ENGAGEMENT



**Jennifer Cleall**

LEGAL COUNSEL

The ERA team supports its Board by providing sound research, expert advice, and effective reporting to facilitate decision-making.

# BOARD OF DIRECTORS



**Dave Collyer**

BOARD CHAIR



**Joseph Doucet**

VICE-CHAIR



**Céline Bak**



**Corrina Bryson**



**Vittoria Bellissimo**



**Johannes Dyring**



**Kate Rich**



**Sara Hastings-Simon**



**Clive Mather**



**David Moss**

This group of experts in technology, finance, governance, and business provides strategic direction and oversight to the organization. These individuals form a diverse Board with backgrounds that include significant experience in industry, government, academia, and the not-for-profit sector.



# FINANCIALS

## Emissions Reduction Alberta

(Emissions Reduction Alberta is a registered trade name of Climate Change and Emissions Management (CCEMC) Corporation)

Summary Financial Statements

May 31, 2022

## Deloitte.

Deloitte LLP  
10180 101 Street NW  
Suite 1500 Manulife Place  
Edmonton AB T5J 4K1  
Canada

Tel: 780-421-3611  
Fax: 780-421-3782  
www.deloitte.ca

## Report of the Independent Auditor on the Summary Financial Statements

To the Board of Directors of  
Climate Change and Emissions Management (CCEMC) Corporation  
(operating as Emissions Reduction Alberta)

### Opinion

The summary financial statements, which comprise the summary statement of financial position as at May 31, 2022, and the summary statement of operations for the year then ended, and related notes, are derived from the audited financial statements of Climate Change and Emissions Management (CCEMC) Corporation (operating as Emissions Reduction Alberta) ("ERA") for the year ended May 31, 2022.

In our opinion, the accompanying summary financial statements are a fair summary of the audited financial statements, in accordance with the criteria disclosed in Note 2 to the summary financial statements.

### Summary Financial Statements

The summary financial statements do not contain all the disclosures required by Canadian accounting standards for not-for-profit organizations. Reading the summary financial statements and the auditor's report thereon, therefore, is not a substitute for reading ERA's audited financial statements and the auditor's report thereon.

### The Audited Financial Statements and Our Report Thereon

We expressed an unmodified audit opinion on the audited financial statements in our report dated September 27, 2022.

### Management's Responsibility for the Summary Financial Statements

Management is responsible for the preparation of the summary financial statements in accordance with the criteria disclosed in Note 2 to the summary financial statements.

### Auditor's Responsibility

Our responsibility is to express an opinion on whether the summary financial statements are a fair summary of the audited financial statements based on our procedures, which were conducted in accordance with Canadian Auditing Standard (CAS) 810, *Engagements to Report on Summary Financial Statements*.

*Deloitte LLP*

Chartered Professional Accountants  
September 27, 2022

## Emissions Reduction Alberta

Summary Statement of Financial Position

As at May 31, 2022

	2022 \$	2021 \$
<b>Assets</b>		
<b>Current assets</b>		
Cash	442,309,844	510,645,699
Accounts receivable	36,163	62,734
Grant receivable (note 3)	33,425,723	13,000,000
Interest receivable	756,778	262,494
Prepaid expenses	65,239	41,488
Short-term investments	70,000,000	-
	<u>546,593,747</u>	<u>524,012,415</u>
<b>Non-current assets</b>		
Property and equipment	40,730	78,739
Grant receivable (note 3)	5,311,145	-
	<u>5,351,875</u>	<u>78,739</u>
	<u>551,945,622</u>	<u>524,091,154</u>
<b>Liabilities</b>		
<b>Current liabilities</b>		
Accounts payable and accrued liabilities	6,732,941	2,532,892
Deferred lease inducement	-	18,083
Deferred Revenue	-	80,842
	<u>6,732,941</u>	<u>2,631,817</u>
<b>Net Assets</b>		
<b>General Fund – unrestricted</b>	-	-
<b>Restricted Fund</b>	<u>545,212,681</u>	<u>521,459,337</u>
	<u>551,945,622</u>	<u>524,091,154</u>

Commitments and guarantees (note 4)

Approved by the Board of Directors



Director



Director

The accompanying notes are an integral part of these summary financial statements.

## Emissions Reduction Alberta

Summary Statement of Operations

For the year ended May 31, 2022

	<u>2022</u>			<u>2021</u>
	General Fund \$	Restricted Fund \$	Total \$	Total \$
<b>Revenue</b>				
Grant revenue (note 3)	-	128,486,868	128,486,868	185,000,000
Interest income	-	5,276,358	5,276,358	4,620,210
Other revenue	563,019	-	563,019	58,658
	<u>563,019</u>	<u>133,763,226</u>	<u>134,326,245</u>	<u>189,678,868</u>
<b>Project expenses (note 4)</b>				
	-	100,724,231	100,724,231	44,045,902
<b>Excess of revenue over project expenses</b>				
	<u>563,019</u>	<u>33,038,995</u>	<u>33,602,014</u>	<u>145,632,966</u>
<b>Operating expenses</b>				
Program management	563,019	7,802,179	8,365,198	6,261,929
Consulting contracted services	-	758,770	758,770	245,015
Corporate costs	-	568,738	568,738	432,723
Amortization	-	46,314	46,314	43,390
Board remuneration and expenses	-	109,650	109,650	45,567
	<u>563,019</u>	<u>9,285,651</u>	<u>9,848,670</u>	<u>7,028,624</u>
<b>Excess of revenue over expenses for the year</b>				
	<u>-</u>	<u>23,753,344</u>	<u>23,753,344</u>	<u>138,604,342</u>

The accompanying notes are an integral part of these summary financial statements.

## Emissions Reduction Alberta

Notes to Summary Financial Statements

May 31, 2022

### 1 Organization

Climate Change and Emissions Management (CCEMC) Corporation (“CCEMC”) is an Alberta-based, independent, not-for-profit organization incorporated under the Canada Corporations Act on February 17, 2009 and continued under the Canada Not-for-profit Corporations Act on October 14, 2016; its operations commenced on June 1, 2009. On October 21, 2016, CCEMC registered the trade name of Emissions Reduction Alberta (“ERA”) and uses this as its operating name. ERA’s mandate is to identify and accelerate innovative solutions that secure Alberta’s success in a lower carbon economy. The Technology Innovation and Emissions Reductions Fund (formerly the Climate Change and Emissions Management Fund) (the “Fund”) is established under the Emissions Management and Climate Resilience Act, SA 2003, c. E-7.8 (formerly the Climate Change and Emissions Management Act) by the Government of Alberta to support investment in innovation and clean technologies that will reduce Alberta’s emissions of specified gases and support its ability to adapt to climate change. The Fund provides the primary source of revenue for ERA.

The Government of Alberta and ERA entered into an Agreement dated and effective March 8, 2017 together with an Amending Agreement dated March 6, 2020, for the period up to and including March 31, 2024, with respect to funding under the Emissions Management and Climate Resilience Act. As a not-for-profit organization, ERA is exempt from tax in accordance with Section 149(1)(l) of the Income Tax Act (Canada).

### 2 Basis of presentation

The summary financial statements do not contain all the disclosures required by Canadian accounting standards for not-for-profit organizations. The statement of changes in net assets, the statement of cash flows, and certain note disclosures have been omitted. Reading the summary financial statements, therefore, is not a substitute for reading the audited financial statements of ERA.

ERA is committed to full accountability and transparency in all we do. Our audited financial statements for the year ended May 31, 2022, including all disclosures required by Canadian accounting standards for not-for-profit organizations, can be found on ERA’s website at [www.eralberta.ca](http://www.eralberta.ca).

### 3 Grant revenue

Funds are granted from the Government of Alberta to ERA on an annual basis through a Grant Agreement. The current Grant Agreement was executed on March 8, 2017 and was amended on March 6, 2020 to extend the effective date to March 31, 2024.

On December 1, 2021, ERA received a letter from Alberta’s Minister of Environment and Parks confirming funding of \$64 million to be used to execute ERA’s business plan, as well as for the purposes stated in the Grant Agreement and the memorandum of understanding. This includes funding the Carbon Capture Kickstart Call that supports carbon capture, utilization and storage feasibility and front-end engineering design studies, and the Circular Economy Challenge. The funding was received on December 21, 2021 and recorded as grant revenue. ERA also received a letter from Alberta’s Minister of Environment and Parks in fiscal year 2021 confirming funding of \$180 million to be used to execute ERA’s business plan, which includes supporting the Shovel Ready Challenges, Energy Savings for Business (“ESB”) program, and Partnership Intake Program. The funding was received on March 18, 2021.

On January 28, 2021, ERA executed an amendment to the original Delivery Entity Agreement dated February 22, 2019 with respect to funds that are committed to ERA under the Federal Low Carbon Economy Leadership Fund (“LCELF”). Under the amended agreement, the Government of Alberta has committed up to \$99.8 million in funding to ERA to support various initiatives including Food, Farming, and Forestry Challenge, Shovel Ready

## Emissions Reduction Alberta

Notes to Summary Financial Statements

May 31, 2022

Challenges, Partnership Intake Program, ESB, and the Industrial Efficiency Challenge previously committed to in the original Delivery Entity Agreement. In the current fiscal year, ERA has recognized \$64.5 million of LCELF grant revenue (2021 – \$5 million), which includes \$50 million on the Shovel Ready Challenge, \$12.3 million on the ESB program, and \$2.2M on the Partnership Intake Program. Of the total LCELF revenue recognized since fiscal year 2021, \$38.75 million was received in the current fiscal year. The remaining LCELF commitment up to the \$99.8 million approved is expected to be received in the fiscal years ending May 31, 2023 and 2024.

### 4 Commitments and guarantees

During the year, contribution agreements for ERA funding were executed for 38 projects, 1 project was cancelled, 2 projects were terminated, and 2 projects were not initiated. As at May 31, 2022, ERA has 218 (2021 – 183) executed contribution agreements outstanding and has commenced or completed funding for 192 (2021 – 152) of these approved projects. Funding for 26 of the 218 executed projects has not commenced. Total committed funds for executed projects is the difference between the total funding approved for executed contribution agreements and project expenses incurred to date or contribution agreements cancelled. A summary of these amounts (excluding the ESB program) is outlined as follows:

	2022 \$	2021 \$
Total committed funds for executed projects – Beginning of year	290,552,852	209,372,596
Total funds for executed projects approved or adjusted during the year	196,250,207	125,226,158
Project expenses incurred during the year	(92,034,260)	(44,045,902)
Contribution agreements cancelled during the year	(19,931,897)	-
Total committed funds for executed projects – End of year	374,836,902	290,552,852
Total funds for projects approved but not yet executed	10,000,000	223,575,051
Total commitments	<u>384,836,902</u>	<u>514,127,903</u>

Funds allocated to the executed contribution agreements are subject to ERA’s review and approval prior to disbursement to ensure full compliance with the terms of the contribution agreement. The actual financial commitment could therefore differ materially from \$374,836,902 but will not exceed that amount. Project expenses incurred during the year increased due to the larger number of approved projects under management. Sufficient funds are held in cash and short-term investments as at May 31, 2022, to service these commitments, approved projects and other initiated commitments.

For the current fiscal year in addition to the \$92,034,260 project expenses noted above, ERA paid \$8,689,971 of incentives to projects under the ESB program. This program was launched in November 2020 and is still accepting applications. Incentive values for projects approved for fundings under this program total \$19,753,486 as of May 31, 2022. Subsequent to year end, an additional \$2,038,852 of project incentive funding has been approved for ESB and pre-approved projects totaling \$2,820,220 are no longer proceeding. During the fiscal year, the ESB program expanded to include two new streams, the Small Producers Energy Efficiency Deployment (“SPEED”) and the Expanded Technologies Pilot (“ETP”). Subsequent to year end, \$15.8M of incentives were pre-approved for SPEED and \$0.6M has been pre-approved for ETP.



**Emissions Reduction Alberta**

Notes to Summary Financial Statements

May 31, 2022

On January 14, 2022, ERA launched the Carbon Capture Kickstart call. Funding decisions for this call were made on June 14, 2022 in the amount of \$40,568,950 for a total of 11 projects. This amount is in addition to the commitment in the table above. The Circular Economy Challenge and the Accelerating CCS Technologies 4th call opened for applications on March 20, 2022 and May 12, 2022 respectively. Both programs are still undergoing the assessment process and no funding decisions have been made yet.

There are 2 projects totaling \$10,000,000 (2021 – \$223,575,051) that have been approved for funding by ERA's board of directors but for which contribution agreements have not yet been executed as at May 31, 2022.

Included in the project expenses for the current year is \$98,920 (2021 – \$299,907) paid to projects being developed in Canada, but outside of Alberta. No expenses were paid to projects being developed outside of Canada in the current year (2021 – nil). Included in total executed and approved commitments for the year is \$814,610 (2021 – \$153,398) committed to projects being developed in Canada, but outside of Alberta. There are no remaining commitments for projects being developed outside of Canada (2021 – nil).

ERA indemnifies its directors against claims reasonably incurred and resulting from the performance of their services to ERA. No amounts are reflected in the summary financial statements related to these indemnifications.



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