



Sparks Eggs state-of-the-art egg grading facility

SPARKS EGGS ELIMINATES WASTE FROM THE SORTING AND PACKAGING PROCESS

Alberta's Sparks Eggs is doing something never done in Canada: creating valuable pet food and animal feed from commercially unsaleable egg products. This first-of-its-kind project diverts approximately 500 tonnes of egg away from the waste management system annually, reduces related greenhouse gas (GHG) emissions, and creates a useful product from what was once considered refuse.

Sparks Eggs' Calgary facility cleans, grades, and distributes about 2 million eggs each day. During the production process, it is inevitable for many of these eggs to crack, damage, and become unsuitable for sale. The facility produces 200 kg of inedible egg waste daily, and 11,000 kg each week. Prior to the Inedible Egg Powder Project, this refuse would be destined for the landfill.

"It has been a big goal of ours to take the last line of defense, the eggs that have nowhere to go, and turn them into a product that can help the food industry," said Jared Brookshaw, Western Maintenance Manager at Sparks Eggs.

The Inedible Egg Powder Project dehydrates the facility's unsaleable eggs and transforms them into a high-protein powder. It uses a machine called the GC 200 Drying Process, which can handle 500,000 kg of egg waste per year.

The resulting protein powder can be sold for pet and livestock feed, turning waste into a new revenue stream.

ERA has invested \$500,000 in the project through the Circular Economy Challenge. The Circular Economy Challenge supports waste reduction, material and feedstock substitution, value recovery, and reduction of the lifecycle environmental footprint of materials and products.

These technology solutions can reduce the impacts of material production, processing, and disposal. Circular Economy Challenge innovations, like the Inedible Egg Powder Project, will support industry competitiveness, new venture creation, and economic diversification.

"Circular Economy Challenge funding will facilitate our company to meet zero-waste and sustainability goals for our food processing facility in Calgary," said Scott Brookshaw, Executive Vice President, Sparks Eggs. "We will reduce our GHG emissions and transform our current waste product into a new ingredient for the pet food industry, creating a circular economy and permanent sustainable waste management solution."



TAQA North's East Crossfield Gas Plant

NEW TECH TO HELP TAQA REDUCE GAS PLANT EMISSIONS BY 50 PER CENT

TAQA North is bringing their 1960's gas plant into the 21st century. The traditional energy producer has re-vamped the East Crossfield Gas Plant with a new solution for acid gas, improving their production efficiency and reducing GHG emissions.

The East Crossfield Gas Plant generates sweet natural gas, which results in a byproduct of acidic gas. In the past, the plant disposed of the byproduct by making sulphur from the acid gas stream. They would also burn the remaining acid gas with a fuel mixture. This disposal method resulted in over 100,000 tonnes of annual GHG emissions from the Plant.

To improve their environmental footprint, TAQA embarked on a \$30 million project to convert the Crossfield Plant to Acid Gas Injection. Now the plant inserts acid gas into a well 2.7 kilometers underground. This means they are no longer creating sulphur or using supplemental fuel gas.

The completed project has reduced GHG emissions in the facility by 50 per cent.

"The acid gas injection project gives us the flexibility to not only sequester our own acid gas, but also third party acid gas that may be produced or recovered from other industries in the area." Gordon Gardiner, Plant Foreman, TAQA.

The project received \$10 million from ERA's Industrial Efficiency Challenge. Launched in March 2018, the Industrial Efficiency Challenge was an open call to industrial facilities—Alberta's most energy-intensive, trade-exposed industries—to implement new technologies that reduce emissions and operating costs. Technology like Acid Gas Injection can help Alberta's industry adapt to new energy regulations, and reduce GHG emissions and operating costs.

"The reason we're investing in the East Crossfield Plant, which has been around since the 1960's, is because it is a major natural gas processing facility in an area that has renewed development activity. This is a great example of investment in aging infrastructure, which can prolong the life of an asset that's very important to the region and industry players," said Kevin Keenan, South Asset Manager, TAQA North.

COMMITTED TO ACTION

ERA was created in 2009 to help deliver on the province's environmental and economic goals. ERA invests revenues from the carbon price paid by large industrial emitters in the pilot, demonstration and deployment of clean technology solutions that reduce GHGs, lower costs, attract investment, and create jobs in Alberta.

FUNDING OPPORTUNITY	WHAT'S IT ABOUT?	ERA FUNDING	HIGHLIGHTS
GRAND CHALLENGE	Technologies to transform CO ₂ from waste to value-added	\$24M	2 projects awarded \$5M each in the final round
METHANE CHALLENGE	New methane detection and reduction technologies	\$23M	12 projects funded worth \$60M in total project value
OIL SANDS INNOVATION CHALLENGE	Late-stage, GHG-reducing technologies to help Alberta's oil sands industry remain competitive	\$36M	6 projects funded worth \$377M in total project value
INDUSTRIAL EFFICIENCY CHALLENGE	Technologies to increase efficiencies for LFE industrial facilities	\$56M*	9 projects funded worth \$199M in total project value
BEST CHALLENGE	GHG-reducing technologies in biotechnology, electricity, and sustainable transportation	\$65M	11 projects funded worth \$406M in total project value
NATURAL GAS CHALLENGE	Unlocking innovation across Alberta's natural gas value chain	\$53M	19 projects funded worth \$150M in total project value
FOOD, FARMING, AND FORESTRY CHALLENGE	Accelerating innovation for sustainable growth	\$25M	14 projects funded worth \$122M in total project value
SHOVEL-READY CHALLENGE	Support for companies ready to implement leading-edge technologies in applications for both greenfield and brownfield operations	\$148M*	14 projects funded worth over \$2.75B in total project value
CARBON CAPTURE KICKSTART	Advancing the province's global leadership in CCUS-related technologies	\$41M	11 projects that could lead to over \$20 billion in capital expenditures
CIRCULAR ECONOMY CHALLENGE	Reducing the impacts of material production, processing, and disposal	\$41M	9 projects funded worth \$178M in total project value
INDUSTRIAL TRANSFORMATION CHALLENGE	Transforming Alberta's industrial sectors	\$71M	16 projects worth over \$260 million in total project value
PARTNERSHIP INTAKE PROGRAM	Evaluating promising GHG-reducing projects referred to ERA by Trusted Partners	\$90M*	27 projects funded worth over \$1.528B in total project value
ENERGY SAVINGS FOR BUSINESS	Support for small- and medium-scale industrial and commercial businesses for cost-saving and emissions reducing projects	\$47M**	2042 projects funded worth \$165M in total project value

*This includes projects for Carbon Fiber Grand Challenge

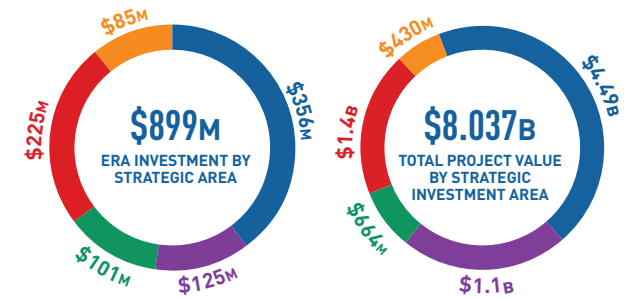
**This program is funded in part by the Government of Canada's Low Carbon Economy Leadership Fund.

TECHNOLOGY INNOVATION

Investing in a Diverse Portfolio

261 Projects*

- ▶ **Future Fuels** (58 Projects)
- ▶ **Circular Economy** (53 Projects)
- ▶ **Energy Efficiency** (36 Projects)
- ▶ **Industrial Transformation** (75 Projects)
- ▶ **Carbon Sequestration** (36 Projects)

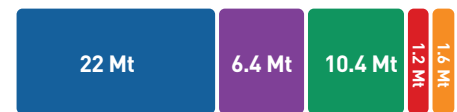


*In 2012, ERA provided \$7 million in funding for three adaptation projects worth \$7 million in consultation with Alberta Environment and Parks.

7.9:1 LEVERAGED FUNDING FROM PUBLIC AND PRIVATE INVESTORS

Cumulative Project Emission Reductions

42 Mt CO₂e Total by 2030



115 Mt CO₂e Total by 2050



Note: We have estimated emission reductions for all projects with approved funding commitments and executed funding agreements and assumed the projects will continue successfully and as planned. Should circumstances change for these projects, emission reduction estimates may change materially.

COMMERCIAL ADOPTION

ENERGY SAVINGS FOR BUSINESS PROGRAM

PROJECTS 2042
 INVESTED \$47 MILLION
 JOBS CREATED 1,277
 AB GDP CONTRIBUTION \$141 MILLION
 EMISSIONS REDUCED 3.36Mt OF LIFETIME EMISSIONS

ALL PROJECTS



**A person-year is equal to one-year of employment for one individual. Please note: economic impact is reported on a calendar year basis, not fiscal year.



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