

For Immediate Release

PTRC, University of Regina and Evolution Growers Collaborate on Geothermal Optimization Project

Today the Petroleum Technology Research Centre (PTRC) announced funding for a University of Regina research project looking at geothermal heat and the integration of different energy sources at a proposed greenhouse complex in Estevan.

The project will see the university working with start-up First Nation's company Evolution Growers – which is in the advanced stages of planning and development of a greenhouse operation that will utilize different sources of clean energy – on a three-tiered research program:

1. Exploring medium to high temperature geothermal reservoirs in Saskatchewan with careful engineering design and implementation, to secure a long-term sustainable energy process at the Evolution Growers' site.
2. Develop a tool to assist in determining geothermal energy conversion and delivery configurations that would maximize energy efficiency of operations.
3. Provide a cost-effective and resilient integrated energy system to integrate and utilize the geothermal, solar, wind and battery energy storage at the site.

Evolution is looking to use a combination of geothermal, solar energy and methane gas sources in the energy and heating design of two proposed greenhouses. Such a project will need not just geological characterization and engineering work, but also an integrative energy system to switch sources as operational demands change.

"The greenhouses will tap varying energy sources for our heating and lighting," notes Derrick Big Eagle, a First-Nations entrepreneur and owner of Evolution Growers. "There aren't many commercial greenhouse operations between Winnipeg and Alberta, and the demand is high for fresh vegetables and produce grown locally. It's not just the use of clean energy to power the greenhouses, but also the reduction in transportation emissions we can achieve by growing more of our produce here that makes this project so environmentally efficient."

U of R scientists from three different engineering schools – Industrial Systems, Petroleum Systems, and Electronic Systems Engineering – contribute know-how and research to the project. This integrative and cooperative approach reflects the goals outlined in the University's Transitional Energy Hub, an initiative launched in 2021 that looks to increase interactive research across disciplines at U of R to reduce greenhouse gas emissions and improve energy efficiencies.

"What's also exciting about this research project is that the skills and talents of professors, graduate students and post docs in areas of research that have previously focused primarily on hydrocarbon resources are directly applicable – and necessary – in the emerging energy field," notes Kathy McNutt, Vice-President Research at U of R.

"PTRC has always had a strong focus on helping different companies with large set-point sources of CO2 realize their emission reduction targets," noted Ran Narayanasamy, the CEO of the PTRC. "We're excited by this project because it expands PTRC's reach into geothermal sources of energy, while also helping the University develop artificial intelligence and machine learning expertise to create integrated energy systems."

The two-year research budget is \$240,000, with PTRC's \$60,000 being supported by an additional \$180,000 by Mitacs. This federally funded research facilitator assists universities working with companies to place and train highly qualified personnel. Both PTRC and the University are grateful to Mitacs for supporting efforts to expand engineering and scientific expertise into new energy fields.

About PTRC

The Petroleum Technology Research Centre was founded in 1998 to manage and direct research projects that help reduce CO2 emissions from the energy sector, and make all forms of sub-surface energy more efficient and environmentally sound. PTRC receives funding from Innovation Saskatchewan, a government agency that fosters innovation across research, development, science and technology. We help companies achieve their environmental, social and governance (ESG) goals through reducing emissions and developing technologies that improve energy efficiency. PTRC has the accumulated knowledge and scientific networks to assist in the design and implementation of CO2 storage projects.

About the University of Regina

The University of Regina—with campuses located on Treaty 4 and Treaty 6 territories, the ancestral lands of the Cree, Saulteaux, Dakota, Lakota and Nakoda nations and the homeland of the Métis—is a comprehensive, mid-sized university that traces its roots back to the creation of Regina College in 1911. Today, more than 16,000 students study within the University's 10 faculties, 25 academic departments/schools, 18 research centres and institutes, and three federated colleges (Campion College, First Nations University of Canada, and Luther College). The University of Regina has an established reputation for excellence and innovative programs that lead to undergraduate, master's, and doctoral degrees.

About Evolution Growers

Evolution Growers is a locally (Estevan) owned and operated company, working on providing food security and market support for produce grown in Saskatchewan and Western Canada through the development of clean energy-sourced greenhouses. The company's proposed two greenhouse operations in Estevan will utilize geothermal and solar energy sources to power operations and provide low-carbon vegetable crops to retail and other outlets in Western Canada and, potentially, the Northern US.

About Mitacs

Mitacs is a Canadian not-for-profit organization committed to empowering Canadian innovation through effective partnerships that deliver solutions to our most pressing problems. For over 20 years, Mitacs has assisted organizations in reaching their business goals, has funded cutting-edge innovation, and has created job opportunities for students and postdocs. We are passionate about developing the next generation of researchers who will work to fuel Canada's knowledge-based economy. To find out how our programs could take your research to the next level, visit mitacs.ca

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