



REDEVELOP Challenge 2023

It seems so long ago! On May 10-11, 2023, we held our annual Dragon's Den Challenge and Conference. Attendees from industry, government, academic, and Indigenous communities joined us to watch our multi-university, interdisciplinary teams in action. Each team had 20 minutes to articulate their story clearly and concisely for a technical audience. With a holistic approach to problem-solving, presentations included: (1) a scientific research question with both technical and environmental considerations, (2) a detailed summary of the policy issues and economic challenges, and (3) integration of Indigenous perspectives within criteria (1) and (2). They also prepared a 90-second video to deliver key messages to a general audience in *Super Bowl* fashion. Teams demonstrated the depth and breadth of their knowledge during the 45-minute Q&A that followed, in *Dragon's Den* format. The Dragons previewed the scientific posters and policy papers in April to give them time to prepare thought-provoking questions to explore the limits of each team's knowledge and to push them to consider all possibilities. Through this experience, the cohesiveness of each team as a functional group of diverse, interdisciplinary professionals was evaluated.

Meet the Dragons

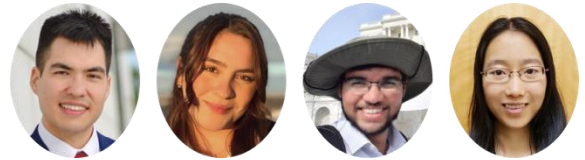


Joanne Martineau is Nehiyaw – Plains Cree from Frog Lake FN, and has Metis heritage. Joanne is a Professional Engineer, with a degree in Chemical Engineering and also has a second post-secondary designation in Business Administration with a major in accounting. She currently works for Inter Pipeline where she has recently moved to the role of Manager of Indigenous Relations. **Colin Anton** is reprising his role and returning for a second year. He has spent 18 years working with various companies in global energy, in Diversity and Inclusion, Human Resources and Community and Indigenous Relations. Colin is currently the Indigenous Relations Lead at Gibson Energy. **Leoni Rivers** is a member of the Squamish Nation, Gitxsan by birth, and she is an Indigenous Consultant with extensive experience working in the public and private sector on major projects. Leoni is the Founder and CEO of Leoni Rivers Consulting.

Training graduate students to work across disciplines, distance, and cultures builds self-awareness, tolerance, humility and diversity in problem-solving. This year's teams produced outstanding work and the competition scores were very close. **Modular Nuclear, the winning team**, representing the Universities of Alberta, Calgary, Toronto, and Waterloo, conducted a case study in the "Ring of Fire" mineral deposits in Northern Ontario and examined a preliminary policy and site design framework for Small Modular Reactors.



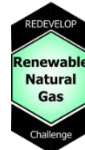
The **Critical Minerals** team (Universities of Alberta, Calgary, and Toronto) explored the recovery of the critical mineral magnesium from hydraulic fracturing flowback brines using a novel method.



The **Hydrogen** team (Universities of Alberta, Calgary, and Toronto) dove into the topic of pink hydrogen – producing hydrogen fuel using excess electricity produced by the Bruce Nuclear Power Plant in Ontario.



The **Renewable Natural Gas (RNG)** team (Universities of Alberta and Calgary) researched the potential for RNG production from co-digest cattle manure at feedlots in Alberta.



Continuing Leadership

The REDEVELOP program continues to produce graduates with fantastic leadership, technical writing, and audio-visual presentation skills, all with important knowledge of alternative energy topics. **Many thanks to the student leadership team** who put in long hours to ensure that the conference ran smoothly and coached the teams with their presentations and videos: Aly Abdelaziz, Beza Haile, Earl Magsipoc, Hosein Seyed Ghafouri, Julie Younes, Katia Ossetchkina (U.Toronto), Serafim Grubas (U.Alberta), Hossein Tabatabaei, Jesus Rojas Parra, and Joelle French (U.Calgary) took on the role of academic advisors to last year's teams, along with conference planning. We are in the process of selecting the 2023-24 HQP Committee.

Special thanks to I/O psychology coaches Madeline Springle and McKenna Sperry.

Certifications

In addition to a range of technical workshops, students received training in industrial-organizational psychology strategies (8 hr) for workplace leadership from the [ITP Metrics Lab](#), and Indigenous relations training (24 hr) from the [Writing Symbols Lodge](#), both out of the University of Calgary.

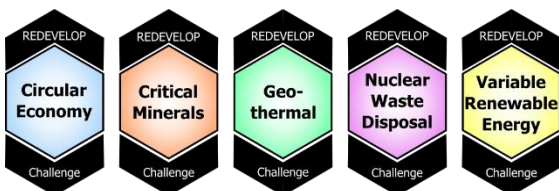
Indigenous Partnerships in Science

The 2007 United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) defined 17 goals for sustainable development. Goal #17 was the formation of partnerships to achieve the other 16 goals. **GeoConvention 2023** (May) saw the return of a unique technical session focused on Indigenous partnerships. The session was collectively hosted by the REDEVELOP students, staff, and collaborators, and boasted excellent attendance.



REDEVELOP Challenge 2024

This year's program will kick off in fall 2023 with 12 new graduate students from across Canada. This year, the teams will have the opportunity to select from low-carbon energy and resource topics such as:



Program Manager Changes

We will be bidding a fond farewell to Jordan Phillips at the end of October. One of the students in REDEVELOP's inaugural year, she returned as Program Manager in November 2021 and helped steer the program through its return to in-person events. Jordan has joined the Canadian Society for Evolving Energy (CSEE), a world-class non-profit based in Calgary that facilitates learning and innovation in a changing energy landscape.



We are excited to welcome Julie Younes as the incoming Program Manager. In addition to her role with REDEVELOP, Julie is working on her PhD in Geomechanics at the University of Toronto with Dr. Giovanni Grasselli. She holds a

Master of Science in Earth, Planets and Environmental Sciences, a Master of Science in Natural Hazards in Civil Engineering, and a Master of Engineering in Civil Engineering. She is a REDEVELOP alumna from the 2021-22 cohort and was a member of the Geothermal team, which won Honorable Mention in Best Student Oral Presentation at GeoConvention 2022. REDEVELOP is in excellent hands! Jordan, Julie and the REDEVELOP Principal Investigator, Prof. David Eaton, will be working together to complete a smooth transition over the coming months.

The Future of REDEVELOP

REDEVELOP is a **\$1.65M** government-funded graduate student training program that was originally slated to come to an **end in May 2023**. In 6 years, we have trained 121 students, who have published more than 30 peer-reviewed journal articles and completed 55 internships. We have developed a successful model that operates for about **\$300k per year**, most of which is paid out in scholarship funding (a tax incentive for corporate investors). Due to COVID-related factors, we have sufficient funds remaining to offer an **additional 7th year** at slightly reduced capacity – so look out for your invitation to the 2024 Challenge!

Over the past couple of years, we have reached out to several of our collaborators to discuss the future of this program and the potential to **secure corporate funding** from partners willing to make either short (1 year) or long (5 year) commitments. There is a wide array of partnership options, ranging from **\$5k - \$300k+** and supporting everything from student training to field trips to the Challenge and program as a whole.

[We are reaching out to all our collaborators to consider having a seat at the REDEVELOP table as we move towards the future of low-carbon energy in Canada.](#) Your contribution can help to ensure that REDEVELOP is able to continue training students in the coming years.

For further information, please email the program manager directly at: redvelop.ucalgary@gmail.com.

Field Trip 2023



On May 12, 2023, REDEVELOP students, alumni, and stakeholders attended a CCUS-focused field trip. We visited the Enhance Energy carbon capture facilities that form part of the Alberta Carbon Trunk Line, as well as the Carbon Management Canada Newell County facilities that host research projects from both industry and the Containment and Monitoring Institute at the University of Calgary. The trip was sponsored by Pathways Alliance, and an excellent learning experience for all attendees!