

We are happy to announce that in year 5, you will see the 100th student complete their training at our upcoming REDEVELOP Challenge. Next month, as the world tunes into the UN Climate Change Conference (<https://ukcop26.org/>), we will be considering our approach to this year's projects. But first, we'd like report on the 4th Annual REDEVELOP Challenge, as it is long overdue.

REDEVELOP Challenge 2021

On May 10-12, 2021, more than 100 participants from industry, government, academic and Indigenous communities Zoomed™ in 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 30-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. This year's Dragons offered a range of expertise.



Sara Hastings-Simon has held senior leadership positions in both science and policy at the University of Calgary, the Colorado School of Mines and Pembina Institute. Sara is also co-founder/co-host of *Energy vs Climate*, a webinar and podcast that explores the energy transition in Alberta, Canada, and beyond. **Jim Boucher** is retired chief of the Fort McKay First Nation and co-founder/president of the *Saa Dene* group of companies. A residential school survivor, Jim is an internationally recognized Indigenous leader who has built foundational relationships with

the oil/gas industry and all levels of government. Today, the FMFN has a \$65 million trust fund, little unemployment, and owns 49% of *Suncor's East Tank Farm Development*, while the Saa Dene group sponsors a long list of education, health and wellness, culture, social and athletics *initiatives*. **Kevin Krausert** is CEO/Co-Founder of *Avatar Innovations*, a ground-breaking energy innovation and investment firm. Starting his career in the energy industry as a roughneck on the oilrigs of Northern Alberta, Kevin led Canada's oldest drilling company through the disruption of the energy industry.

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. **Liquefied Natural Gas (LNG)**, the winning team, representing the Universities of Calgary and Toronto, compared the GHG intensity of LNG for export from LNG Canada's Kitimat (BC) facility to that of American competitors, in collaboration with the Haisla First Nation.



Pengfei Zhao



Kienan Marion



Roger Borbon



Deborah Esquivias



Travis Brookson

The **geothermal** team constructed a feasibility model for greenhouse agriculture in the Yukon, where the limiting factor for economical food production is adequate energy to maintain temperature, light and humidity for plant growth. In conducting this feasibility study, they engaged with the Fort Nelson First Nation to learn about their new Clarke Lake geothermal project.



Lonn Brown



Gideon Choi



Kim Markvoort



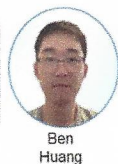
Ali Yaghoubi



Andreas Murphy

The **CCUS** (carbon capture, utilization and storage) team proposed a CCUS model for the new Cascade Power Project (to be operational by 2023), led by the Alexis Sioux First Nation of the Indigenous Communities Syndicate (ICS).





Ben Huang



Farhana Mustafa



Kevin Grimeau



Behnaz Afsahi Lafrenz



Ali Ghavidel

The **hydrogen** team proposed a coupled system for Nunavut, with wind power to produce hydrogen from water, which is then stored for later use during times of fluctuating electricity supply and demand. Dr. Henry Penn, of the Kluane Lake Research Station (KLRS) explained to the team the realities of how and why most Inuit communities in subarctic regions currently rely on diesel-generated power.



Phyllis Shin-Yu Wu



Danial Zeinabady



Meagan Fong



Chris Wallace



Sora Jalilpour

Many thanks to the student leadership team who put in long hours to ensure that the virtual conference ran smoothly and coached the teams with their presentations and videos: Evangeline Eldridge and Shelley Alexander (U.Calgary), Mark Mlella (U.Alberta) and Beza Haile (U.Toronto). Special thanks to I/O psychology coaches, Samantha Jones and Leah Pezer.

Certifications

In addition to a range of technical workshops, students received training in industrial-organizational psychology strategies (8 h) for workplace leadership from the [ITP Metrics Lab](#), and Indigenous relations training (30 h) from the [Writing Symbols Lodge](#), both out of the University of Calgary.

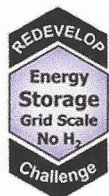
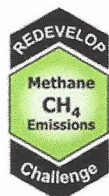
Indigenous Partnerships in Science

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 2021 (September) saw its first technical session focused on Indigenous partnerships. The session was collectively hosted by the REDEVELOP students, staff and collaborators. Special thanks to Chief Jim Boucher and Jauvonne Kitto (Saa Dene), Dr. Chelsea Benally, Steven Saddleback (Indian Resource Council), and Thalia Aspeslet and Colin Anton (Pieridae Energy). Congratulations to the LNG team for an excellent presentation, drawing media attention in the Daily Oil Bulletin.



REDEVELOP Challenge 2022

This year's program kicked-off earlier this month with the induction of 20 new graduate students from across Canada. Teams will explore low-carbon energy alternatives, with a focus on impacts to climate change and COP26.



We are currently looking for subject matter experts from industry, government and Indigenous communities who might like to try the team mentorship experience this year. We anticipate hosting this year's in-person REDEVELOP Challenge in **early May 2022** in Downtown Calgary.

Progress Brings Change

As the REDEVELOP program continues to develop and evolve, so does the quality of its graduates. With their current knowledge of alternative energy topics, technical writing and audio-visual presentations, REDEVELOP alumni, Beza Haile (U.Toronto), Lonn Brown (U.Alberta), Kevin Grimeau and Evangeline Eldridge (U.Calgary), will take on the role of academic advisors to this year's teams, along with conference planning. Previously held by a faculty member, this change is evidence of a successful training program.

We bid a fond farewell to **Celia Kennedy**, who has worked since the start of REDEVELOP in 2017, together with academia, industry, government and Indigenous communities to develop, brand and re-brand the REDEVELOP training model to prepare students for a changing energy-sector workforce. Celia has joined [SILIXA](#), a global leader in integrated distributed fibre optic technologies. Their projects include: enhanced geothermal systems, CCUS, environmental, infrastructure and geotechnical. Celia will manage ongoing projects and work to expand the application of fiber optic distributed sensing while building new partnerships for SILIXA in Canada.



We are very happy to welcome **Jordan Phillips** as our new project manager. Jordan completed her MSc in Geophysics and Social Science at the University of Alberta and is a REDEVELOP alumni. Jordan was project manager of her team in 2018

and served on the student leadership team in 2019. She brings the benefits of a technical graduate degree and administrative experience to this role, as well as insights as an alumna of the program.

The Future of REDEVELOP

REDEVELOP is a **\$1.65M** government-funded graduate student training program that will come to an **end in May 2023**. In 5 years, we will have trained 100 students, who have published more than 50 peer-reviewed journal articles and completed 50 internships. Thirty of our REDEVELOP trainees have graduated from their academic degree programs and are working in their chosen field; translating to a **100% success rate in job placement** of our graduates. In short, we have developed a successful model that costs \$300K per year to operate, most of which is paid out in scholarship funding (a tax incentive for corporate investors).

This month, 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. **A meeting will be arranged for early December to frame the future of the REDEVELOP program.**

We appeal to all our collaborators to consider having a seat at that table. For further information, please email the project manager directly at: redvelop.ualgary@gmail.com.