



Innovative WIL:

A Case Study of Early Talent Development to Support Clean Energy Transitions in Southern Alberta

AT A GLANCE

PARTNERS: TalentED YYC, Calgary Economic Development; MacPhail School of Energy, Southern Alberta Institute of Technology; Schulich School of Engineering, University of Calgary; Karbon-X; City of Calgary

REGION: Prairies

INDUSTRIES: Clean energy economy, including multiple industries

WIL TYPES: Bootcamps, design competitions, simulated WILs, industry projects

TYPE OF LEARNING: Curricular and co-curricular

THEMES: Green Skills, Equity, Diversity, and Inclusion in STEM; SME talent needs; Innovative WIL

SUMMARY: This case study explores how an intermediary agency, TalentED YYC, supports Calgary's clean energy economy and post-secondary students through innovative WIL streams and networking opportunities. TalentED YYC's streams put employers in direct contact with diverse students interested in green careers, and offer students the chance to develop green technical and literacy skills while building connections to local employers.

Context

BHER partnered with Calgary Economic Development's TalentED YYC project to streamline employer access to diverse student talent for Alberta's growing clean energy economy through innovative WIL.

The clean energy transition promises job growth in multiple sectors. By 2050, new jobs are expected across Canada in clean transportation (+1,630,000 jobs), clean energy supply (+478,700 jobs), clean industry (+172,400), and clean buildings (+391,000 jobs). Job gains are expected to be highest in STEM and Skilled Trades roles, such as electricians, engineers, technicians, and technologists. But the legacy of limited diversity and inclusion in STEM and Skilled Trades programs means employers will have a hard time tapping into underrepresented talent pools. Women, Indigenous peoples, racialized individuals, and persons with disabilities are often excluded from or self-select out of potential pathways into the clean energy economy. Without concerted efforts to attract underrepresented groups, these inequalities will only worsen.



To combat this issue, TalentED YYC offers a streamlined platform for employers looking to engage students from Calgary's seven post-secondary institutions: University of Calgary, SAIT, Bow Valley College, Mount Royal University, Alberta University of the Arts, St. Mary's University, and Ambrose University. With support from BHER, TalentED YYC brought together these post-secondaries, clean energy groups (FUSE Collective, Innovate Calgary, Calgary Chamber of Commerce, ECO Canada, Energy Futures Lab), and local employers to strengthen access to diverse student talent interested in green careers. To date, TalentED YYC's inclusion efforts have been highly successful, with 60% of participants identifying as women, 58% as visible minorities, and 36% international students.

TalentED YYC provides a roadmap for building inclusive pathways to clean energy careers through innovative WIL. This case study highlights the key components of their success, and what educators and employers need to know to duplicate it.

EMPLOYER ENGAGEMENT

TalentED YYC makes it easier for employers to offer WIL opportunities to students in Calgary by working closely with employers to assess their talent needs and readiness to work with students, assisting with job postings, and providing WIL options that match their needs.

They offer capacity building support through workshops designed to strengthen employers' skills and knowledge of equitable student recruitment practices, WIL funding, and effective student onboarding strategies. They also offer curated WIL resources, including access to BHER's WIL Hub and tools.

To date, TalentED YYC has helped 156 employers access student talent through innovative WIL opportunities, such as industry projects, design competitions, bootcamps, and simulated WIL. These opportunities open the door to exciting green careers for diverse students.

STUDENT EXPERIENCE

TalentED YYC gives students multiple entryways into Alberta's clean energy economy through innovative WIL streams hosted in partnership with collaborators in a wide range of green-related sectors (Table 1). Students also receive support accessing subsequent WIL and early career opportunities via CED's employer network.

WIL opportunities include both longer duration curricular WIL (e.g., multi-term industry projects) and shorter co-curricular opportunities. Across all programming, there's a strong focus on the social and emotional skills that are most in demand for the clean energy economy.

WIL STREAM	KEY COLLABORATORS	DESCRIPTION	OUTCOMES
Bootcamps	ECO Canada, an environmental association focused on training and labour market research for environmental professionals.	2-day bootcamp on foundational green skills and decarbonization. Students network with industry professionals, learn about specific industries like net zero building, and access career support.	Learn foundational green skills and the fundamentals of decarbonization, increase awareness of green career opportunities.
Design Competition	FUSE Collective, a University of Calgary student organization focused on energy transition. City of Calgary, Africa Centre of Calgary, Calgary Black Chambers, Mitacs, TECHNATION, BrainSTEM Alliance, LearningCITY.	Multi-day design competitions. Examples include students working with energy sector professionals to address a specific Alberta 2050 challenge facing the clean energy sector, and students working with SMEs for Innovate Inclusion during Black History Month.	Strengthen teamwork and collaboration skills, gain a stronger understanding of current challenges in the energy sector.
Simulated WIL: Newtonian Shift	Energy Futures Lab, a coalition of innovators and organizations working to accelerate the energy transition, in collaboration with FUSE Collective.	2-day simulated work experience and leadership development opportunity with energy sector professionals. Students learn about multiple stakeholder perspectives on clean energy transitions, and the role that leadership plays in shifting the system or maintaining the status quo.	Strengthen leadership and collaboration skills, learn different stakeholder viewpoints, strengthen connections to energy professionals.
Industry Projects	Seven post-secondary institutions in the Calgary region that integrate industry projects into relevant courses.	2-4 months industry projects related to the green economy, integrated into existing capstone, research, and other courses.	Apply research and problem-solving skills to industry challenges in the green economy.

VALUE OF THE MODEL

1 THE TALENTED YYC PROGRAM CREATES OPPORTUNITIES FOR STUDENTS TO MEET EMPLOYERS IN PERSON AND BUILD THE SOCIAL CAPITAL NEEDED TO LAUNCH A CAREER IN THE CLEAN ENERGY ECONOMY.

The WIL opportunities are all designed to get students into the same room as employers. That’s the objective and key to the success of TalentED YYC. Students report significant gains in their sense of readiness for the clean energy workforce: 86% of participants in any WIL stream reported that their participation helped them feel better prepared, while 90% felt optimistic about achieving success in the workforce.

One racialized engineering student from the University of Calgary said:

“From the first event that I attended, the Net Zero Student Bootcamp, which helped me gain knowledge about the future outlook of sustainable careers in Calgary’s energy transition, to participating in the AB2050 Case Competition, every interaction has helped me grow professionally.”

2 STUDENTS GAIN THE SOCIAL AND EMOTIONAL SKILLS AND CLIMATE LITERACY THAT EMPLOYERS NEED MOST.

The innovative WIL streams support students in developing the social and emotional skills and fundamental sustainability knowledge required for green jobs.

Post-program surveys indicate that 81% of students felt they improved their problem-solving skills, 81% improved critical thinking skills, 77% improved communication skills, and 77% felt better prepared to demonstrate professionalism. WIL also helped students gain a stronger understanding of green job opportunities across the board.

WIL employers improve student readiness for green careers, but they also benefit from the energy, skill, and creativity of student talent. After networking with students at a case competition, one cleantech leader said:

“These students possess immense potential to make a tangible difference in advancing clean energy solutions and shaping a more sustainable future with their passion and innovative mindsets.”



POST-SECONDARY SPOTLIGHT: UCALGARY

Collaborating with TalentED YYC through their industry projects WIL stream, the University of Calgary's Schulich School of Engineering has been connecting final-year students to local cleantech SMEs through a two-term capstone course. This collaboration builds on Schulich's well-established capstone course, which delivered over 135 projects in the 2023-24 school year.

These green industry projects allow student teams to apply their engineering knowledge to firm-level challenges set out by employer sponsors, who also co-develop the projects with the course director and may provide oversight, financial support, and mentorship for the entire duration of the project. Through regular contact with employers, students hone their professionalism, teamwork, understanding of the design process, and project management skills, while gaining insight into key issues in the green economy. At the end of the course, student teams deliver a working prototype to their employers.



3 THE TALENTED YYC PROGRAM MAKES IT EASIER FOR EMPLOYERS TO FIND AND ACCESS STUDENT TALENT INTERESTED IN GREEN CAREERS, AND FOR THE COMMUNITY TO SCALE WIL.

As a regional intermediary, TalentED YYC undertakes a wide range of behind-the-scenes networking to connect employers to post-secondary institutions. By creating a one-stop shop for employers to access everything they need to offer WIL, green skills programming, and student networking, TalentED YYC makes it easier for employers to find diverse students with values and interests aligned with the clean energy economy and connect to them directly.



**EMPLOYER SPOTLIGHT:
KARBON X**

Karbon-X, a small-scale Calgary-based cleantech start-up, worked with two teams of students to create durable hardware prototypes and firmware systems that help accurately assess carbon absorption capacity in the Costa Rican rainforest. Students designed low-powered sensors able to reliably transmit results via satellite uplink, using a measurement methodology that impressed even Karbon-X's Technical Lead, a professional engineer.

Through weekly contact with Karbon-X, students gained insight into the voluntary carbon market, offsetting methodologies, and policy actors such as Alberta's TIER system and the Verified Carbon Standard. The experience also left Karbon-X impressed with student talent, and recommitted to their belief in the importance of WIL. As Karbon-X's Technical Lead told us:

“We're always interested in different approaches to solving problems, especially since we're dealing with a new set of world problems over and above what businesses have historically dealt with.”

Key Takeaways

FOR EMPLOYERS

- There is a WIL format out there for you. If longer term, higher touch WILs like internships don't fit your needs, bootcamps and design competitions are a low-risk way to benefit from the innovative mindset and energy of students.
- Working closely with a regional intermediary, like TalentED YYC, can help you connect to multiple schools without the hassle of reaching out individually.
- For clean energy employers, innovative WIL is crucial for accessing a more diverse pool of students than traditional co-op or trades programming.
- Foregrounding your environmental and community values helps attract the right talent interested in green careers. Use your commitment to net zero or other sustainability goals as part of your student recruitment campaign.

FOR WIL INTERMEDIARIES AND DEVELOPMENT AGENCIES

- Spend time developing innovative WIL with a strong networking component, such as bootcamps and competitions. They add value for your employers and offer new opportunities for partnership development.
- Pursue and maintain ongoing contact with employers, educators, and students to eliminate obstacles, reduce duplication, and coordinate efforts.

FOR EDUCATORS

- Develop programming with different entryways into the clean energy economy so that equity-deserving students can choose the option that best aligns with their needs..
- Engaging more employers with a strong commitment to sustainability can help create opportunities more aligned with Gen Z and youth, who increasingly want roles that give purpose and meaning beyond income.



CONTINUE THE CONVERSATION

Interested in learning how your business or post-secondary institution can set up an innovative work-integrated learning program like any of TalentED YYC's WIL streams? Connect with us at wilpartnerships@bher.ca

Check out more resources at <https://bher.ca/publications/case-studies>