

# Alberta's Technology Access Centres

- Green Building Technologies
- Centre for Innovation in Manufacturing
- Integrated Agriculture Technology Centre
- Boreal Forest Plant and Seed Technology Access Centre
- Technology Access Centre for Sensors and System Integration
- Technology Access Centre for Oil Sands Sustainability
- National Bee Diagnostic Centre
- Technology Access Centre for Livestock Production

Tech-Access  Canada

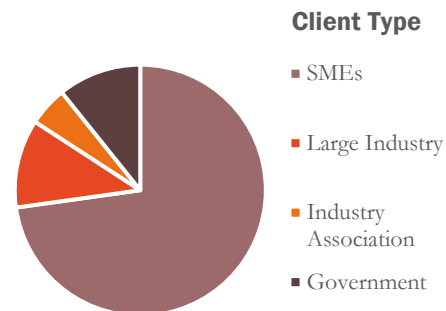


Canada's 60 Technology Access Centres (TACs) are specialized applied research and development centres affiliated with publicly funded polytechnics, colleges, and cégeps. Each TAC serves a specific geographic area, with a focus on strengthening the industrial sector of significance to that region.

These demand-driven centres help Canadian businesses get their products, processes, and services market-ready by:

- offering objective advice and specialized technical services
- providing training related to new types of equipment and processes
- conducting applied research and development projects focused on company problems

TACs also act as a key resource for entrepreneurs, using their expert technical knowledge and business coaching to accelerate an idea to commercialization phase. In 2021 these Centres completed 154 industrial projects for 114 companies with a total value of \$5M.



## TECHNOLOGY ACCESS CENTRES IN ALBERTA

There are eight TACs located in Alberta:

- Boreal Forest Plant & Seed Technology Access Centre (BFPS) at the Northern Alberta Institute of Technology (NAIT), located in Peace River
- Centre for Innovation in Manufacturing (CIM-TAC) at Red Deer Polytechnic, located in Red Deer
- Technology Access Centre for Sensors and System Integration (TACSSI), at the Northern Alberta Institute of Technology (NAIT), located in Edmonton
- National Bee Diagnostic Centre (NBDC) at Northwestern Polytechnic, located in Beaverlodge
- Green Building Technologies (GBT) at the Southern Alberta Institute of Technology (SAIT), located in Calgary
- Integrated Agriculture Technology Centre (IATC) at Lethbridge College, located in Lethbridge
- Technology Access Centre for Livestock Production (TACLP) at Olds College of Agriculture & Technology, located in Olds
- Technology Access Centre for Oil Sands Sustainability (TACOSS) at the Northern Alberta Institute of Technology (NAIT), located in Edmonton

The staff in Alberta TACs are experts in their fields, focused directly on industrial research and development. As a group, they offer over 90,000 square feet of space and \$50M of advanced equipment, and are a resource that drives innovation in Alberta and accelerates commercialization.

The Alberta TACs are in a position to further support businesses through collaboration and growth of their applied research ecosystems. Partnering with the **Alberta Regional Innovation Network** will allow them to further accelerate commercialization for Alberta companies.



**NAME:** Boreal Forest Plant and Seed Technology Access Centre  
**INSTITUTION:** Northern Alberta Institute of Technology (NAIT)  
**LOCATION:** Peace River (Northern Region)

The Boreal Forest Plant and Seed Technology Access Centre (BFPS) provides scientific guidance, methods, technologies, and services to advance the capacity of industry to use native plants to lessen its environmental footprint in the boreal forest.

The Business sector served by this TAC includes the forest industry, nurseries, First Nations' economic development organizations, oil and gas industry, utility companies, and consulting firms that are involved in the land reclamation and reforestation using native boreal seed and other propagules.

The Plant and Seed TAC has 4 main objectives: (1) develop methods and protocols for native seed harvesting, handling, enhancement, treatment, storage, germination, and propagation, (2) develop systems to deploy and improve seed delivery at large scale, (3) develop plant and seed delivery businesses within Indigenous and Métis communities to reduce barriers to reforestation and reclamation by training highly qualified personnel, and (4) strengthen industry-business supply chain within the region through the creation and management of a Seed Consortium.

To achieve these objectives, we conduct applied research and provide services to industry.

- **Applied Research:** Our research projects aim at developing game-changing systems for delivering seeds onto operational-scale forestry and oil and gas sites, such as wellpads, access roads, landings, riparian buffers, water crossings, and harvest blocks. The purpose is twofold: (1) enhance seeds and seedlings to adapt to harsh soil conditions, including saline soils, nutrient-poor soils, and dry soils and (2) develop a system to facilitate long-term seed supply for revegetation.
- **Services:** Our innovative services consist of (1) assisting industry and Indigenous communities to establish successful reforestation businesses and build capacity through hands-on training and mentoring, (2) facilitating access to the TAC facility and equipment for training courses and skill development and upgrading, and (3) Helping reclamation and reforestation industry to have access to native seed through a seed banking system that allows members harvest, bank, sell and share seeds.

**KEY MARKETS:**

- Seed supply, reclamation, restoration, and reforestation enterprises

**INNOVATION NEEDS WE ADDRESS:**

- Novel plant propagation and deployment
- Seed treatment with carbon nanotubes to improve germination and growth
- Seed pelleting to improve emergence after direct seed broadcasting
- Seed exposure to magnetic field to promote germination

**OPPORTUNITIES FOR GROWTH:**

- Development of plant and seed delivery businesses within Indigenous and Métis communities

**WEBSITE:**

<https://www.nait.ca/applied-research/about/centres/boreal-forest-plant-and-seed-tac>

**NAME:** Centre for Innovation in Manufacturing (CIM-TAC)

**INSTITUTION:** Red Deer Polytechnic

**LOCATION:** Red Deer (Central Region)

The Centre for Innovation in Manufacturing (CIM-TAC) has created capacity in advanced design, design simulation, and prototype testing to further the competitiveness of Alberta's manufacturing industry by providing a regionally unique, affordable alternative to in-house research and development. Through customized support that built on Red Deer Polytechnic's (RDP) established Centre for Innovation in Manufacturing, the Technology Access Centre helps innovators design and test their creative solutions to advance their company's profitability and capability.

Multi-National Enterprises (MNEs) do not contribute significantly to the regional economy which is disproportionately driven by small and medium enterprises (SMEs), further increasing the need for SME supports. The CIM-TAC provides SMEs in the region with access to increased applied research services, increased industrial services, a higher level of profile for entrepreneurial clients, and access to a national network for collaboration.

CIM-TAC is equipped with cutting edge, industry-leading prototype and advanced manufacturing equipment. Our staff are experts in design, simulation, manufacturing, validation, and commercialization of both new and existing products. We help clients to problem solve, engineer designs, create 3D models, and fabricate prototypes in order to bring their ideas to life.

We also support process development and look for opportunities to increase client productivity through automation and robotics. With a focus on early-stage prototyping and product development, design for manufacturing, validation, and manufacturing optimization, the CIM-TAC team is dedicated to serving the needs of business and industry.

**KEY MARKETS:**

- Include manufacturing, agriculture and agri-foods, oil and gas, petrochemical, medical, and transportation

**INNOVATION NEEDS WE ADDRESS:**

- Regional requirement for access to new and emerging suites of technologies and expertise in advanced manufacturing that increase productivity
- Act as an affordable alternative to in-house research and development

**OPPORTUNITIES FOR GROWTH:**

- Address the need for re-design, advanced product testing, certification and regulations, and access to pre-production space and expertise.
- Mentoring, coaching, roundtables, ThinkTanks, and vetting
- Learning events like Manufacturing 4.0

**WEBSITE:**

<https://rdpolytech.ca/cimtac>

**TAC360 VIDEO:**

<https://www.youtube.com/watch?v=VmTYFJrWgls>



**NAME:** Technology Access Centre for Sensors and System Integration (TACSSI)

**INSTITUTION:** Northern Alberta Institute of Technology (NAIT)

**LOCATION:** Edmonton (Northern Region)

The Technology Access Centre for Sensors and System Integration (TACSSI), is one of Canada's 60 Technology Access Centres, providing industry with prototyping, product enhancement, testing, and material characterization services for new product and process developments. The adoption by industry of digital technologies and their connection to the physical world, termed Industry 4.0, is central for Canada to compete and thrive in this post pandemic world. As a premier provider of digital integration services, the NAIT Technology Access Centre for Sensors and System Integration (TACSSI) is well positioned to help Alberta's industry bridge the gap to Industry 4.0 by providing services in (1) Electro-mechanical prototype building, (2) Optics, (3) Fluid transfer, (4) Labour automation, (5) Remote data collection, (6) Fabrication, (7) Design, (8) 3D metal printing and, (9) 5G wireless.

If you need innovative solutions to your technical challenges, this team of 21 dedicated professionals ranging from technologists to PhD's can solve it for you. Our centre engages with industry partners across Canada in remote sensing, automation, digitization, visualization, cloud interfacing, predictive analytics, and sensor systems developments. Being a part of a polytechnic means that our team does not divide their time between the classroom and the lab - 100% of their time is focused on the research projects brought to us from industry. As well, NAIT does not retain any rights to the Intellectual Property that is generated - our team is committed to supporting your organization's journey along the innovation lifecycle while not encumbering its ability to create value for the long-term.

**KEY MARKETS:**

- TACSSI is industry-agnostic in that we can acquire data and present / display it in a wide breadth of industries and applications.
- Our core three sectors of services are: prototyping and system integration, industrial automation, and additive manufacturing.

**INNOVATION NEEDS WE ADDRESS:**

- Taking a product from ideation to proof-of-concept, prototyping, and up to pre-commercialization. Our centre has the ability to align clients with third-party distributors for next step commercialization or mass production.

**OPPORTUNITIES FOR GROWTH:**

- 5G Expansion: the impact will allow clients to conduct testing with accessibility to a 5G hub; stationary and mobile. Easy to use system, low upfront cost and allows for scaling up-providing reliable data.
- Continue the growth of our industrial automation capabilities, IIOT, and "smart" devices
- Additionally, we have inherited the metal additive manufacturing capabilities, and are looking to increase our engagement with companies looking for metal-AM prototyping, research, and experimentation.
- A less-expansive opportunity is in environmental testing, with our two environmental chambers, one of which is a large-scale chamber, capable of -70C to 177C long-term testing.
- Marketing our centre to educate industry on our brand and capabilities.

**WEBSITE:**

<https://nait.ca/cssi>

**YouTube Channel:**

[\(43\) Applied Research at NAIT - YouTube](#)



**NAME:** Green Building Technologies (GBT)  
**INSTITUTION:** Southern Alberta Institute of Technology (SAIT)  
**LOCATION:** Calgary (Southern Region)

The Southern Alberta Institute of Technology's (SAIT) Green Building Technologies (GBT) research group has been working since 2008 toward a greener future for Canada through technology and green building construction. GBT aims to reduce the environmental impact in an industry that contributes 17% of all emissions across Canada.

Having partnered with over 200 companies and securing over \$10 million in research funding to date, GBT is playing an important role in supporting a 2030 net-zero energy code and Canada's 2050 GHG emissions reduction goals. With the knowledge, experience and collaborations gained to date, GBT is positioned to address a broad range of business needs for the green building construction industry. These include developing solutions that focus on Net Zero and energy positive design and construction across all building types, typographies, and climate zones, including remote, northern, Indigenous and disaster relief infrastructure.

**KEY MARKETS:**

- Residential green building industry

**INNOVATION NEEDS WE ADDRESS:**

- Integration of existing building energy efficiency technologies for smarter, less carbon intensive building construction and operation
- Addressing cultural and societal barriers in adoption of technologies and behaviours associated with healthy, environmentally responsibility living and workspaces

**OPPORTUNITIES FOR GROWTH:**

- Zero carbon buildings
- Integrated community energy modelling
- Hydrogen fuels for building heating and energy systems
- Telework and the contribution of work/home spaces to reducing energy and emissions from the built environment
- Resilient building solutions (eg. climate event proof)

**WEBSITE:**

<https://www.sait.ca/research-and-innovation/research-areas-and-facilities>

**TAC360 VIDEO:**

<https://www.youtube.com/watch?v=V9RQ08AuWvk>



**NAME:** Integrated Agriculture Technology Centre (IATC)  
**INSTITUTION:** Lethbridge College  
**LOCATION:** Lethbridge (Southern Region)

The Integrated Agriculture Technology Centre (IATC) connects industry to the agricultural research expertise at Lethbridge College. We serve small and medium sized enterprises by providing applied research and technical services to solve challenges and develop specialized training with the latest equipment and emerging technologies.

Agriculture is one of the largest and most important sectors in southern Alberta, with more than 65 specialty crops grown by primary producers, 4.2 million acres of land, 4,400 farms, and 11,000 ag-related businesses. Agriculture in our region has a GDP of \$8 billion. Numerous challenges threaten the long-term growth and sustainability of this sector, including pressure to minimize environmental footprints and water usage. There is a growing need for innovative technologies to help the agricultural industry stay competitive and environmentally sound amidst shrinking profit margins.

The IATC was founded in 2020 and directly supports industry through three service streams:

- Applied Research
- Technical Services and Consulting
- Training and Education

**KEY MARKETS:**

- Agri-business
- Primary producers
- Food processors
- Services providers

**INNOVATION NEEDS WE ADDRESS:**

- Aquaculture
- Greenhouse production and controlled environment agriculture
- Irrigation science and on-farm water management
- Postharvest technology: storage and drying related challenges for grains, oilseeds and specialty / horticultural crops

**OPPORTUNITIES FOR GROWTH:**

- Food processing

**WEBSITE:**

<https://www.iatc.ca>

**TAC360 VIDEO:**

<https://www.youtube.com/watch?v=ixi2Pt1exDc>

**NAME:** Technology Access Centre for Livestock Production (TACLP)  
**INSTITUTION:** Olds College of Agriculture & Technology  
**LOCATION:** Olds (Central Region)

The Technology Access Centre for Livestock Production (TACLP) is the applied livestock research arm of the Olds College Centre for Innovation and primarily serves the cattle and sheep industries.

Our TAC is focused on meeting the needs of the Canadian livestock industry, specializing in applied livestock research, assisting with technology development and validation and providing primary producers with access to information and resources that will increase productivity on their operations.

Since beginning operations in 2016, the total value of research and extension activities has exceeded \$2.8 million in the areas of increasing production efficiencies, improving animal health and welfare, and enhancing environmental sustainability.

**KEY MARKETS:**

Canadian agriculture sector - beef, sheep, and forage production are three focus areas

- Primary agricultural producers
- Innovators and technology developers
- Entrepreneurs
- Small and medium-sized enterprises
- Government and university researchers

**INNOVATION NEEDS WE ADDRESS:**

- The TACLP work is focused on increasing production efficiencies, improving animal health and welfare, and enhancing environmental sustainability.
- We help clients throughout the development and validation phases in relation to new products, technologies, management practices.

**OPPORTUNITIES FOR GROWTH:**

- Systems for monitoring and tracking carbon
- Leading research/development of methods to enhance and improve carbon storage
- Bringing more small-to-medium sized enterprises on as clients
- Enhancing our capacity for analysis - offer more in-house lab tests, for example
- Targeting larger funding opportunities to support increased technical/research personnel resources
- Continue to grow meat quality and processing research capacity
  - Improve meat quality
  - Evaluate meat quality

**WEBSITE:**

<https://www.oldscollege.ca/research/areas-of-focus/livestock-meats/index.html>

**TAC360 VIDEO:**

<https://www.youtube.com/watch?v=ULqLGWqfsj8>





**NAME:** Technology Access Centre for Oils Sands Sustainability (TACOSS)  
**INSTITUTION:** Northern Alberta Institute of Technology (NAIT)  
**LOCATION:** Edmonton (Northern Region)

The Technology Access Centre for Oil Sands Sustainability (TACOSS) is a state-of-the-art research lab staffed by an expert team of applied scientists, engineers, and technicians. We bridge the gap between existing oil sands environmental research and relevant solutions, taking innovative ideas from bench to scale-up. We work with businesses and industry to develop technologies that improve the economic and environmental performance of the oil sands industry. We are committed to a future where the environmental and economic challenges of the oil sands have been solved. In collaboration with our partners, our diverse and resourceful team is helping to achieve this by applying scientific principles, bringing our knowledge to practice, and connecting partners with shared interests. This will lead to the restoration of pristine, functional landscapes for Albertans.

The Centre was formed in 2010 with an endowment of \$1.5M from the Ledcor Group and matching funding from NAIT. As a TAC since 2020, we help Canadian-based businesses get their products, processes and services market-ready by offering three pillars of value:

- **Technical Services:** We provide technical expertise, specialized equipment and infrastructure focused on oil sands chemical and process engineering.
- **Business Development Services:** As industry's trusted advisor, we catalyze connectivity between technology developers and potential industry users by providing resources, funding opportunities and networking to help companies navigate the ecosystem. We also leverage our team experts to help with proposal writing, business plan development, and relevant industry and market intelligence.
- **Knowledge to Practice Services:** We bring our extensive applied research knowledge to industry through providing courses, workshops & webinars, and networking opportunities.

**KEY MARKETS:**

- Industry partners who are looking to solve a specific scientific challenge through applied research in the oil sands industry relating to greenhouse gas emissions, water treatment, and tailings treatment.
- SMEs with technologies at various development levels

**INNOVATION NEEDS WE ADDRESS:**

Act as a trusted advisor at the intersection of industry and technology innovation, through:

- Conducting technology validations
- Working with a variety of budgets and project needs
- Directing to funding streams
- Helping to navigate the ecosystem
- Partnering with industry to deliver specific programs

**OPPORTUNITIES FOR GROWTH:**

- Promoting our existing offerings better
- Expanding into new markets and industries such as hydrogen and the mining sector

**WEBSITE:**

<https://www.nait.ca/industry/applied-research/centre-for-oil-sands-sustainability>

**NAME:** National Bee Diagnostic Centre  
**INSTITUTION:** Northwestern Polytechnic  
**LOCATION:** Beaverlodge (Northern Region)



The National Bee Diagnostic Centre (NBDC) provides critical diagnostic services to beekeepers, researchers, Provincial and Federal agencies and industry as its contribution towards a healthy, sustainable and profitable apiculture industry in Canada. We employ microbiology, microscopy and molecular techniques in order to identify pests, pathogens, and parasites affecting honeybees.

The NBDC was the first comprehensive laboratory in Canada to provide a full array of diagnostic services for honeybee and native bee pests, pathogens, and parasites. Our applied research projects and programming focus on pollinator health and sustainable agriculture practices for commercial and hobby beekeepers, researchers, conservationists, agriculture producers and hobbyists. Ongoing research utilizes the latest microbiology, microscopy, and molecular techniques to identify pathogens that affect pollinator health.

**KEY MARKETS:**

- Beekeepers
- Researchers
- Government agencies
- Industry

**INNOVATION NEEDS WE ADDRESS:**

- Support and conduct research that aims to improve bee health in Canada's apiculture industry and beyond.

**OPPORTUNITIES FOR GROWTH:**

- Regenerative agriculture projects
- Soil health and conservation

**WEBSITE:**

<https://www.nwpolytech.ca/nbdc/>

**YouTube:**

<https://www.youtube.com/watch?v=ULqLGWqfsj8>