

Alberta Innovates-Technology Futures

Enhancing
possibilities

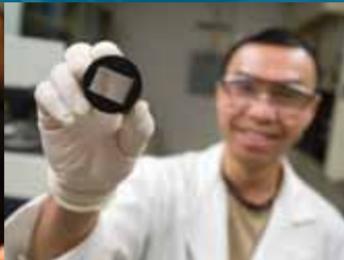




Nanocrystalline Cellulose (NCC) is pictured on the cover. Made from plant material, NCC has properties that include strength, electro-magnetic response and, at the nano-scale, a large surface area. NCC holds potential for interesting products. One ounce of NCC added to a pound of plastic makes a composite material up to 3000-times stronger than the plastic alone.

An Edmonton-based pilot facility at Alberta Innovates-Technology Futures will soon produce up to 100 kilograms of NCC a week at the quality researchers need to fully explore its potential. NCC may lead to new and diverse products and markets for Alberta's forest industry in a range of applications that include automotive components, paints and building materials, plastics, packaging, health care products and energy extraction devices.

Alberta innovates.



It's what we do.



For more than 90 years, in industry sectors ranging from agriculture to oil sands, whether focused on the issues of today or outcomes anticipated as priorities for tomorrow, Technology Futures has been here.



In partnership with entrepreneurs, innovators, promising small businesses and consortia of established multi-national enterprises, we work at making impossible things happen.

Alberta Innovates-Technology Futures

is...



a team of close to 600 world-class scientists, researchers, engineers, technicians, business experts and more...

serving...



more than 3,000 entrepreneurs, large and small businesses, industries and agencies in Alberta and beyond supported by a network of partners...

by...



ATTRACTING, focusing and growing the world-class CAPABILITY and TALENT essential to meet Alberta's priority needs.

PARTNERING with new and existing businesses to enhance productivity, sharpen competitiveness and SOLVE PROBLEMS in ways that add value.

ENABLING BUSINESS development and growth through the mentorship, technology research and development, networks and funding that transform ideas into viable, market-ready products and services and, ultimately, successful new businesses.



These outcomes are the focus of three operating units: the Innovates Centre of Research Excellence; the Applied Research Centres; and Business Innovation Services.

Developing Capability and Talent



iCORE

Innovates Centre of Research Excellence

The Innovates Centre of Research Excellence (iCORE), attracts top talent to multi-disciplinary, collaborative teams building research capabilities in Information and Communications Technology (ICT), Nanotechnology, Omics and Engineering.



Disciplines with technology commercialization potential, these areas have been strategically selected as the platforms upon which innovation in Alberta will grow. Working collaboratively with Business Innovation Services, iCORE ensures a foundation of world-class graduate and post-doctoral student talent is available for the multi-disciplinary research teams that comprise the Alberta Innovates Centres.

iCORE

by the numbers



- 41 Strategic Chairs
- 17 Industry Chairs
- Represents 16 per cent of Technology Futures' business
- iCORE awards support more than 1,300 researchers in applications related to health, energy, environment and bio-industries
- Investment management of \$7 million per year for Alberta Innovates Graduate Student Scholarships in the platform areas of ICT, Nanotechnology, Omics and Engineering

Solving Problems



Applied Research
Centres

Applied Research Centres

Technology Futures' Applied Research Centres (ARCs) provide technical expertise and laboratory services on a fee-for-service basis through four primary facilities. Client-centric services are designed to: de-risk technology development and investment; develop and commercialize leading-edge technologies; and facilitate industry and government consortia collaborations in complex issue areas.



About 40 per cent of the ARC's work supports the energy sector, building on research rooted in oil sands development including the Alberta Oil Sands Technology and Research Authority (AOSTRA), and 29 years of experience in the AACI (formerly AOSTRA-ARC-Core-Industry) Research Program.

The Applied Research Centres provide a suite of services in the Petroleum, Environment and Carbon Management, Bio & Industrial Technologies and Health areas. C-FER Technologies, a wholly-owned subsidiary, provides specialized technology services targeting extreme conditions and environments.

Petroleum

Heavy Oil and Oil Sands

Offers specialized expertise, facilities and equipment for: the in-situ recovery of heavy oil and bitumen (including technologies for reservoir processes, production and surface separation); the surface mining process (including technologies for enhancing recovery and tailings treatment); and engineered materials.

Fuels and Lubricants

Provides specialized laboratory characterizations and quality assurance services for the oil and gas, refining and renewable fuels industry sectors.

Environment and Carbon Management

Clean Energy

Helps Alberta organizations advance technologies that reduce the carbon intensity of energy production; integrates alternative and renewable technologies into provincial energy systems; and helps energy consumers make effective decisions on their energy use.

Environmental Analytical Services

Provides comprehensive environmental monitoring and contaminant monitoring services, specializing in the analysis of organic and inorganic compounds in water, wastewater, air, soil, sludge, solids, waste oil, solvents, sediment and biological tissues; develops novel methods for testing and commercialization.

Land and Water Management

Supports sustainable resource management through applied research, development and deployment of technologies for land and water management and the development of innovative tools for integrated decision making.

Geosciences and CO₂ Storage

Works with clients and other technology providers to characterize, model and monitor geological sites undergoing injection and/or innovative energy recovery technologies. Current initiatives focus on field pilot and regional studies related to carbon management, enhanced oil recovery and geothermal energy.

Wildlife Ecology

Undertakes applied research on biodiversity, wildlife species, vegetation, and natural processes to maintain healthy sustainable ecosystems on a managed land base.

Health

Technology Futures helps clients commercialize new health products. Services support industry activities from discovery to scale-up, prototyping and new product testing and validation including demonstration trials.

Bio & Industrial Technologies

Advanced Materials

Provides materials research and development, testing and pre-commercialization services to the energy, manufacturing, natural resources, and supply sectors.

Industrial Sensor Technologies

Research and development of sensors, measurement and analytical solutions for Alberta's resource industries to help reduce production losses, improve efficiencies and reduce environmental impacts.

Bioresource Technologies

Applies knowledge of biology, agronomy, molecular plant breeding processes, chemical engineering, and product design to develop biofibre applications for commercialization.

C-FER Technologies

C-FER Technologies facilitates leading edge technology use by pipeline operators, and the oil and gas sector. Its unique, world-class laboratory in Edmonton supports full-scale equipment qualification testing at high pressures, temperatures, load conditions, and in sour environments. With 25 years of engineering and testing experience, C-FER specializes in resource development in challenging circumstances including heavy oil, deep water offshore and Arctic locations. C-FER has a solid reputation for organizing successful joint industry programs addressing technology developments.

Applied Research Centres

by the numbers



- More than 900 client companies and agencies supported by fee-for-service research contracts
- Represents 57 per cent of Technology Futures' business and more than 400 of its research scientists, engineers and technical staff
- Facilities in Edmonton, Calgary, Vegreville and Devon
- More than 1 million square feet of laboratory, pilot plant, scale-up, office and collaboration space

Enabling Business



Business Innovation
Services

Business Innovation Services

Business Innovation Services (BIS) helps move technology to market. In addition to its Vouchers, Product Demonstration Fund, r & D Associates and Commercialization Associates programs, BIS manages the Alberta Innovates Centres which are designed to support technology development and advance product commercialization.

BIS works collaboratively with iCORE who recruits the research capacity for the Centres. Fully integrated with Alberta's universities, the Centres are collaborative hubs where Alberta researchers work in multi-disciplinary teams with local and international industry partners. Centres include:

- The Alberta Innovates Centre for Machine Learning (sophisticated data analytics)
- The Alberta Centre for Advanced Micro and Nanotechnology Products (product development and packaging support for SMEs)
- TECTERRA (geomatics technologies)
- Biovantage (biomedical engineering technologies)
- The Alberta Glycomics Centre (carbohydrate-based medical therapeutics)

Through formal partnerships with University and College technology transfer and applied research offices and NGOs, BIS clients have access to a range of business development expertise including: intellectual property management; technology deployment; technology transfer; channel development; financing; and investment readiness. A Regional Innovation Network links small and medium enterprises, innovators and entrepreneurs through Technology Development Advisors and partner agencies, to the services and resources they need.

Business Innovation Services also provides leadership in the priority area of nanotechnology through the nanoAlberta, nanoWorks, nanoBridge and nanoAccelerator programs.

Business Innovation Services

by the numbers



- Represents 27 per cent of Technology Futures' business
- Manages \$12 million in program funding annually
- Administers 120 new program grants annually
- Funds industry-led nanotechnology research collaborations: 6 in 2011–12 with \$4.5 million invested by Technology Futures, \$6.9 million from industry and \$0.2 million from other governments; and the nanoAccelerator program in nano-bio sciences

Alberta Innovates-Technology Futures

Quick Facts



- Close to 600 scientific, technical, engineering, professional and support staff
- More than 900 client operations enhanced through the purchase of \$75 million in fee-for-service applied research
- Collaborates with economic development organizations at Federal, Provincial and Municipal levels
- Supports 3,000 companies directly and indirectly, annually
- \$175 million in total revenue

Alberta Innovates was conceptualized as a mechanism to align, focus and optimize provincial research and innovation investments and enhance the technology commercialization environment. Technology Futures operates collaboratively with its sister Alberta Innovates corporations, Bio Solutions, Energy & Environment Solutions and Health Solutions, who function primarily as research funders within their areas of focus.



Strategically aligned to the direction of the Government of Alberta, the Innovation System supports: effective resource and environmental management; a broadened economic base; and resilient and healthy communities.



**Alberta
Innovates
Technology
Futures**

To find out what's available through
Alberta's research and innovation system
call the Connector

1-877-828-0444

Innovation powered by

albertainnovatetechfutures.ca

Every year, Technology Futures helps enhance the possibilities of more than 3,000 entrepreneurs, large and small businesses, industries and government agencies in Alberta.

Find out what we can do for you.

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Calgary	403.210.5222
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Devon	780.987.8744



(www.albertainnovatetechfutures.ca)