

Low emissions hydrogen technologies and solutions

Adopting new clean fuels is a major opportunity for society and industry to reduce overall greenhouse gas (GHG) and other emissions in areas including resource development, heavy industry and transportation, heating, and power generation. Currently providing approximately 2/3 of Canada's hydrogen supply, Alberta is already a leader in Canada for the production and use of hydrogen and has significant potential opportunities going forward.

InnoTech, working with its partners, has an emerging set of services for hydrogen production, infrastructure, and end use applications. If you are interested in this space, we may have the expertise or facilities needed to address your needs.

HYDROGEN PRODUCTION & CARBON CAPTURE, UTILIZATION, AND STORAGE (CCUS) PROCESSES

- Evaluation, testing, de-risking, scale-up, and optimization of hydrogen production & CCUS processes
- Convening partnerships and alliances through Joint Industry Projects and programs
- Hydrogen production:
 - Lab to pilot scale technology development and scale for H₂ production processes
 - Process design and simulation
- CCUS technologies:
 - CCU process design, simulation, operation, testing, and improvement at the Alberta Carbon Conversion Technology Centre (ACCTC)
 - Technical advisory on industrial CCU retrofits or upgrades and technology selection
 - Technical feasibility assessment and simulation of geological CO₂ storage projects





HYDROGEN INFRASTRUCTURE

- Testing, de-risking, and validation of new and legacy H₂ / hythane (blended) transport, carrier, and storage system equipment (piping, coatings, liners, valves, vessels, compressors, downhole tubing)
- Materials and component testing:
 - Combined H₂ exposure and tensile testing
 - Standard and specialized corrosion testing
 - Structural load testing
 - Welding technology evaluation and weld procedure development
 - Destructive materials testing
 - Non-destructive testing (NDT) and in-line inspections
- Technology and environmental risk assessments of pure H₂ and blends
- Technical feasibility assessment of geological H₂ storage
- H₂ leak detection testing and development of monitoring protocols
- Technical advisory support for codes, standards, regulations, and industry best practices

HYDROGEN APPLICATIONS

- Advanced materials and chemicals development from carbon and hydrogen
- Understanding effects of hydrogen substitution
- Bench scale product demonstration and de-risking



InnoTech Alberta, a subsidiary of Alberta Innovates, is a leading research and technology organization serving the needs of industry, entrepreneurs and the public sector. Our leading-edge expertise and industrial-scale research and demonstration facilities accelerate and de-risk technology development and deployment for our clients with a focus on industrial solutions and commercial application.

Visit us at: InnoTechAlberta.ca

**PUT OUR EXPERTISE
TO WORK FOR YOU:**

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