

Hydrogen Services

Hydrogen technology development support and solutions for industry

The Government of Alberta recognizes hydrogen as a key energy system pathway to reduce greenhouse gas (GHG) emissions across several sectors of the economy. Alberta has long been a leader in hydrogen, accounting for 2/3 of Canada's hydrogen production and use. Alberta's hydrogen economy is forecast to grow as production increases to meet demand for emerging uses.

To support the Government's objective to activate hydrogen technology and innovation, InnoTech Alberta is growing its services for hydrogen production, transport, storage, and end use applications. Our expertise and facilities can help you accelerate hydrogen technology development and piloting.

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
- ISO 14064-5 GHG statement verification
- Hydrogen production:
 - Lab to pilot scale technology development for H₂ production processes.
 - Process design, prototyping, and simulation
 - Natural H₂ opportunity mapping
 - H₂ isotope fingerprinting for carbon intensity certification
- CCUS technologies:
 - Lab to pilot scale technology development and scale up for CCU processes
 - CCU process piloting at the Alberta Carbon Conversion Technology Centre (ACCTC)
 - CO₂ capture solvent testing at industrial scale
 - Technical feasibility assessment and simulation of geological CO₂ storage projects









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HYDROGEN INFRASTRUCTURE

- Custom testing to understand the effect of H₂ on materials, components, and equipment (piping, coatings, liners, valves, vessels, compressors, downhole tubing)
- Materials and component testing:
 - H₂ exposure testing
 - Standard and specialized corrosion testing
 - H₂ absorption in materials using Thermal Desorption Mass Spectrometry (TDMS)
 - 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

- Hydrogen quality analysis to ISO 14687:2019 specifications
- H₂ fueled device testing and third party validation (burners, appliances, generators, fuel cells, etc.)



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 applications.

PUT OUR EXPERTISE TO WORK FOR YOU:

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