



Natural Resources
Canada

Ressources naturelles
Canada

CanmetENERGY *in Devon*

Your Partner in Finding Solutions



Scientific
expertise



Pilot
facilities



Analytical
capabilities



Collaboration

Solutions

Canada

Natural Resources Canada's CanmetENERGY in Devon

CanmetENERGY in Devon, Alberta, brings together scientists, engineers and technologists in a state-of-the-art R&D facility for innovation in energy technology. We focus on providing innovative solutions for the environmentally responsible production and processing of hydrocarbon resources and for mitigating the associated environmental impacts of these operations. Our multi-disciplinary research teams have the skills and experience to move projects from concept to bench-scale through to large pilot-scale testing.

We collaborate with industry, provincial/territorial governments, academic institutions and international organizations to develop and demonstrate new technologies. CanmetENERGY in Devon provides solutions to industry, advice to government policy-makers and regulators, and science-based information to Canadians on fossil fuels issues.



Advancing hydrocarbon **RECOVERY** research

The Hydrocarbon Recovery team develops next-generation technologies to maximize bitumen recovery from oil sands and improve product quality. At the same time, this team seeks to minimize the consumption of energy and water, hydrocarbon loss, and environmental footprint.

Research areas include aqueous and non-aqueous bitumen extraction, bitumen froth treatment, advanced modeling and characterization, control of multiphase systems, and carbon utilization and storage.

Research impact

Building on the successful industry adoption of the paraffinic froth treatment process, CanmetENERGY in Devon is developing the next generation of novel bitumen recovery technologies. These technologies aim to reduce or eliminate water use and are supported by our advanced tailings treatment programs for reduced environmental impacts and lower net emissions.

Facilities

The primary pilot facility is a customizable pilot plant with tank infrastructure, suitable for working with volatile solvents.



Advancing hydrocarbon **CONVERSION** research

The Hydrocarbon Conversion team develops technologies and conducts fundamental and applied research to reduce energy consumption and greenhouse gas emissions, improve product quality, and increase access to new markets.

Research areas include upgrading, partial upgrading and petroleum refining technologies, process efficiency improvements, life-cycle assessments of greenhouse gas emissions, bio-transportation fuels, and advanced hydrocarbon characterization.

Research impact

CanmetENERGY in Devon undertakes research to inform or execute federal government policies and, in collaboration with industry, to achieve the goals and targets of those policies. Accordingly, we support major oil sands companies to advance their bitumen partial upgrading technologies to the field demonstration phase. We also work with bio-energy companies to develop technologies for upgrading and converting bio-oils into renewable transportation fuels.

Facilities

Facilities include a range of automated and reconfigurable batch and continuous flow pilot plants that have feed rates up to 1 barrel/day, temperatures up to 600°C, and pressures up to 4,000 psig. The in-house analytical and piloting services are also available to third parties.

Advancing ENVIRONMENTAL research

The Environmental Impacts team investigates the effect of the oil and gas industry on air, water, and land. Research areas include air emissions (reduction, monitoring, detection, and quantification), water quality, land reclamation, oil spill science, and tailings management.

Research impact

CanmetENERGY in Devon conducts research into oil spill behaviour and fate in various aqueous environments, which helps inform spill response procedures. We are also a national leader in emissions research and are expanding our capabilities in this space.



Facilities

The tailings facility houses pilot-scale demonstrations to explore the chemical and physical properties of tailings and mechanisms for accelerating the settling of oil sands tailings as well as housing wave simulation tanks for oil spill research.

Opportunities to COLLABORATE

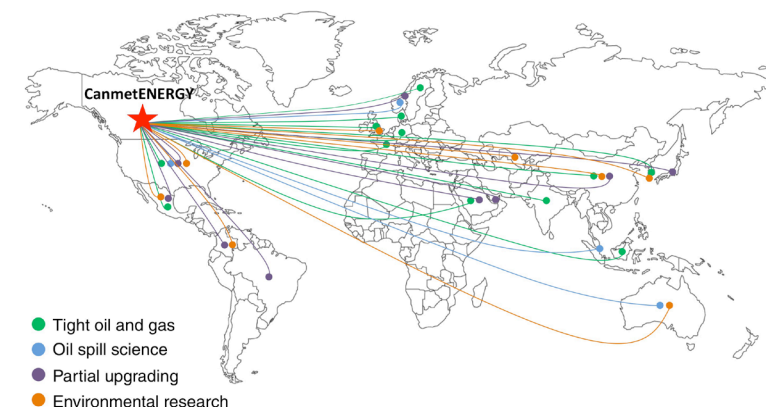
Research and development: CanmetENERGY in Devon collaborates with industry, provincial/territorial governments, academic institutions, and international organizations in research, development, and deployment of new technologies and innovations. Our research staff of highly qualified research scientists and engineers can handle the most complex theoretical and practical project tasks related to the production, processing, and transportation of oil sands bitumen and petroleum products.

Technical services: Our Technical Services team offers unique skills, expertise, and pilot plant facilities to support client projects. Testing environments include spill tanks, a tank farm, a paraffinic froth treatment pilot plant, a solvent deasphalting unit, a continuous visbreaking unit, a delayed coking unit, seven fixed-bed hydroprocessing units of different sizes, a corrosion unit, a fouling unit, autoclaves, an FCC ACE unit, and space to install customized equipment for new projects.

Analytical services: With cutting-edge analytical laboratories and advanced computer modeling software, our capabilities include petroleum elemental composition, complete water chemistry, mineral characterization, surface and interfacial chemistry, calorimetry and thermal analysis, 1- and 2- dimensional gas chromatography, spectroscopic techniques, NMR, high performance liquid chromatography, physical property analyses, hydrocarbon distillations, and customized analyses.



Worldwide collaborations



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