

# National Research Council of Canada

The NRC is currently hosting the Materials for Clean Fuels Challenge program, which focuses on the development of new materials for zero-emission transportation fuels and chemical feedstocks across the continuum from discovery to commercialization. Through collaborative partnerships with key stakeholders, it advances a unique initiative to bring disruptive solutions to the design, development, and delivery of clean fuels and chemicals in Canada.

#### AVAILABLE RESOURCES

#### NRC Advanced Materials Research Facility

- Aims to support materials development and commercialization
- Accelerated materials discovery and process development, including computational materials discovery, design and process simulation, high-throughput materials characterization and processing experiments, and structured materials and process databases
- Production scale-up, demonstration, and standardization, including materials and process standards development, materials synthesis and scale-up, and design and demonstration of multifunctional materials and devices
- Materials and process sustainability and safety, including cradle-to-grave materials and product life cycle assessment, health and environmental impacts and mitigation methods, and accelerated aging of materials and devices

#### COST OF SERVICES

Collaborative partnerships with key stakeholders including academics and SMEs in Canada and abroad (US, Germany and UK); access to facilities and expertise Canada wide; advisory committee consists of clean tech professionals from a variety of stakeholders

#### CONTACT INFORMATION

Locations: Vancouver, Edmonton, Ottawa, Montreal, Mississauga Email: NRC.EnergyMaterials-MateriauxPourEnergie.CNRC@nrc-cnrc.gc.ca Website: https://nrc.canada.ca

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## EXPERTISE

#### Conversion

Advanced electrolysis for chemical production and clean fuels; converting carbon capture solutions into value-added chemicals using a bicarbonate electrolyzer; anion exchange membrane development and in situ characterization for CO<sub>2</sub> electrolyzers; specialty chemical electro synthesis from CO<sub>2</sub>; Life Cycle and Techno Economic Analyses for conversion technologies; CO<sub>2</sub> to jet fuel technology platform; renewable syngas from photocatalytic CO<sub>2</sub> conversion; direct conversion of CO<sub>2</sub>-rich flue gas to syngas for power-to-liquids technologies; multiscale computational modelling.

## TRL

This program services companies of TRL 1-5. Other programs exist at the NRC which support higher TRLs.



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