



The \$11 million AERF was built with joint funding from the City of Edmonton and Alberta Innovates – Energy and Environment Solutions (AI-EES). The AERF is part of a comprehensive waste-to-biofuels project at the Edmonton Waste Management Centre that also includes:

- A commercial waste-to-biofuels facility, owned and operated by Enerkem Alberta Biofuels
- A waste processing facility (Integrated Processing and Transfer Facility) owned and operated by the City of Edmonton

At the Waste-to-Biofuels Facility, over 100,000 tonnes of municipal solid waste residuals will be converted into 36 million litres of biofuels annually, reducing Alberta’s carbon dioxide (CO<sub>2</sub>) footprint by six million tonnes over the next 25 years—the equivalent of removing 42,000 cars off the road every year.

AI-EES works in partnership with research and technology development organizations to accelerate the implementation of new technologies that reduce the cost and environmental footprint of energy operations in Alberta. Bioenergy and renewable resources is a major focus. Development of the Waste-to-Biofuels Facility, and the accompanying AERF in partnership with the City of Edmonton and the private sector, is an example of how AI-EES is advancing its mandate.

**Contact**

For more information about the research opportunities at the AERF, please contact Jim Schubert, at the City of Edmonton at 780-496-7293 or [Jim.Schubert@edmonton.ca](mailto:Jim.Schubert@edmonton.ca)



# ADVANCED ENERGY RESEARCH FACILITY

New R&D facility leading the way in biofuel production from waste

Edmonton, Alberta, Canada





The Advanced Energy Research Facility (AERF) offers unique research and development capabilities to test diverse feedstocks for gasification and for production of higher value liquid products from syngas.

#### **The facility includes:**

- A state of the art 300 kg/hr pilot gasification system, including a gas conditioning, cleaning and methanol synthesis system to test various waste feedstocks (biomass, waste plastics, various industrial wastes, etc.)
- A waste feedstock preparation system (includes shredding, air classification, ferrous and non ferrous metals separation)
- A bench scale gas-to-liquids catalytic research laboratory
- Analytical equipment to test waste feedstock characteristics and syngas composition
- A 4,000 ft<sup>2</sup> bay for additional research work
- Specialized staff dedicated to the gasification system and laboratory

- Access to common utilities needed for gasification (O<sub>2</sub>, N<sub>2</sub>, H<sub>2</sub>, and CO<sub>2</sub>) and potential use of the installed thermal oxidizer to combust syngas
- Future access to syngas on a 24/7 basis when the waste-to-biofuels facility is operational (for gas to liquid research)

Potential synergistic add-on systems envisioned for research at the AERF include work on advanced biofuels such as DME, bioethylene, and bio-syndiesel, membrane systems for O<sub>2</sub>/N<sub>2</sub> separation, and using CO<sub>2</sub> for conversion of C in petcoke and coal.

The Advanced Energy Research Facility is located at the Edmonton Waste Management Centre, 13111 Meridian Street NE, Edmonton, Alberta.

*“It’s designed to be plug and play. This means, researchers – local entrepreneurs, university researchers or international players – can come and test their processes at this facility in real time with actual feedstocks like municipal solid waste, waste plastics, wood by-products or other biomass streams.”*

Dr. Eddy Isaacs, CEO, Alberta Innovates  
– Energy and Environment Solutions