

Factsheet - Edmonton Waste-to-Biofuels Initiative

- The City of Edmonton, the Government of Alberta, through Alberta Innovates - Energy and Environment Solutions, and Enerkem, under Enerkem Alberta Biofuels (EAB), have partnered to create this sustainable initiative which will convert waste that can't be recycled or composted into valuable products such as clean fuels and biochemicals.
- The Waste-to-Biofuels and Chemicals Facility will produce 38 million litres of clean fuels and biochemicals when operating at full capacity. While initially the biochemical methanol will be produced, the biorefinery operation will later shift to produce ethanol as a valuable biofuel. The annual production capacity of ethanol is enough to fill the tanks of 400,000 cars using a 5% ethanol blend. Footprint of the Waste-to-Biofuels and Chemicals Facility: 2.8 hectares (7 acres).
- Feedstock for conversion into biofuels is prepared from residuals from the City of Edmonton's composting, recycling and processing facilities – waste that would otherwise be landfilled. Annual amount of this refuse derived fuel (RDF) is 100,000 tonnes.

The initiative is composed of three facilities located at the Edmonton Waste Management Centre:

1. Waste-to-Biofuels and Chemicals Facility

(Inaugurated on June 4th, 2014) – Owned and operated by Enerkem Alberta Biofuels, will produce 38 million litres of clean fuels and biochemicals annually when operating at full capacity.

2. Advanced Energy Research Facility

(Opened in 2011) – Owned and operated by the City of Edmonton, this facility is attracting world-class energy research.

3. Integrated Processing and Transfer Facility

(Opened in 2010) – Owned and operated by the City of Edmonton, this facility sorts organic waste for composting and prepares RDF as a feedstock for the Waste-to-Biofuels and Chemicals Facility.



Partner Contributions

Waste-to-Biofuels and Chemicals Facility

Owner/Operator: Enerkem Alberta Biofuels
Capital Cost: approx. \$100 million
(construction cost)

Integrated Processing and Transfer Facility

Owner/Operator: City of Edmonton
Capital Cost: \$40 million
(RDF feedstock preparation)

Advanced Energy Research Facility

Owner/Operator: City of Edmonton
Capital Cost: \$11 million

Alberta Innovates - Energy and Environment Solutions (AI-EES) contributed \$29 million to the overall Waste-to-Biofuels initiative. AI-EES staff served on the steering committee that directed and guided the execution of this project, and provided technical input and advice.

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Benefits

Environment/Energy

- Reduces Alberta's greenhouse gas emissions by approximately 60% when compared to fossil fuel production and landfilling activities;
- Provides a cost-effective alternative to landfilling;
- Increases energy diversification and greens Alberta's energy basket;
- Contributes to the goals of the City of Edmonton's environmental plan – The Way we Green;
- Helps meet federal and provincial 5% renewable fuels standards.

Economy

- Creates high quality green jobs;
- Implements a new local biorefinery industry – the production of advanced biofuels and chemicals;
- Increases domestic production of biofuels and reduces biofuels imports;
- Commercial facility alone expected to generate \$65M in net annual economic benefits in the local area.

Innovation

- Elevates Alberta's profile as a leader in clean technology;
- The Advanced Energy Research Facility:
 - » enables the development of technologies capable of converting a wide variety of residual waste streams into biofuels and green chemicals;
 - » creates a network of top researchers from Alberta, Canada and around the world - particularly those specialized in thermo-catalysis; and
 - » contributes to the advancement of a new line of advanced chemicals and hydrocarbon fuels suitable for today's carbon reality.