



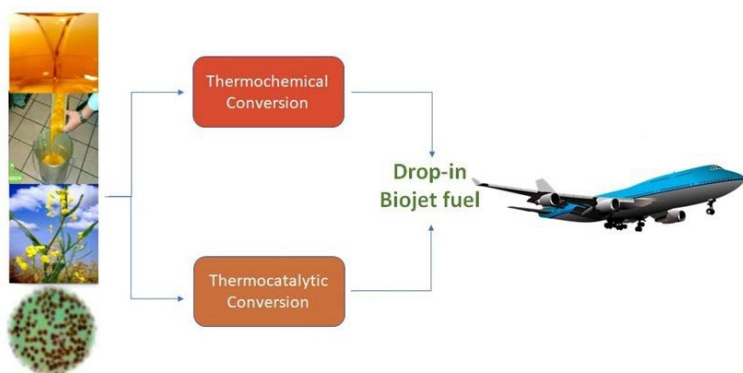
# ALBERTA INNOVATES AGRICULTURE AND ENVIRONMENT

BIOINDUSTRIAL AND CIRCULAR INNOVATION  
BIOENERGY

## FUNDING DETAILS

### Alberta Biojet Initiative (ABI): Upgrading of University of Alberta's LTH technology to Biojet

Dr. Bressler's group at the University of Alberta has developed and patented the Lipid-to-Hydrocarbon (LTH) technology that converts a wide range of lipid feedstocks into platform chemicals and solvents, as well as drop-in naphtha (gasoline) and distillate (diesel) fuels. The current project seeks to develop and test two technology pathways (TRL 7 by the end of the project) to produce drop-in biojet fuels as part of the LTH technology in collaboration with Profs. Luckert, Qiu, and Koch of the University of Alberta, CanmetENERGY Devon, and Forge Hydrocarbons Inc. our industry and commercialization partner. The project sets up advanced biofuels analytical and property testing suite.



#### RECIPIENT:

**Dr. David  
Bressler**  
**University of  
Alberta**



#### PARTNERS:

**Forge Hydrocarbons,  
Edmonton International  
Airport, Natural  
Resources Canada,  
CanmetENERGY,  
Western Economic  
Diversification, Future  
Energy Systems**



#### TOTAL BUDGET:

**\$7,404,000**



#### AI FUNDING:

**\$1,500,000**



#### PROJECT DATES:

**FEB 2019 –  
Apr 2024**



#### PROJECT TRL:

**Start: 4  
End: 7**

## APPLICATION

The technology developed will target primarily commercial aviation where the use of renewable jet fuel (biojet) is considered as one of the primary routes for reducing the industry's carbon footprint. Additionally, since the technology will utilize waste and inedible lipid feedstock, it will provide a market for rendering industries as well as brown grease, distillers corn oil, and off grade oil seeds such as canola.

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ALBERTA INNOVATES

# AGRICULTURE AND ENVIRONMENT

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## PROJECT GOALS

- Develop and test commercially viable drop-in biojet fuels as part of the product portfolio of the patented LHT process
- Setup an advanced analytical suite for biofuel composition and property testing available for use by the wider academic community and industry
- Validate environmental benefits of biojet technologies developed through comprehensive life cycle GHG assessment
- Develop and validate economic model integrating price series and site location analysis for the biojet technologies developed that can be translated to other biojet technologies

## BENEFITS TO ALBERTA

- Leveraged Investment to develop a novel biojet fuel pathways in Alberta
- Potential benefit through commercialization of the technology in Alberta could result in approximately \$133 million in revenue, 63 direct and 31 indirect job by 2030
- Contribute to meeting Canada's and global GHG emission reduction targets in the aviation sector
- Meet emerging regional biojet demand for outbound national and international flights departing from Alberta



**10 anticipated  
Publications**



**15 HQP Trained**



**10 Project Jobs**



**50-100 Future  
Jobs**



**1 New  
Product/Service**



**1 or more Patents**



**940 kT/yr Future  
GHGs Reduced**

## CURRENT STATUS

### April 2024 - Completed

This project was concluded in April 2024. In this project, laboratory bench scale testing and 1L continuous reactor optimization of the two technological pathways were done with initial trials showing promising results to creating essential compounds for biojet fuels. In addition, an advanced analytical suite for biofuels and conventional fuels composition analysis and property testing has been set up, providing services that meet national (CGSB) and international (ASTM, ISO, IP) standards and to serve the academic community and industry.

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