

# CLEAN RESOURCES

CLEAN TECHNOLOGIES  
BIOENERGY & CIRCULAR ECONOMY

## FUNDING DETAILS

### Sustainable Protein from Hydrocarbons

Aquafeed protein sources are faced with constrained resources, rising costs and environmental pressures. DeNova is commercializing breakthrough technologies for large-scale production of sustainable microbial protein derived from methane from oil and gas operations. This project supports the prototype field testing, design, fabrication, installation and operation of DeNova's first-of-kind modular gas to methanol technology; and the scale up of DeNova's proprietary protein production process, informing design plans for its first commercial plant in Alberta. DeNova's technology platforms have the potential to reduce methane emissions, produce higher value products from hydrocarbons, and generate significant clean technology jobs in Alberta.



**RECIPIENT:**  
DeNova Inc.



**PARTNERS:**  
Canada's Ocean  
Supercluster



**TOTAL BUDGET:**  
\$18,000,000



**AI FUNDING:**  
\$3,500,000



**PROJECT DATES:**  
JAN 2021 –  
MAR 2024



**PROJECT TRL:**  
Start: 5  
End: 9

### APPLICATION

Protein is the largest component of aquafeed, contributing significantly to both the operating costs and carbon footprint of the rapidly growing aquaculture sector. This presents a massive opportunity for DeNova with further potential to expand into other animal feed markets experiencing similar environmental and economic pressures. The global aquafeed market is valued at over 60 billion USD with an estimated growth of 5% CARG and a 2025 production volume of over 70 million tonnes.

# ALBERTA INNOVATES CLEAN RESOURCES

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## PROJECT GOALS

The key goals of the project are:

- Demonstrating DeNova's microscale methanol conversion technology through prototype build and demonstration
- Validating performance and cost targets of DeNova's microscale methanol conversion technology that will lead to scaled methanol production to supply the feedstock for commercial protein production
- Validating DeNova's methanol-fed single cell protein production conditions under industrial scale parameters, including up- and down-stream processes
- Completing design and operational parameters for DeNova's first-of-kind commercial-scale methanol and protein production facilities

## BENEFITS TO ALBERTA

The successful implementation of this technology or use of the knowledge generated could result in:

- Reduction in methane emissions from upstream oil and gas operations through diversion of natural gas for use as a feedstock for protein production
- Reduction in water, land, and other environmental impacts to produce protein compared to animal and agriculture derived proteins
- Production of higher value, low-emission products from hydrocarbons resulting in greater economic returns to the province for leveraging its natural resources
- Development of new career opportunities in Alberta's clean resources sector to help strengthen and diversify Alberta economy



**2 Publications**



**2 Students  
Trained**



**40 Project Jobs**



**1 New  
Product/Service**



**2 Patents**



**250 Future Jobs**

## CURRENT STATUS

### MAY 2022

DeNova has undergone prototype design and construction for its microscale methanol prototype testing. DeNova is also in the process of scaling its protein production under industrial scale conditions, building a pilot production R&D facility, and initiating the design of its commercial production facility.