ALBERTA INNOVATES

CLEAN RESOURCES

CLEAN TECHNOLOGY

HYDROGEN CENTRE OF EXCELLENCE

FUNDING DETAILS

Pulsed Methane Pyrolysis, PMP, Commercial Demonstration FEED Study

Ekona has developed a novel patented pulsed methane pyrolysis process that uses the principles of combustion and high-speed gas dynamics to dissociate feedstock methane into clean hydrogen and solid carbon.

This project is part of the company's commercialization efforts towards deployment of a 20 TPD-H2 commercial demonstration plant in Alberta. Activities include completing engineering studies for key balance of plant equipment at larger production capacity, including evaluating process equipment, integrating tradeoffs, and optimizing CAPEX-OPEX requirements while focusing on reducing the overall carbon intensity. The final output a FEED study will provide stakeholders with information for final investment decision.

RECIPIENT:
Ekona Power Inc.

PARTNERS:
ARC Resources

TOTAL BUDGET:
$2M

AI FUNDING:
$1M

PROJECT DATES:
MAR 2024 – APR 2025

PROJECT TRL:
Start: 6
End: 9

APPLICATION

Ekona's platform utilizes an established process – methane pyrolysis – in a ground-breaking new way. At the core of Ekona's solution is the xCaliber™ reactor, which uses pulsed combustion and high-speed gas dynamics to convert natural gas into hydrogen and solid carbon. Ekona's clean hydrogen production plants operate without the need for water, renewable electricity, or CO2-sequestration infrastructure to mitigate emissions, and can be deployed wherever natural gas infrastructure exists. Natural gas decarbonization represents a significant growth market for hydrogen, especially in hard-to-abate sectors where electrification is not possible and chemical fuels are needed. Ekona is pleased to be partnering with ARC Resources to showcase a pragmatic solution that can drive deep decarbonization for the natural gas industry.

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PROJECT GOALS

- Advance Ekona's novel proprietary technology towards commercialization and industrial deployment in Alberta.
- Project technology commercialization and roadmap development.
- Optimization of CAPEX-OPEX requirements while focusing on reducing carbon intensity.
- Engineering improvements for large-scale commercial clean hydrogen production plants.
- FEED study development for a 20TPD-H2 plant.

BENEFITS TO ALBERTA

This project will bring significant economic impact to Alberta and Canada through:

- Job creation and revenue generation, export sales, research and development activities.
- Capital investment in a Canadian technology company.
- Deployment of clean tech assets in Alberta.
- Leveraging of existing natural gas infrastructure in Alberta.
- Lowering the carbon intensity of existing industrial operations in the province.

3 Patents

15 Project Jobs

145 Future Jobs

2 New Products/Services

2 kt/yr Project GHGs Reduced

CURRENT STATUS

APR 2024

The project has commenced and is focused on Engineering improvements for large-scale commercial clean hydrogen production plants.