ALBERTA INNOVATES

# CLEAN ENERGY

CLEAN TECHNOLOGY

HYDROGEN CENTRE OF EXCELLENCE

FUNDING DETAILS

## Pilot Project for Catalytic Methane Pyrolysis for Zero-Emission Hydrogen and Synthetic Graphite Production

Innova's pilot project is focused on demonstrating its proprietary methane pyrolysis technology, which cleanly converts natural gas into two valuable products: synthetic graphite and hydrogen gas. Located in Fort Saskatchewan, Alberta, the pilot unit will validate the scalability, efficiency, and economic viability of Innova's continuous catalyst injection system under real-world conditions. The project aims to produce commercial-quality graphite for use in various markets, while generating low-emission hydrogen to power the process. This first-of-its-kind system provides a sustainable, localized alternative to traditional graphite production and supports the growth of Alberta's clean energy and critical minerals sectors.

**RECIPIENT:**
**Innova Cleantech Corp.**

**PARTNERS:**
**N/A**

**TOTAL BUDGET:**
**$2,917,000**

**AI FUNDING:**
**$633,000**

**PROJECT DATES:**
**DEC 2024 – DEC 2025**

**PROJECT TRL:**
**Start: 5**
**End: 7**

## APPLICATION

Innova's catalytic methane pyrolysis technology has the capability to maximize the value of natural gas by converting it to synthetic graphite and clean hydrogen energy. In an industrial setting, this technology can be deployed on-site at facilities such as petrochemical plants, steel mills, battery manufacturing plants, or hydrogen hubs. The system's modular design allows for localized deployment, reducing transportation costs and emissions while improving energy security and supply chain resilience.

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## PROJECT GOALS

- Validate the scalability and economics of the company's catalytic methane pyrolysis technology.
- Generate real-world performance data.
- Optimize operating parameters
- Produce representative graphite samples for testing by potential customers across various sectors
- Achieve TRL7
- Position the company to meet the growing market demand for sustainable, localized graphite production.

## BENEFITS TO ALBERTA

- Economic diversification by adding value to natural gas through the production of synthetic graphite and clean hydrogen.
- Job creation through the need to hire high-skilled jobs in engineering, operations, and advanced material research.
- Technology leadership in clean energy innovation and enhancing the province's reputation in global sustainability.
- Environmental impact as this technology reduces emissions as a low-carbon alternative to traditional graphite and hydrogen production.
- Investment attraction as the project may garner both domestic and international investment into Alberta's emerging critical minerals and hydrogen sectors.

**2 New Products/Services**

**370 kt/yr Project GHGs Reduced**

**33 kt/yr Future GHGs Reduced**

**2 Project Jobs**

**50+ Future Jobs**

**CURRENT STATUS**

### APR 2025

The project has completed the commissioning of the catalyst system and installing insulation to minimize heat loss. Currently, installing the equipment for continuous pilot operation, integrating catalyst reload system, and adding downstream separation units for gas and graphite.