EKONA™

Wondering about our technology?
Interested in partnering or investing?
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Methane Pyrolysis commercial demonstration pre-FEED study

This project advanced Ekona's methane pyrolysis technology through a pre-FEED study and Class 4 cost estimate, in support of Canada's efforts to develop solutions for the low-GHG-emissions, cost-competitive production of hydrogen from natural gas. Ekona evaluated three product configurations for hydrogen and carbon black markets, using its Gen1 and Gen2 operational and modeling data to assess performance and establish a commercial design basis.

PROJECT RESULTS

- Completed concept-selection studies and pre-FEED engineering for 20-tpd clean hydrogen plant
- Constructed and tested Ekona's Gen2 reactor
- Selected best operating pyrolysis scenario, based on Gen1 and Gen2 reactor results
- Developed preliminary design packages for:
  - 6-tpd carbon black demonstration plant
  - 60-tpd clean carbon black production plant
  - 20-tpd clean hydrogen production plant
  - Syngas production plant

PROJECT DELIVERABLES

CONCEPT SELECTION STUDIES

- Preliminary process flow diagram (PFD) for a 20-tpd H2 pyrolysis plant
- Preliminary 3D layout of a 20-tpd H2 plant
- Technical summary report from compiled engineering studies
- Class 4 cost estimate and schedule for the 20-tpd plant

SCALE-UP RESULTS

- Compilation of results from Gen1 test assets
- Construction, implementation, and testing of the Gen2 reactor
- Results and selection of the pyrolysis system design basis
- Integrated report covering existing operations and scale-up strategy

PRE-FEED STUDY

- Preliminary design package incorporating Gen2/Gen3 reactor technology
- Class 4 cost estimate and schedule for the 20-tpd plant
- Reports for 3 configurations: 6-tpd carbon black demonstrator, 60-tpd carbon black production unit, and 20-tpd H2 production unit
- Syngas production unit

BENEFITS TO CANADA AND STAKEHOLDERS

Delivers environmental benefits by reducing greenhouse gas emissions and producing clean hydrogen

No water consumption during production

Produces valuable carbon products

Supports Canada's Paris Agreement commitments

Enables scalable, cost-effective clean hydrogen production

Leverages Alberta's existing natural gas infrastructure

Drives job creation, R&D growth, and export opportunities

FUNDING

Recipient
Ekona Power Inc.

Funding Partners
NRCan
Alberta Innovates

Funding Received
$1M

Project Dates
2025-2026

PROJECT OUTCOMES

- Confirmed an appropriate methane pyrolysis reactor configuration for further development and scale-up
- Advanced preliminary engineering and scale-up studies required to support commercial deployment
- Identified practical pathways to commercialization
- Supported the development of clean hydrogen and clean carbon product markets
- Contributed to improved competitiveness of low-GHG-emissions hydrogen production

Learn more in Ekona's production-plant use cases:

INDUSTRIAL HYDROGEN | LOW-EMISSION FUEL (SYNGAS) | CLEAN CARBON BLACK

NEXT STEPS

Ekona is completing final Gen2 reactor testing and the engineering deliverables required to initiate FEED. The company is also advancing commercial deployment opportunities with strategic partners and customers, while continuing technology scale-up, commercialization, and market development activities.

ABOUT EKONA™

Based in Burnaby, British Columbia, Ekona develops clean hydrogen and carbon black solutions for industrial deployment. Its xCaliber™ methane pyrolysis platform uses existing natural gas infrastructure to produce low-emission hydrogen and solid carbon at scale – without reliance on carbon capture and storage, clean electricity, or water feedstock – enabling cost-effective decarbonization across energy-intensive industries and materials markets. Learn more: ekonapower.com

BURNABY PILOT PLANT

With support from Natural Resources Canada (NRCan) and other funding partners, Ekona developed a methane pyrolysis pilot plant with 200-kg/day capacity to evaluate its reactor technologies and process integration. Ekona's methane pyrolysis process integrates Ekona's xCaliber™ reactor with industry standard balance of plant equipment – for carbon handling, hydrogen purification, compression, heating, process monitoring, and controls – simplifying process integration and mitigating development risk.

The technology enables low-GHG-emissions hydrogen production with minimal electricity use, no water consumption, reduced carbon fouling, and competitive economics relative to steam methane reforming with carbon capture and storage.