

CLEAN RESOURCES

ADVANCED HYDROCARBONS

INNOVATIVE HYDROCARBON PRODUCTION – BITUMEN BEYOND COMBUSTION

FUNDING DETAILS

Engineering and Development of New Asphalt from Alberta Bitumen Process

Under development since late 2018, Carbovate's proprietary process focuses on processing Alberta bitumen into consistent high quality asphalt cement binder for longer life roads. Carbovate's process offers a low capex, high efficiency, minimal environmental footprint solution due to its unique modular design developed with Thermo Design Engineering Ltd. (TDE) of Edmonton. The modular process provided reduced energy consumption, minimizes water use, and has lower emissions to the environment when compared to conventional processes.

This project will carry out the required engineering and development activities to move the Carbovate process from the preliminary Process Design Package stage to a completed, Licensable Engineering Design Package.



"Roads should look like this or better after 11 years of use"
image provided by Ontario Ministry of Transportation (MTO)



RECIPIENT:

**Carbovate
Development Corp.**



PARTNERS:

TDE, Ontario MTO



TOTAL BUDGET (Excl Tax):

\$966.930



AI FUNDING:

\$400,000



PROJECT DATES:

FEB 2021 –

DEC 2021



PROJECT TRL:

Start: 5

End: 7

APPLICATION

Carbovate will license the CARBOVATOR*BBC6000© process and hopes to construct a first operating facility in Alberta with all modules customized and fabricated in Alberta. Additionally, Carbovate intends to license the technology to other facilities across North America, Europe and Asia with the facility modules manufactured in Alberta. The initial Carbovate facility is intended to be a partnership commercial scale demo plant. The asphalt cement binder produced in the Alberta facility, as a high-quality asphalt cement product, will be potentially exported to the Ontario market and to identified US customers based on acceptance testing and product consistency.



ALBERTA INNOVATES CLEAN RESOURCES

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PROJECT GOALS

The project will complete engineering and development of the CARBOVATOR*BBC6000© process to a License Engineering Package ready for construction and sale.

Key goals of the project are:

- Progressing engineering design from Technology Readiness Level 5 (TRL) to TRL 7
- Optimization and validation of the CARBOVATOR*BBC6000© process
- Independent final product testing and verification
- GHG emissions assessment
- Readiness to construct first demo plant in Alberta
- CARBOVATOR*BBC6000© license package ready for global commercialization

BENEFITS TO ALBERTA

The majority of the development carried out for this project will be in Alberta. The successful implementation of this technology or use of the knowledge generated could result in:

- Carbovate's first commercial scale demonstration asphalt plant being implemented in Alberta.
- The Carbovate process reduces energy consumption, and GHG emissions by up to 30% when compared to conventional processes.
- The implementation of the first Alberta asphalt plant will result in significant employment opportunities in engineering, construction and operations.
- Modules for additional licensed plants being manufactured by TDE in Alberta.
- A new market for Alberta bitumen as feedstock.



2 Patents

CURRENT STATUS

DEC 2021

Project launched in February 2021. Commercial project discussions are underway.