

CLEAN RESOURCES

ADVANCED HYDROCARBONS

INNOVATIVE HYDROCARBON PRODUCTS – PARTIAL UPGRADING

FUNDING DETAILS

Solideum 1,000 bpd Field Pilot

Solideum's technology yields two valuable products from bitumen: a 27-33 API low-sulphur distillate oil product and a heavy cut product. The heavy cut product can be supplied as a hot product or converted to a pellet/flake solid product that are feedstock materials to the asphalt market. For local markets, the heated heavy cut product is preferred. For international transport of the heavy cut, pellets and flake are preferred. The distillate can be used as an oil product or dilutant for bitumen transport. Solideum's technology can produce up to 50% by volume distillate with the remaining being the heavy cut.



Pelleted asphalt binder from Solideum process ready for rail or truck transport



RECIPIENT:
Solideum Inc.



PARTNERS:
CEDA



TOTAL BUDGET:
\$4,900,000



AI FUNDING:
\$1,190,000



PROJECT DATES:
FEB 2021 –
DEC 2022



PROJECT TRL:
Start: 6
End: 8

APPLICATION

Solideum has developed a completely different approach to the production of asphalt binders from bitumen that is much simpler and cheaper for application in small scale plants, especially in the range of 1000-10,000 barrels per day. The technology we have developed is currently at laboratory scale – we have multiple continuous 1-2 barrel per day units yielding heavy cut (pellet/flake and asphalt binder feedstock) and distillate (typically between 27 and 33°API).

ALBERTA INNOVATES CLEAN RESOURCES

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PROJECT GOALS

The proposed project will conduct a 1,000 barrel per day pilot of Solideum's technology to

- Confirm its capital cost reduction potential
- Verify its energy consumption and find opportunities for improvement of energy efficiency when integrated with SAGD plants
- Demonstrate its environmental (GHG emissions) and economic benefits.

BENEFITS TO ALBERTA

- Estimates for new employment opportunities resulting from the proposed project are estimated (at the low end) to be roughly 20 for pilot plant fabrication, installation, and commissioning
- Together with the 3 HQSP, we estimate that 23 jobs will be created or preserved from this project
- If the technology is fully commercialized and achieves a market of 50,000 bpd then we expect to create 150 jobs in engineering, fabrication, and operations
- SAGD operators will realize higher prices for bitumen-derived distillate and asphalt binder
- The Solideum process diverts bitumen heavy fractions from fuel to production of value-added asphalt, thereby reducing carbon dioxide emissions associated with bitumen utilization. Market GHG reductions will be realised outside of Alberta's emission reporting boundaries



**2+ Students
Trained**



20 Project Jobs



150 Future Jobs



**1 New
Products/Services**

CURRENT STATUS

SEP 2021

A pilot plant was operated in Bonneyville to verify the engineering design and operability of the process. The final engineering and construction will begin on the 1000 barrel per day commercial unit.