

# CLEAN RESOURCES

## INNOVATIVE HYDROCARBON PRODUCTS

### BITUMEN PARTIAL UPGRADING

## FUNDING DETAILS

## Heavy Oil Viscosity Reduction Project

The Heavy Oil Viscosity Reduction (HOVR) Project was based on a patented, proprietary catalytic process developed by NextStream Heavy Oil LLC to reduce the viscosity of heavy, bituminous oil. Undiluted bitumen is catalytically treated at mild process conditions with the resultant product requiring up to 50% less diluent to meet pipeline viscosity specifications.

The pilot equipment was installed at MEG Energy's Christina Lake Regional Project (CLRP) plant facilities in northeastern Alberta and began operating in February 2021. The purpose of the pilot was to validate the results that had been achieved with the bench scale process in a laboratory setting and provide the necessary data to allow the process to be scaled to a commercial facility.



**RECIPIENT:**  
**MEG Energy**



**PARTNERS:**  
**NextStream**  
**MEG Energy**



**TOTAL BUDGET:**  
**\$6,102,063**



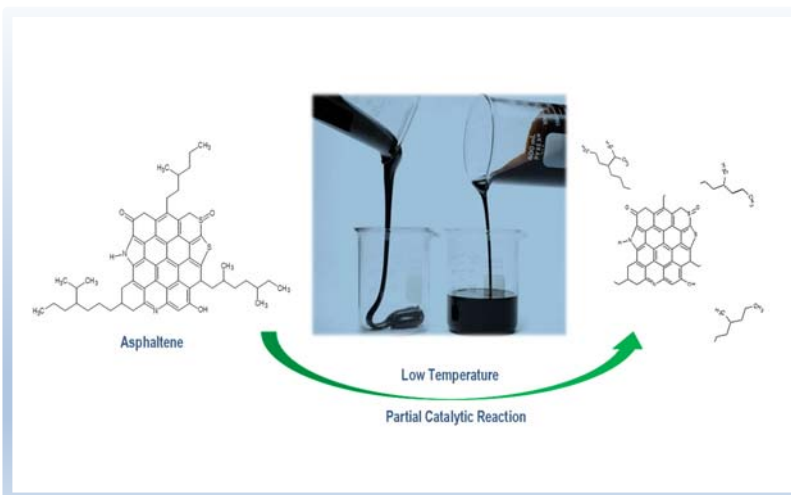
**AI FUNDING:**  
**\$1,047,006**  
**TIER**



**PROJECT DATES:**  
**FEB 2021 –**  
**JUN 2022**



**PROJECT TRL:**  
**Start: 3**  
**End: 5**



## APPLICATION

Heavy oil producers that use diluent blending as their primary method of meeting pipeline transportation specifications can benefit from this technology. SAGD and CSS heavy oil producers may be particularly advantaged due to the integration opportunities available with these processes.

# ALBERTA INNOVATES CLEAN RESOURCES

## INNOVATIVE HYDROCARBON PRODUCTS BITUMEN PARTIAL UPGRADING

### PROJECT GOALS

- The field pilot phase of the HOVR process to validate the bench scale results was completed and data was gathered to carry out an evaluation of the economic feasibility of a commercial facility.
- The scope, cost, and schedule for the design, construction, and operation of a commercial scale facility was completed and a techno-economic analysis was carried. The results of the analysis showed that the process could be economic if utilized to enhance oil production but would likely not meet economic hurdles if used for diluent reduction alone.

### BENEFITS TO ALBERTA

- While facility emissions would increase, it was calculated that overall emissions would decrease.
- The reduced diluted bitumen volume could debottleneck pipeline systems, enabling the development of additional oil production.
- New facilities for both the HOVR process as well as additional oil production could create employment during both the construction and operation phases.
- Additional oil production could result in increased royalties for the province of Alberta.



1 Student Trained



2 Patents



18 Project Jobs



200+ Future Jobs



1 New  
Product/Service



1+ Spinoff  
Companies



113 Kt/YR Future  
GHGs Reduced

### CURRENT STATUS

#### OCT 2022

The pilot facility operated at MEG's Christina Lake site and data was gathered on key operating and design parameters. A conceptual level design was completed for a 25,000 bpd commercial facility and a techno-economic analysis has been completed. A report summarizing the project results has been submitted to Alberta Innovates.