

CLEAN RESOURCES

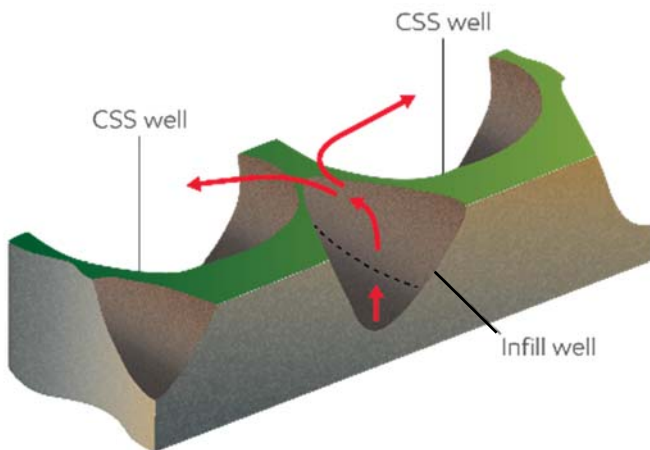
ADVANCED HYDROCARBONS

CLEANER HYDROCARBON PRODUCTION – RECOVERY TECHNOLOGIES

FUNDING DETAILS

Enhanced Late-Life Process (ELP) – Cold Lake Late-Life Recovery Process

Enhanced Late-life Process (ELP) is a follow-up to thermal recovery processes such as Cyclic Steam Stimulation (CSS). It is proposed as an alternative to steamflood, which is the current late-life recovery process for production at mature pads in Cold Lake. Steamfloods operate with continuous injection of steam at lower pressures via infill wells and production of bitumen, water, and gas from adjacent CSS wells. For ELP, light hydrocarbon such as butane can replace steam for the flooding process.



RECIPIENT:
**Imperial Oil
Resources Ltd.**



PARTNERS:
n/a



TOTAL BUDGET:
\$31,000,000



AI FUNDING:
\$2,000,000



PROJECT DATES:
**OCT 2018 –
Dec 2023**



PROJECT TRL:
**Start: 3
End: 7**

APPLICATION

The Cold Lake development strategy for mature CSS pads is currently steamflooding via infill wells. ELP can be deployed at the pads that are currently on steamflood or planned to be on steamflood, as well as the pads for which steamflood is not economically viable. This technology has the potential to be applied to all Cold Lake area CSS developments and could inform new technology development in late-life operations at other in situ bitumen operations.

ALBERTA INNOVATES CLEAN RESOURCES

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PROJECT GOALS

The key goals of the project are

- Developing ELP technology through an integrated research program which includes simulation modeling and a small-scale field trial.
- Developing understanding and capabilities for optimally designing ELP process for a wide range of target reservoirs.
- Validating and optimizing the key process performance indicators by planning and executing a small-scale field demonstration.

BENEFITS TO ALBERTA

Successful implementation of this technology could result in

- Reduction of total GHG emission intensity by 70% by switching from steamflood to ELP for late-life development of a mature reservoir.
- Reduction of steam usage for late-life in-situ developments. Redirecting steam from steamflood operations with high energy intensity enables developing resources that can use steam more efficiently.



1 Student Trained



3 Patents



10 - 100 Project
Jobs



101 - 1000 Future
Jobs



1 New
Product/Service



10–100 kT/yr Project
GHGs Reduced



>1,000 kT/yr Future
GHGs Reduced

CURRENT STATUS

MAY 2022

The pilot project is currently at the start of Milestone 5 – Pilot Start-up & Operation. The previously completed in-house simulation now enables the pilot start-up to commence in 2-stages. This includes a Brownfield stage to set reliable baseline for pilot operations and a Greenfield stage with continuous butane injection. Commissioning of the Butane Vessel, Vaporizer Skid and Injection Pumps is underway to ensure the injection equipment is operational and ready to commence field injection.