ALBERTA INNOVATES

CLEAN RESOURCES

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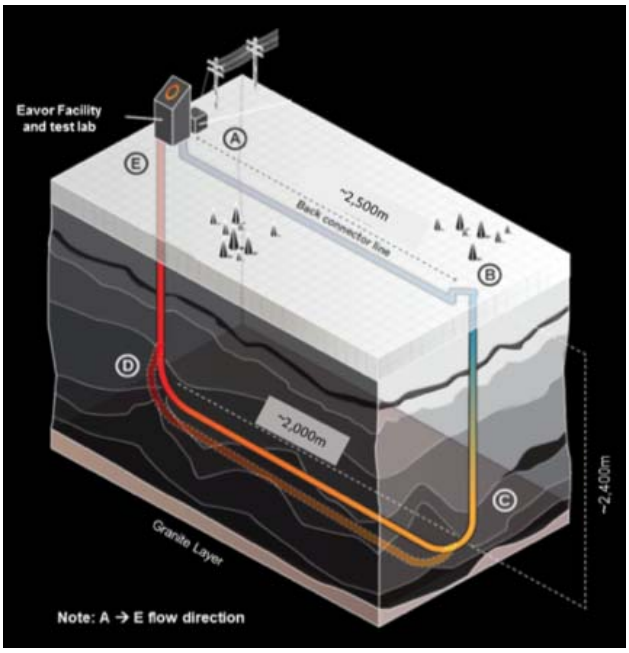
RENEWABLE AND ALTERNATIVE ENERGY – ELECTRICITY GENERATION

Eavor-Loop™ Demonstration Project

The overall goal of the project is to de-risk the Eavor-Loop™ technology and to enable commercialization of the technology within Alberta and global markets. This project consists of drilling an Eavor-Loop™ with two multilaterals, connecting the two sites with a pipeline, installing a test facility, and circulating water through the system. The circulating water picks up heat in the subsurface loop, exits at surface, and the thermal energy is discharged by an aerial cooler to simulate a commercial heat load.

The specific technical objectives are:

- Drill and intersect a multilateral Eavor-Loop with 2 laterals
- Complete the Eavor-Loop using Rock-Pipe™ technology
- Validate thermodynamic performance and demonstrate thermosiphon



FUNDING DETAILS

RECIPIENT:
Eavor Technologies Inc.

PARTNERS:
NRCan, SDTC, ERA
Precision Drilling
Shell

TOTAL BUDGET:
$12,145,268

AI FUNDING:
$1,000,000

PROJECT DATES:
APR 2019 – JUL 2020

PROJECT TRL:
Start: 6-7
End: 8-9

APPLICATION

Eavor-Loop provides a green, baseload solution for renewable heat and power that can feed into district heating networks in the case of direct-use heat, feed electricity to a grid, or be situated directly at the end user to provide an off-grid, distributed solution. The end user of this technology is any consumer of electricity or heat in the marketplace such as a commercial greenhouse, industrial heat or electricity user, or into a power grid.

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PROJECT GOALS

The goal of this project was to de-risk the key innovative elements of the Eavor-Loop™ technology and unlock future commercial scale implementations. Successful completion of the drilling program has:

- Demonstrated the ability to plan and execute the lateral wellbore design and intersections.
- Proven the ability to seal while drilling using the proprietary Rock-Pipe™ completion technology which is critical to constructing Eavor-Loops™ cost effectively.

Operation of the Eavor-Loop™ has:

- Demonstrated circulation without the use of a pump, i.e. via thermosiphon.
- Validated the thermodynamic modelling to assure future customers that the Eavor-Loop™ will provide the calculated thermal output for a given application,
- Provided a working "showroom facility" to tour potential customers, and
- Continues to provide a testbed for continued R&D initiatives.

BENEFITS TO ALBERTA

Successful execution of the Eavor-Loop™ Demonstration Project has unlocked a scalable geothermal solution that generates emissions free heat and power and can be deployed across Alberta and globally. Commercial deployment of the technology will:

- Provide local employment through the redeployment of Alberta's oil and gas drilling and service contractors.
- Leverage Alberta's strengths and leadership in the oil and gas industry to grow the Clean Technology sector.
- Provide new export markets for Alberta-based suppliers of proprietary fluids and drilling services.
- Enhance the perception of Alberta globally as a leader in both clean energy technology and the responsible development of established energy sources.

1-2 Publications

1-4 Patents

1-10 Project Jobs

1 New Product/Service

> 1,000 kt/yr Future GHGs Reduced

11-100 Future Jobs

CURRENT STATUS

AUG 2020 – PROJECT COMPLETE

Eavor™ has successfully completed all technical objectives of the pilot. Eavor-Lite™ was drilled and completed with Rock-Pipe™ technology and commissioned on December 4, 2019. It has been operating on thermosiphon mode and performing within 5% of pre-drill forecasts since commissioning. Eavor™ continues to use the project to derisk R&D initiatives for commercial implementation and as a showroom facility to tour potential customers, investors, and government officials.

The final report from this project will be made publicly available in August 2022.