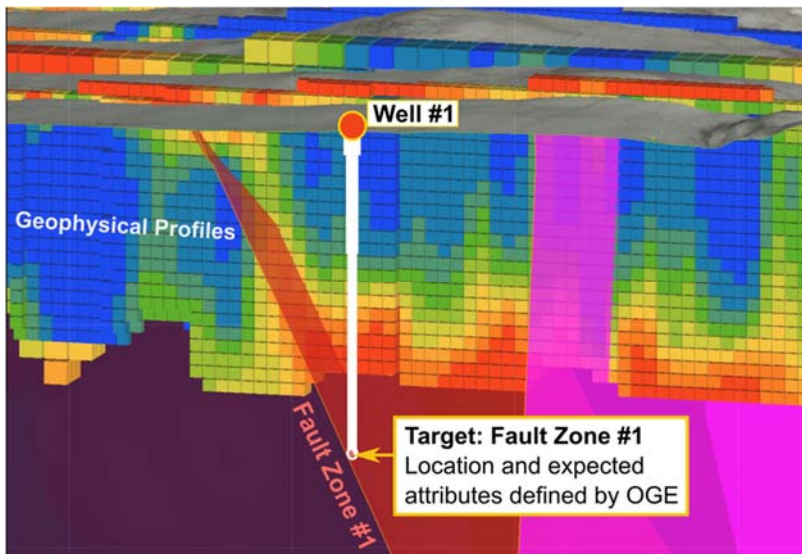


Geothermal Heat – Reducing Emissions and Increasing Alberta’s Competitiveness

The high upfront costs of drilling and the risk of finding a dry well are substantial challenges for conventional geothermal development. Borealis GeoPower aims to overcome these challenges through the predictive capabilities of their Optimized Geothermal and Element (OGE) exploration technology. The exploration technology further enables Borealis’ development of a novel form of cooling, called Geothermal Absorption Chilling. Geothermal Absorption Chilling takes advantage of the efficiency of direct heat transfer to yield economically viable industrial cooling and simultaneously reduce the carbon footprint of geothermal operations.

The project focuses on confirming the updated exploration technology’s predictive capability. By confirming the predictive capability, the Geothermal Absorption Chilling may operate successfully with defined cost certainty on the delivery of geothermal heat. The project scope includes the drilling of geothermal delineation wells to confirm or disprove OGE targeting hypotheses.

**RECIPIENT:****Borealis GeoPower****PARTNERS:****Western Economic
Diversification
Kitselas Geothermal****TOTAL BUDGET:****\$1,500,000****AI FUNDING:****\$500,000****PROJECT DATES:****JAN 2021 –
APR 2022****PROJECT TRL:****Start: 7
End: 9**

APPLICATION

Successful demonstration of the Optimized Geothermal and Element exploration technology assists in the value proposition definition for Geothermal Absorption Chilling by providing upfront cost certainty. It is anticipated that the Geothermal Absorption Chilling technology may be applied to the industrial gas, agricultural, and food processing sectors. Within Alberta, these sectors can benefit from more stable cooling costs and cleaner energy supplies. Together, these Alberta sectors have a market value of approximately \$2 billion annually.



ALBERTA INNOVATES CLEAN RESOURCES

CLEAN TECHNOLOGY

RENEWABLE AND ALTERNATIVE ENERGY - ELECTRICITY GENERATION

PROJECT GOALS

Optimized Geothermal and Element exploration technology is a proprietary methodology that identifies blind geothermal targets with economic value. The technology accurately locates relevant geothermal targets, reasonably estimates the properties of the geothermal reservoir, and forecasts the amount of geothermal energy that can be harnessed from the reservoir.

- The project goal is to confirm the accuracy of the exploration technology. This consists of:
 - Deploying the exploration technology to identify target locations, and drilling holes at those locations.
 - Obtaining subsurface measurements from the target locations.
 - Confirming that flow, temperature, subsurface water quality, and location parameters meet initial predictions.

BENEFITS TO ALBERTA

The project directly benefits Alberta by repurposing and developing Alberta's well-established subsurface and facilities skills.

When the Optimized Geothermal and Element exploration technology is commercialized, the following benefits are anticipated:

- Strategic cost reductions, based on preferential economics, for geothermally driven cooling customers.
- Profitable green energy infrastructure investments for energy companies seeking to diversify their portfolio, while also earning necessary economic returns.
- Job creation related to engineering, construction, operation, and maintenance of facilities requisite for the geothermal energy systems.
- Reductions to Alberta's GHG footprint, achieved by bringing onstream large quantities of renewable energy supply.



**3 Students
Trained**



55 Project Jobs



125 Future Jobs



**2 New
Products/Services**



**175 kt/year Future
GHGs Reduced**

CURRENT STATUS

MAR 2021

As of March 31, 2021, three wells have been drilled which confirm the ability to accurately target anomalous rock properties. Conflicting results related to the ability to target anomalous water properties, however, have triggered a data review and further data acquisition prior to drilling the next wells; the data will be evaluated and assessed in advance of the next round of drilling to ensure that high scientific value continues to be generated.