

Regulating Geothermal

What is Geothermal Energy?

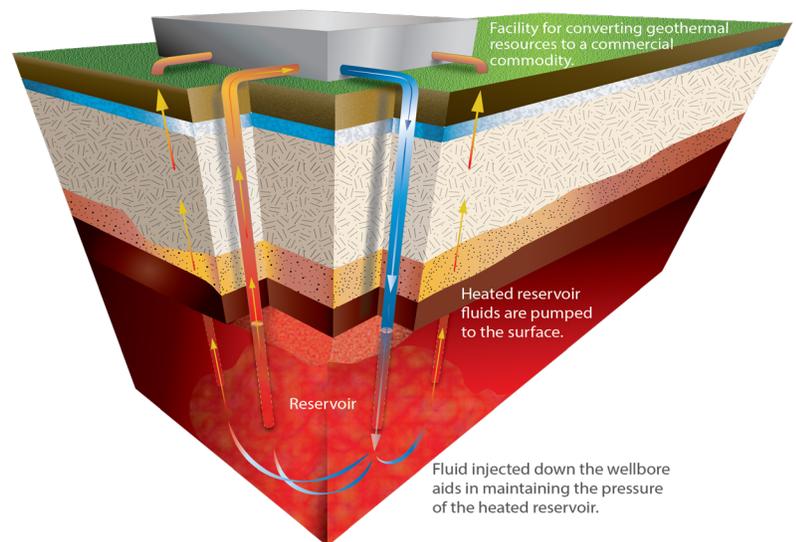
In the simplest terms, geothermal means 'heat from the earth'. Volcanic activity in the Pacific basin means deep underground water aquifers are heated by magma rising from the earth's core.

Wells are drilled into the hot reservoirs and the water (and in some cases steam) is moved to the surface by pumping. Once the water is at surface, the heat is extracted and used to produce electricity or for other commercial purposes such as heating buildings, warming greenhouses or used for recreation such as hot springs. The temperature of the water determines the use – very hot water (or steam) can be run through turbines and used for electrical generation. Cooler water (or the water after electricity has been generated) can be used for area heating.

Generally, for a geothermal resource to be viable, three characteristics must be present: high temperatures, water, and permeability in the reservoir. In British Columbia, the permeability normally occurs in fractured rocks, and near Fort Nelson, in porous rock formations. Water surrounding the high temperature rocks is accessed using drilled wells and the water temperature could range from 80 to over 200°C. When the temperature is very high (greater than 140°C), geothermal reservoirs produce mostly steam and are ideal for electricity generation. Once the heat has been used from the produced water, it is pumped down an injection well, back into the same reservoir to maintain the pressure. Over time the cooler water is reheated by the reservoir rock and eventually reaches the production wells and is recirculated.

Regulating Geothermal Activity

- The BC Oil and Gas Commission (Commission) was made the regulator responsible for overseeing aspects of geothermal resources on March 31, 2017.
- Under the **Geothermal Resources Act** (GRA), the Commission has the authority to issue authorizations for geothermal resource activities where the water is equal to or greater than 80°C at the point where it reaches the surface from preliminary exploration; for compliance and enforcement related to authorizations; and the Commission has authority to regulate the full lifecycle of a well and wellsite surface equipment.
- The Ministry of Energy, Mines and Petroleum Resources continues to manage sub-surface tenures, royalties, legislation, and policy for geothermal resources.
- Pipelines used for geothermal purposes fall within the definition of 'pipeline' under the Oil and Gas Activities Act (OGAA), and are regulated by the Commission as such.



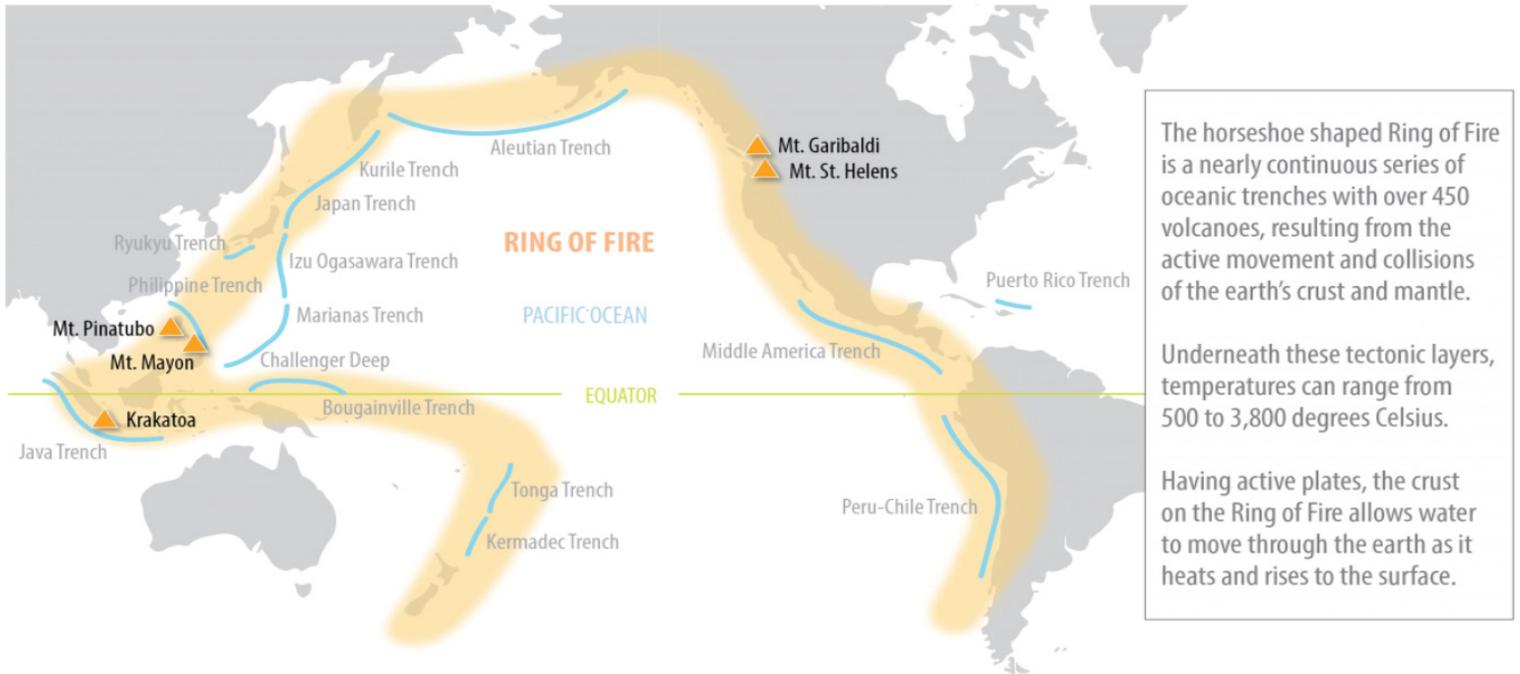
For Further Information

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British Columbia is situated on the Pacific Ocean “Ring of Fire” and this area has been identified as having substantial geothermal energy potential.



What is New at the Commission?

- On May 29, 2018, the Commission issued the first well authorizations for a geothermal energy project under the GRA. These authorizations allowed the operator to begin drilling to collect geotechnical information about the earth's temperature, including how much it increases with depth and the degree of heat flowing to the surface.
- On July 14, 2020 a number of Land Act and Forest Act delegations related to geothermal activities were provided by the Ministry of Forests, Lands, and Natural Resource Operations & Rural Development (FLNRORD) to the Commission. As a result, applicants no longer need to make a separate application for land access and to harvest Crown timber, consolidating the regulatory process.

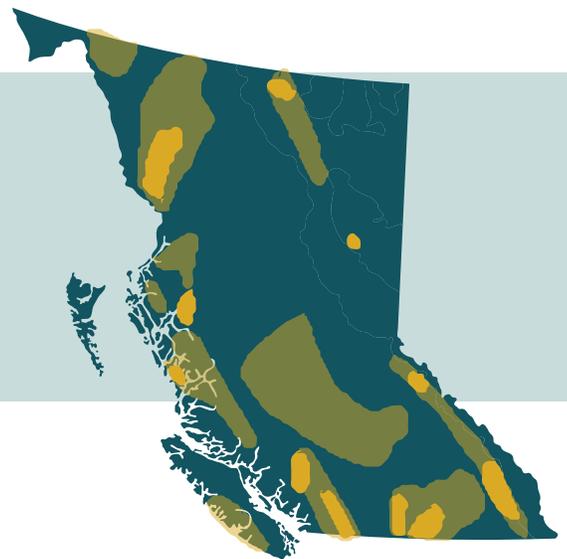
Geothermal Well Authorization Process

To be able to drill a geothermal well, a company must acquire the right to the geothermal resource from the Ministry of Energy, Mines and Petroleum Resources and an authorization to drill the well from the Commission. The company then comes to the Commission to obtain Crown land access and cutting licenses.



Commission Industry Contact

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Potential geothermal exploration areas in British Columbia