



EETiG 2024

Adventures in Pore Space: Shared Reservoirs in New Energy

Calgary, AB | February 7-8, 2024

Regulatory Hurdles With the Alberta No 1 Geothermal Project

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AB No. 1/Terrapin

Abstract

On December 9, 2020, Alberta's Geothermal Resource Development Act received royal assent and was proclaimed in force December 8, 2021. The first piece of associated regulation – the Geothermal Resource Tenure Regulation - came into force on January 1, 2022. On January 25, 2022 the Mineral Rights Information Bulletin 2022-02 outlined how geothermal resource rights could be acquired, but it was still not possible to transact upon these rights by securing surface leases or subsurface drilling permits. It was not until August 15, 2022 that the Alberta Energy Regulator (AER) released Directive 089: Geothermal Resource Development. This directive:

- defines the types of geothermal developments and systems;
- identifies the licenses and authorizations for wells, facilities, and pipelines;
- extends the existing Licensee Management Program (i.e., holistic licensee assessment, estimates of liability, and security deposits) to include geothermal developments;
- identifies the requirements for converting an oil and gas well to geothermal; and
- identifies risk assessment requirements related to hazards for geothermal wells.

With a full suite of regulations in place, geothermal developers in Alberta are now able acquire geothermal rights within the province as well as access these resources through surface land control and licenses to drill geothermal wells. While clear regulations are an important step forward for geothermal development in Alberta, there are still numerous challenges facing developers. Presently, geothermal developers may be required to compete with hydrocarbon operators in Alberta for resource rights. Due to geothermal energy projects significant up-front capital requirements and longer return on investment, geothermal projects are at a disadvantage. Going forward, there is an opportunity for the government and the regulator to encourage geothermal development in Alberta through fiscal incentives and policy revisions. An escalating cost of natural gas increasingly favors geothermal resource development, in addition to carbon reduction incentives available for renewable energy projects.

The Province of Alberta is seeing increased interest in the development of geothermal energy. While there are many opportunities in the province, there are also numerous challenges; non-exclusive rights for the heat resource is the main stumbling block. The province has a substantial database of subsurface data, thanks to over 400,000 hydrocarbon wells that have been drilled in the last 100 years. This experience has been leveraged from the regulatory standpoint and the geothermal directives frequently reference Alberta's hydrocarbon directives. The current geothermal regulations favor operators who already own the hydrocarbon rights in the subsurface. This is promising for the transition of Alberta's current hydrocarbon operators to renewable energy. However, while there is now a clear path for geothermal developments in Alberta, it is still challenging for single commodity (heat) geothermal operators to compete with these more financially lucrative commodities. Moving forward, the geothermal energy regulations in Alberta need to be flexible and revisable, while maintaining the responsible development of geothermal resources. The current regulations and



directives are a good start, but there is still more that could be done to incentivize geothermal investment and development in Alberta.

Biography



Emily Smejkal, P.Geol is a geologist by training with over 10 years of experience in the Oil and Gas sector. Her work has been primarily with the Western Canadian Sedimentary Basin, where she spent the first portion of her career working on heavy oil deposits. She focused on fluvial and marine depositional environments, of which she created detailed 2D and 3D facies models. She also planned and executed drilling programs for both new and existing oil fields. While working on SAGD heavy oil projects, Emily was a geologic specialist for both wellbore integrity and surface facility geochemistry projects. She is also experienced in subsurface mapping, 3D and 4D modelling, project management, facies modelling and sedimentary depositional environments. Emily currently uses these skills for geothermal exploration in sedimentary basins and is working as a geologic consultant for Alberta No. 1.

