

Geothermal Energy Development in Alberta

Alberta's Existing Geothermal Regulatory Framework



Environmental
Law Centre

Environmental Law Centre Webinar Series

May 2022

We acknowledge that what we call Alberta is the traditional and ancestral territory of many peoples, presently subject to Treaties 6, 7, and 8. Namely: the Blackfoot Confederacy – Kainai, Piikani, and Siksika – the Cree, Dene, Saulteaux, Nakota Sioux, Stoney Nakoda, and the Tsuu T’ina Nation and the Métis People of Alberta.

We acknowledge the many Indigenous peoples who have lived in and cared for these lands for generations. We make this acknowledgement as an act of reconciliation and gratitude to those whose territory we reside on or are visiting.



This webinar series is made possible with funding from



About the Environmental Law Centre

- The Environmental Law Centre (ELC) has been seeking strong and effective environmental laws since it was founded in 1982.
- The ELC is dedicated to providing credible, comprehensive and objective legal information regarding natural resources, energy and environmental law, policy and regulation in the Province of Alberta.
- The ELC's mission is to advocate for laws that will sustain ecosystems and ensure a healthy environment and to engage citizens in the law's creation and enforcement.
- Our vision is a society where our laws secure an environment that sustains current and future generations and supports ecosystem health.

ELC Geothermal Law & Regulation Webinar Series

This is a three-part webinar series presented by ELC:

- Alberta's Existing Geothermal Regulatory Framework
- Recommendations for Geothermal Law & Regulation in Alberta
- Geothermal Policy Support and Incentives

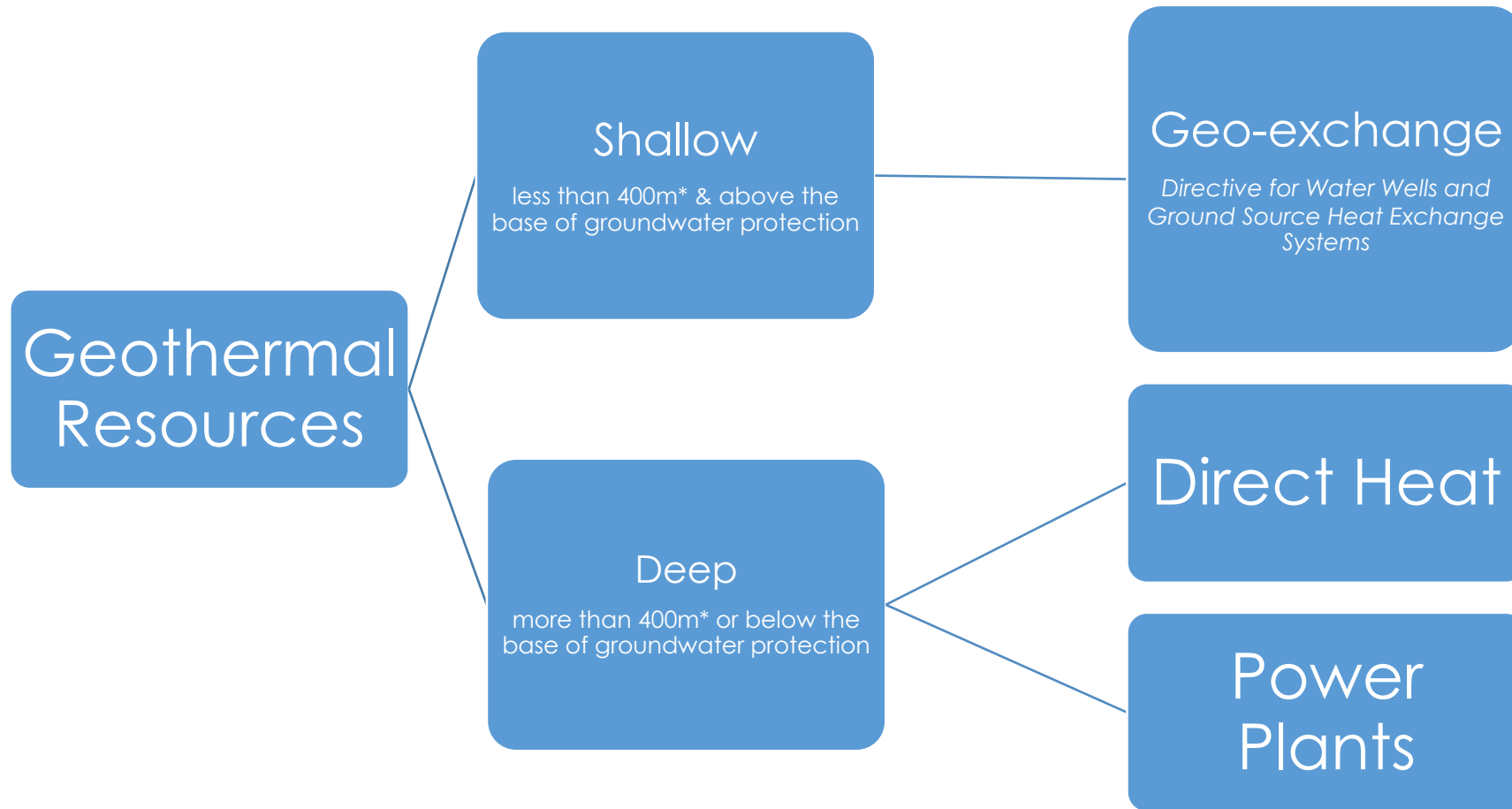


Presentation Outline

- Deep vs. shallow geothermal resources
- Current State of Regulation
 - Laws of General Application
 - Shallow Geothermal
 - Deep Geothermal
 - Legislation re: power plants
 - *Geothermal Resource Development Act*
 - *Geothermal Resource Development Regulation*
 - AER draft directive (Spring 2022)



Geothermal Resources



Laws of General Application

- *Water Act*, R.S.A., ch. W-3
 - approvals and licences
- *Municipal Government Act*, R.S.A. 2000, ch. M-26
 - Bylaws: water, environment, planning and development
- *Environmental Protection and Enhancement Act*, R.S.A. 2000, ch. E-12
 - substance releases



Shallow Geothermal

- Directive for Water Wells and Ground Source Heat Exchange Systems
 - minimum requirements for open-loop ground source heat exchange wells and for vertical closed-loop ground source heat exchange wells completed at depths above the base of groundwater protection
 - does not apply to horizontal closed-loop or submerged closed loop ground source heat exchanged systems.



Legislation re: power plants

- some regulation re: power plants (not necessarily specific to geothermal)
- Power plants bigger than 1MW need approval
- Power plants bigger than 100 MW need environmental assessment
- Renewable power plants must meet conservation and reclamation requirements
- Legislation overseen by Alberta Utilities Commission addresses power plants



GRDA

- **Geothermal resources** defined as “the natural heat from the earth that is below the base of groundwater protection”
- Regulatory scheme is modelled on *Oil and Gas Conservation Act*, R.S.A. 2000, ch. O-6 (OGCA)
- Regulatory oversight by the AER
- Primary function of GRDA is to provide a licensing regime



GRDA (continued)

- reworking wells or facilities
 - Only by licensee, as directed by AER, or if obtain a licence
 - If obtain a licence to rework, liability transfers to new licensee (except for outstanding debts to AER or orphan fund for suspension and abandonment costs)
- enforcement powers
- extensive, discretionary rule-making powers granted to AER
- regulatory powers granted to Cabinet
- Numerous consequential amendments
 - EPEA, OGCA, M+M Act, Pipeline Act, REDA

Regulations under the GRDA

- Cabinet has regulation making authority on several matters:
 - Access to geothermal resources
 - Applicability of other energy resource enactments to geothermal resources
 - Prescribing things as not wells/facilities for purposes of GRDA
- *Geothermal Resources Development Regulation*
 - Provides clarification on term “facilities” under the GRDA



AER's Draft Directive [XXX]

- GRDA gives significant rule making powers to the AER including:
 - Licensing
 - Operational matters
 - Management of wastes
 - Monitoring and compliance
 - Shut-down, suspension, abandonment and other closure activities
 - Security requirements
 - Conservation and management of geothermal resources
 - Location of geothermal operations including setbacks
- Outlined in draft *Directive [XXX]* which is modelled on o&g rules



AER's Draft Directive [XXX]

- Applies to wells, facilities and pipelines associated with geothermal resource development
- Addresses all stages of development: initiation, construction, operation, and closure
- Matters such as:
 - Technical requirements for wells, facilities and pipelines
 - Requirements for risk assessment of induced seismicity (for wells)
 - Applications for obtaining and transferring licenses
 - Geothermal data filing, measurement and reporting requirements
 - Conversion of oil and gas wells into geothermal wells
 - Closure as per *Conservation and Reclamation Regulation*



AER's Draft Directive [XXX]

Geothermal resource development is subject to several AER directives which were originally developed for oil and gas operations on variety of matters:

- **Liability:** Directive 067: Eligibility Requirements for Holding Energy Licences and Approvals; Directive 001: Requirements for Site-Specific Liability Assessments in Support of the ERCB's Liability Management Programs; Directive 068: ERCB Security Deposits
- **Participant Involvement:** Directive 056: Energy Development Applications and Schedules
- **Emergency Planning:** Directive 071: Emergency Preparedness and Response Requirements for the Petroleum Industry
- **Technical Requirements:** Directive 008: Surface Casing Depth Requirements; Directive 009: Casing Cementing Minimum Requirements; Directive 010: Minimum Casing Design Requirements; Directive 080: Well Logging Requirements; Directive 083: Hydraulic Fracturing – Subsurface Integrity; Directive 087: Well Integrity Management; Directive 055: Storage Requirements for the Upstream Petroleum Industry; Directive 060: Upstream Petroleum Industry Flaring, Incinerating, and Venting; Directive 050: Drilling Waste Management; Directive 058: Oilfield Waste Management Requirements for the Upstream Petroleum Industry; Directive 013: Suspension Requirements for Wells; Directive 020: Well Abandonment



What's next...

- How does the new legal framework compare to our recommendations?
- Are there still outstanding issues?



Questions?

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