

# **Geothermal Energy Development in Alberta**

## **Recommendations for Geothermal Law and Regulation in Alberta**



Environmental  
Law Centre

Environmental Law Centre Webinar Series

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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

- What are the missing pieces?
- Does Alberta's new legislative framework provide the missing pieces?
  - *Geothermal Resource Development Act*
  - *Geothermal Resource Development Regulation*
  - *AER's Draft Directive [XXX]: Requirements for Geothermal Resource Development*



# Missing Pieces

- No legal definition of geothermal resources
- Lack of clarity as to ownership of geothermal resources
- No licensing system for exploration and development of geothermal resources
- No comprehensive provisions for environmental regulatory matters (both shallow and deep geothermal resources)
- Uncertain interface between geothermal and oil & gas activities (subsurface conflicts, liability)



# No legal definition of geothermal resources

- GRDA:
  - defines geothermal resources as “natural heat from the earth that is below the base of groundwater protection”
- Draft Directive:
  - n/a
- Comparison to our recommendations:
  - we recommended a broad definition and also a definition of geothermal energy
  - GRDA definition is fairly broad (not limited to a temperature, use or technology) but it is limited to deep resources
  - GRDA clarifies that only the heat (not, for example, the geothermal waters that may contain the heat along with dissolved minerals)





# No legal definition of geothermal resources

- Our proposed definitions:

Geothermal Resource means the natural heat of the earth, in whatever form, from which energy can be derived or extracted from such natural heat and all mineral in solution or other products obtained from naturally heated fluids, brines, associated gases, and steam, in whatever forms, found below the surface of the earth, but does not include oil, hydrocarbon gas, or other hydrocarbon substances.

Geothermal Energy means energy stored in the form of heat beneath the surface of the earth.



# Lack of clarity re: ownership

- GRDA/M+M Act:

“the owner of the mineral title in any land in Alberta has the right to explore for, develop, recover and manage the geothermal resources associated with those minerals and with any subsurface reservoirs under the land”

- Draft Directive:

- Rights to develop must be obtained from Crown or through consent from freeholder mineral rights owner or leaseholder prior to application for well
- Subsurface rights requirements set out in regulations made under GRDA (none yet)
- Side Note: *Surface Rights Act* not applicable, need written consent for surface access



# Lack of clarity re: ownership

- Comparison with our recommendations:
  - we recommend crown ownership (clearly retroactive)
  - GRDA gives to mineral title owners
  - see commentary provided by [Nigel Bankes](#) on Ablawg
  - obtaining tenure should be subject to environmental screening



# No licensing system

- GRDA:
  - provides a licensing system modelled on OGCA
- Draft Directive:
  - provides details of licensing (also modelled on OGCA)
- Comparison with our recommendations:
  - comprehensive licensing regime is provided for deep resources only
  - concern that model is OGCA



# No comprehensive environmental provisions

- GRDA/EPEA:
  - EPEA's Schedule of Activities includes activities around "natural heat from the earth for the purposes of heating"
  - EPEA's definition of well includes geothermal wells
- Draft Directive:
  - Modelled on AER's approach to oil and gas (many of the same directives apply)
- Comparison with our recommendations:
  - some improvement with GRDA but still missing pieces
  - clarify environmental assessment requirements for geothermal power plants
  - much of deep resources environmental regulation left to discretion of AER whereas we would like legislated standards



# Geothermal – Oil and Gas Interface

## Subsurface Conflicts

- GRDA:
  - subsurface conflicts with other energy resources can be addressed by AER
- Draft Directive:
  - No guidance regarding things like incidental production, interference with other resources
  - Although there are technical requirements to maintain subsurface integrity where hydraulic fracturing geothermal well (*Directive 083*)
- Comparison with our recommendations:
  - Need similar authority to address other subsurface conflicts (water, minerals dissolved in geothermal waters)
  - Prior to extensive disposition of geothermal rights, GOA should articulate approach to subsurface conflicts



# Geothermal – Oil and Gas Interface Liability

- GRDA:

- abandonment does not relieve licensee or WIP from responsibility for control or further abandonment, or associated costs
- if a new licensee is reworking a well or facility, then liability transfers except for outstanding debts to AER or OWA for suspension/abandonment costs
- costs of suspension, abandonment, remediation and reclamation in accordance with proportionate share of each WIP

- Draft Directive:

- essentially, adopt approach for oil and gas operations i.e. holistic licensee assessment (*Directive 067*), licensee management program, liability assessment, security deposits



# Geothermal – Oil and Gas Interface Liability

- Comparison with our recommendations:
  - liability approach with oil and gas has led to violation of polluter pays principle (e.g. orphan wells), so should not make same mistakes with geothermal
  - avoid future orphans via legislated timelines for abandonment, reclamation and remediation, and require upfront payment of security
  - need predictable, administratively simple approach which does not allow wells to languish without clean-up and adheres to polluter pays principle
  - pre-transfer inspection and assessment process -> provide a snapshot of the condition of the well-site, surface and subsurface prior to conversion to geothermal (regardless of life stage: pre-abandonment, abandoned, reclaimed or remediated)
  - Multiple extraction activities on one site, address as a whole to assess and review cumulative impacts of entire development (especially liability apportionment, clean-up timelines and security requirements)





# Questions?

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