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TO: Energy and Technology Interim Committee

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RE: Montana Geothermal Energy Laws and Regulations

Introduction

This memo was compiled by the listed agencies at the request of the Energy and Technology Interim Committee. The memo outlines the regulatory framework for geothermal energy generation projects in Montana under current statute and administrative rules. Montana statutes identify geothermal resources as a distinct category of resource, separate from oil and gas and from water resources, with regulatory oversight split between the Department of Environmental Quality (DEQ), The Montana Department of Natural Resources and Conservation (DNRC), and U.S. Environmental Protection Agency (EPA).

DEQ

Major Facility Siting Act

If a geothermal facility has a 50-megawatt (MW) capacity or greater for operational output, the facility would require a certificate under the Major Facility Siting Act (MFSa) before construction or operation could occur (75-20-104(10)(c), Montana Code Annotated (MCA)). Since the MFSa certificate would be a state action that affects the Montana environment, DEQ would conduct an environmental review of the proposed geothermal facility in accordance with the Montana Environmental Policy Act (MEPA). A geothermal MFSa certificate could include facility-specific requirements, such as drilling construction standards, well casing integrity requirements, and plugging requirements for geothermal wells. MFSa requires the applicant to deposit a filing fee based on DEQ's estimated costs of processing the application and its responsibilities under MFSa (75-20-215, MCA). Depending on the specifics of the project, the action might trigger either an environmental assessment or an environmental impact statement. MEPA requires the applicant who applies for the certificate to pay for the agency's costs of preparing and conducting an environmental impact statement (75-1-205, MCA). MFSa also requires a geothermal developer to notify DEQ of geothermal exploration. For geothermal development that is less than 50-megawatts in capacity, regulatory oversight is not outlined in MFSa.

Water Quality Division

Geothermal wells are considered Class V Underground Injection Control (UIC) wells under the federal Safe Drinking Water Act. In Montana, Class V wells are regulated by EPA Region 8 because Montana has not established primacy to implement the Class V program on behalf of EPA. Furthermore, facilities subject to MFSA review are excluded from Montana Water Quality Act permitting requirements (75-5-401(4)(k), MCA).

The EPA Region 8 UIC program would review and issue an individual permit for any enhanced geothermal system (EGS) project. The EPA staff assigned to the review would be the same staff who currently perform Class II and Class VI well permitting. To date, all identified EGS projects have been permitted by states with Class V primacy, or in the case of California, a memorandum of understanding that allows the California Geologic Energy Management Division to directly issue permits with EPA Region 9 oversight.

DNRC

DNRC Forestry Trust Lands Division (FTLD) Reliance on Regulatory Expertise

DNRC's FTLD staff depend on other regulatory entities, such as BOGC and DEQ for their resources and oversight of regulated activities on state trust lands. FTLD relies on BOGC and DEQ staff for bond calculations, regulatory permitting, aid in inspection oversight, and environmental review. The Board of Land Commissioners is responsible for approving any leasing activities on state trust lands, and a lease is typically required prior to environmental review and regulatory approval of specific actions. The FTLD relies on the BOGC for its authority and approval of oil, gas, injection, and stratigraphic wells, which includes environmental review, bonding, construction specifications, unitization, protection of correlative rights, inspection oversight, and reclamation. Likewise, for mining activities, the FTLD depends on the DEQ for environmental review, bonding, adherence to mine design standards, inspection oversight, and reclamation.

Geothermal Rights

The DNRC FTLD manages 5.2 million acres of surface estate and 6.2 million acres of mineral estate, in which nearly 2 million acres have split ownership where the state owns either the surface or the mineral estate, and the other estate is privately or federally owned. Mineral estate ownership is frequently fragmented, often across multiple generations, and mineral title chains often include ambiguous conveyances. Hence mineral estate ownership is difficult and time-consuming to determine.

In Montana, specific statutes regarding geothermal resources are contained in Title 77, chapter 4 regarding state lands. These statutes address the leasing of state or school lands for geothermal resource development. These statutes define "geothermal resources" in Montana as "the natural heat energy of the earth, including the energy, in whatever form, which may be found in any position and at any depth below the surface of the earth, either present in, resulting from, created by, or which may be extracted from such natural heat and all minerals in solution or other products obtained from the material medium of any geothermal resource."

Montana currently addresses geothermal resources as sui generis in 77-4-104, MCA, “being neither a mineral resource nor a water resource, but closely related to and possibly affecting and affected by water resources in many instances.”

Geothermal Energy Production and DNRC Water Rights:

- Any well drilled for the purpose of diverting water for geothermal energy production will require a water right from DNRC. If the well exceeds a diverted flow rate of 35 gallons per minute or diverted annual volume of 10 acre-feet per year, the water right permitting process (85-2-302, MCA) applies.
- There is no difference in the water rights process for open-loop vs closed-loop geothermal energy production.
- The criteria for a new water use permit can be found in 85-2-311, MCA.
- For more information on the permitting process, please see the included handout.
- The production of water from oil and gas wells is under the jurisdiction of BOGC (85-2-510, MCA). Any geothermal energy production resulting as a byproduct of an oil/gas well would fall under BOGC jurisdiction.

BOGC

Current Statutory Authority

The Board’s authority derives from Title 82, Chapter 11, MCA, and is focused on conservation and regulation of oil and gas resources. This authority includes:

- Regulation of drilling, casing, completion, production, and plugging of oil and gas wells;
- Oversight of stratigraphic test wells drilled for oil and gas purposes;
- Administration of Class II underground injection control wells associated with oil and gas operations;
- Prevention of waste, protection of correlative rights, and protection of underground sources of drinking water in oil and gas development;
- Requirement to provide well logs for potential geothermal wells;
- Requirement to provide data (i.e. bottom-hole temperatures of the wells) in order to facilitate the discovery of geothermal potential; and
- Submittal of data (i.e. bottom-hole temperatures of wells) from the Board to the Montana Bureau of Mines and Geology (MBMG).

Current statutes do not assign the Board regulatory authority over geothermal resource development, geothermal production wells, or closed-loop geothermal heat exchange boreholes.

Technical Overlap with Board Expertise

The Board regulates deep subsurface well construction for oil and gas and maintains technical expertise in:

- Well design and casing integrity;
- Blowout prevention and well control;

- Prevention of inter-zonal fluid migration;
- Protection of freshwater aquifers; and
- Plugging and abandonment of wells to prevent long-term subsurface impacts.

These technical considerations may also be relevant to certain forms of deep geothermal development, particularly projects involving high-temperature resources, deep drilling, or subsurface circulation systems (Title 82, Chapter 11, MCA).

Funding Structure and Program Constraints

The Board's operations are funded primarily through fees and assessments associated with oil and gas development. These revenues support regulatory activities specific to oil and gas conservation and provide distributions that benefit local governments in producing areas.

Expansion of the Board's jurisdiction to include geothermal development would require legislative consideration of:

- Whether geothermal regulation should be funded through a dedicated geothermal fee or assessment structure;
- Whether existing oil and gas revenue streams may be used for non-oil-and-gas regulatory purposes; and
- The potential fiscal and policy implications of assigning geothermal regulatory responsibilities to a program funded by another industry.

Board Position

The Board's statutory role is limited to oil and gas conservation and associated subsurface activities. The Board does not currently regulate geothermal development.

The Board can provide technical expertise regarding deep subsurface well construction and integrity if requested by the Legislature. An expansion of regulatory authority would require express statutory direction, clear jurisdictional boundaries, and a funding structure appropriate to geothermal development.

Board of Water Well Contractors

The purpose of the Board of Water Well Contractors (BWWC) is established in Title 37, Chapter 43, MCA. The Board's role is to reduce and minimize the waste and contamination of the state's groundwater resources through the reasonable regulation and licensing of individuals who construct water wells and monitoring wells. The Board sets and enforces technical standards for the construction, maintenance, and abandonment of these wells.

Under 37-43-102(7)(a), MCA, a water well is defined as an excavation that is drilled, cored, bored, washed, driven, dug, jetted, or otherwise constructed and intended for the location, diversion, artificial recharge, or acquisition of groundwater.

Title 37, Chapter 43, MCA, along with the Administrative Rules of Montana (ARM) Title 36, Chapter 21, establishes BWWC's jurisdiction over the construction of water wells and monitoring wells in Montana. Although geothermal wells are not explicitly referenced in Title 37, Chapter 43, MCA or ARM Title 36, Chapter 21, drilling geothermal wells involves the acquisition of groundwater through well construction. Therefore, geothermal wells should be constructed by a Montana licensed water well contractor or water well driller.

Overall Conclusions

This information provides a comprehensive review of the existing state requirements and also identifies areas where there are gaps in statutory guidance and potential overlap. The state of Montana does not have a unique Geothermal Resources Act, as can be found in some other western states. A thorough review of state laws indicates that while geothermal development is addressed in MFSA and acknowledged in oil and gas regulations, there isn't a straight-forward regulatory path for a potential geothermal developer interested in moving beyond exploration and data-gathering in Montana.

With this overview, there are policy issues that remain. The ETIC may wish to discuss:

- Is there interest in clarifying ownership of geothermal resources? If so, what direction can ETIC provide?
- Is there interest in examining a structure that removes geothermal development from MFSA?
- Is there interest in examining a revised regulatory structure that better outlines responsibility for geothermal well construction and subsurface integrity? If so, what does that look like?
- Is there interest in examining a revised regulatory structure that better outlines further regulation and permitting for geothermal activities less than and greater than 50 megawatts in capacity? If so, what does that look like?
- If a revised regulatory structure is developed, is there support for a fee on geothermal developers to fund those activities?