ALASKA STATE LEGISLATURE
SENATE RESOURCES STANDING COMMITTEE
January 22, 2024
3:31 p.m.

MEMBERS PRESENT

Senator Click Bishop, Co-Chair
Senator Cathy Giessel, Co-Chair
Senator Bill Wielechowski, Vice Chair
Senator James Kaufman
Senator Kawasaki
Senator Forrest Dunbar
Senator Matt Claman

MEMBERS ABSENT

All members present

COMMITTEE CALENDAR

SENATE BILL NO. 69
"An Act relating to geothermal resources; relating to the definition of 'geothermal resources'; and providing for an effective date."

- HEARD & HELD

PRESENTATION: GEOTHERMAL RESOURCES

- HEARD

PREVIOUS COMMITTEE ACTION

BILL: SB 69
SHORT TITLE: GEOTHERMAL RESOURCES
SPONSOR(s): RULES BY REQUEST OF THE GOVERNOR

02/15/23	(S)	READ THE FIRST TIME - REFERRALS
02/15/23	(S)	RES, FIN
04/12/23	(S)	RES AT 3:30 PM BUTROVICH 205
04/12/23	(S)	Heard & Held
04/12/23	(S)	MINUTE(RES)
04/17/23	(S)	RES AT 3:30 PM BUTROVICH 205
04/17/23	(S)	Heard & Held
04/17/23	(S)	MINUTE(RES)

05/12/23	(S)	RES AT 3:30 PM BUTROVICH 205
05/12/23	(S)	Heard & Held
05/12/23	(S)	MINUTE(RES)
01/22/24	(S)	RES AT 3:30 PM BUTROVICH 205

WITNESS REGISTER

JOHN BOYLE, Commissioner
Department of Natural Resources (DNR)
Anchorage, Alaska
POSITION STATEMENT: presented SB 69 on behalf of Governor Dunleavy.

SEAN CLIFTON, Policy & Program Specialist
Division of Oil & Gas (DOG)
Department of Natural Resources (DNR)
Anchorage, Alaska
POSITION STATEMENT: provided an overview of the presentation.

MELANIE WERDON, Director
Alaska Division of Geologic & Geophysical Surveys (DGGS)
Department of Natural Resources (DNR)
Fairbanks, Alaska
POSITION STATEMENT: provided an overview of the presentation.

JOHN CROWTHER, Deputy Commissioner
Department of Natural Resources (DNR)
Anchorage, Alaska
POSITION STATEMENT: provided an overview of the presentation.

ACTION NARRATIVE

3:31:44 PM
CO-CHAIR CLICK BISHOP called the Senate Resources Standing Committee meeting to order at 3:31 p.m. Present at the call to order were Senators Dunbar, Claman, Senator Wielechowski, Co-Chair Bishop, and Co-Chair Giessel. Senator Kawasaki joined thereafter.

SB 69-GEOTHERMAL RESOURCES

3:32:24 PM
CO-CHAIR BISHOP announced the consideration of SENATE BILL NO. 69 "An Act relating to geothermal resources; relating to the definition of 'geothermal resources'; and providing for an effective date."

3:33:33 PM
JOHN BOYLE, Commissioner, Department of Natural Resources (DNR), Anchorage, Alaska, presented SB 69 on behalf of Governor Dunleavy. He said that SB 69 would make necessary changes to current statute and introduce new energy opportunities.

He urged that there is a grave need to explore and delineate energy resources that will provide residents with energy security, affordability, and reliability. The bill would make necessary changes to current statute, introduce new energy opportunities, and improve the geothermal structure. It would convert the antiquated permitting structure to expand the geothermal exploration license to a five-year lease. This would provide flexibility and better account for the time needed to complete an exploration program. It would change the current permit system to align with an exploration license system, similar to the oil and gas system. The bill would double the maximum size of a geothermal lease, accounting for larger areas of land.

3:36:09 PM
MR. BOYLE said that once a potential developer performs a certain amount of work, SB 69 would allow a work commitment rather than requiring a commercial discovery to move forward in the exploration process.

3:36:16 PM
SENATOR KAWASAKI joined the meeting.

3:36:44 PM
MR. BOYLE stated that SB 69 would incentivize outside firms to invest and take risks in geothermal exploration with the most flexibility possible. Of over one hundred geothermal systems identified in Alaska, only five have been explored. The Division of Geological and Geophysical Surveys (DGGS) is working with the Governor's Office to undertake much of the early characterization through mineral exploration around the state. The DNR is seeking to obtain data from various geothermal systems to better understand, more actively market, and solicit firm interest. There is enthusiasm for SB 69 to move forward to advance geothermal opportunities in Alaska.

3:40:27 PM
JOHN CROWTHER, Deputy Commissioner, Department of Natural Resources (DNR), Anchorage, Alaska, briefly introduced himself.

3:40:45 PM

SEAN CLIFTON, Policy & Program Specialist, Division of Oil & Gas (DOG), Department of Natural Resources (DNR), briefly introduced himself.

3:41:09 PM
MELANIE WERDON, Director, Alaska Division of Geological & Geophysical Surveys (DGGS), Department of Natural Resources, Fairbanks, Alaska, provided an overview of the presentation. She moved to slide 4 and referenced the following points:

[Original punctuation provided.]

FUNDAMENTAL INGREDIENTS OF USEABLE GEOTHERMAL ENERGY

- Elevated geothermal gradient
- Porosity and permeability for the migration of fluids
- Surface access
- Sufficiently large thermal system
- Customers for energy

3:42:33 PM
MS. WERDON moved to slide 5, comprising a visual of elevated geothermal heat flow in Alaska based on 1980s-era geothermal data. DGGS' proposed new work will narrow potential red target areas to help the Division of Oil and Gas focus on the most promising areas in Alaska for geothermal leases. New data on Alaska's geothermal systems would reduce industry risk and encourage industry investment.

3:43:25 PM
MS. WERDON moved to slide 6 and read the following:

[Original punctuation provided.]

INTRODUCTION TO GEOTHERMAL RESOURCES

- Geothermal heat, where technically and economically accessible, is an excellent form of sustainable energy
- Hydrothermal systems are the most common form of energy extraction from geothermal heat
- Complex geologic parameters necessary for a viable geothermal resource, all present at one location, is rare
- Alaska contains many potential geothermal resources

- New technologies that will expand geothermal development into less favorable geology are on the horizon

Ms. Werdon added that there are supplemental materials available at the end of the presentation with specific regional details.

3:44:28 PM
MS. WERDON moved to slide 7 and referenced the bullet points listing new DGGS responsibilities.

[Original punctuation provided.]

FISCAL NOTE: NEW DGGS GEOLOGIST 4

- Enables DGGS to restart its geothermal program. The new geologist would:
- Coordinate with agencies and industry to publish new geologic data to further development of Alaska's geothermal energy resources
- Maintain and update geologic data on Alaska's geothermal systems in a geothermal database
- Attract federal funds to characterize Alaska's geothermal systems and resources
- Monitor developments in geothermal systems technology
- Conduct geologic investigations of Alaska's geothermal systems
- Publish geologic maps, reports and data on Alaska geothermal systems
- Advise DNR and other state agencies on the state's geothermal resources
- Support DNR's geothermal leasing program
- Support and supply information to explorers and developers of Alaska's geothermal resources
- Support and advise DNR Commissioner's Office and Governor's Office on geothermal policy
- $190.0 UGF initial cost FY2025

Ms. Werdon stated that the state of Alaska has left federal money on the table at geothermal sites. The main focus is on the presentation comprising updates to SB 69.

3:46:18 PM

CO-CHAIR BISHOP asked if the DNR is actively recruiting for the new geologist position and if Inflation Reduction Act (IRA) funds are in focus.

3:46:46 PM
MR. CROWTHER responded that the DNR is not actively recruiting for the position, given pending legislative allocation of budget funds. However, the department is seeking to expand resources for a more comprehensive geothermal assessment program across the state, including federal funds and programs. The DNR holds several relationships with federal agencies for resource characterization in Alaska, including the United States Geological Survey (USGS), DGGS, the Department of Energy, and others under the IRA and general budget programs to characterize geothermal resources that can be utilized. There is a need to supplement this effort through resources and legislative action on the leasing side.

3:47:47 PM
CO-CHAIR BISHOP offered a future discussion in budget subcommittees.

3:47:55 PM
SENATOR KAWASAKI asked Ms. Werdon if typical well-based geothermal systems lose their heat resource over time.

3:48:22 PM
MS. WARDEN said that geothermal systems were designed with wells that raise heated water with enough distance from the reinjection of the cold water to prevent interference and system cooling.

3:48:57 PM
SENATOR KAWASAKI asked if that process is related to the doubling of lease acreage size referenced in SB 69.

3:49:18 PM
MS. WARDEN deferred the question to Mr. Clifton.

3:49:31 PM
SEAN CLIFTON, Policy & Program Specialist, Division of Oil & Gas (DOG), Department of Natural Resource (DNR), Anchorage, Alaska, provided an overview of the presentation. He said that maximum acreage size allows for more room to effectively explore and define the resource through drilling and testing before reducing it to the appropriate lease size.

3:50:24 PM
SENATOR CLAMAN asked about the type of federal funds available and how the state could obtain access.

3:50:37 PM
MR. CROWTHER offered to follow up regarding federal funds that are still being adapted. He stated his belief that USGS has regular programs that could focus on geothermal characterization.

3:51:04 PM
CO-CHAIR BISHOP noted that legislative aids could obtain the information for the committee.

3:51:23 PM
MR. CLIFTON moved to slide 9 and proceeded with an overview of SB 69.

[Original punctuation provided.]

PURPOSE OF SB 69

Modernize Alaska's geothermal exploration program

- Greater potential for providing affordable, renewable energy to rural communities and remote natural resource extraction projects
- Promote clean energy industry job creation

Align geothermal licensing with the oil and gas exploration license program, thereby increasing feasibility for companies to develop resources

- More time for a company to identify and prove resource to convert to leases
- Conversion to leases based on completion of work commitment and submission of exploration plan instead of proving discovery of commercial resource
- Doubles maximum acreage allowed for exploration
- Repeals rental/royalty modification after 20 years of production, providing stability and predictability for investors in geothermal energy projects

Reform definitions for geothermal resources and fluids to account for technological advancements in the geothermal industry

Mr. Clifton noted that modernization of the geothermal exploration program mandates additional time, more acreage, and updated definitions.

3:52:09 PM
MR. CLIFTON moved to slide 10 and provided an overview of geothermal leasing and permitting history in the Mount Spurr and Augustine Island areas. The two Mount Spurr permits were converted into leases in anticipation of a lease sale in October of 2023. There was less industry attention and interest than anticipated, therefore no bids were placed. Augustine Island's permit issued in 2022 would be extended if SB 69 passed, while a second permit was requested to expand available acreage to explore the Southern part of the island.

3:53:41 PM
MR. CLIFTON moved to slide 11, highlighting leasing under current law.

[Original punctuation provided.]

LEASING UNDER CURRENT LAW

Application and call for competing proposals

- If competing proposals → competitive lease sale
- If no competing interest → issue prospecting permit with two-year time limit
- This bill replaces two-year permits with five-year licenses modelled after our modern oil and gas exploration licensing program.
- Conversion to lease
- Permit (current): "showing of a discovery of geothermal resources in commercial quantities"
- License (bill): after work commitment is met

Both processes require Best Interest Finding and public input opportunity prior to award of permit, license, or lease

Royalties are set by AS 38.05.181(g): 1.75 percent of gross revenue for the first 10 years of production, then 3.5 percent of gross revenue after 10 years

Mr. Clifton added that this does not constitute much time to organize capital for on-the-ground work, urging the push for a five-year gas exploration lease. With the two-year time limit,

lease holders must drill "right on the money" or land is returned to the state.

3:55:45 PM
SENATOR KAWASAKI asked about work conditions in place to measure oil and gas exploration progress and ways to obtain a plan of development. He stated that there are currently several undeveloped oil and gas leases.

3:56:33 PM
MR. CROWTHER responded that in general, many oil and gas units have long been in active production. However, there are some leases that are at earlier stages. Oil and gas leases that do not see exploration at their primary term may be returned to the state. The DNR envisions a similar system under the geothermal program, given that a work commitment is met. The development process has an annual review.

3:57:49 PM
SENATOR KAWASAKI asked if a company exploring resources would have a duty to produce findings.

3:58:06 PM
MR. CROWTHER responded that a company would have a duty to pursue development on their lease or it would relinquish at its term. A failed attempt to reach development may provide for an opportunity for extensions depending on how the lease is issued.

3:58:58 PM
SENATOR WIELECHOWSKI asked how gross revenue is determined.

3:59:21 PM
MR. CLIFTON said that gross revenue is based on reporting. The DNR has not set up a model for processing royalty filings for geothermal revenue. It may be more appropriate to use a different model, either quarterly or annually.

4:00:06 PM
CO-CHAIR BISHOP cautioned against comparing oil and gas with hot water. The state is treading new territory with geothermal production and developing appropriate definitions for royalties is under way. He asked if royalties will be based on the amount of British thermal units (BTUs) produced by the well.

4:01:16 PM
MR. CROWTHER noted that the language in statute as proposed is focused on commercial revenue of geothermal production.

4:01:53 PM
SENATOR CLAMAN asked how the consensus was reached for identifying AOGCC as the regulatory body for managing geothermal production.

4:02:44 PM
MR. CROWTHER invited Mr. Huber to contribute his perspective. The AOGCC currently regulates and focuses on hazard-related or subsurface activities.

4:03:23 PM
BRETT HUBER, Chairman, Alaska Oil & Gas Conservation Commission, Anchorage, Alaska, provided an overview of geothermal drilling. He conveyed that the AOGCC is involved with drilling regulation. The state's path forward relies on proper geothermal drilling to protect underground and freshwater aquifers, as well as ensuring public safety.

4:04:35 PM
SENATOR CLAMAN hypothesized a scenario of poor management following extraction and if this would be under the jurisdiction of AOGCC.

4:04:59 PM
MR. HUBER replied that it would not be under the AOGCC's jurisdiction. The wells are positioned in a way to maximize recovery and minimize waste. AOGCC would oversee underground activities.

4:05:33 PM
MR. CLIFTON moved to slide 12 and said he created a sectional summary to assist members in locating information by agency.

[Original punctuation provided.]

SECTIONAL SUMMARY

1. (AOGCC) Grants Alaska Oil & Gas Conservation Commission (AOGCC) authority to pursue primacy of Class V injections wells for geothermal energy
2. (AOGCC) Removes unnecessary reference to AS 41.06 from AS 31.05.030(m) (see Section 10)
3. (DNR) Changes permits to licenses; adds exemption for geothermal resources intended for domestic, noncommercial, or small-scale industrial use (same as Section 11); removes preferential rights

clause (inappropriate for commercial development of State resources)

4. (DNR) Changes permit to license; extends term of licenses (formerly permits) from two to five years; replaces lease conversion requirement of commercial discovery and development plan with work commitment and exploration plan
5. (DNR) Changes permit to license
6. (DNR) Changes permits to licenses; increases maximum acreage from 51,200 to 100,000; moves rental fees to be set by regulation
7. (DNR) Amends AS 38.05.181(f) to grant leases for 10 years, with opportunity for a five-year extension, with standard indefinite extension by production Repeals opportunity for DNR commissioner to modify rent and royalty rates after 20 years of production
8. (DNR) Adds three new subsections AS 38.05.181(i-k) to modernize unitization statute for geothermal leases to match the model used for oil & gas
9. (DNR) Replaces AS 38.05.965(6) definition of geothermal resources (same as Section 14)
10. (AOGCC) Amends AS 41.06.020(e), clarifies that AS 41.06 does not limit DNR's authority over geothermal resource management on state land
11. (AOGCC) New subsection AS 41.06.020(f) adds exemption for geothermal resources intended for domestic, noncommercial, or small-scale industrial use (see Section 3)
12. (AOGCC) Adds new subsection AS 41.06.057 to provide for penalties for violations of geothermal statutes (like oil & gas AS 31.05.150)
13. (AOGCC) Amends AS 41.06.060(4) definition of geothermal fluid to remove temperature references and better conform with other changes in this bill
14. (AOGCC) Replaces AS 41.06.060(5) definition of geothermal resources (same as Section 9)
15. (AOGCC) Repeals AS 41.06.005(b) and AS 41.06.030, since geothermal units are managed by DNR

16-20. (AOGCC/DNR) General provisions for applicability and effective dates, including applicability for prospecting permits issued or currently being processed

4:06:05 PM

MR. CLIFTON moved to slide 13 and stated that the provisions in Sections 3-6 replace "permit" to "license" to reflect the common understanding of the terms within the Division of Oil & Gas (DOG).

[Original punctuation provided.]

SECTIONS 3-6: PERMITS TO LICENSES

- Provisions in these sections replace "permit" with "license."
- Within DOG, "permits" are for surface use authorizations. For subsurface, "licenses" and "leases" are issued.
- Adopting the exploration licensing program for geothermal resource management conforms with existing processes for oil and gas.
- Section 17 allows for conversion of existing permits to licenses.

4:07:17 PM
MR. CLIFTON moved to slide 14 and spoke to private use exemption.

[Original punctuation provided.]

SECTION 3: PRIVATE USE EXEMPTION

- **New language:**
  A prospecting license or lease is not required under this section to explore for, develop, or use geothermal resources if the geothermal resource is intended for domestic, noncommercial, or small-scale industrial use.
- **Intent:**
  - Clarify that domestic users of ground source heat pumps don't need an authorization from DNR
  - Encourage the use of geothermal energy to provide affordable energy in non-utility scale applications

4:08:23 PM
SENATOR WIELECHOWSKI inquired about private use exemption and referenced the 2021 version of Senate Bill 104 "An Act relating

to geothermal resources; relating to the definition of 'geothermal resources'; and providing for an effective date." Committee members raised concerns among several sections of the bill. He asked for clarification on commercial, domestic, and small-scale industrial definitions.

4:09:02 PM
MR. CLIFTON responded that no changes were made, nor definitions defined within the legislation. The DOG assumed the royalty component of the statute and its plain language would be clear.

4:09:45 PM
SENATOR WIELECHOWSKI asked for clarification on the definition of small-scale industrial use in the new legislative language.

4:10:03 PM
MR. CROWTHER acknowledged that there are significant questions about the scales and offered to work with the committee to develop language to further clarify legislative intent. The focus is on heat pumps for private use at the individual facility level.

4:10:47 PM
SENATOR WIELECHOWSKI asked if there's a need to update "intended for" to "actually used for" in the new language.

4:11:07 PM
MR. CROWTHER replied that the actual use in development should be the legislative focus. He offered to coordinate with members to improve the proposed language.

4:11:24 PM
SENATOR WIELECHOWSKI referenced Section 3 of SB 69 and asked why eight lines were omitted.

4:11:49 PM
MR. CLIFTON replied that the language in statute was confusing and posed potential problems for developers that might have an exploration license. Private surface owners maintain legal rights, but surface owners may be able to invoke the statute to take over the developer's operation. If the surface owner & developer cannot reach an agreement, the commission of DNR could interfere under AS 38.05.130. He added that in the arbitration process, regulations exist to ensure the surface owner is compensated.

He spoke to slide 16.

[Original punctuation provided.

SECTION 3: PREFERENTIAL RIGHTS

- **Current statute grants preferential rights to a surface owner to apply for a geothermal prospecting permit once notice is received of an existing application**
  - Inappropriate for a surface owner to have a preferential right to the State's mineral estate
- **Surface owners may still pursue domestic geothermal developments for their own uses**
  - Need well permits from AOGCC if hazards may exist
  - Need environmental review or permits from agencies such as Department of Environmental Conservation, Fish & Game, DNR Division of Mining Land & Water, or federal agencies
  - Examples of permitting requirements are detailed in a supplemental slide
- **Geothermal licenses and leases are not surface use authorizations**
  - They only provide the exclusive right to explore for and develop the subsurface resources
  - Public notice is a part of the license issuance process and surface owners can participate
  - Surface use authorizations require public notice and direct notice to any affected surface owners

4:13:30 PM
SENATOR WIELECHOWSKI asked for clarification on preferential rights and suggested a third party's subsequent subsurface rights to land under private ownership. He wondered if a third party could force a landowner to develop a pipeline, generator, or heat pump.

4:14:20 PM
MR. CROWTHER responded that there are areas in Alaska where private landowners own subsurface rights and are entitled to manage the resource. In state-owned areas, statute ceded the management right to surface owners. In the case of personal use using ground source heat pumps, a surface owner would maintain the right to primary resource use.

The intent of SB 69 is to allow the state to benefit from the licensing and leasing of large-scale, commercial-scale geothermal resources.

4:16:04 PM
MR. CLIFTON moved to slide 15 and said there are separate permitting processes for commercial and non-commercial systems. The graphic on the right showcases non-commercial systems involving heat pumps/loops above water table or wells less than a few hundred feet deep. Commercial development would not take away heat from a private user.

4:17:39 PM
SENATOR WIELECHOWSKI asked Mr. Clifton to define the state's subsurface rights.

4:18:00 PM
MR. CROWTHER replied that Alaska law comprises fluid minerals leasing provisions, the constitutional right for locatable minerals to be staked, and other subsurface rights managed by the state. Certain rocks, gravels, and minerals are accrued to the state under some circumstances and are at times associated with the surface. He offered to follow up on the delineation of subsurface versus surface rights.

4:18:55 PM
CO-CHAIR BISHOP reminded members about questions available from last year with written responses.

4:19:10 PM
SENATOR WIELECHOWSKI asked about domestic user authorization requirements through the DNR and the depth of heat pumps.

4:19:33 PM
MR. CLIFTON responded that heat pumps do not run deep, only a few hundred feet as demonstrated on slide 15.

4:19:45 PM
CO-CHAIR BISHOP added that geothermal systems get expensive quickly compared to natural gas or diesel fuel.

4:20:06 PM
SENATOR KAUFMAN asked if the heat pump design is defined as a closed-loop interface as opposed to the lifting of water steam using an open system.

4:20:43 PM
MR. CLIFTON replied yes, these systems are most often designed as closed-loop, so pumping is done at the surface and therefore ensure environmental protection.

4:21:32 PM
MR. CLIFTON moved to slide 17 and spoke to the following:

[Original punctuation provided.]

SECTIONS 4 & 7: TERMS & WORK COMMITMENT

- Changes prospecting permit to license and increases term from 2 to 5 years
- Creates greater opportunity for success of noncompetitive geothermal program
- Conversion to noncompetitive lease through completion of agreed upon work commitment
- Current process for oil and gas exploration license
- Commitment expressed in dollar figure
- Annual reporting and performance assessments are required
- Amends AS 38.05.181(f) for geothermal leases
- Geothermal leases last for 10 years, with opportunity for a five-year extension, and standard indefinite extension by production
- Repeals opportunity for DNR commissioner to renegotiate rental and royalty rates for geothermal leases after 20 years of production

4:22:08 PM
SENATOR WIELECHOWSKI noted that AOGC is changing license prerequisites from a development to an exploration plan. He wondered if a different-tiered process is necessary to expedite the development timeline.

4:22:56 PM
MR. CROWTHER replied that AOGC views potential competition at the front end and the requirement for significant expenditure to obtain the lease as safeguarding the warehousing concern. A good-faith developer may need 4-5 years of an exploration program to complete the initial characterization step. He said there are permit/new lease holders pursuing these activities on a multi-year program because field expenditure and mobilization take years.

4:24:25 PM
CO-CHAIR BISHOP asked when and where the data from a five-year exploration license would become publicly available.

4:24:43 PM
MR. CLIFTON responded that he is unsure of the timeline but would find the terms and report back to the committee.

4:25:05 PM
CO-CHAIR BISHOP added that technology and resources change over time.

4:25:24 PM
MR. CLIFTON said he does not recall any lifelines from the DOG on the previous question.

4:25:37 PM
MR. CLIFTON added that annual reporting and assessments are monitored, so there is an incentive to meet requirements.

4:26:08 PM
CO-CHAIR BISHOP reiterated the committee's desire to know the timeline of publicly available data.

4:26:16 PM
MR. CLIFTON moved to slide 18 and spoke to the following:

[Original punctuation provided.]

SECTION 6: ACREAGE LIMIT & RENT

- **Maximum acreage a lessee may hold increases from 51,200 to 100,000 acres**
  - Geothermal systems can underlie very large areas
  - Enables explorers to more effectively delineate resource
- **Rental fees to be set by regulation instead of statute**
  - Enables DOG to be nimbler in response to market changes

4:27:46 PM
SENATOR CLAMAN inquired about the large acreage limit. As most of the initial work is done before leases are obtained, he wondered if quality research in conjunction with a smaller lease could accomplish the same goal.

4:28:33 PM

MR. CLIFTON clarified that the acreage limit is a lessee total holding limit. Currently, AOGC has a cap, so adjusting it would allow the sequential build-out of a position. The scope of the program requires large footprints.

4:29:37 PM
MR. CLIFTON added that this is regarding a limit for a license area, so the total area would not necessarily be converted into a lease. While the numbers seem large, such as a half-a-million acre lease, wells are not drilled every ten feet.

4:30:26 PM
SENATOR WIELECHOWSKI referred to the 40-acre minimum requirement under Section 6 of SB 69. Under current law, an exception exists in the case of a preference right. He suggested that omitting the preferential right would be contrary to encouraging small-scale development.

4:31:01 PM
MR. CLIFTON referred to the preference right under Section 6(b).

4:31:14 PM
SENATOR WIELECHOWSKI asked if an exception should be made for people with 20-acre lots. He foresees a large number of people wanting to explore but may be prohibited under the current acreage requirement.

4:32:03 PM
MR. CLIFTON clarified that this is specific to the state's subsurface. The intent is to defer non-commercial developers from needing to obtain a lease through the DNR. He opined that there is room for adjustments, however.

4:33:03 PM
MR. CROWTHEY added that the scenario proposed by Senator Wielechowski would require a 40-acre license under current statute language.

4:33:38 PM
CO-CHAIR BISHOP sought clarification on whether the 100-thousand acreage limit could be split up.

4:33:51 PM
MR. CLIFTON replied yes.

4:34:05 PM
MR. CLIFTON moved to slide 19.

[Original punctuation provided.]

SECTIONS 9, 13, & 14: GEOTHERMAL RESOURCES DEFINITION

"Geothermal resources" means the natural heat of the earth; the energy, in whatever form, below the surface of the earth present in, resulting from, or created by, or which may be extracted from, such natural heat; and all minerals in solution or other products obtained from naturally heated fluids, brines, associated gases, and steam, in whatever form, found below the surface of the earth; but excluding oil, hydrocarbon gases, or other hydrocarbon substances.

"geothermal fluid" means liquids, brines, water, gases, or steam naturally or artificially present in a geothermal system; "geothermal fluid" does not include oil, hydrocarbon gases, or other hydrocarbon substances;"

- Modern definition for geothermal resources
- Not limited by temperature because current technology enables development of cooler geothermal systems
- Ensures all the State's mineral estate resources are captured in definition
- Distinguishes geothermal fluids from hydrocarbon resources
- Same definition being applied to both DNR & AOGCC statutes

Mr. Clifton added that the AOGC is seeking to accomplish the goals listed.

4:35:08 PM
SENATOR WIELECHOWSKI suggested the statute proposal is a repeal and replace scenario and asked for clarification on actual changes made such as with helium.

4:35:26 PM
MR. CLIFTON replied that he does not currently have eyes on old statute, but it is likely that the mention of helium was modified. Helium has been long considered a critical and protected resource, but could conceivably be produced under the right of a subsurface granted by a geothermal lease.

4:36:38 PM
SENATOR WIELECHOWSKI asked about the scope of extraction of minerals in solution, such as gold or zinc.

4:37:20 PM
MR. CROWTHEY opined that gold is unavailable.

4:37:35 PM
CO-CHAIR BISHOP added that gold is 18 times heavier than water so unlikely to surface.

4:37:53 PM
MS. WERDON said that the most common element found in geothermal systems in California is possibly lithium from brines due to a naturally elevated lithium content. It is possible to obtain gold in solution in acidic fluid, but the concentration would be relatively low. She offered to verify concentration volumes for different elements.

4:38:55 PM
CO-CHAIR GIESSEL noted that Arkansas is monetizing lithium dissolved in subsurface brine as it has value.

4:39:11 PM
SENATOR WIELECHOWSKI asked if the state tweaked the definition of minerals in solution whether it would conflict with mining or royalty laws.

4:39:32 PM
MR. CROWTHEY replied that the DNR would be willing to work with the committee to clarify intent. Laws governing mineral fluids should be in accordance with mineral and royalty provisions.

4:40:11 PM
SENATOR WIELECHOWSKI asked if beginning mining with geothermal resources is currently possible.

4:40:37 PM
MR. CROWTHEY suggested that mining with geothermal resources is a hypothetical scenario at this point. A potential royalty provision would apply to both energy generation and mineral recovery. Lithium development may provide other beneficial developments. There is uncertainty in potential cooccurrence of geothermal resources in Alaska.

4:41:21 PM

CO-CHAIR BISHOP said that the prospect of geothermal mining is a good discussion to have in the meantime.

4:41:36 PM
MR. CLIFTON said that the department would follow up with the committee.

4:41:53 PM
CO-CHAIR BISHOP asked if the state would receive royalty benefits aside from geothermal development.

4:42:13 PM
MR. CLIFTON noted that the state would receive some royalty. The geothermal lease terms of 1.75 percent and 3.5 percent gross revenue after ten years would apply. It is different than traditional hard rock mining leases based on net revenue. In most lithium extraction cases in the lower 48 states, large evaporation ponds are being utilized. Alternative energy-intensive and expensive technologies would need to be invented and installed to justify this type of operation.

4:43:27 PM
SENATOR WIELECHOWSKI opined that the state does not make a lot of money from royalties. He asked whether Mr. Clifton has had conversations with people interested in using geothermal development for mining.

4:44:08 PM
MR. CLIFTON replied no. If an operation comprised explicit mining, it would be a very different situation involving mining leases. He is unaware of anyone seeking to use geothermal development as a means of mining. He opined that it would be a different leasing situation if developer were seeking explicit mining without the use of geothermal development as a power source.

4:44:38 PM
MR. CROWTHEY said that management of geothermal energy systems sometimes entails operational challenges. With the perceived potential of lithium or another valuable commodity, it would offset operational costs.

4:45:18 PM
MS. CLIFTON concluded the presentation and referred to supplemental slides toward the end.

4:45:41 PM

SENATOR WIELECHOWSKI asked what provisions does SB 69, Section 15, remove from AS 41.06.005(b) and AS 41.06.030.

4:46:00 PM
MR. CLIFTON moved to slide 12 and replied that since geothermal units are managed by the DNR, the subsections are not appropriate. He explained that the DNR could be brought before the AOGC, a quasi-judicial agency, if there was a dispute.

4:47:08 PM
CO-CHAIR BISHOP held SB 69 in committee.

4:48:30 PM
There being no further business to come before the committee, Co-Chair Bishop adjourned the Senate Resources Standing Committee meeting at 4:48 p.m.