HOUSE FINANCE COMMITTEE
April 11, 2023
1:39 p.m.

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CALL TO ORDER

Co-Chair Foster called the House Finance Committee meeting to order at 1:39 p.m.

MEMBERS PRESENT

Representative Bryce Edgmon, Co-Chair
Representative Neal Foster, Co-Chair
Representative DeLena Johnson, Co-Chair
Representative Julie Coulombe
Representative Mike Cronk
Representative Alyse Galvin
Representative Sara Hannan
Representative Andy Josephson
Representative Will Stapp
Representative Frank Tomaszewski

MEMBERS ABSENT

Representative Dan Ortiz

ALSO PRESENT

John Crowther, Deputy Commissioner, Department of Natural Resources; Ryan Fitzpatrick, Commercial Analyst, Division of Oil and Gas.

PRESENT VIA TELECONFERENCE

John Boyle, Commissioner, Department of Natural Resources, Delta Junction; Haley Paine, Deputy Director, Division of Oil and Gas, Anchorage.

SUMMARY

HB 50 CARBON STORAGE

HB 50 was HEARD and HELD in committee for further consideration.

Co-Chair Foster reviewed the agenda for the meeting. He noted the concept was new and welcomed questions throughout. He added that there were a number of experts online available for questions.

#hb50
HOUSE BILL NO. 50

"An Act relating to the geologic storage of carbon dioxide; and providing for an effective date."

1:42:30 PM

JOHN CROWTHER, DEPUTY COMMISSIONER, DEPARTMENT OF NATURAL RESOURCES, introduced himself and deferred the introduction of the topic to his colleague.

JOHN BOYLE, COMMISSIONER, DEPARTMENT OF NATURAL RESOURCES, DELTA JUNCTION (via teleconference), thought that HB 50 was one of the more important pieces of legislation in the current year. There was an opportunity in the state to diversify the economy and raise new revenues by monetizing the empty forest space in the state. The storage potential in the Cook Inlet in particular was significant. The resource was immense and there were opportunities to export energy and create a value change where the state was exporting carbon to Asia. It could create an enormous amount of opportunities.

Mr. Boyle explained that the federal government increased the amount of tax credit opportunities through the Infrastructure Investment and Jobs Act (IIJA) and he thought it would be prudent for Alaska to take advantage of the opportunities. The economic landscape had changed and projects that had not made economic sense in the past made economic sense in the present day. The reason the state was pushing for the legislation to be enacted soon was that the tax credits for carbon capture, utilization, and storage had a shelf life. There was a window of time to act, after which the credits could expire. There were a number of companies in the state already interested in pursuing carbon projects and it was important for the state to be prepared with a regulatory framework in place. He noted that the Environmental Protection Agency (EPA) had made funding available for other states to utilize in an effort

to apply for primacy. He hoped to see the process of gaining primacy move along in a timely manner.

Mr. Boyle continued that the state had processing facilities and power generating facilities on the North Slope which emitted a significant amount of carbon. There were other facilities such as coal plants in the interior region of the state that would provide opportunities for carbon sequestration. It was important to understand that a major element of the Alaska Liquified Natural Gas (AKLNG) was to have a gas treatment plant on the North Slope that would remove carbon dioxide (CO2) from natural gas before it was shipped down the gas pipeline to Nikiski, Alaska. The framework needed to be in place in order to enable the project to take advantage of tax credits. The most surprising element of the carbon capture utilization and storage portion of the bill was that the Alaska Supreme Court had ruled that the empty pore space underground was considered part of the mineral estate for the state. The ruling meant that 25 percent of the fees that would be charged for project developers go to growing the Permanent Fund. He thought it would be an incredible opportunity for the state to monetize a resource that had never been monetized before, grown the Permanent Fund in the process, and create other interesting opportunities.

Co-Chair Foster asked if committee members had questions for Mr. Boyle.

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Representative Hannan understood that there was a window of opportunity for the state to take advantage of the 45Q tax credit. It seemed that 2033 was the deadline to start construction to qualify for the credit. She asked if Mr. Boyle saw 2033 as being a ten-year window. She recalled that he expressed that the legislature needed to pass HB 50 in the current year which implied that the window of opportunity was shorter. She asked how Mr. Boyle viewed the window of opportunity separate from what was dictated by the tax code precedent.

Mr. Boyle responded that he did not have the deadline for qualification in front of him but assumed that Representative Hannan was correct. He intended to imply that the sooner the state had the framework in place and the sooner the Alaska Oil and Gas Conservation Commission

(AOGCC)could apply for primacy, the sooner companies could access better opportunities to get projects under development and qualify for tax credits. It would also help the Alaska Liquified Natural Gas (AKLNG) to engage with the market if there was a framework in place for carbon sequestration. There were numerous benefits to the state being able to pursue the tax credits earlier rather than later.

Representative Hannan asked about the zero fiscal note from the Department of Revenue [control code wpuhz}. She wondered if the expectation was that there would be no revenue within the next ten years and it therefore would not show in the fiscal note. She understood that the bill was described as an economic opportunity to develop revenue and not just to implement an additional method to process oil and gas in the state.

Mr. Crowther responded that he would speak to the scope and timing of revenue in his upcoming presentation. The department thought that it was possible to see some initial leasing revenue in the near future; however, due to the novelty of the concept, a specific revenue amount had not yet been identified.

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Mr. Crowther introduced the PowerPoint presentation titled "HB 50 Carbon Capture, Utilization, and Storage," dated April 11, 2023 (copy on file). He advanced to slide 2 and offered the outline of the presentation. He noted that the introduction of presentation would be quite significant as we would outline some basic concepts surrounding Carbon Capture, Utilization, and Storage (CCUS).

Mr. Crowther moved to slide 3 which showed DNR's constitutional mandate in Article VIII of the Alaska Constitution. It was the policy of the state to encourage the settlement of state land and the development of state resources by making them available for maximum use consistent with the public interest. The department thought that the pore space was an increasingly valuable natural resource and the intent of the bill was to meet the mandate and make the resource available.

Mr. Crowther continued to slide 4. The department thought that HB 50 would satisfy the constitutional directive to

develop resources. It would enable the state to maximize use of its pore space resource while remaining consistent with public interest and providing for reasonable concurrent uses and protection of all parties. He added that AOGCC would be empowered to utilize (AOGCC) to utilize existing authorities and expertise on carbon dioxide geologic storage.

Mr. Crowther advanced to slide 5 which detailed CCUS. He explained that CCUS was a process intended to capture CO2, either from industrial sources or directly from the atmosphere, for the purpose of utilizing it for other activities or storing it underground in geologic formations. He relayed that CCUS was driving interest and activity all across the country and world and the market was rapidly expanding. The department wanted the state to participate in the CCUS market and utilize the state's natural resources. The timeline was a significant driver for the bill. The deadline of 2033 might seem distant, but the steps that needed to occur before a project could be constructed were significant and it was prudent to start the process as quickly as possible. Individuals making business decisions in the present day could know that CCUS projects were coming to Alaska even if there were still regulatory steps that needed to be taken before a project could be constructed. There was tremendous potential in Alaska for CCUS and the state had many geological resources that made it conducive to carbon storage. Alaska's depleted oil and gas fields, saline aquifers, and deep coal seams had significant CO2 storage potential.

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Representative Galvin asked Mr. Crowther for more detail on the expanding CCUS market. There was not much CO2 to sequester at the current time in Alaska. She wondered if there had been a precedent set where CO2 had been transferred from one country to another. She wanted a broader picture of the process and thought it seemed like it would be a significant undertaking. She asked if CCUS was a revenue project or was it a project to assist in the way that oil and gas was doing its work. She was trying to discern the difference between the two goals. She was unsure if the global market was yet developed.

Mr. Crowther responded that her questions would be answered during the presentation. The pore space was a resource of

the state and could generate revenue, which would then be partially designated to the Permanent Fund. It was important to also enable other beneficial resources such as coal. He thought coal could be a beneficial resource for Alaskans if there was a way to eliminate the emission of CO2 into the air. Carbon management was the solution if carbon emissions were the problem. He thought that the associated activities were the benefit for the people of Alaska, but revenue could also be present. The department saw the future potential for importing carbon into Alaska. There were ships being built to enable the transportation of carbon across oceans. There were also test cases going on and barging of carbon in some cases. The department saw carbon coming to Alaska from Southeast Asia as a large possibility. Existing activities such as power and energy generation or oil and gas generation could also benefit from the framework being in place. Carbon dioxide was already being emitted through the existing activities and allowing the state the ability to manage the emissions would be advantageous. The activities continuing and expanding would be valuable to the state. He thought that there were individuals who would make active use of the framework both in the present day and in the future.

Representative Hannan asked Mr. Crowther for confirmation that when saline aquifers were separate from oil and gas.

Mr. Crowther responded that saline aquifers were often collocated on a basin level with oil and gas fields because the same geology that formed the aquifers was the same geology that could collect and trap oil and gas if there was a petroleum charge in the system that led hydrocarbon to migrate into the structures. If there was no hydrocarbon migration, water and other saline minerals would accumulate in the area. He concluded that the two were often collocated, but not always collocated.

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Mr. Crowther moved to slide 6 and explained the stages of the CCUS process. He highlighted the capture stage of the process which involved capturing CO2 from fossil or biomass-fueled power stations, industrial facilities, or directly from the air. When the carbon was captured, it needed to be transferred. Carbon was typically transferred via pipelines over short distances but the department endeavored for it to be transferred over long distances in

the future. The carbon would then be used as an input or feedstock to create products or services. The bill mostly focused on the storage stage of the CCUS process, which involved permanently storing CO2 in underground geological formations, onshore, or offshore.

Mr. Crowther continued to slide 7 which showed a hypothetical projection of world captured CO2 by source from 2020 through 2070. It assumed that the world's carbon emissions were net zero by the year 2070 and all carbon emissions would be managed, sequestered, and limited. The scenario was not predicted, but rather depicting a fast-moving and complete transition to carbon management. The graph showed how many CCUS facilities the International Energy Agency (IEA) predicted there would be in 2070 in order to fully manage the net zero transition and provide carbon sequestration on the necessary scale. He highlighted that biomass, natural gas, and coal comprised a large portion of the energy mix, but the carbon dioxide generated from it was sequestered underground. Alaska had worldclass biomass, coal, and natural gas resources and CCUS would enable the resources to be as valuable or more valuable in 50 years' time. He emphasized that CCUS enabled not only short-term projects in Alaska, but also encouraged consistency and growth for the state's other resources.

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Mr. Crowther continued on slide 8, which was an excerpt of all of the oil and gas companies operating in Alaska and the companies' self-described and self-identified goals for carbon management. Many companies aimed to reach net zero carbon emissions and were therefore customers of the state through the CCUS process. Carbon management was viewed as an important element to enable projects to be net zero.

Co-Chair Johnson asked if all of the companies on the slide had investments in Alaska already.

Mr. Crowther responded in the affirmative.

Co-Chair Johnson asked if there was technology that simultaneously allowed for drilling and removal in addition to injection.

Mr. Crowther responded in the affirmative. Companies with hydrocarbon reservoir productions currently had to navigate

through other layers and strategies to access subsurface oil rights. If there was carbon storage going on in an area, it was another element that had to be considered in well designs in the project development. An operator would have to understand both existing wells and reservoir dynamics. It was possible that CO2 could be sequestered in the same geological column as oil and gas if designed appropriately and regulated carefully by the AOGCC.

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RYAN FITZPATRICK, COMMERCIAL ANALYST, DIVISION OF OIL AND GAS, continued on slide 9 and a map of the potential storage basins. There was a study conducted by DNR about 10 year prior that examined the potential of carbon storage throughout the state. The study identified a variety of geologic basins in the state where carbon could potentially occur and rated the areas by level of potential. The North Slope and Cook Inlet both showed up as high potential areas on the map mainly because the study looked at not only the geologic elements of the storage, but also the existing infrastructure. The study also found that there might be up to 50 gigatons (Gt) of carbon storage in Cook Inlet. The 50 Gt figure referred to coal seam storage. There was an additional option for saline aquifers in Cook Inlet and study did not look at oil and gas reservoirs. He cautioned that the study was high-level and although there was great potential, the more important component in the success of a project was ensuring that a particular project was both supported by the local geography and by the economics surrounding the project.

Representative Stapp asked Mr. Crowther if the bill were to pass and a high amount of carbon was sequestered in the Cook Inlet basin, what would be the potential liability of the state if there was something like an earthquake and the stored carbon was released.

Mr. Crowther responded that from a financial liability, if stored carbon was released due to an event like an earthquake, there were limited claw back provisions for the federal tax credits within a three year window. The framework of the bill established a transfer of liability in the long term, but there would not be liability associated with the released of the carbon because the tax credit claw back period would be closed and there was no fee for emitting CO2. He noted that there had been induced

seismicity in areas of the country where there was high pressure injected in geologic formations. For sequestration purposed, the goal was to inject at a pressure that maintained the structure of the reservoir and would not fracture it or overpressure it to ensure that the CO2 successfully migrated. The lower pressure injection would be required as part of the injection approval by AOGCC and seismicity was unlikely to be induced. He noted that there had been significant earthquakes in the Cook Inlet area and the oil and gas reservoirs were still maintained without any evidence of migrating to the surface.

Co-Chair Johnson asked Mr. Crowthers if compressed carbon be backhauled in the same ship as natural gas containers if the containers were to be shipped out of Alaska.

Mr. Crowther responded that AKLNG had specific requirements and it was more likely that backhauling would be done on something like an ammonia container or potentially a hydrogen ship. He did not think that AKLNG containers could currently be backfilled, but as the market matured, it could coevolve with the potential shipping of CO2.

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Mr. Fitzpatrick continued on slide 10 and explained that carbon storage was the focus of HB 50. The slide showed the potential targets in the geologic strata for carbon sequestration. The idea was to sequester the carbon deep underground and the injection targets would be well below the depth of fresh water and drinking water. There were technical reasons why carbon injected underground needed to be at a certain depth, which he would discuss in more detail in subsequent slides.

Mr. Fitzpatrick moved to slide 11 which summarized several points about geologic carbon storage. The geologic storage options included depleted and declining oil and gas fields, saline formations, and un-mineable coal seams. The subsurface formations were required to be deeper than about 2,600 feet because the CO2 needed to be kept at a supercritical liquid phase, which meant that the gas would behave as a liquid. In the supercritical liquid phase, gas became highly compressed and was easier to store. In order to keep the pressure underground, the injection needed to occur under 2,600 feet. During the closeout period, monitoring of the CO2 injection was critical.

Mr. Fitzpatrick advanced to slide 12 which summarized federal incentives. The 45Q tax credit was part of the federal internal revenue code. The deadline to start construction was January 1, 2033. In order to be ready to start construction on time, AOGCC needed to go through the Class VI primacy phase, which was estimated to take about two years. In addition, the project development period needed to be completed prior to construction. There was a potential desire to move quickly due to the time consuming stages that were required to be completed before construction could begin. The credit itself could vary significantly depending on the operation: credits could be $60 per ton for utilization of capture CO2 for enhanced oil recovery (EOR), $85 per ton for CCUS from industrial facilities and power plants stored in geologic formations, or $180 per ton for direct air capture (DAC) carbon stored in geologic formations and $130/ton for DAC carbon used in EOR.

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Representative Josephson referred to the third bullet point on the slide regarding EOR. He asked Mr. Fitzpatrick if the state's oil producers would already be entitled to the tax credit since EOR was already occurring.

Mr. Fitzpatrick replied that EOR could occur presently under current oil and gas operations. There was a requirement to measure the amount of CO2 that was injected in order to qualify as EOR. He understood that there also needed to be some measurement of the potential CO2 that could be produced during the process. It was hypothetically possible for ten tons of CO2 into a formation but one ton was reproduced as part of the oil and gas operation, only the nine remaining tons would be qualified for receiving credits.

Representative Josephson asked whether it was possible for AOGCC to apply for Class VI primacy without enabling the tax credit process.

Mr. Crowther responded that it was the department's understanding that AOGCC could pursue Class VI primacy and gain the authority granted by primacy. It would predominantly be applicable to private lands in Alaska because was presently limited opportunity to make state

resources available. It was important for regulatory approval through AOGCC to occur as well as to allow for state land to be made available on clear terms in order to utilize the Class VI permitting on state land.

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Representative Hannan thought that Arizona had pursued primacy separate from comprehensive legislation. She asked when states had begun pursuing primacy and why Arizona would pursue primacy but not other legislation that might monetize it.

Mr. Crowther moved to slide 14 and responded that the graphic showed a map of the country indicating the states that were advancing carbon storage programs. There was a period in 2009 and 2010 during which many states were actively adopting the framework of the program. Most states had not seen significant project investment until relatively recently with the expansion of the federal credit. He was uncertain whether Arizona was considering framework legislation. Many states had much more private CCUS rights and the program was much more relevant to private operators and a broader state framework was not necessarily needed.

Representative Hannan understood that carbon sequestration was not a topic of conversation in 2009 and 2010. She asked whether Class VI wells were the same type of wells that some states were using for fracking.

Mr. Crowther responded that he might defer the question regarding the exact date the Class VI framework was initiated. He explained that Class VI was one of six classes of the Underground Injection Program (UIP) through the U.S. Safe Drinking Water Act (SDWA) The classes were part of the US safe drinking water act administered by the EPA. Each class set standards by which a well had to be designed. He relayed that Class VI was a relatively new part of UIP because the framework sometime predated the pursuit of an actual project. He would follow up with the committee on when exactly Class VI was initiated.

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Representative Coulombe asked Mr. Crowther what accounted for the larger $180 per ton tax credit for DAC.

Mr. Crowther responded that the credits were tiered in order to incentivize particular activities and reflected the costs related to performing the activity. There was additional revenue associated with EOR. When EOR was not involved in a process, the cost of capture had to be offset with the cost of the credit. The DAC process was expensive because the technology to filter the air was costly. The credit was therefore set at a higher rate to incentivize the activity.

Representative Coulombe asked if the injection into the ground for DAC the same as other processes.

Mr. Crowther responded that the pressurization of the carbon dioxide was relatively the same, however, there were relatively different technologies to enable the capture of carbon dioxide which was the reason for the differing costs.

Mr. Fitzpatrick continued on slide 13, which gave a general overview of the way in which HB 50 would enable carbon storage. He read the objectives of HB 50 as follows:

- Provides for the use of public lands for CCUS
- Accounts for the amalgamation of property interests and
- protection of correlative rights
- Outlines relationship between other commercial minerals and
- reservoirs to be used for storage
- Enables permitting for CO2 pipelines
- Defines ownership of carbon dioxide and ascription of liability
- Addresses authority for Safe Drinking Water Act (SDWA)
- Class VI well primacy

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Representative Josephson asked Mr. Crowther for a description of what would cause a dispute over liability.

Mr. Crowther responded that there was liability for any project nearing its operations. Most of the time in the course of a project operation, there were penalty

provisions from AOGCC. The bill also set up a framework for an operator to conduct a series of activities to close out a project and then receive regulatory approval through AOGCC to shut down a project. The injection would then cease and the CO2 would be permanently in the ground. The framework would allow the liability to be released from the operator after a period of ten years and the state would then assume the liability for the ownership and liability for the CO2. The legislation laid out a funding mechanism for the state to set up a find for the state to avoid any costs associated with maintaining and holding the liability. The department thought that the areas of liability would be limited and would be addressed thoroughly prior to a project closeout.

Representative Josephson relayed that he had learned that if HB 49 were to pass, the state would not be able to enter into an agreement where it would be permitted to reduce its biomass in a state forest. He asked if the state would have the obligation after year ten to ensure that the CO2 stayed where it had been injected as a company might need a reliable capturer of CO2.

Mr. Crowther responded that it was possible that carbon projects could be undertaken for a variety of reason. There may be a certification involved stating that the project would perform as expected, and part of the expectation could be that the CO2 would remain underground. The liability framework was part of enabling commercial transactions because a party could reliably say that it would commit to appropriately pursuing a project and operate under state regulations and eventually close out the project under the same regulations. The department foresaw that the series of decisions were negotiable and financeable for the investments that parties were already undertaking. He thought that the framework met the need and the liabilities would ensure that agreed upon obligations were held up.

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Representative Galvin thought that the bill dealt with numerous complex subjects. She asked Mr. Crowther to provide a sense of the expertise on which the state relied to help craft the legislation and who would be guiding the state in the implementation of the program if it were to pass.

Mr. Crowther jumped forward to slide 15 to answer the question. The slide detailed the workgroup committees that were involved in the crafting of the legislation. The pie chart showed the composition of the working group, which was made up of state, university, corporate, and federal parties. The department retained Stantec Consulting to help it formalize the state review and assessment and created a report that would be made available to the committee. The Institute of Northern Engineering (INE) at the University of Alaska (UA) Fairbanks was highly involved in the process and the entity Plains CO2 Reduction (PCOR) was also consulted. He explained that PCOR was originally funded by the federal Department of Energy (DOE) to study CO2 in states like North Dakota that had been pioneers in the carbon space. Additionally, UA had joined the University of North Dakota and the University of Wyoming to become acting chairs of the PCOR Partnership. The annual meeting of the partnership was hosted in Alaska and the department had been heavily relying of the partnership to determine what was going on in the space across the country. The department thought it had a robust and varied of consultants.

Representative Galvin understood that PCOR helped with forming the bill. She wondered if the partnership would also be guiding the state in the implementation of the bill if it were to pass.

Mr. Crowther replied that PCOR and the other aforementioned entities would continue to act as a resource for the state and the department during the proposed implementation of the legislation. He suggested that Mr. Fitzpatrick could speak to the question in more detail.

Mr. Fitzpatrick responded that the work group set up by UA continued to meet in the present day. There was a CCUS symposium that was being held earlier in the morning by some of the members of the work group in preparation for an upcoming energy summit in Anchorage. The group was formed initially as a study group around the idea of CCUS but as the work group developed, it was determined that CCUS might be a good fit for Alaska. The group evolved into a think tank on what needed to occur to form legislation in the state. In August of 2022, the university put on a regulatory symposium to discuss the steps that would need to happen to make CCUS a reality in Alaska. Although the

Department of Law (DOL) was integral in crafting the language in HB 50, most of the concepts behind the bill were a result of the 2022 summit.

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Mr. Fitzpatrick continued on slide 16 which summarized CCUS opportunities for the state. The development of CCUS could bolster development of Alaska's oil and gas resources. The federal incentives in Infrastructure Investment and Jobs Act (IIJA) in addition to other funding made available by the federal government were driving investments in other states that had been pioneers in the carbon space. Environmental goals were driving capital to projects with carbon management options. He argued that Alaska should participate in the global uptick of CCUS projects. There were over 60 CCUSS facilities currently in the development phase and it was possible that the number could increase dramatically in the coming years. The amount of CO2 captured by CCUS facilities had increased by over 44 percent over the last 12 months. It was a small industry but it rapidly growing. Project timelines required the state to act promptly because of the deadlines of the federal incentives. The department also saw CCUS as a way to potentially bring in additional state revenue and maximize the value of state resources.

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Representative Coulombe understood that the project would not have a separate carbon account and the revenue from CCUS would be deposited directly into the unrestricted general fund (UGF). She asked if her understanding was correct.

Mr. Crowther responded in the affirmative. The revenue from the use of the pore space mineral resource would accrue to state. There was also a liability fund and a small charge would be put into the account. Additionally, a small charge would be dedicated to the AOGCC operations for the regulations. The primary revenue from the use of the pore space would go to the general fund.

Mr. Fitzpatrick continued on slide 18 which would show potential timelines and CCUS project phases. The timeline on the slide looked at projects through the lens of SDWA of 1974 and Act and Class VI for wells specifically for the

purpose of underground storage of CO2. He explained that a CCUS project would begin in the exploratory phase, at which point a project would not yet consider Class VI issues and was mostly a seismic exploration of the land. Once a project advanced to the permitting phase, a Class VI permit would need to be attained, which could take several months to several years. After the permitting phase, a well would enter the storage phase during which CO2 would be injected into the formation. Once the storage phase was complete, there was a closure period, during which the well would still remain under the Class VI well jurisdiction. During the closure phase, injections were no longer taking place but measures were being taken to ensure a site had been properly abandoned and the surface infrastructure had been removed. The CO2 underground was being constantly monitored to ensure that it had stabilized and was no longer moving underground. The final phase was the post-closure phase which involved monitoring the CO2 over the course of time and sometimes up to 50 years.

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Representative Stapp understood that successful CO2 storage underground in perpetuity would likely require sophisticated monitoring devices and regulatory guidance. He thought that the bill designated regulatory authority to DNR and the Department of Environmental Conservation (DEC). He asked if the legislative body would have input on which regulatory requirements would be involved in the process.

Mr. Crowther responded that as it related to closure and monitoring associated with an ongoing project, there were specific criteria for the approval of a storage permit and the closure of a storage permit. He thought it was explicitly required by the bill. There were other methods of assessing subsurface areas, such as seismic technologies that could be required at different intervals. The framework was required in the statutory language itself and would be administered by AOGCC.

Mr. Fitzpatrick added that one of the other aspects of the regulatory structure was that if AOGCC pursued Class VI primacy, the regulations that already existed under the EPA for Class VI wells would need to be adopted by AOGCC. There was some leeway in the primacy application to tailor regulations to a particular jurisdiction. It would cover

elements such as the well design and ensure that CO2 would not be injected into potential drinking water sources.

Representative Josephson recalled that there could be monitoring for up for 50 years. He asked if the state was ten years into the project in the post-closure stage, how would the committee measure the cost of the other 40 years. He wondered if the costs would be balanced with an income stream.

Mr. Fitzpatrick responded that the ten years post-closure was more of a minimum term. The intention was that AOGCC would only issue a closure certificate once the agency was satisfied that the process of dismantling a facility had occurred properly. If there was an injection well that was set up for monitoring of the formation, the state could take over the operation of the well. He emphasized that AOGCC would be examining whether the CO2 was stabilized and no longer moving underground. There would be a monitoring infrastructure during the closure process and occasional seismic surveys and the potential risks at the post-closure stage would be minimal.

Mr. Crowther added that on slide 25, he would be more specific information.

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Mr. Fitzpatrick continued on slide 19, which looked at CCUS wells from a project development standpoint. The screening period involved analyzing specific data that might already exist such as geologic surveys of the area. The operators would select a specific area in the feasibility stage and might be testing wells, sampling, or conducting seismic surveys. If a potential project was determined feasible, it would move into the project design and permit application stage. The next stage was the regulatory review of the permit, followed by investment and construction of the well. The final stage was beginning operations of the project.

Mr. Fitzpatrick continued to slide 20 which detailed a project that was already in development. The project was called the Red Tail Energy Project (RTEP) in North Dakota and had a single injection well and a monitoring well. The total area for the project was 3,480 acres and was sequestering 180,000 metric tons per year of CO2, which was

considered a small scale project. It demonstrated that CCUS projects could be achieved on a small scale but could also be scaled up to a larger scale depending on local geology.

Representative Coulombe was surprised to see that the residential zone on the RTEP map was close to the project area. She asked if the proximity was concerning.

Mr. Crowther responded that the orange section on the map was indeed a community in North Dakota. The white area outline was the subsurface rights that needed to be secured. From a community proximity perspective, all industrial sites had to be appropriately operated to avoid specific incidents. There were no concerns about the project being close to other land use areas or communities.

Mr. Fitzpatrick added that one of the features of the project was that once the wells were in place, the amount of surface facilities was relatively minimal. The well itself was often relatively small and was unlike oil and gas surface facilities.

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Representative Hannan asked for more detail about RTEP. She wondered if the carbon was being delivered from another area or was it a former carbon producing site.

Mr. Fitzpatrick responded that he could speak from his knowledge base, but there were testifier online that might be able to provide more information. He understood that the project was sequestering CO2 and capturing the energy from coal power plants in North Dakota.

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HALEY PAINE, DEPUTY DIRECTOR, DIVISION OIL AND GAS, ANCHORAGE (via teleconference), responded that the RTEP was an ethanol facility, which produced a high quality stream of CO2 as a byproduct of the fermentation process. There was no distinct transportation process that brought the materials into the area because the project was situation on top of a geologically suitable sequestration site. The carbon went directly from the facility itself and into the subsurface. There were other projects in development in North Dakota that would involve transportation efforts through a pipeline.

Representative Hannan asked whether the corporate partners involved in the PCOR Partnership were basing projects in Alaska on projects like RTEP. She assumed that Alaska companies were looking to states like North Dakota for guidance.

Mr. Crowther responded that the work group involved a wide array of companies such as service companies and oil and gas companies that had existing infrastructure on the North Slope. The group had seen participation from companies that had Alaska-specific experience.

Mr. Fitzpatrick advanced to slide 21, which offered additional information on RTEP. There was a five-year evaluation and design period for the project and North Dakota was granted primacy for Class VI wells on April 24, 2018.

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Representative Galvin asked for more information about Class VI wells.

Mr. Fitzpatrick responded that there were no Class VI wells in Alaska, but there were several in North Dakota and Wyoming and many others were in the permitting process. He relayed that AOGCC had permitting authority for Class II wells, which were the wells associated with enhanced oil recovery and injection for oil and gas operations. He explained that AOGCC was required to manage the injection and ensure that it was not interfering with drinking water or compromising reservoir integrity. The EPA had different permitting structures for Class II wells that for Class VI wells, in part due to the fact that another type of substance would be injected. When injecting CO2 for sequestration purposes, it must be injected into an area where the CO2 would be sequestered for a longer period of time. The regulatory categories were different, but Class VI wells were otherwise similar to Class II wells already permitted by AOGCC.

Representative Galvin shared her understanding that Class VI was for CO2 purposes and was for a longer period of time. She thought that Class II wells could work for the sequestration of CO2 as well.

Mr. Fitzpatrick responded that CO2 could be sequestered in a Class II well if it was being used for enhanced oil recovery. The 45Q tax credit might be application in situations where CO2 was injected in order to get more oil and gas out of the ground. The state already allowed for the injection of CO2 for enhanced oil recovery purposes. If a company proposed a pure sequestration project to the state, there might be more CO2 than could be accommodated by enhanced oil recovery. A Class VI well was required for projects with the purpose of pure sequestration. There was a period of time that EPA had indicated that it might be required to switch between a Class II well and a Class VI well if it appeared that a Class II well was being used for pure sequestration. He clarified that Class VI wells would be needed if the state wanted to undertake pure sequestration projects.

3:17:19 PM

Mr. Fitzpatrick continued on slide 22 which offered additional information on the CCUS phases and legislation. The slide matched the different stages of the timeline with coordinating sections of the bill. For example, Section 16 of the bill coordinated with issuing the exploratory permits and Section 33 coordinated with issuing the facility permits, permits to drill wells, and permits to inject. He relayed that Section 16 and Section 33 were the most significant elements of the bill.

Co-Chair Foster suggested that the committee take up the remainder of the presentation at a subsequent meeting. He asked members if there were any questions.

Representative Tomaszewski understood that there was a study in existence that showed there was too much CO2 in the air. He asked if there was a slide that showed such a study. He asked who was monitoring how much CO2 was in the atmosphere.

Mr. Crowther responded that the concentration of CO2 in the atmosphere was being studied. There was an increasing amount of carbon in the atmosphere because of the emissions from the consumption of coal and similar substances. The goal of the CCUS projects was to diminish any new emissions by sequestering the carbon. He thought that there would still be plentiful amounts of carbon and the growth of fruits and vegetables would not suffer. The projects were

focused on preventing new coal emissions that would add to the carbon in the atmosphere. He would be happy to provide a chart of the overall trends.

Representative Tomaszewski would like to see the overall trends.

3:22:57 PM

Representative Coulombe asked what happened to CO2 once it was injected. She wanted to consider the long term impacts. She asked if the CO2 would remain in place or move through the earth over time.

Mr. Crowther responded that the goal was to pressurize the carbon dioxide and introduce it to the reservoir and let it migrate throughout the reservoir. The pressure of the injection balanced the other pressure and the carbon would migrate until a particular point and was then generally stable and kept in place. It was high pressure and critical carbon dioxide gas that was sitting in a reservoir and in a pressure equilibrium with the existing pressure of the reservoir. It needed to be injected to 2,600 feet or deeper in order to have enough existing pressure to maintain a balance.

Mr. Fitzpatrick added that another aspect was that there were geologic traps kept oil and gas in place. He explained that as CO2 migrated, it would migrate towards the direction of an underground geologic trap and there was an impermeable column above the CO2 through which it could not migrate.

3:26:27 PM

Co-Chair Johnson thanked the presenters. She reviewed the agenda for the following day's meeting.

HB 50 was HEARD and HELD in committee for further consideration.

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ADJOURNMENT

3:27:22 PM

The meeting was adjourned at 3:27 p.m.