

**ALASKA STATE LEGISLATURE
HOUSE RESOURCES STANDING COMMITTEE**

February 24, 2023

1:03 p.m.

MEMBERS PRESENT

Representative Tom McKay, Chair
Representative Kevin McCabe
Representative Dan Saddler
Representative Jennie Armstrong
Representative Donna Mears
Representative Maxine Dibert

MEMBERS ABSENT

Representative George Rauscher, Vice Chair
Representative Josiah Patkotak
Representative Stanley Wright

OTHER LEGISLATORS PRESENT

Representative Mike Cronk

COMMITTEE CALENDAR

HOUSE BILL NO. 50

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

- HEARD & HELD

HOUSE BILL NO. 49

"An Act authorizing the Department of Natural Resources to lease land for carbon management purposes; establishing a carbon offset program for state land; authorizing the sale of carbon offset credits; and providing for an effective date."

- BILL HEARING CANCELED

PREVIOUS COMMITTEE ACTION

BILL: HB 50

SHORT TITLE: CARBON STORAGE

SPONSOR(s): RULES BY REQUEST OF THE GOVERNOR

01/27/23 (H) READ THE FIRST TIME - REFERRALS

01/27/23	(H)	RES, FIN	
02/10/23	(H)	RES AT 1:00 PM BARNES	124
02/10/23	(H)	Heard & Held	
02/10/23	(H)	MINUTE (RES)	
02/15/23	(H)	RES AT 1:00 PM BARNES	124
02/15/23	(H)	Heard & Held	
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02/22/23	(H)	Heard & Held	
02/22/23	(H)	MINUTE (RES)	
02/24/23	(H)	RES AT 1:00 PM BARNES	124

WITNESS REGISTER

KEVIN CONNORS, Assistant Director
 Regulatory Compliance and Energy Policy
 Energy and Environmental Research Center
 University of North Dakota
 Grand Forks, North Dakota

POSITION STATEMENT: Provided invited testimony in favor of HB 50.

JOHN CROWTHER, Deputy Commissioner
 Office of the Commissioner
 Department of Natural Resources
 Anchorage, Alaska

POSITION STATEMENT: On behalf of the prime sponsor, House Rules by request of the governor, answered questions on HB 50.

BRETT HUBER, Commissioner, Chair
 Alaska Oil and Gas Conservation Commission
 Juneau, Alaska

POSITION STATEMENT: Answered a question regarding HB 50.

ACTION NARRATIVE

1:03:08 PM

CHAIR TOM MCKAY called the House Resources Standing Committee meeting to order at 1:03 p.m. Representatives Saddler, Mears,

Armstrong, Dibert, McCabe, and McKay were present at the call to order.

HB 50-CARBON STORAGE

1:04:00 PM

CHAIR MCKAY announced that the only order of business would be HOUSE BILL NO. 50, "An Act relating to the geologic storage of carbon dioxide; and providing for an effective date."

1:04:54 PM

CHAIR MCKAY stated that Kevin Connors would provide invited testimony. He noted that the Plains CO2 Reduction (PCOR) Partnership is focused on carbon capture, utilization, and storage (CCUS) projects and is affiliated with the University of North Dakota's Energy and Environmental Research Center (EERC). He said Mr. Connors has been working with Alaska's university system on carbon dioxide (CO2) storage projects and will provide the committee with his insight.

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KEVIN CONNORS, Assistant Director, Regulatory Compliance and Energy Policy, Energy and Environmental Research Center (EERC), University of North Dakota, provided invited testimony in favor of HB 50. He said he has a background in geology, worked in the oil fields of western North Dakota, and worked for the State of North Dakota as a petroleum engineer. In 2011 he became the Carbon Capture and Storage (CCS) Supervisor for the State of North Dakota where he led the state's efforts in developing a regulatory program for CO2 storage and ultimately obtaining Class VI primacy. He noted that the pursuit of Class VI primacy for the State of Alaska is directly related to HB 50.

MR. CONNORS stated that North Dakota's comprehensive framework for regulating geologic storage dates to 2002 when President George Bush committed the US to a comprehensive strategy to reduce greenhouse gas emissions. Funding was put in place for the US Department of Energy to create the regional carbon sequestration partnership program, one such program being the PCOR Partnership, which he manages. The PCOR Partnership has conducted applied research in CCS and CCUS for 20 years, today its focus is on an accelerated commercial deployment phase. In 2019 Alaska became part of the PCOR Partnership and since then

the EERC has been a partner with the University of Alaska, Fairbanks, to advance CCS and CCUS in Alaska.

MR. CONNORS reported that the PCOR Partnership is made up of 240 members representing the oil and gas industry, coal mining electricity generation industry, gas processing and gas transportation industry, ethanol industry, software providers, technology providers, engineering consulting firms, tax equity firms, companies focused on advancing commercial CCS, government agencies, and academia. The Alaska portion of PCOR is comprised of partnerships with the Department of Natural Resources (DNR), the Alaska Oil and Gas Conservation Commission (AOGCC), and Hilcorp Energy Company, an industrial partner. Today the PCOR Partnership is still leveraging federal research dollars from the US Department of Energy plus industry dollars in its focus on commercial CCUS deployment.

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MR. CONNORS related that the Interstate Oil and Gas Compact Commission (IOGCC), of which Alaska is a member, developed a task force comprised of state oil and gas regulators, Department of Energy representatives, and PCOR Partnership representatives. This task force ultimately recommended that to best facilitate orderly development of geologic storage of carbon dioxide, the states and Canadian provinces should take the lead and embrace two basic principles: 1) it is in the public interest to promote geologic storage of carbon dioxide and 2) pore space in the state should be regulated and managed as a resource under resource management framework.

MR. CONNORS said HB 50 is a resource management framework that dates to the IOGCC task force's development of a model statute and model regulations in 2007. North Dakota customized that model statute to its needs and in 2009 adopted legislation similar to HB 50 to regulate geologic storage of CO₂ and to regulate pore space as a resource under a resource management framework. North Dakota then applied for and received Class VI primacy. North Dakota's decisions in 2008 with the work group and ultimately with the state legislature were focused around providing regulatory certainty for an eventual CCUS industry.

MR. CONNORS specified that to have a commercial CCUS industry or investment in developing CCS projects, it is important to have an energy industry, the right geology for geologic storage of carbon dioxide, research and development, and regulatory certainty. Both Alaska and North Dakota have energy producers

and exporters. Work has been done and will continue to be done demonstrating that Alaska has suitable geology. Continued research and development through the partnership of UAF and the PCOR Partnership is positioning Alaska from a technical standpoint. Policy and regulation play the role of regulatory certainty for CCS and CCUS. Because of legislation similar [to HB 50], and a law in place, and Class VI primacy, North Dakota has a CCUS industry, investment coming into the state, and projects being developed.

[1:15:08 PM](#)

MR. CONNORS related that he helped develop the State of North Dakota's regulatory program during his eight years with the state. Today at the EERC he works directly with the industry to help develop CO2 storage projects, site screening through feasibility and characterization, permitting, and operation and monitoring of active sites from a commercial standpoint. To date, North Dakota has permitted four projects, a fifth project will be heard in March [2023], and several other projects are in the earlier stages of development. The first commercial storage project in North Dakota went into operation in June 2022. The driver of this activity and investment is North Dakota's regulatory certainty that began 15 years ago in legislation similar to [HB 50].

MR. CONNORS pointed out that if a state doesn't have Class VI primacy, the US Environmental Protection Agency (EPA) is the regulatory authority for this activity. He said North Dakota and Wyoming are the only two states with Class VI primacy, everywhere else the EPA regional office is regulating this activity. As of this morning, 42 permit application are in with the different EPA regional offices across US, none of which have approved. Today Illinois has two approved permits that are in operation, and those permits took over five years for the operator to get approval. In contrast, North Dakota with Class VI primacy and the proper statutes in place, has issued permits in less than a year for those core projects that have been permitted.

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REPRESENTATIVE MEARS requested further clarity on how the PCOR Partnership works.

MR. CONNORS explained that the PCOR Partnership receives funding from its 240 member organizations and the US Department of

Energy. The commercial industry in North Dakota and across the US has launched off the technical foundation built by PCOR through its 20 years of research and development in CCUS. Geologic characterization work done by PCOR identifies the ideal geology for geologic storage of carbon dioxide, i.e. where to inject and store large volumes of carbon dioxide. Another focus of PCOR is infrastructure development. As well, PCOR is focused on developing a prudent regulatory framework by engaging regulators across the region. The public outreach component of PCOR identifies challenges and finds solutions to them so there can be accelerated commercial deployment. The PCOR Partnership started out trying to determine whether CCS was possible, which led to field testing and commercial demonstration. Today PCOR's focus is on commercial deployment. Alaska came into the PCOR Partnership in 2019, and the state's geology and industry are being looked at, and a real opportunity is seen for commercial deployment of geologic storage of carbon dioxide in Alaska.

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REPRESENTATIVE SADDLER, regarding North Dakota's CCUS industry now entering the commercial development stage, asked what has worked and what has not worked as originally envisioned.

MR. CONNORS answered that North Dakota has an 800-year supply of lignite coal with the electricity it generates exported to other states, so it's important to North Dakota's economy to be able to utilize that resource well into the future. In 2008 North Dakota's work group saw CCS as a great opportunity or solution for North Dakota's long-term viability, specifically its coal and power industries. It was known at that time that the state's geology looked ideal for geologic storage and the work group was anticipating future advancements in capture technology, which are here today. The change is that today it's not only the coal and electricity generation industry pursuing carbon capture and storage projects and investment, but that there's also a large interest from the state's oil and gas, gas processing and gas transportation, and ethanol industries. While those industries are robust in North Dakota, their emissions are carbon intensive. Managing or reducing the carbon intensity of those industries is being seen as an opportunity that will allow those industries to thrive and grow over time. The seeds of frameworks and policy that were sowed in 2008 and 2009 are bearing fruit today with North Dakota's major industries being able to pursue carbon capture and storage.

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REPRESENTATIVE SADDLER inquired about what has been a surprise and not developed as was thought it would.

MR. CONNORS responded that there haven't been many surprises in North Dakota. However, the surprise has been the federal government's inability to provide states this authority given that the preamble to the federal Class VI rule, published in 2010, recognized that states are best suited to regulate this activity. It took five years for the EPA to approve North Dakota's Class VI program although, granted, North Dakota was the first. Wyoming was second and it took the EPA about 2.5 years. Louisiana's application was submitted to the EPA about 1.5 years ago and is still pending approval. There is some reluctance and it's a slower process than it should be to provide states with primacy. North Dakota, Wyoming, Montana, Nebraska, and Utah have adopted similar legislation to HB 50.

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REPRESENTATIVE MCCABE stated that the question for Alaska is whether it's worth the fiscal note of about \$1.2 million. He surmised that Mr. Connors would say it's well worth the money since North Dakota's coal, oil and gas, and gas transportation industries are thriving because of what the state's legislature did five or six years ago.

MR. CONNORS clarified that what is wanted is for North Dakota's industries to be able to thrive through carbon management as a potential solution. In 2001, North Dakota's governor announced the ambitious goal of the state becoming carbon neutral by 2030. With that announcement and North Dakota having Class VI primacy, the state focused on reducing the carbon intensities of its energy industries. The decisions made 15 years ago have driven over \$15 billion in investment into the state for this economic opportunity related to managing the carbon emissions associated with its energy and agriculture industries.

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REPRESENTATIVE SADDLER noted that North Dakota is the home of the fracking revolution and the benefits that it brought to the state. He asked what the current interplay is between the existing oil and gas industry in North Dakota and the nascent carbon capture and storage industry. He further asked about the kind of facilities that are injecting CO₂ through the four permits.

MR. CONNORS, regarding the interplay, answered that the technologies, engineering, and advancement in geologic storage have all been derived from the oil and gas industry to the point that [North Dakota] wouldn't be where it is today without that industry. Now there is an opportunity in North Dakota to have both saline storage and wide-scale CO2 enhanced oil recovery (EOR). The Bakken Formation requires the advanced technology of horizontal drilling and hydronic fracturing to be as prolific and productive as it is, and CO2 enhanced oil recovery is being looked at for the future of the Bakken. The 45Q tax credit is driving saline storage projects or geologic storage projects and the infrastructure that is built for that. The long-term vision is carbon management with both CCS and CCUS utilizing that CO2 to maximize the recovery of both unconventional (the Bakken) and conventional oil and gas resources in North Dakota. This is a great opportunity to maximize those resources and to allow the CO2 that's stored in association with EOR to be counted toward reducing carbon emissions and ultimately creating a low carbon intensity oil.

MR. CONNORS, regarding the four permits, answered that the first commercial project permitted by North Dakota was a single ethanol plant that sits on phenomenal geology. At an emission of about 180,000 metric tons of CO2 per year, this small-scale project was permitted in eight months, and the injection of CO2 began in June [2022]. The second and third permits were submitted at the same time by Minnkota Power Cooperative as they were for a stacked storage situation in the subsurface right below its coal fired power plant, and both permits were approved at the same time. Regarding the fourth permit, since 2000 the Great Plains Synfuels Plant has been applying gasification to lignite coal, capturing the CO2, and transporting about two million tons a year by pipeline to the oil fields in southern Saskatchewan. About a million metric tons of CO2 a year were not being captured, so the EERC worked with Basin Electric to characterize the geology directly underneath its Canton City facility, and that permit was approved just [last month].

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REPRESENTATIVE ARMSTRONG recalled Mr. Connors' statement about \$15 [billion] in investment having come into North Dakota. She asked whether the program is profitable [to the State of North Dakota] and, if so, how long after receiving primacy it took for the program to become profitable.

MR. CONNORS clarified that the State of North Dakota is not necessarily receiving that money, rather the \$15 billion in investment was within the state for developing CCS sites, including infrastructure development, building capture units, and building multi-state pipelines to bring CO2 into the state. He said North Dakota applied for Class VI primacy in 2013 and was awarded primacy in 2018. Also in 2018, [Congress] amended the 45Q tax credit by increasing the value of the tax credit for saline storage and CO2 storage for EOR. Industry didn't immediately react because there was uncertainty with the amendments, but once the IRS created certainty by coming out with guidance documents and a rule making, the scales tipped for the economics of these projects and lots of interest from industry started to be seen. In 2022, the Inflation Reduction Act bumped up the 45Q tax credit for saline storage, CO2 enhanced oil recovery, and direct air capture. Today that federal incentive is a major driver for commercial projects in North Dakota and across the US.

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REPRESENTATIVE ARMSTRONG surmised that revenue coming into the State of North Dakota's treasury may not be the goal, but rather the ancillary benefits around investment and supporting oil, gas, and coal within the state. She asked how much the State of North Dakota must outlay over how many years to stand up the program before it becomes profitable to the state treasury.

MR. CONNORS answered that he doesn't want to speak for the State of North Dakota in that aspect, but he can speak to the statute adopted in North Dakota that created the Carbon Dioxide Trust Fund Account and the Administrative Trust Fund Account. A per ton fee is associated with the injection of CO2, with part of the fee going to the Administrative Trust Fund Account and part to the long-term management fund. The State of North Dakota was looking for a sustainable regulatory program, thereby providing certainty for the state's energy and agriculture industries.

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CHAIR MCKAY pointed out that since the State of Alaska is the subsurface owner, [the legislature's] view has a particular bias towards how much money the State of Alaska is going to make and how fast its investment in Class VI wells will be recovered. Because the State of Alaska owns the depleted reservoirs where the CO2 would [be injected], the state could spend \$2-\$3 million initiating a Class VI primacy well process, and then maybe

nothing happens. The committee is therefore trying to get a feel for how other states that own the subsurface mineral rights have dealt with that situation.

MR. CONNORS confirmed North Dakota's situation is much different because pore space ownership is the surface owner, and that is predominantly privately owned pore space. So, the projects that are going to be developed are acquiring privately owned pore space for the most part. In Lower 48 states with state trust lands, revenue is generated from access to pore space or pore space leasing. He said he can't answer anything specific to Alaska and the potential revenues because that isn't his area of expertise.

MR. CONNORS pointed out that until CO2 storage came around, pore space had no value, but today that geologic formation has value and [is providing] economic opportunity. He explained that pore space leasing is not a one-size-fits-all because each project has different economics associated with it and therefore different ability to pay for pore space access. A coal fired powerplant has different economics than an ethanol production facility and different economics than a natural gas processing facility from which CO2 is being captured. There are different values for CO2 based on the tax credit and other types of markets. The Midwest US ethanol industry accelerates CCS because there are other carbon markets for the ethanol product that is produced.

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CHAIR MCKAY asked who owns, operates, and drilled the Class VI wells in North Dakota if the pore space is owned by the private property owner.

MR. CONNORS answered that these first four permitted projects are wells that are located on the property of the facility owner and ultimately the operator. One example is a coal fired powerplant built in the vicinity of a lignite coal mine and the coal mining company as the owner of that land is the pore space owner for the storage project being developed around that site. However, he noted, the next wave of projects is looking different than the first wave. Projects are now coming in which are bringing in CO2 from longer distances by developing pipelines. They are accessing pore space or accessing the right to use the surface to build a well pad, drill, and construct Class VI injection wells on a surface that is currently being leased for other projects.

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REPRESENTATIVE SADDLER, regarding multi-state pipelines, asked whether North Dakota is accepting CO2 from other sources into one of the four currently permitted projects. He further asked whether North Dakota is interested and able to have CO2 from other states injected into North Dakota pore space.

MR. CONNORS clarified that private investment is building the multi-state pipelines into North Dakota. He said CO2 enhanced oil recovery is seen as carbon management and future opportunity to maximize North Dakota's oil and gas resources, specifically the Bakken. Carbon dioxide from outside North Dakota is needed for future CO2 EOR because even if all the stationary sources of CO2 in North Dakota were pulled together, they wouldn't provide enough CO2 to flood the Bakken and other oil and gas formations to maximize recovery. Also, a benefit in general is seen to North Dakota's agriculture industry because projects are aggregating multiple ethanol facilities across the Midwest and bringing that CO2 into North Dakota. So, yes, it's looking like projects are under development where there is going to be out-of-state CO2 [coming into North Dakota]. Two gas processing facilities in Wyoming are catching CO2 and transporting it via pipeline to southeast Montana and southwest North Dakota, and Denbury Resources is injecting that CO2 into one of North Dakota's unconventional fields for EOR.

MR. CONNORS, regarding his statement about the CO2 captured in North Dakota and transported to southern Saskatchewan, related that CO2 from the Dakota Gasification Plant has been utilized for over 20 years and 40 million tons of CO2 has been stored in the oil fields in southern Saskatchewan.

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REPRESENTATIVE MEARS asked whether there are any requirements or parameters that must be met for putting carbon dioxide into pipelines.

MR. CONNORS replied that the Pipeline and Hazardous Materials Safety Administration (PHMSA) has regulated CO2 pipelines for many years, including CO2 pipelines in Colorado, Texas, North Dakota, Wyoming, and Montana. There are pipeline specifications that the transporter wants to see for quality of CO2. The pipeline routing and siting of those pipelines in [the North

Dakota] region is typically regulated and sited by state public service commissions that have received authority from PHMSA.

CHAIR MCKAY offered his understanding that CO2 is very corrosive, so pipelines and wellbores must be designed to account for the corrosive nature of the gas.

MR. CONNORS clarified that CO2 is corrosive when introduced with water, so typically water is removed at the point of capture and the CO2 prepared for transport and injection into the well. However, as a safety precaution pipelines and wellbores are designed for the corrosive nature of CO2 when water is introduced. He offered to speak further on Class VI injection water requirements, material requirements, and corrosive monitoring.

REPRESENTATIVE MEARS explained that she asked about parameters because as this framework for Alaska is being set up, businesses need to be thinking about utilizing [state-owned] pore space and what parameters the businesses need to meet.

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REPRESENTATIVE SADDLER asked whether North Dakota has had conflicts between the extractive industries and those that are injecting CO2 and, if so, how they have shaken themselves out.

MR. CONNORS responded that he's not aware of any conflicts. He explained that everything being done is derived from the oil and gas industry, which is very interested in advancing CCS in North Dakota. Part of the demonstration or application of those storage projects was identifying any mineral bearing formations, and state law and regulation ensures that any CO2 storage activity will not prohibit anyone from developing or extracting their minerals.

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REPRESENTATIVE SADDLER asked whether there was any organized resistance to the carbon capture and storage industry developing North Dakota and, if so, what was effective in answering the skeptics or the critics.

MR. CONNORS answered that there hasn't been any resistance to developing carbon storage projects. Because pore space rights and landowner rights are being dealt with today, landowner groups and landowners have shown concern and that's why it's

important for these projects to be compensating pore space owners. He contrasted the resource management framework with a waste disposal framework by explaining that the Class VI requirements under the EPA's 2010 rule are a waste disposal framework. The EPA doesn't have the authority under the Safe Drinking Water Act to account for pore space ownership when it permits a site, so there are no compensation considerations for EPA. The EPA is looking for environmental criteria, specifically the protection of underground sources of drinking water. When the EPA is the authority, there is no part of that Class VI application that considers ownership, leasing, or access to that pore space. That's why it's important for states to apply for and receive Class VI primacy and for state legislatures to enact pore space laws and pore space ownership considerations. An operator, in his opinion, could come into Alaska or other states that don't have pore space ownership defined in legislation, apply to the EPA regional office for a Class VI permit, and be injecting CO2 without necessarily compensating for pore space.

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CHAIR MCKAY remarked that talking to an entity already doing this provides better understanding and comfort with the concept and the project.

REPRESENTATIVE MEARS commented that she would like more time to explore current projects to get a better feel of what Alaska's future may be. While ethanol from agriculture isn't something Alaska is going to have, she said, there are probably lessons to be learned from those projects.

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REPRESENTATIVE SADDLER asked Mr. Connors whether he would like to give legislators any advice as the committee considers carbon capture and storage in Alaska.

MR. CONNORS stated he would like to provide future presentations in person. He advised that passage of HB 50 is a key part of Alaska's future ability to manage carbon dioxide emission while having a thriving energy industry. The geology and the industry don't go anywhere without the policy and the laws in place, followed by the regulatory frameworks. Also, there is interest and investment in direct air capture (DAC), which is still in demonstration and small scale, but once DAC becomes upscaled Alaska will have an opportunity with that technology and

industry. Another opportunity is the hydrogen economy, and the storage component associated with that. Mr. Connors further advised that besides advancing HB 50, he recommends applying for and pursuing Class VI primacy, coupled with a resource management framework, not just adopting the waste disposal framework. Making it a resource management framework will give Alaska all the tools it needs to manage the carbon emissions associated with Alaska's industries and to have a great future.

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REPRESENTATIVE DIBERT requested more information about North Dakota's "Management Fund."

MR. CONNORS explained that that was the IOGCC's early work and that states need to regulate a few key pieces that fall outside of the Class VI framework. One piece is the pore space ownership/property rights issues. Another piece is when a storage project comes to an end and the site is closed, which falls in the resource management framework that was developed by the IOGCC and adopted by North Dakota. A few other states, including Wyoming, are also pursuing that. During the post-closure phase, the operator demonstrates that the CO₂ is stable, the wells are properly closed and plugged, and the site is reclaimed. The long-term monitoring function or caretaker role for the stored CO₂ is then taken on by the state and is funded by a trust fund account that was paid throughout the operational life of the project. Through an understanding derived from the oil and gas industry, the IOGCC recognized the need for a long-term caretaker role by state government because companies dissolve, change hands, or go into bankruptcy.

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REPRESENTATIVE MCCABE asked whether direct air capture would reduce PM_{2.5} [particulate matter 2.5 micrometers or less in diameter] by taking out the solids and injecting the CO₂.

MR. CONNORS stated he can't provide an answer because that isn't part of his expertise. Regardless of what the capture facility looks like, whether it's direct air capture or retrofitting a coal plant, the key is having the right geology for storing the captured CO₂. Storage is typically at a depth of 2,600 feet because the CO₂ at the surface is being compressed to supercritical state. Dense phase CO₂ is a smaller molecule and the smaller the molecule the more that can be stored, so a certain subsurface depth is needed to maintain the temperature

and pressure. Also needed is the right formation to receive the CO2, with cap rock above and below, and low-quality or saline water within that formation, or a depleted reservoir.

2:06:04 PM

REPRESENTATIVE SADDLER noted that in Prudhoe Bay, CO2 or natural gas is produced and then reinjected into the same reservoir, whereas in the Bakken, CO2 from outside the system is used to enhance oil recovery. He surmised the CO2 must forever remain in the ground in a closed loop to obtain the 45Q tax credit.

MR. CONNORS confirmed Representative Saddler is correct. He said the EERC, the PCOR Partnership, and other research groups have done work to demonstrate that CO2 injected for EOR is storage. It is associated storage versus dedicated storage, which is how geologic storage of carbon dioxide is referred to. The injected CO2 mixes with the oil, causing the oil to swell and flow more easily, thereby recovering oil that wasn't technically recoverable without the CO2. The CO2 is replacing itself into the pore throat that the hydrocarbon moves out of, so some CO2 stays in the reservoir. It is correct that when oil is produced to the surface some CO2 is produced with it. But the work done has demonstrated that it is a closed system, so once it enters the system it stays in the system and there is a tax credit available for that. More work needs to be done in tight oil formations like the Bakken. Most of the CO2 used in CO2 enhanced oil recovery is naturally occurring CO2 that is found in the subsurface and extracted for use in enhanced oil recovery. A big picture vision for the US in general, but not necessarily North Dakota, is anthropogenic CO2, which is manmade CO2 that is captured off major industries and stored in association with enhanced oil recovery.

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REPRESENTATIVE SADDLER surmised that there is an obligation to forever store the CO2 used for EOR and for which the 45Q tax credit was obtained. He further surmised that when oil is produced using EOR, the CO2 would have to be scrubbed out and reinjected. He offered his assumption that there is a way to measure and monitor the CO2 to ensure that the same amount for which a tax credit was claimed is under control for forever.

MR. CONNORS confirmed Representative Saddler is correct. He said there is a long technical history of this. That CO2 has value, and the oil industry doesn't want to lose any of that

value. If CO2 is being produced, it is separated out and recycled back into the system. To receive the 45Q tax credit it must be shown that the CO2 is permanently stored and won't be released to the atmosphere.

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CHAIR MCKAY offered the committee's appreciation for Mr. Connors' presentation. He noted that the Department of Natural Resources (DNR) will be before the committee on [2/27/23] to present a big-picture financial flowchart that will provide an understanding of the potential risks and benefits of HB 50. He invited committee members to ask other questions of DNR.

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REPRESENTATIVE MCCABE related the concerns of a citizen about this possibly causing an earthquake. He offered his assumption that an environmental impact statement (EIS) or some other sort of study would be required by the National Environmental Protection Act (NEPA), or the EPA, or Alaska's Class VI primacy.

[2:14:16 PM](#)

JOHN CROWTHER, Deputy Commissioner, Office of the Commissioner, Department of Natural Resources (DNR), responded that DNR doesn't do an EIS for projects on state land, rather the department does a best interest finding (BIF), which includes an analysis of the surface impacts, surface activities, and environmental impacts. A BIF would be a part of DNR's analysis for these at the leasing level when an exploration license or lease is issued. Also, specific development project approvals consider things like environmental impact and footprint. Similarly, the Alaska Oil and Gas Conservation Commission (AOGCC) during its regulatory efforts to monitor the wells and assess the safety, will consider the environmental impact of those wells to ensure that the injection proceeds without releases or migration to other reservoirs.

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REPRESENTATIVE MCCABE reiterated that he is hearing concern from folks that the legislature is rushing into this, and environmental disasters will be created. He said he needs reassurance that the money being spent right now is for the necessary statutory framework to allow carbon storage to move

forward and that the EISSs, BIFs, or [Class] VIs cannot start without defining where [the state] wants to go.

MR. CROWTHER confirmed that the intent is to put a framework into place.

REPRESENTATIVE SADDLER noted that Alaska currently has in place an oil and gas leasing framework that allows enhanced oil recovery, which includes injection of CO2 into underground basins. The legislature, he continued, is now considering a parallel CO2 injection framework that will allow the injection of CO2 into underground basins. He asked whether there is any record or experience of earthquakes being caused by injection of natural gas and CO2 into the ground on the North Slope.

MR. CROWTHER qualified that he isn't a geologist, but said he understands that no seismic activity has been seen on the North Slope associated with the 40-50 years of heavy-duty compression and reinjection of that gas. The North Slope is not a very seismic reactive area and the few earthquakes that have occurred were attributed to the general geologic factors of the area. In prior testimony, state geologist Dr. David LePain said that seismic events associated with injection have not been identified as an area of concern. [On the North Slope], the intent of injecting carbon dioxide is to maintain the reservoir quality by not creating structural changes to the geology. It is true that in some areas of the US some small seismic activity has been attributed to injecting highly compressed things to purposely fracture formations. However, the goal and the regulatory limitation is to not do that with CO2 injection.

[2:19:14 PM](#)

CHAIR MCKAY requested Mr. Huber of the AOGCC to also answer Representative Saddler's question. He said he can't remember a time when a specific earthquake was caused by oil and gas activities in the Kenai area or the North Slope. He offered his understanding that the AOGCC would tightly regulate the whole operation subsurface.

BRETT HUBER, Commissioner, Chair, Alaska Oil and Gas Conservation Commission (AOGCC), confirmed that the AOGCC has the regulatory authority in this area. He said the AOGCC has a very thorough permitting process and would consider such things as formation integrity, geologic integrity, well pressures, field pressures, injection pressures, and all the things that AOGCC does now as a matter of course with Alaska's oil and gas

businesses. The AOGCC is dealing with cycling and enhanced oil recovery and injection in those areas, and to AOGCC's knowledge there hasn't been any injection-caused earthquake activity, even in Cook Inlet. The injection has been at depths greater than the fracture zone and while he wouldn't say it is impossible, he would say it is extremely unlikely and hasn't been observed so far. Neither of the two ways to create seismic events would be approved if it came to the AOGCC.

[2:21:24 PM](#)

CHAIR MCKAY stated that Legislative Legal Services has requested a committee substitute (CS) for HB 50 to address technical issues that the legislature's lawyers flagged upon reviewing the bill, which was drafted by the governor's legal team [prime sponsor of HB 50 is House Rules by request of the governor]. The committee has requested further changes to address issues that the administration brought to the committee's attention as needing further clarity. Members will have an opportunity to offer amendments before the bill leaves committee. Drafting and adopting a CS to address issues does not imply that the members of this committee are sponsors or supporters of the bill, HB 50 is always going to be a governor's bill.

[2:23:18 PM](#)

CHAIR MCKAY announced that HB 50 was held over.

[2:23:30 PM](#)

ADJOURNMENT

There being no further business before the committee, the House Resources Standing Committee meeting was adjourned at 2:23 p.m.