



## Governor Mike Dunleavy STATE OF ALASKA

January 26, 2023

The Honorable Gary Stevens  
Senate President  
Alaska State Legislature  
State Capitol, Room 111  
Juneau, AK 99801-1182

Dear President Stevens:

Under the authority of Article III, Section 18, of the Alaska Constitution, I am transmitting a bill relating to carbon capture, utilization, and storage (CCUS) and providing for an effective date.

This bill is a key component of the state's efforts to monetize its immense carbon storage potential and maximize utilization of resources. CCUS projects capture carbon dioxide emitted from point sources or the atmosphere and inject it deep underground into geologic formations for utilization in industrial processes, such as enhanced oil recovery, or for permanent sequestration.

Industry interest in CCUS is growing around the country and the world, driven by regulatory requirements, corporate objectives, and government financing and tax incentives. Alaska's participation in the industry could bring new industrial activity into the state, provide new revenue through CCUS exploration licensing, leasing, and permitting programs, and burnish the state's credentials for environmentally responsible resource development. Alaska is uniquely positioned for success in the CCUS industry, having large, state-owned subsurface acreage positions with highly prospective geologic formations ideal for the underground storage of carbon dioxide.

This omnibus CCUS bill establishes a CCUS leasing and regulatory program for the state. The bill creates a framework for the Department of Natural Resources (DNR) and the Alaska Oil and Gas Conservation Commission (AOGCC) to permit and regulate carbon storage facilities on lands within the state. The bill establishes an exploration licensing and leasing program, along with a pathway for the conversion of enhanced oil recovery operations to sequestration operations. The bill also establishes a mechanism by which the state will assume title to sequestered carbon dioxide following storage facility closure, and an industry-funded trust fund to cover possible long-term liabilities.

The bill provides DNR with the authority to grant carbon storage exploration licenses, and then leases, for the underground storage of carbon dioxide on state land. Generally, a license would have a five-year term with mandatory work commitments including an annual fee of at least \$20 per acre and annual reporting requirements. The bill contains minimum annual rent requirements,

The Honorable Gary Stevens

January 26, 2023

Page 2 of 2

a per-ton injection charge for stored carbon dioxide, and requirements for bonding or other financial security. Due to the mineral nature of pore space leased for carbon storage, twenty-five percent of lease payments would be deposited into the Alaska Permanent Fund. Carbon storage lessees would be required to file for approval of a plan of development with the commissioner of DNR in a process similar to current oil and gas lessees. The bill requires carbon storage licenses and leases to include covenants to prevent unreasonable interference with the rights of existing mineral lessees and to indemnify the state for any unreasonable interference.

The bill amends statutes for pipeline rights-of-way leasing on state land to include pipelines for the transportation of carbon dioxide. This allows the state to administer pipeline infrastructure for transportation of captured carbon dioxide to geological storage facilities.

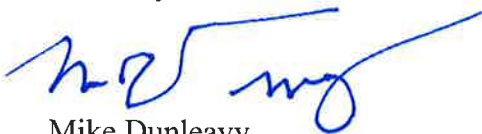
The bill provides the AOGCC with the authority to seek primacy from the United States Environmental Protection Agency for permitting over Class VI underground injection wells. States with primacy over these wells are anticipated to enjoy a competitive advantage in this burgeoning industry due to quicker well permitting. The bill also grants AOGCC statewide regulatory authority over carbon storage facilities to maintain reservoir integrity, protect property rights, and ensure public health and safety. AOGCC would charge application fees to cover the anticipated costs of processing applications. Once carbon dioxide is being injected into a permitted carbon storage facility, the facility operator would pay AOGCC a fee for each ton of carbon dioxide injected to cover anticipated expenses during the operation of the carbon storage facility. Also, AOGCC would set a surcharge based on carbon dioxide injected to address the expenses the state will incur post-closure. The surcharge payments would be deposited into the carbon storage closure trust fund created in the bill. DNR would assume title and management of the facilities and stored carbon post-closure.

This bill has an immediate effective date to allow the state to capitalize on these new opportunities as soon as possible.

This bill is part of my long-term fiscal solution and plan to attract investment to Alaska. The public will benefit from new potential sources of revenue for the state and boroughs, which can be directed to funding programs to benefit Alaskans. The private sector will benefit from new opportunities for industries associated with the capture, transportation, use, and geological storage of carbon dioxide. The state will benefit from an inclusive carbon management strategy that can alleviate investor concerns over Arctic energy and infrastructure projects and strengthen Alaska's resource development opportunities.

I urge your prompt and favorable action on this measure.

Sincerely,



Mike Dunleavy  
Governor

Enclosure

**SENATE BILL NO. 49**

IN THE LEGISLATURE OF THE STATE OF ALASKA

THIRTY-THIRD LEGISLATURE - FIRST SESSION

BY THE SENATE RULES COMMITTEE BY REQUEST OF THE GOVERNOR

Introduced: 1/27/23

Referred: Resources, Finance

**A BILL**

**FOR AN ACT ENTITLED**

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

3 **BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:**

4 \* **Section 1.** SHORT TITLE. This Act may be known as the Carbon Capture, Utilization,  
5 and Storage Act.

6 \* **Sec. 2.** AS 31.05.027 is amended to read:

7 **Sec. 31.05.027. Land subject to commission's authority.** The authority of the  
8 commission applies to all land in the state lawfully subject to its police powers,  
9 including land of the United States and land subject to the jurisdiction of the United  
10 States. The authority of the commission further applies to all land included in a  
11 voluntary cooperative or unit plan of development or operation entered into in  
12 accordance with AS 38.05.180(p) **or 38.05.730.**

13 \* **Sec. 3.** AS 31.05.030(h) is amended to read:

14 (h) The commission may take all actions necessary to allow the state to

1 acquire primary enforcement responsibility under 42 U.S.C. 300h-1 and 42 U.S.C.  
 2 300h-4 (Safe Drinking Water Act of 1974, as amended, 42 U.S.C. 300f - 300j-26), for  
 3 the control of underground injection related to the recovery and production of oil and  
 4 natural gas and the control of underground injection in Class I wells, as defined in 40  
 5 C.F.R. 144.6, as amended, **and the control of underground injection in Class VI**  
 6 **wells, as defined in 40 C.F.R. 144.6, as amended.**

7 \* **Sec. 4.** AS 37.14 is amended by adding a new section to read:

8 **Article 11. Carbon Storage Closure Trust Fund.**

9 **Sec. 37.14.850. Carbon storage closure trust fund.** (a) The carbon storage  
 10 closure trust fund is established as a separate trust fund of the state. The principal and  
 11 earnings of the fund shall be held by the state for the purpose of protecting the public  
 12 interest in maintenance and closure of carbon storage facilities in the state. The fund is  
 13 composed of the carbon storage closure trust fund income account and the carbon  
 14 storage closure trust fund operating account.

15 (b) The carbon storage closure trust fund income account consists of payments  
 16 received under (c) of this section, AS 41.06.180, and earnings on the income account.  
 17 The carbon storage closure trust fund operating account consists of appropriations by  
 18 the legislature of the annual balance of the carbon storage closure trust fund income  
 19 account and any earnings on those appropriations while in the operating account.

20 (c) Before payments are accepted into the carbon storage closure trust fund  
 21 income account for a particular carbon storage facility, the Alaska Oil and Gas  
 22 Conservation Commission and the operator may execute a memorandum of  
 23 understanding that outlines a schedule of expected payments into the fund and the  
 24 relationship of the payments and accumulated earnings in the fund to the operator's  
 25 obligations under AS 41.06.155 or 41.06.175. If the memorandum of understanding  
 26 addresses investment of the fund with respect to payments made by the operator, the  
 27 commissioner of revenue must also sign the memorandum.

28 (d) Nothing in this section creates a dedicated fund.

29 (e) In this section, unless the context requires otherwise,

30 (1) "fund" means the carbon storage closure trust fund;

31 (2) "storage facility" has the meaning given in AS 41.06.210.

1 \* **Sec. 5.** AS 38.05.069(e) is amended to read:

2 (e) Nothing in (c) of this section affects the disposal of minerals under  
3 AS 38.05.135 - 38.05.183 **or carbon storage under AS 38.05.700 - 38.05.795.**

4 \* **Sec. 6.** AS 38.05.070(a) is amended to read:

5 (a) Land, including tide, submerged, or shoreland, to which the state holds title  
6 or to which it may become entitled, may be leased, except for the extraction of natural  
7 resources **and carbon storage under AS 38.05.700 - 38.05.795,** in the manner  
8 provided in AS 38.05.070 - 38.05.105.

9 \* **Sec. 7.** AS 38.05.130 is amended to read:

10 **Sec. 38.05.130. Damages and posting of bond.** Rights may not be exercised  
11 by the state, its lessees, successors, or assigns under the reservation as set out in  
12 AS 38.05.125 until the state, its lessees, successors, or assigns make provision to pay  
13 the owner of the land full payment for all damages sustained by the owner, by reason  
14 of entering upon the land. If the owner for any cause refuses or neglects to settle the  
15 damages, the state, its lessees, successors, assigns, or an applicant for a lease or  
16 contract from the state for the purpose of prospecting for valuable minerals, or option,  
17 contract, or lease for **carbon storage or** mining coal, or lease for extracting  
18 geothermal resources, petroleum, or natural gas, may enter upon the land in the  
19 exercise of the reserved rights after posting a surety bond determined by the director,  
20 after notice and an opportunity to be heard, to be sufficient as to form, amount, and  
21 security to secure to the owner payment for damages, and may institute legal  
22 proceedings in a court where the land is located, as may be necessary to determine the  
23 damages which the owner may suffer.

24 \* **Sec. 8.** AS 38.05.135(a) is amended to read:

25 (a) Except as otherwise provided, valuable mineral deposits in land belonging  
26 to the state shall be open to exploration, development, and the extraction of minerals.  
27 All land, together with tide, submerged, or shoreland, to which the state holds title to  
28 or to which the state may become entitled, may be obtained by permit or lease for the  
29 purpose of exploration, development, and the extraction of minerals. Except as  
30 specifically limited by AS 38.05.131 - 38.05.181 **and 38.05.700 - 38.05.795,** land may  
31 be withheld from lease application on a first-come, first-served basis, and offered only

1 on a competitive bid basis when determined by the commissioner to be in the best  
2 interests of the state.

3 \* **Sec. 9.** AS 38.05.135(c) is amended to read:

4 (c) Payment of a royalty or a net profit share payment to the state under a lease  
5 issued under AS 38.05.135 - 38.05.181 **or a payment of a rent or charge under**  
6 **AS 38.05.700 - 38.05.795** becomes due on the date and in the manner specified in the  
7 lease or in a regulation adopted by the commissioner.

8 \* **Sec. 10.** AS 38.05.135(d) is amended to read:

9 (d) If a royalty or net profit share payment to which the state is entitled under  
10 AS 38.05.135 - 38.05.181 **or a payment of a rent or charge under AS 38.05.700 -**  
11 **38.05.795** is not paid or is underpaid when it becomes due under (c) of this section, the  
12 unpaid amount of the **rent, charge,** royalty, or net profit share payment bears interest  
13 in a calendar quarter at the rate of five percentage points above the annual rate charged  
14 member banks for advances by the 12th Federal Reserve District as of the first day of  
15 that calendar quarter, or at the annual rate of 11 percent, whichever is greater,  
16 compounded quarterly as of the last day of that quarter.

17 \* **Sec. 11.** AS 38.05.135(e) is amended to read:

18 (e) If a royalty or net profit share payment to which the state is entitled under  
19 AS 38.05.135 - 38.05.181 **or a payment of a rent or charge under AS 38.05.700 -**  
20 **38.05.795** is overpaid, interest at the rate and compounded in the manner provided in  
21 (d) of this section shall be allowed and paid on the overpayment. The interest  
22 allowance is subject to the following:

23 (1) if the state grants a credit against future payments for the  
24 overpayment, the state shall pay interest on the overpayment

25 (A) from the date that is the later of the date the overpayment

26 was

27 (i) due; or

28 (ii) received;

29 (B) to the date that is the earlier of the date

30 (i) of notice to the lessee of the credit; or

31 (ii) on which the lessee actually takes the credit;

1 (2) if the state refunds the overpayment, the state shall pay interest on  
2 the overpayment

3 (A) from the date that is the later of the date the overpayment  
4 was

5 (i) due; or

6 (ii) received;

7 (B) to the date the state issues the refund.

8 \* **Sec. 12.** AS 38.05.140(a) is amended to read:

9 (a) A person may not take or hold coal leases or permits during the life of coal  
10 leases on state land exceeding an aggregate of 92,160 acres, except that a person may  
11 apply for coal leases or permits for acreage in addition to 92,160 acres, not exceeding  
12 a total of 5,120 additional acres of state land. The additional area applied for shall be  
13 in multiples of 40 acres, and the application shall contain a statement that the granting  
14 of a lease for additional land is necessary for the person to carry on business  
15 economically and is in the public interest. On the filing of the application, except as  
16 provided by AS 38.05.180(ff)(3) or 38.05.180(gg) and 38.05.700 - 38.05.795, the coal  
17 deposits in the land covered by the application shall be temporarily set aside and  
18 withdrawn from all other forms of disposal provided under AS 38.05.135 - 38.05.181.

19 \* **Sec. 13.** AS 38.05.184(b) is amended to read:

20 (b) No carbon storage licenses or leases or additional oil or gas leases may  
21 be issued by the department or any other state agency for the exploration for or the  
22 development or production of oil and gas on state-owned land and waters seaward of  
23 the mean higher high water line, beginning at Anchor Point; then around the perimeter  
24 of Kachemak Bay, to Point Pogibshi; then west to the three mile limit of state land and  
25 waters; then north to a point three miles west of Anchor Point; then east to the mean  
26 higher high water line of Anchor Point, the point of beginning.

27 \* **Sec. 14.** AS 38.05 is amended by adding new sections to read:

28 **Article 15A. Carbon Storage Exploration Licenses; Leases.**

29 **Sec. 38.05.700. Policy on carbon dioxide storage.** It is in the public interest  
30 to promote the geologic storage of carbon dioxide. The geologic storage of carbon  
31 dioxide benefits the citizens of the state and the environment by reducing greenhouse

1 gas emissions.

2 **Sec. 38.05.705. Applicability; regulations.** (a) The provisions of  
3 AS 38.05.700 - 38.05.795 apply to exploration licensing and the leasing of state land  
4 for carbon storage.

5 (b) The commissioner may adopt regulations necessary to implement  
6 AS 38.05.700 - 38.05.795.

7 **Sec. 38.05.710. Carbon storage exploration licensing.** (a) The commissioner  
8 may issue carbon storage exploration licenses on state land.

9 (b) A carbon storage exploration license gives the licensee

10 (1) the exclusive right to explore, for carbon storage purposes, the state  
11 land described in the license for a five-year term;

12 (2) the option to convert the license for all or part of the state land  
13 described in the license into a carbon storage lease after the licensee

14 (A) fulfills the work commitments set out in the license;

15 (B) demonstrates the ability to meet the commercial terms for  
16 the lease as set out in the license or in regulation;

17 (C) obtains a permit under AS 41.06.125; and

18 (D) complies with the lease conversion process of  
19 AS 38.05.720(b).

20 (c) A carbon storage exploration license must

21 (1) be conditioned on an obligation by the licensee to fulfill a specified  
22 work commitment as set out in the license; the work commitment must include  
23 mandatory provisions for

24 (A) an annual fee paid by the licensee to the department in an  
25 amount of at least \$20 per acre subject to the license; and

26 (B) an annual report describing the licensee's exploration  
27 activities in the previous calendar year, which must be provided by the licensee  
28 to the department;

29 (2) include proposed commercial terms if the license is converted into  
30 a carbon storage lease, which must at a minimum provide for

31 (A) an annual rent of at least \$20 per acre; and



1 (B) a per-ton injection charge on all injected volumes of carbon  
2 dioxide of at least \$2.50;

3 (C) the posting of a bond or other security acceptable to the  
4 department and in favor of the state;

5 (3) be conditioned on the posting of a bond or other security acceptable  
6 to the department and in favor of the state; and

7 (4) be subject to revocation at the commissioner's discretion under (d)  
8 of this section.

9 (d) The commissioner may revoke a carbon storage exploration license before  
10 the termination of the license's five-year term if the licensee fails to comply with the  
11 requirements of (c) of this section or applicable regulations.

12 (e) The department shall renew a carbon storage exploration license if the  
13 licensee

14 (1) before the expiration of the license term, applies for a permit under  
15 AS 41.06.125;

16 (2) is in compliance with the conditions of the license;

17 (3) provides documentation acceptable to the department of the  
18 pending permit application; and

19 (4) submits an executed renewal form to the department affirming the  
20 original terms of the license for the renewed license term.

21 (f) In the commissioner's discretion, a carbon storage exploration license may  
22 be renewed for a term sufficient to determine whether the licensee's permit application  
23 will be accepted under AS 41.06.105 - 41.06.210.

24 (g) A carbon storage exploration license that has been renewed under (e) of  
25 this section terminates upon denial of the licensee's permit application by the Alaska  
26 Oil and Gas Conservation Commission under AS 41.06.105 - 41.06.210.

27 (h) The dollar amounts in (c) of this section shall change every five years  
28 according to changes in the Consumer Price Index for all urban consumers for the  
29 Anchorage Metropolitan Area compiled by the Bureau of Labor Statistics, United  
30 States Department of Labor. The index for January 2023 is the reference base index.

31 **Sec. 38.05.715. License procedures.** (a) The procedures in this section apply

1 to the issuance of a carbon storage exploration license under AS 38.05.710.

2 (b) To initiate the licensing procedure, an applicant shall submit to the  
3 commissioner a proposal that

4 (1) identifies a specific area to be subject to the license;

5 (2) proposes minimum work commitments;

6 (3) proposes commercial terms applicable to a carbon storage lease  
7 under AS 38.05.710(c)(2);

8 (4) demonstrates the applicant's ability to assume responsibility of a  
9 carbon storage lease;

10 (5) describes how the applicant meets the minimum qualifications for a  
11 licensee under applicable regulations; and

12 (6) includes an attestation of the applicant's ability to perform the  
13 requirements of (2) - (4) of this subsection.

14 (c) The commissioner shall publish notice of a proposal received under (b) of  
15 this section. The notice shall include a solicitation for competing proposals. A copy of  
16 the published notice shall be sent to any lessee under AS 38.05.135 - 38.05.181 in one-  
17 half mile of the area proposed for an exploration license. Any person in the area may  
18 submit a competing proposal under the process established by the commissioner in  
19 regulation. The regulations must require that a competing proposal be submitted not  
20 later than 90 days after the commissioner's written notice is published.

21 (d) After the deadline for submission of a competing proposal has passed, the  
22 commissioner shall issue a written finding determining whether the state's best  
23 interests are served through issuing a carbon storage exploration license. If the  
24 commissioner determines that issuance of a carbon storage exploration license is in the  
25 best interests of the state, the finding must

26 (1) describe the limitations, stipulations, conditions, or changes from  
27 the initiating proposal or competing proposals that are required to make the issuance  
28 of the exploration license conform to the best interests of the state;

29 (2) set out the commercial terms required for the eventual conversion  
30 of the exploration license into a carbon storage lease;

31 (3) if there are competing proposals from multiple applicants, identify

1 which applicants are qualified for the issuance of the exploration license and include  
2 information for the competitive bid process as set out in (f) of this section; and

3 (4) include a copy of the exploration license to be issued and the form  
4 of lease that will be used for any portion of the exploration license area subsequently  
5 converted to a lease under AS 38.05.720.

6 (e) If the commissioner concludes that issuance of a carbon storage  
7 exploration license is in the best interests of the state, and that only one applicant is  
8 qualified to be issued the license, the applicant may accept or reject the exploration  
9 license, as limited or conditioned by the terms of the finding and in the form attached  
10 to the finding, not later than 30 days after the finding's date of publication. The  
11 applicant shall accept or reject the issuance of the carbon storage exploration license in  
12 writing. The commissioner shall consider an applicant's failure to respond in the 30-  
13 day period as a rejection of the license.

14 (f) If the commissioner concludes that issuance of the carbon storage  
15 exploration license is in the best interests of the state, and that more than one applicant  
16 is qualified to be issued the license, the commissioner shall issue a request for  
17 competitive sealed bids, under procedures adopted by regulation, to determine which  
18 qualified applicants will be issued the license. If the commissioner determines that a  
19 competitive bid process is necessary, the best interest finding must include notice that  
20 the commissioner intends to request competitive bids.

21 (g) The commissioner shall establish in regulation the criteria for the  
22 assessment of competitive bids under (f) of this section and for the determination of a  
23 successful bidder.

24 (h) If a lessee under AS 38.05.135 - 38.05.181 in the area covered by a  
25 proposed carbon storage exploration license participates in a competitive bid process  
26 under (f) of this section and is not the successful bidder, before issuing the license, the  
27 commissioner shall provide the lessee an opportunity to match the successful bid. If  
28 the lessee matches the successful bid, the commissioner shall issue a carbon storage  
29 exploration license to the lessee.

30 (i) A carbon storage exploration license issued under this section and a carbon  
31 storage lease under AS 38.05.720 or 38.05.725 must include

1 (1) a covenant from the licensee not to unreasonably interfere with the  
2 rights of a lessee under AS 38.05.135 - 38.05.181; and

3 (2) a clause by which the licensee indemnifies the state for any  
4 unreasonable interference the licensee might cause to the rights of a lessee under  
5 AS 38.05.135 - 38.05.181.

6 (j) When notice is required under this section, the department shall follow the  
7 requirements for notice under AS 38.05.945(b) and (c).

8 **Sec. 38.05.720. Conversion to lease by licensee.** (a) The commissioner may  
9 convert a carbon storage exploration license to a carbon storage lease if the licensee  
10 satisfies the requirements of AS 38.05.710(b) and complies with (b) of this section.

11 (b) To convert a carbon storage exploration license to a carbon storage lease, a  
12 licensee shall provide a copy of the permit obtained under AS 41.06.105 - 41.06.210  
13 to the commissioner. After receiving a copy of the permit, if the licensee is in  
14 compliance with AS 38.05.710(b), the commissioner shall issue a carbon storage lease  
15 for those areas of the exploration license approved for carbon storage by the permit. A  
16 lease issued under this section must include

17 (1) commercial terms for the lease as set out in the commissioner's  
18 finding under AS 38.05.715(d);

19 (2) the agreements required under AS 38.05.715(i); and

20 (3) any other condition or obligation deemed necessary by the  
21 commissioner or required by regulation.

22 **Sec. 38.05.725. Concurrent carbon storage leasing.** (a) A lessee under  
23 AS 38.05.180 injecting under a Class II well permit shall apply for a carbon storage  
24 lease from the department before engaging in injection operations that may require a  
25 Class VI injection permit from the United States Environmental Protection Agency or  
26 a storage facility permit under AS 41.06.125.

27 (b) The issuance of a carbon storage lease under (a) of this section is vested  
28 solely in the commissioner's discretion. The commissioner may consider the  
29 qualifications and abilities of the lessee to meet the commercial requirements of a  
30 carbon storage lease and whether issuance of the lease is in the best interests of the  
31 state.

- 1 (c) A carbon storage lease issued under this section must include
- 2 (1) the minimum commercial terms described in AS 38.05.710(c)(2);
- 3 (2) the agreements required under AS 38.05.715(i);
- 4 (3) if the carbon storage lessee is not the same entity as the responsible
- 5 party under the existing lease, an assumption by the carbon storage lessee of any
- 6 dismantlement, removal, and restoration obligations set out in the oil and gas lease;
- 7 and
- 8 (4) any other conditions and obligations deemed necessary by the
- 9 commissioner or required by regulation.

10 **Sec. 38.05.730. Plan of development and operations; unitization.** (a) The

11 commissioner shall require the filing and approval of a plan of development and

12 operation for a carbon storage lease.

13 (b) To prevent or assist in preventing waste, and to protect the correlative

14 rights of persons owning interests in the tracts of lands affected, with the approval of

15 the commissioner, lessees may validly integrate their interests to provide for the

16 unitized management, development, and operation of the tracts of land as a unit. The

17 commissioner may suspend or modify a development plan approved under (a) of this

18 section in accordance with the unit agreement.

19 (c) A lease operated under a plan approved or prescribed by the commissioner

20 is excepted from determining holdings or control under AS 38.05.140. The provisions

21 of this section concerning cooperative or unit plans are in addition to and do not affect

22 AS 31.05 and AS 41.06.

23 **Sec. 38.05.735. Payments from carbon storage exploration licenses and**

24 **carbon storage leases.** Except as otherwise provided under art. IX, sec. 15,

25 Constitution of the State of Alaska, the department shall deposit in the general fund

26 the money it collects under AS 38.05.700 - 38.05.795.

27 **Sec. 38.05.795. Definitions.** In AS 38.05.700 - 38.05.795, unless the context

28 requires otherwise,

- 29 (1) "carbon dioxide" means carbon dioxide of a quality that
- 30 (A) will not compromise the safety of geologic storage; and
- 31 (B) will not compromise the properties of a storage reservoir

1 that allow the reservoir to effectively enclose and contain a stored gas or stored  
2 supercritical fluid;

3 (2) "carbon storage" means the permanent or short-term underground  
4 storage of carbon dioxide in a geologic storage reservoir;

5 (3) "geologic storage" has the meaning given in AS 41.06.210;

6 (4) "pore space" means a geologic storage reservoir, cavity, or void in  
7 a subsurface sedimentary stratum;

8 (5) "reservoir" has the meaning given in AS 41.06.210;

9 (6) "supercritical fluid" means a substance at or above its critical  
10 temperature and critical pressure that is neither a liquid nor a gas but that has  
11 properties of both.

12 \* **Sec. 15.** AS 38.35.020(a) is amended to read:

13 (a) Rights-of-way on state land including rights-of-way over, under, along,  
14 across, or upon the right-of-way of a public road or highway or the right-of-way of a  
15 railroad or other public utility, or across, upon, over, or under a river or other body of  
16 water or land belonging to or administered by the state may be granted by  
17 noncompetitive lease by the commissioner for pipeline purposes for the transportation  
18 of oil, products, **carbon dioxide**, or natural gas under those conditions prescribed by  
19 law or by administrative regulation. Except to the extent authorized by an oil and gas  
20 lease, a gas only lease, **carbon storage lease**, or an oil and gas or gas only **or carbon**  
21 **storage** unit agreement approved by the state, no person may engage in any  
22 construction or operation of any part of an oil, products, **carbon dioxide**, or natural  
23 gas pipeline, which in whole or in part is or is proposed to be on state land unless that  
24 person has obtained from the commissioner a right-of-way lease of the land under this  
25 chapter.

26 \* **Sec. 16.** AS 38.35.020(b) is amended to read:

27 (b) The commissioner may by regulation exempt the construction or operation  
28 **(1)** of field gathering lines or any reasonable classification of them  
29 from the requirement of a right-of-way lease under this chapter; **and**  
30 **(2) of a pipeline transporting carbon dioxide within a field for the**  
31 **purpose of an enhanced oil recovery project or field pressurization measures**

1        **within that same field from the requirement of a right-of-way lease under this**  
2        **chapter.**

3        \* **Sec. 17.** AS 38.35.122 is amended to read:

4                **Sec. 38.35.122. Products pipeline and carbon dioxide transportation**  
5        **pipeline leases.** The commissioner has discretion to include any or all of the terms set  
6        out in AS 38.35.120 in leases of state land for products pipeline right-of-way purposes  
7        **or carbon dioxide transportation pipeline right-of-way purposes.**

8        \* **Sec. 18.** AS 38.35.230(3) is amended to read:

9                (3) "lease" means the instrument or extension of an instrument issued  
10        under this chapter granting a leasehold interest in state land for pipeline right-of-way  
11        purposes to a person and authorizing the construction or operation of, or  
12        transportation, service or sale by a pipeline for crude oil, natural gas, **carbon dioxide,**  
13        or products;

14        \* **Sec. 19.** AS 38.35.230(7) is amended to read:

15                (7) "pipeline" or "pipeline facility" means all the facilities of a total  
16        system of pipe, whether owned or operated under a contract, agreement, or lease, used  
17        by a carrier for transportation of crude oil, natural gas, **carbon dioxide,** or products for  
18        delivery, for storage, or for further transportation, and including all pipe, pump or  
19        compressor stations, station equipment, tanks, valves, access roads, bridges, airfields,  
20        terminals and terminal facilities, including docks and tanker loading facilities,  
21        operations control center for both the upstream part of the pipeline and the terminal,  
22        tanker ballast treatment facilities, and fire protection system, communication system,  
23        and all other facilities used or necessary for an integral line of pipe, taken as a whole,  
24        to effectuate transportation, including an extension or enlargement of the line;

25        \* **Sec. 20.** AS 38.35.230(10) is amended to read:

26                (10) "transportation" means the shipment or carriage by a pipeline of  
27        crude oil, natural gas, **carbon dioxide,** or products from an upstream terminus in one  
28        or more fields or points of production or supply of the minerals to a downstream  
29        terminus in one or more points for delivery of the minerals to a purchaser or  
30        consignee, for storage, or for further carriage or shipment, including shipment or  
31        carriage within the state that may be classified as interstate or foreign transportation to

1 the extent that the transportation may constitutionally be subjected to the provisions of  
 2 this chapter, as well as all services necessary to effectuate shipment or carriage,  
 3 including, among other things, the receipt, storage, processing, handling, transfer in  
 4 transit, forwarding, and delivery of the minerals.

5 \* **Sec. 21.** AS 38.35.230 is amended by adding a new paragraph to read:

6 (11) "carbon dioxide" has the meaning given in AS 38.05.795.

7 \* **Sec. 22.** AS 41.06.005 is amended to read:

8 **Sec. 41.06.005. Jurisdiction over geothermal resources.** (a) The commission  
 9 has jurisdiction under AS 41.06.005 - 41.06.060 [THIS CHAPTER] over geothermal  
 10 wells to prevent waste, to protect correlative rights, and to ensure public safety.

11 (b) The Department of Natural Resources has jurisdiction under AS 41.06.005  
 12 - 41.06.060 [THIS CHAPTER] over management of geothermal leases and units in the  
 13 public interest and to effect development.

14 \* **Sec. 23.** AS 41.06.020 is amended to read:

15 **Sec. 41.06.020. Authority of commission; application.** (a) The commission  
 16 has jurisdiction over all persons and property, public and private, necessary to carry  
 17 out the purposes and intent of AS 41.06.005 - 41.06.060 [THIS CHAPTER].

18 (b) The authority of the commission applies to all land in the state lawfully  
 19 subject to the police power of the state, including private land, municipal land, state  
 20 land, land of the United States, and land subject to the jurisdiction of the United  
 21 States, and to all land included in a voluntary cooperative or unit plan of development  
 22 or operation entered into in accordance with AS 38.05.181. When land that is subject  
 23 to the commission's authority is committed to a unit agreement involving land subject  
 24 to federal jurisdiction, the operation of AS 41.06.005 - 41.06.060 [THIS CHAPTER]  
 25 or a part of AS 41.06.005 - 41.06.060 [THIS CHAPTER] may be suspended if

26 (1) the unit operations are regulated by the United States; and

27 (2) the conservation of geothermal resources is accomplished under the  
 28 unit agreement.

29 (c) The provisions of AS 41.06.005 - 41.06.060 apply [THIS CHAPTER  
 30 APPLIES]

31 (1) to wells drilled in search of, in support of, or for the recovery or



1 production of geothermal resources;

2 (2) when a person engaged in drilling activity not otherwise subject to  
3 the provisions of AS 41.06.005 - 41.06.060 [THIS CHAPTER] encounters geothermal  
4 resources, fluid, or water of sufficient heat or pressure to constitute a threat to human  
5 life or health unless the drilling operation is subject to oil and gas drilling regulation  
6 under AS 31.05;

7 (3) in areas and under conditions in which the commission determines  
8 that drilling may encounter geothermal resources, fluid, or water of sufficient heat or  
9 pressure to constitute a threat to human life or health.

10 (d) To the extent the provisions of AS 31.05 do not conflict with the  
11 provisions of AS 41.06.005 - 41.06.060 [THIS CHAPTER], the provisions of  
12 AS 31.05 are applicable to wells drilled in search of, in support of, or for the recovery  
13 or production of geothermal resources.

14 (e) Nothing in AS 41.06.005 - 41.06.060 [THIS CHAPTER] limits the  
15 authority of the department

16 (1) over geothermal resources under AS 38.05.181; or

17 (2) to approve and manage geothermal units or operations that include  
18 state land.

19 \* **Sec. 24.** AS 41.06.030(e) is amended to read:

20 (e) The commissioner may adopt regulations under AS 44.62 to carry out the  
21 purposes and intent of AS 41.06.005 - 41.06.060 [THIS CHAPTER] for duties  
22 assigned to the department, including the promotion of maximum economic recovery.

23 \* **Sec. 25.** AS 41.06.035(b) is amended to read:

24 (b) The commission may adopt regulations under AS 44.62 and issue orders  
25 appropriate to carry out the purposes and intent of AS 41.06.005 - 41.06.060 [THIS  
26 CHAPTER] for duties assigned to the commission, including orders regarding the  
27 establishment of drilling units for pools as set out in AS 31.05.100 and orders  
28 regarding unitized operation and integration of interests as set out in AS 31.05.110.

29 \* **Sec. 26.** AS 41.06.040(a) is amended to read:

30 (a) The commission shall adopt regulations under AS 44.62 (Administrative  
31 Procedure Act), issue orders, and take other appropriate action to carry out the

1 purposes and intent of AS 41.06.005 - 41.06.060 [THIS CHAPTER], including  
2 adopting regulations to prevent

3 (1) geothermal resources, water or other fluids, and gases from  
4 escaping into strata other than that in which they are found, unless in accordance with  
5 an approved reinjection program;

6 (2) contamination of surface and groundwater;

7 (3) premature degradation of a geothermal system by water  
8 encroachment or otherwise;

9 (4) blowouts, cavings, and seepage; and

10 (5) unreasonable disturbance or injury to neighboring properties, prior  
11 water rights, prior oil or gas rights, human life, health, and the natural environment.

12 \* **Sec. 27.** AS 41.06.050(e) is amended to read:

13 (e) In making the determination under (d) of this section, the commission shall  
14 consider whether the

15 (1) proposed well will significantly interfere with or substantially  
16 impair a prior water, oil, or gas right;

17 (2) proposed well is contrary to a provision of AS 41.06.005 -  
18 41.06.060 [THIS CHAPTER], a regulation adopted by the commission, another law,  
19 or an order, stipulation, or term of a permit issued by the commission; and

20 (3) applicant is in violation of a provision of AS 41.06.005 - 41.06.060  
21 [THIS CHAPTER], a regulation adopted by the commission, another law, or an order,  
22 stipulation, or term of a permit issued by the commission; the commission shall  
23 consider the magnitude of the violation.

24 \* **Sec. 28.** AS 41.06.055(c) is amended to read:

25 (c) The commission shall determine the regulatory cost charges levied under  
26 this section so that the total amount to be collected approximately equals the  
27 appropriations made for the operating costs of the commission that have been incurred  
28 under AS 41.06.005 - 41.06.060 [THIS CHAPTER] for the fiscal year.

29 \* **Sec. 29.** AS 41.06.055(d) is amended to read:

30 (d) The commission shall collect the regulatory cost charges imposed under  
31 this section. The Department of Administration shall identify the amount of

1 appropriations made for the operating costs of the commission under AS 41.06.005 -  
 2 41.06.060 [THIS CHAPTER] that lapse into the general fund each year. The  
 3 legislature may appropriate an amount that is at least equal to the lapsed amount to the  
 4 commission for its operating costs under AS 41.06.005 - 41.06.060 [THIS  
 5 CHAPTER] for the next fiscal year. If the legislature makes an appropriation to the  
 6 commission under this subsection that is equal to or greater than the lapsed amount,  
 7 the commission shall reduce the total regulatory cost charge collected for that fiscal  
 8 year by a comparable amount.

9 \* **Sec. 30.** AS 41.06.060 is amended to read:

10 **Sec. 41.06.060. Definitions.** In AS 41.06.005 - 41.06.060 [THIS CHAPTER],  
 11 unless the context otherwise requires,

12 (1) "commercial use" means the sale of heat or power to a third party;

13 (2) "commission" means the Alaska Oil and Gas Conservation  
 14 Commission created under AS 31.05.005;

15 (3) "correlative rights" means the right of an owner of each property in  
 16 a geothermal system to produce without waste the owner's just and equitable share of  
 17 the geothermal resources in the geothermal system; a just and reasonable share is an  
 18 amount, so far as can be practically determined and so far as can be practically  
 19 produced without waste, that is substantially in proportion to the quantity of  
 20 recoverable geothermal resources under the owner's property relative to the total  
 21 recoverable geothermal resources in the geothermal system;

22 (4) "geothermal fluid" means liquids and steam at temperatures greater  
 23 than 120 degrees Celsius or any commercial use of liquids and steam naturally present  
 24 in a geothermal system at temperatures less than 120 degrees Celsius;

25 (5) "geothermal resources"

26 (A) means the natural heat of the earth at temperatures greater  
 27 than 120 degrees Celsius, or any use of that heat for commercial purposes,  
 28 measured at the point where the highest-temperature resources encountered  
 29 enter or contact a well or other resource extraction device or any commercial  
 30 use of the natural heat of the earth;

31 (B) includes

1 (i) the energy, including pressure, in whatever form  
2 present in, resulting from, created by, or that may be extracted from  
3 that natural heat;

4 (ii) the material medium, including steam and other  
5 gases, hot water, and hot brines constituting the geothermal fluid  
6 naturally present, as well as substances artificially introduced to serve  
7 as a heat transfer medium; and

8 (iii) all dissolved or entrained minerals and gases that  
9 may be obtained from the material medium, but excluding hydrocarbon  
10 substances and helium;

11 (6) "geothermal system" means a stratum, pool, reservoir, or other  
12 geologic formation containing geothermal resources;

13 (7) "operator" means a person drilling, maintaining, operating,  
14 producing, or in control of a well;

15 (8) "owner" means the person who has the right to drill into or produce  
16 from a geothermal system and to appropriate the geothermal resources produced from  
17 a geothermal system for that person and others;

18 (9) "waste" means, in addition to its ordinary meaning, physical waste,  
19 and includes an inefficient, excessive, or improper production, use, or dissipation of  
20 geothermal resources, including

21 (A) drilling, transporting, or storage methods that cause or tend  
22 to cause unnecessary surface loss of geothermal resources;

23 (B) locating, spacing, drilling, equipping, operating, producing,  
24 or venting of a well in a manner that results or tends to result in reducing the  
25 ultimate economic recovery of geothermal resources;

26 (10) "well" means a well drilled, converted, or reactivated for the  
27 discovery, testing, production, or subsurface injection of geothermal resources.

28 \* **Sec. 31.** AS 41.06 is amended by adding new sections to read:

29 **Article 2. Carbon Dioxide Injection and Storage.**

30 **Sec. 41.06.105. Policy on carbon dioxide storage.** For the purposes of  
31 protecting health, safety, and property in the state, it is in the public interest that to the

1 extent economically and technologically feasible, carbon dioxide be injected into and  
2 stored in oil and gas reservoirs and other geologic formations in a manner protective  
3 of waters and reservoir integrity. The state recognizes that geologic storage of carbon  
4 dioxide may require the cooperation of mineral interest holders and that, when  
5 cooperation is not achieved, regulatory procedures that promote cooperative  
6 management for protection and maximization of resources are necessary.

7 **Sec. 41.06.110. Jurisdiction over storage facilities.** The commission has  
8 jurisdiction under AS 41.06.105 - 41.06.210 over storage facilities to prevent waste,  
9 protect correlative rights, and ensure public health and safety.

10 **Sec. 41.06.115. Authority of the commission.** (a) The authority of the  
11 commission applies to all land in the state lawfully subject to the police power of the  
12 state, including private land, municipal land, state land, federal land, and land subject  
13 to the jurisdiction of the United States, and to all land included in a voluntary  
14 cooperative or unit plan of development or operation entered into in accordance with  
15 AS 38.05.730.

16 (b) When land that is subject to the commission's authority is committed to a  
17 unit agreement involving land subject to federal jurisdiction, the operation of  
18 AS 41.06.105 - 41.06.210 may be suspended if

19 (1) the unit operations are regulated by the United States; and

20 (2) conservation of resources in the reservoir or pool is accomplished  
21 in the agreement.

22 (c) The commission has the authority to

23 (1) regulate activities related to a storage facility, including  
24 construction, operation, and closure;

25 (2) require that storage operators provide assurance, including bonds,  
26 that money is available to fulfill the storage operator's duties;

27 (3) enter, at a reasonable time and manner, a storage facility to

28 (A) inspect equipment and facilities;

29 (B) observe, monitor, and investigate operation; and

30 (C) inspect records required to be maintained at the facility;

31 (4) exercise continuing jurisdiction over storage operators and storage

1 facilities, including the authority, after notice and hearing, to amend provisions in a  
2 permit and to revoke a permit;

3 (5) dissolve or change the boundaries of any commission-established  
4 oil or gas field or unit that is within or near a storage reservoir's boundaries; and

5 (6) grant, for good cause, exceptions to the requirements and  
6 implementing rules of AS 41.06.105 - 41.06.210.

7 (d) To the extent AS 31.05 does not conflict with AS 41.06.105 - 41.06.210,  
8 the provisions of AS 31.05 are applicable to wells drilled in search of, in support of,  
9 and for carbon dioxide storage.

10 (e) Nothing in AS 41.06.105 - 41.06.210 limits the authority of the  
11 Department of Natural Resources under AS 38.05.700 - 38.05.795.

12 **Sec. 41.06.120. Waste prohibited; investigation.** Waste in a storage facility  
13 or reservoir in the state is prohibited. The commission may investigate to determine  
14 whether waste exists or is imminent, or whether other facts exist that justify or require  
15 action by the commission to prohibit waste. The injection of carbon dioxide and  
16 substances commonly associated with carbon dioxide injection is not considered  
17 waste.

18 **Sec. 41.06.125. Storage facility permit.** (a) A prospective storage operator is  
19 required to obtain a permit from the commission.

20 (b) A permit may not be transferred unless the commission consents.

21 (c) A person applying for a permit shall

22 (1) request a pre-application meeting with the commission staff;

23 (2) comply with application requirements;

24 (3) pay a fee in an amount determined by the commission; and

25 (4) pay the commission the cost the commission incurs in reviewing an  
26 application, publishing notices for hearings, and holding hearings on permit  
27 applications.

28 (d) A permit application must include sufficient information to enable the  
29 commission to determine whether the storage facility will interfere with or impair an  
30 existing water, oil, gas, or other mineral interest.

31 (e) The amount of the fee in (c)(3) of this section must be based on the

1 commission's anticipated cost of processing applications, including any preliminary  
2 work in advance of receipt of an application. The commission may enter into an  
3 agreement with a prospective applicant that requires the applicant to reimburse the  
4 commission for reasonable costs of work incurred in preparing for activities before  
5 receipt of an application.

6 (f) A fee the commission receives under this section must be deposited into the  
7 carbon dioxide storage facility administrative fund established in AS 41.06.165.

8 **Sec. 41.06.130. Hearing on permit application.** (a) Before issuing a permit  
9 for a storage facility, the commission shall hold a public hearing.

10 (b) The commission shall provide notice of a public hearing under this section.  
11 The notice must be provided in the same manner as a notice under AS 31.05.050(b)  
12 and be provided to

13 (1) each mineral lessee, mineral owner, and mineral right owner of  
14 record within the storage reservoir and within one-half mile of the storage reservoir's  
15 boundaries;

16 (2) each surface owner of land overlying the storage reservoir and  
17 within one-half mile of the reservoir's boundaries; and

18 (3) any additional persons that the commission requires.

19 (c) A hearing notice required by this section must comply with deadlines set  
20 by the commission.

21 **Sec. 41.06.135. Permit requirements.** (a) The commission shall consult with  
22 the Department of Environmental Conservation and the Department of Natural  
23 Resources before issuing a permit under AS 41.06.125.

24 (b) Before the commission may approve a permit applied for under  
25 AS 41.06.125, the commission shall find

26 (1) that the storage operator has complied with all requirements set by  
27 the commission;

28 (2) that the proposed storage facility is suitable and feasible for carbon  
29 dioxide injection and storage;

30 (3) that the carbon dioxide to be stored is of a quality that allows it to  
31 be safely and efficiently stored in the storage reservoir;

1 (4) that the storage operator has made a good-faith effort to get the  
2 consent of all persons with an ownership interest in the reservoir and surface owners  
3 of land overlying the proposed storage reservoir;

4 (5) if the proposed storage facility contains commercially valuable  
5 minerals, that the interests of the mineral owners or mineral lessees will not be  
6 adversely affected or have been addressed in an arrangement entered into by the  
7 mineral owners or mineral lessees and the storage operator;

8 (6) that the proposed storage facility will not adversely affect surface  
9 waters or formations containing fresh water;

10 (7) that carbon dioxide is not reasonably anticipated to escape from the  
11 storage reservoir;

12 (8) that substances that compromise the objectives of AS 41.06.105 -  
13 41.06.210 or the integrity of a storage reservoir will not enter a storage reservoir;

14 (9) that the proposed storage facility will not endanger human health or  
15 unduly endanger the environment;

16 (10) that the proposed storage facility is in the public interest;

17 (11) that the horizontal and vertical boundaries of the proposed storage  
18 reservoir are defined and the boundaries include buffer areas to ensure that the storage  
19 facility is operated safely and as contemplated;

20 (12) that the storage operator will establish monitoring facilities and  
21 protocols to assess the location and migration of carbon dioxide injected for storage  
22 and to ensure compliance with all permit, statutory, and administrative requirements;

23 (13) that all nonconsenting land owners or holders of mineral rights are  
24 or will be equitably compensated; and

25 (14) that the storage operator is not in violation of a provision of  
26 AS 41.06.105 - 41.06.210 or regulations adopted by the commission.

27 **Sec. 41.06.140. Permit provisions.** The commission may include in a permit  
28 or order any parameters necessary to carry out the objectives of AS 41.06.105 -  
29 41.06.210 and to protect and adjust the respective rights and obligations of persons  
30 affected by geologic storage.

31 **Sec. 41.06.145. Amalgamating property interests.** If a storage operator does



1 not obtain the consent of all persons with an ownership interest in the storage  
 2 reservoir, the commission may order that the mineral rights of nonconsenting owners  
 3 be included in a storage facility and subject to geologic storage. Before the  
 4 commission may issue an order effectuating an amalgamation under this section, the  
 5 commission must provide public notice and hold a hearing.

6 **Sec. 41.06.150. Certificate.** When the commission issues a permit under  
 7 AS 41.06.125, the commission shall also issue a certificate that states the permit has  
 8 been issued, describes the area covered, and contains information the commission  
 9 deems appropriate. The storage operator may file a copy of the certificate with the  
 10 office of the recorder in the district the facility is located.

11 **Sec. 41.06.155. Environmental protection; reservoir integrity.** (a) The  
 12 commission shall take action to ensure that

13 (1) substances that compromise the integrity of a storage reservoir do  
 14 not enter a storage reservoir; and

15 (2) carbon dioxide does not escape from a storage facility.

16 (b) For the purposes of this section and in the application of other laws, carbon  
 17 dioxide that is stored and remains in storage under a permit is not a pollutant and does  
 18 not constitute a nuisance.

19 (c) The commission's authority under (a) of this section does not limit the  
 20 jurisdiction of the Department of Environmental Conservation.

21 **Sec. 41.06.160. Preservation of rights.** Nothing in AS 41.06.105 - 41.06.210

22 (1) prejudices the rights of those with property interests within a  
 23 storage facility to exercise rights that have not been committed to a storage facility; or

24 (2) prevents a mineral owner or mineral lessee from drilling through or  
 25 near a storage reservoir to explore for and develop minerals, provided the drilling,  
 26 production, and related activities comply with commission requirements that preserve  
 27 the storage facility's integrity and protect the objectives of AS 41.06.105 - 41.06.210.

28 **Sec. 41.06.165. Fees; carbon dioxide storage facility administrative fund.**

29 (a) A storage operator shall pay the commission a fee on each ton of carbon dioxide  
 30 injected for geologic storage. The fee must be in the amount set by the commission.  
 31 The amount must be based on the anticipated expenses that the commission will incur

1 in regulating storage facilities during their construction, operational, and pre-closure  
2 phases. The fee shall be deposited in the carbon dioxide storage facility administrative  
3 fund established in (b) of this section.

4 (b) The carbon dioxide storage facility administrative fund is established in  
5 the general fund. The fund consists of

- 6 (1) fees received under (a) of this section;
- 7 (2) fees received under AS 41.06.125 and 41.06.200; and
- 8 (3) interest earned on the fund.

9 (c) Expenditure from the fund is subject to appropriation. The appropriation  
10 may be made by general appropriation of program receipts conditioned on compliance  
11 with the program review provisions of AS 37.07.080(h). The commission, however,  
12 through a cooperative agreement with another state agency, may use the fund to  
13 compensate the cooperating agency for expenses the cooperating agency incurs in  
14 carrying out regulatory responsibilities that the agency may have over a storage  
15 facility.

16 **Sec. 41.06.170. Title to carbon dioxide.** The storage operator has title to the  
17 carbon dioxide injected into and stored in a storage reservoir and holds title until the  
18 commission issues a certificate of completion under AS 41.06.175. While the storage  
19 operator holds title, the operator is liable for any damage the carbon dioxide may  
20 cause, including damage caused by carbon dioxide that escapes from the storage  
21 facility.

22 **Sec. 41.06.175. Certificate of completion, release, and transfer of title and**  
23 **custody.** (a) After carbon dioxide injections into a reservoir end and upon application  
24 by the storage operator, the commission shall consider issuing a certificate of  
25 completion. The certificate may only be issued after public notice and hearing. The  
26 commission shall establish notice requirements for the hearing. The certificate may  
27 only be issued after the commission has consulted with the Department of  
28 Environmental Conservation, the Department of Natural Resources, and all persons  
29 with an ownership interest in the storage reservoir. The certificate may not be issued  
30 until at least 10 years after carbon dioxide injections end.

31 (b) A certificate of completion may only be issued if the storage operator

- 1 (1) is in full compliance with all laws governing the storage facility;
- 2 (2) shows that the operator has addressed all pending claims regarding  
3 the storage facility's operation;
- 4 (3) shows that the underground place or pore space where the carbon  
5 dioxide was injected or stored is expected to no longer expand vertically or  
6 horizontally and is expected to pose no threat to human health, human safety, the  
7 environment, or underground sources of drinking water;
- 8 (4) shows that the stored or injected carbon dioxide is unlikely to cross  
9 any underground or pore space boundary and is not expected to endanger any  
10 underground source of drinking water or otherwise endanger human health, human  
11 safety, or the environment;
- 12 (5) shows that all wells, equipment, and facilities to be used in the  
13 post-closure period are in good condition and retain mechanical integrity;
- 14 (6) shows that the operator has plugged wells, removed equipment and  
15 facilities, and completed reclamation work as required by the commission;
- 16 (7) has paid all fees and surcharges for the facility; and
- 17 (8) meets any other regulatory requirements established by the state.

18 (c) Once a certificate of completion is issued, title to the storage facility and to  
19 the stored carbon dioxide transfers, without payment of any compensation, to the state  
20 under management of the Department of Natural Resources. Title acquired by the state  
21 includes all rights and interests in, and all responsibilities associated with, the stored  
22 carbon dioxide. The storage operator and all persons who generated any injected  
23 carbon dioxide are released from liability to the state associated with the storage  
24 facility, provided that the liability to the state shall not result in the payment of any  
25 damages in excess of the balance of the carbon storage closure trust fund established  
26 in AS 37.14.850. Any bonds posted by the storage operator must be released.

27 **Sec. 41.06.180. Carbon storage facility injection surcharge.** A storage  
28 operators shall pay the commission a surcharge on each ton of carbon dioxide injected  
29 for storage. The surcharge must be in the amount set by the commission. The amount  
30 must be based on anticipated expenses that the state will incur in regulating storage  
31 facilities during post-closure phases. The surcharge shall be deposited in the carbon

1 storage closure trust fund established in AS 37.14.850.

2 **Sec. 41.06.185. Penalties.** (a) In addition to the penalties in (b) - (d) of this  
3 section, a person who violates a provision of AS 41.06.105 - 41.06.210 or a  
4 commission regulation, order, or term of a permit issued under AS 41.06.105 -  
5 41.06.210, is liable for a civil penalty of not more than \$100,000 for the initial  
6 violation and not more than \$10,000 for each day after that on which the violation  
7 continues.

8 (b) A person who knowingly commits an act specified in AS 11.46.630(a) for  
9 the purpose of evading a provision of this chapter, a regulation adopted under this  
10 chapter, or an order, stipulation, or term of a permit issued by the commission is guilty  
11 of a class A misdemeanor.

12 (c) A person who knowingly aids or abets another person in the violation of a  
13 provision of this chapter, a regulation adopted under this chapter, or an order,  
14 stipulation, or term of a permit issued by the commission is subject to the same  
15 penalty as that prescribed in this chapter for the violation by the other person.

16 (d) A person who knowingly violates a provision of this chapter, a regulation  
17 adopted under this chapter, or an order, stipulation, or term of a permit issued by the  
18 commission is guilty of a misdemeanor punishable by a fine of not more than \$10,000  
19 a day for each day of violation.

20 (e) The commission may assess the civil penalties provided in this section,  
21 and, if not paid, the penalties are recoverable by suit filed by the attorney general in  
22 the name and on behalf of the commission in the superior court. The payment of a  
23 penalty does not relieve a person on whom the penalty is imposed from liability to any  
24 other person for damages arising out of the violation.

25 (f) In determining the amount of a penalty assessed under (a) of this section,  
26 the commission shall consider

27 (1) the extent to which the person committing the violation was acting  
28 in good faith in attempting to comply;

29 (2) the extent to which the person committing the violation acted in a  
30 wilful or knowing manner;

31 (3) the extent and seriousness of the violation and the actual or

1 potential threat to public health or the environment;

2 (4) the economic or environmental harm, or injury to the public,  
3 caused by the violation;

4 (5) the economic value or other benefits derived by the person  
5 committing the violation from the violation;

6 (6) any history of previous violations by the person committing the  
7 violation;

8 (7) the need to deter similar behavior by the person committing the  
9 violation and others similarly situated at the time of the violation or in the future;

10 (8) the effort made by the person committing the violation to correct  
11 the violation and prevent future violations; and

12 (9) other matters justice requires.

13 **Sec. 41.06.190. Enhanced oil recovery.** (a) Except as provided in (b) of this  
14 section, the provisions of AS 41.06.105 - 41.06.210 do not apply to applications filed  
15 with the commission proposing to use carbon dioxide for enhanced oil or gas  
16 recovery.

17 (b) The commission may adopt regulations that allow enhanced oil or gas  
18 recovery and related well activities to be converted to a storage facility. If adopted, the  
19 regulations must require that in considering whether to approve a conversion, and  
20 upon conversion, AS 41.06.105 - 41.06.210 and its implementing rules apply. The  
21 regulations may impose additional requirements to, or waive the requirements of,  
22 AS 41.06.105 - 41.06.210 for good cause and to ensure that the objectives of  
23 AS 41.06.105 - 41.06.210 are met.

24 **Sec. 41.06.195. Cooperative agreements and contracts.** (a) The commission  
25 may enter into agreements with other governments, government entities, and state  
26 agencies for the purpose of carrying out the objectives of AS 41.06.105 - 41.06.210.

27 (b) The commission may enter into contracts with private persons to assist in  
28 carrying out the objectives of AS 41.06.105 - 41.06.210. If an emergency exists, the  
29 commission may enter into contracts without public notice and without competitive  
30 bidding.

31 **Sec. 41.06.200. Determining storage amounts; carbon credits; fees.** (a) The

1 commission, under procedures and criteria the commission may adopt, may determine  
 2 the amount of carbon dioxide that may be injected and stored in a reservoir, including  
 3 for enhanced oil or gas recovery.

4 (b) The purpose of determining storage amounts is to facilitate using the  
 5 stored carbon dioxide for matters including carbon credits, allowances, trading,  
 6 emissions allocations, and offsets. The commission may charge a reasonable fee to a  
 7 person requesting a storage determination. The commission shall set the fee by  
 8 regulation. A fee the commission receives for a storage determination must be  
 9 deposited into the carbon dioxide storage facility administrative fund established in  
 10 AS 41.06.165.

11 **Sec. 41.06.210. Definitions.** In AS 41.06.105 - 41.06.210, unless the context  
 12 requires otherwise,

13 (1) "carbon dioxide" means carbon dioxide of a quality that

14 (A) will not compromise the safety of geologic storage; and

15 (B) will not compromise the properties of a storage reservoir  
 16 that allow the reservoir to effectively enclose and contain a stored gas or stored  
 17 supercritical fluid;

18 (2) "commission" means the Alaska Oil and Gas Conservation  
 19 Commission created under AS 31.05.005;

20 (3) "geologic storage" means the permanent or short-term underground  
 21 storage of carbon dioxide in a storage reservoir;

22 (4) "permit" means a permit issued by the commission allowing a  
 23 person to operate a storage facility;

24 (5) "pore space" means a cavity or void in a subsurface sedimentary  
 25 stratum;

26 (6) "reservoir" means a subsurface sedimentary stratum, formation,  
 27 aquifer, cavity, or void, including pore space, oil and gas reservoirs, saline formations,  
 28 and coal seams suitable for or capable of being made suitable for injecting and storing  
 29 carbon dioxide;

30 (7) "storage facility" means the storage reservoir, underground  
 31 equipment, well, and surface facilities and equipment used or proposed to be used in

1 accordance with a permit; "storage facility" does not include pipelines, compressors,  
 2 surface facilities, and equipment used to transport carbon dioxide to the storage  
 3 facility that are unrelated to well safety and metering;

4 (8) "storage operator" means a person holding or applying for a permit;

5 (9) "storage reservoir" means a reservoir proposed, authorized, or used  
 6 for storing carbon dioxide;

7 (10) "supercritical fluid" means a substance at or above its critical  
 8 temperature and critical pressure that is neither a liquid nor a gas but that has  
 9 properties of both;

10 (11) "waste" means, in addition to its ordinary meaning, physical  
 11 waste, and includes inefficient, excessive, or improper operation of a storage facility  
 12 or well;

13 (12) "well" means a well that is drilled, converted, or reactivated for  
 14 discovery, testing, or subsurface injection into a reservoir.

15 \* **Sec. 32.** AS 41.21.167(a) is amended to read:

16 (a) The land and water areas described in AS 41.21.161 are not open to  
 17 mineral entry under AS 38.05.135 - 38.05.275 **and 38.05.700 - 38.05.795.**

18 \* **Sec. 33.** AS 41.21.491(d) is amended to read:

19 (d) Except for oil and gas leasing under AS 38.05.180 **and carbon storage**  
 20 **licensing and leasing under AS 38.05.700 - 38.05.795,** the mineral estate in the state-  
 21 owned land and water described in (a) of this section is closed to mineral entry under  
 22 AS 38.05.181 - 38.05.275.

23 \* **Sec. 34.** AS 41.21.502(c) is amended to read:

24 (c) The mineral estate in the state-owned land and water described in (a) of  
 25 this section is open to oil and gas leasing under AS 38.05.180 **and carbon storage**  
 26 **licensing and leasing under AS 38.05.700 - 38.05.795.** The mineral estate in the  
 27 state-owned land and water described in (a) of this section is closed to mineral entry  
 28 under AS 38.05.181 - 38.05.275.

29 \* **Sec. 35.** AS 41.21.617 is amended to read:

30 **Sec. 41.21.617. Other uses generally.** The state land and water described in  
 31 AS 41.21.611(b) is closed to mineral entry under AS 38.05.135 - 38.05.275 **and**

1        **38.05.700 - 38.05.795**, to commercial harvest of timber, and to sale under state land  
2        disposal laws. The commissioner may lease the land described in AS 41.21.611(b)  
3        under AS 38.05.070 - 38.05.105 for a purpose consistent with AS 41.21.610(a) and  
4        (b). A municipality may select land within the Alaska Chilkat Bald Eagle Preserve  
5        under law.

6        \* **Sec. 36.** AS 44.37.020 is amended by adding a new subsection to read:

7                (d) The Department of Natural Resources shall administer storage facilities  
8                and stored carbon transferred to the state under AS 41.06.175.

9        \* **Sec. 37.** The uncodified law of the State of Alaska is amended by adding a new section to  
10        read:

11                TRANSITION: REGULATIONS. The Department of Natural Resources and the  
12        Alaska Oil and Gas Conservation Commission may adopt regulations necessary to implement  
13        the changes made by this Act. The regulations take effect under AS 44.62 (Administrative  
14        Procedure Act), but not before the effective date of the law implemented by the regulation.

15        \* **Sec. 38.** The uncodified law of the State of Alaska is amended by adding a new section to  
16        read:

17                REVISOR'S INSTRUCTION. The revisor of statutes is requested to change the  
18        chapter heading for AS 41.06 from "Geothermal Resources" to "Geothermal Resources and  
19        Carbon Storage."

20        \* **Sec. 39.** Section 37 of this Act takes effect immediately under AS 01.10.070(c).



# Fiscal Note

State of Alaska  
2023 Legislative Session

Bill Version:	SB 49
Fiscal Note Number:	1
(S) Publish Date:	1/27/2023

Identifier: 0567-DNR-DOG-1-25-23  
 Title: CARBON STORAGE  
 Sponsor: RLS BY REQUEST OF THE GOVERNOR  
 Requester: Governor

Department: Department of Natural Resources  
 Appropriation: Oil & Gas  
 Allocation: Oil & Gas  
 OMB Component Number: 439

**Expenditures/Revenues**

Note: Amounts do not include inflation unless otherwise noted below. (Thousands of Dollars)

	FY2024	Included in	Out-Year Cost Estimates					
	Appropriation Requested	Governor's FY2024 Request	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
<b>OPERATING EXPENDITURES</b>	<b>FY 2024</b>	<b>FY 2024</b>						
Personal Services	400.0		400.0	400.0	400.0	400.0	400.0	400.0
Travel	32.0		32.0	16.0	16.0	16.0	16.0	16.0
Services	24.0		24.0	8.0	8.0	8.0	8.0	8.0
Commodities								
Capital Outlay								
Grants & Benefits								
Miscellaneous								
<b>Total Operating</b>	<b>456.0</b>	<b>0.0</b>	<b>456.0</b>	<b>424.0</b>	<b>424.0</b>	<b>424.0</b>	<b>424.0</b>	<b>424.0</b>

**Fund Source (Operating Only)**

1004 Gen Fund (UGF)	336.0		336.0	304.0	304.0	304.0	304.0
1105 PF Gross (Other)	120.0		120.0	120.0	120.0	120.0	120.0
<b>Total</b>	<b>456.0</b>	<b>0.0</b>	<b>456.0</b>	<b>424.0</b>	<b>424.0</b>	<b>424.0</b>	<b>424.0</b>

**Positions**

Full-time	2.0						
Part-time							
Temporary							

**Change in Revenues**

None	***		***	***	***	***	***
<b>Total</b>	<b>***</b>	<b>0.0</b>	<b>***</b>	<b>***</b>	<b>***</b>	<b>***</b>	<b>***</b>

**Estimated SUPPLEMENTAL (FY2023) cost:** 500.0 *(separate supplemental appropriation required)*

**Estimated CAPITAL (FY2024) cost:** 750.0 *(separate capital appropriation required)*

**Does the bill create or modify a new fund or account?** Yes  
*(Supplemental/Capital/New Fund - discuss reasons and fund source(s) in analysis section)*

**ASSOCIATED REGULATIONS**

Does the bill direct, or will the bill result in, regulation changes adopted by your agency? Yes  
 If yes, by what date are the regulations to be adopted, amended or repealed? 6/31/2024

**Why this fiscal note differs from previous version/comments:**

Initial version, not applicable

Prepared By:	Ryan Fitzpatrick, Commercial Analyst	Phone:	(907)269-8801
Division:	Oil & Gas	Date:	01/23/2023 07:30 AM
Approved By:	Theresa Cross, Administrative Services Director	Date:	01/24/23
Agency:	Department of Natural Resources		

## FISCAL NOTE ANALYSIS

STATE OF ALASKA  
2023 LEGISLATIVE SESSION

## Analysis

**Purpose of Legislation**

The purpose of this legislation is to establish a comprehensive regulatory structure for Carbon Capture, Utilization, and Storage ("CCUS") projects within the State of Alaska. The bill allows DNR to lease State lands for carbon storage projects, establishes a CCUS regulatory regime within the Alaska Oil & Gas Conservation Commission ("AOGCC"), allows AOGCC to pursue primacy for UIC Class VI carbon dioxide injection wells, and expands existing regulatory authority over oil & gas pipelines to carbon dioxide pipelines.

**New Positions**

The majority of the work necessary to administer the Carbon Capture, Utilization, and Storage Program within the Division of Oil & Gas would be managed with existing staff resources. Two new positions would be added within the Division in sections that would be most heavily involved in CCUS program implementation and oversight. One new Storage Geologist I/II position would be added within the Resource Evaluation section to evaluate and characterize carbon storage resources within the state and to undertake technical evaluation of carbon storage applications and project oversight reviews. One new Economist II/III/IV position would be added within the Commercial Section to conduct research on commercial and fiscal storage terms and long-term liability issues and to support the Commercial Section in the analysis and negotiation of commercial, fiscal, and liability terms of storage license and lease applications.

**Travel & Services**

Line items for Travel & Services cover costs for (a) education and training for Division personnel, and (b) inspection visits for evaluating Carbon Storage applications. Given that the Division anticipates that most work for this program would be conducted by current employees, additional funds for training are allocated in FY 24 & 25 during program stand-up.

**Capital Costs**

The capital budget request in FY 2024 is included to provide for consultant services during program stand-up. The Division anticipates that the primary consultant functions would be to aid in the development of regulation packages, assist in the drafting of model license and lease forms, and assist in the development of economic evaluation models for commercial evaluations and analysis of long-term liabilities. Capital costs may also be used to procure specialized geologic and economic analysis software packages used for evaluation of carbon storage projects.

**New Fund - Carbon Storage Closure Trust Fund**

The legislation creates a new "Carbon Storage Closure Trust Fund." The fund will be funded through payments from Carbon Storage Facility operators based on the volume of injected carbon. The payment amounts will be set by the Alaska Oil & Gas Conservation Commission at the time that a permit is issued for the facility. The fund is intended to be used for long-term monitoring and maintenance related to injected underground carbon after a carbon storage facility has ceased operation and the operator has dismantled infrastructure and remediated the facility site except for the underground carbon.

**Regulations**

This legislation is likely to result in DNR issuing new regulations concerning the evaluation of applications for carbon storage licenses and leases and for establishing a competitive bidding process for competing license applications. DNR anticipates that regulations should be promulgated within 12 months of final passage. DNR is likely to coordinate regulatory proposals with other agencies involved in CCUS oversight activities in order to ensure harmonization of regulatory programs given the complexity of the subject matter.

FISCAL NOTE ANALYSIS

STATE OF ALASKA  
2023 LEGISLATIVE SESSION

BILL NO. LL 0567-3

**Analysis**

**Supplemental FY2023 operating costs**

The legislation may result in significant expenditures in the current fiscal year, both to assess and engage with proposed amendments throughout the development of the legislation, and to immediately begin implementation and staffing efforts to ensure the program is able to operate shortly after enactment. We anticipate these would be one-time costs for specialized professional services, regulatory development, and assessments of markets at start up.

# Fiscal Note

State of Alaska  
2023 Legislative Session

Bill Version:	SB 49
Fiscal Note Number:	2
(S) Publish Date:	1/27/2023

Identifier: 0567-3-DCCED-AOGCC-01-26-23  
 Title: CARBON STORAGE  
 Sponsor: RLS BY REQUEST OF THE GOVERNOR  
 Requester: Governor

Department: Department of Commerce, Community and  
 Economic Development  
 Appropriation: Alaska Oil and Gas Conservation Commission  
 Allocation: Alaska Oil and Gas Conservation Commission  
 OMB Component Number: 3269

**Expenditures/Revenues**

Note: Amounts do not include inflation unless otherwise noted below. (Thousands of Dollars)

	FY2024	Included in	Out-Year Cost Estimates				
	Appropriation Requested	Governor's FY2024 Request	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
<b>OPERATING EXPENDITURES</b>	<b>FY 2024</b>	<b>FY 2024</b>					
Personal Services	388.0		388.0				
Travel							
Services	650.0		650.0	1,038.0	1,038.0	1,038.0	1,038.0
Commodities	20.0						
Capital Outlay							
Grants & Benefits							
Miscellaneous							
<b>Total Operating</b>	<b>1,058.0</b>	<b>0.0</b>	<b>1,038.0</b>	<b>1,038.0</b>	<b>1,038.0</b>	<b>1,038.0</b>	<b>1,038.0</b>

**Fund Source (Operating Only)**

1004 Gen Fund (UGF)	1,058.0						
1252 DGF Temp (DGF)			1,038.0	1,038.0	1,038.0	1,038.0	1,038.0
<b>Total</b>	<b>1,058.0</b>	<b>0.0</b>	<b>1,038.0</b>	<b>1,038.0</b>	<b>1,038.0</b>	<b>1,038.0</b>	<b>1,038.0</b>

**Positions**

Full-time	2.0		2.0				
Part-time							
Temporary							

**Change in Revenues**

None	***	***	***	***	***	***	***
<b>Total</b>	<b>***</b>	<b>***</b>	<b>***</b>	<b>***</b>	<b>***</b>	<b>***</b>	<b>***</b>

**Estimated SUPPLEMENTAL (FY2023) cost:** 0.0 *(separate supplemental appropriation required)*

**Estimated CAPITAL (FY2024) cost:** 0.0 *(separate capital appropriation required)*

**Does the bill create or modify a new fund or account?** Yes  
*(Supplemental/Capital/New Fund - discuss reasons and fund source(s) in analysis section)*

**ASSOCIATED REGULATIONS**

Does the bill direct, or will the bill result in, regulation changes adopted by your agency? Yes  
 If yes, by what date are the regulations to be adopted, amended or repealed? 12/31/23

**Why this fiscal note differs from previous version/comments:**

Not applicable, initial version.

Prepared By:	Brett W. Huber, Sr., Chair, Commissioner	Phone:	(907)793-1223
Division:	Alaska Oil and Gas Conservation Commission	Date:	01/26/2023 08:38 AM
Approved By:	Hannah Lager, Acting Administrative Services Director	Date:	01/26/23
Agency:	Department of Commerce, Community, and Economic Development		

## FISCAL NOTE ANALYSIS

STATE OF ALASKA  
2023 LEGISLATIVE SESSION

## Analysis

This bill draft expands existing authority and responsibilities of the Alaska Oil and Gas Conservation Commission (AOGCC) to create a regulatory structure for carbon capture, utilization, and storage (CCUS) in Alaska. This bill grants AOGCC authority to pursue primacy from the U.S. Environmental Protection Agency over Class VI wells needed for CCUS injection, and amends the general property laws of Alaska to clarify pore space ownership for private parties. The bill also creates a carbon storage closure trust fund to pay for post-closure maintenance and monitoring of carbon dioxide storage facilities by the state, and establishes AOGCC's regulatory authority over carbon dioxide injection and storage facilities.

If the bill passes the following expenses will be incurred:

Personal Services:                   \$388.0 per year in FY2024 and FY2025 for one fully-exempt Senior Carbon Engineer (R26) and one fully-exempt Carbon Assistant (R18)

Services:                               \$50.0 in FY2024 and FY2025 for statewide and department allocated core services costs  
   \$300.0 for legal support through the Department of Law  
   \$300.0 per year for other contractual services, which may include contracted expertise for project development  
   \$388.0 per year in FY2026 to FY2029 for contractual costs for permit management support

Commodities:                         \$20.0 in FY2024 only for setup costs for new employees

The volume of permit applications and program activity beginning in FY2026 is not known at this time. Permit management and administration may be managed via contractual support or by AOGCC staff. In this fiscal note, costs for permit support are included in the services line from FY2026-FY2029.

This legislation also creates the Carbon Storage Closure Trust Fund (CSCTF). The amount and timing of revenue to support operations is not yet known; in the first year, operations are funded from general funds. Revenues collected in the CSCTF will be used to support the costs of regulating the program incurred by the AOGCC starting in year 2. The amount of revenue to be collected in the fund cannot be determined at this time.

Regulations in support of the program will be required.

# Fiscal Note

State of Alaska  
2023 Legislative Session

Bill Version:	SB 49
Fiscal Note Number:	3
(S) Publish Date:	1/27/2023

Identifier: 0567-DOR-TAX-01-26-23  
 Title: CARBON STORAGE  
 Sponsor: RLS BY REQUEST OF THE GOVERNOR  
 Requester: Governor

Department: Department of Revenue  
 Appropriation: Taxation and Treasury  
 Allocation: Tax Division  
 OMB Component Number: 2476

**Expenditures/Revenues**

Note: Amounts do not include inflation unless otherwise noted below. (Thousands of Dollars)

	FY2024	Included in	Out-Year Cost Estimates				
	Appropriation Requested	Governor's FY2024 Request	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
<b>OPERATING EXPENDITURES</b>	<b>FY 2024</b>	<b>FY 2024</b>					
Personal Services							
Travel							
Services							
Commodities							
Capital Outlay							
Grants & Benefits							
Miscellaneous							
<b>Total Operating</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>

**Fund Source (Operating Only)**

None							
<b>Total</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>

**Positions**

Full-time							
Part-time							
Temporary							

**Change in Revenues**

None	***		***	***	***	***	***
<b>Total</b>	***	<b>0.0</b>	***	***	***	***	***

**Estimated SUPPLEMENTAL (FY2023) cost:** 0.0 *(separate supplemental appropriation required)*

**Estimated CAPITAL (FY2024) cost:** 0.0 *(separate capital appropriation required)*

**Does the bill create or modify a new fund or account?** Yes  
*(Supplemental/Capital/New Fund - discuss reasons and fund source(s) in analysis section)*

**ASSOCIATED REGULATIONS**

Does the bill direct, or will the bill result in, regulation changes adopted by your agency? No  
 If yes, by what date are the regulations to be adopted, amended or repealed? N/A

**Why this fiscal note differs from previous version/comments:**

Not applicable, initial version.

Prepared By:	Fadil Limani and Brian Fechter, Deputy Commissioner	Phone:	(907)465-3761
Division:	Commissioner's Office	Date:	01/26/2023 08:30 AM
Approved By:	Adam Crum, Commissioner	Date:	01/26/23
Agency:	Commissioner's Office		

## Analysis

The last several years have witnessed a rapid acceleration of interest in Carbon Capture, Utilization, and Sequestration (CCUS) technologies and projects. CCUS projects seek to capture anthropogenic CO<sub>2</sub>, chiefly from industrial sources, and inject the CO<sub>2</sub> stream into underground geologic formations in order to permanently sequester the carbon rather than emit it into the atmosphere.

Federal Legislation in 2022 and 2023, primarily the Inflation Reduction Act, has increased the amount of an existing credit known as the "45Q." The 45Q, in short, allows for a credit against both federal and state corporate income taxes on a per ton of CO<sub>2</sub> basis for either sequestration of CO<sub>2</sub> for permanent storage or for enhanced oil recovery (at a lower credit level).

This bill would empower regulatory agencies to apply for class VI primacy from the federal government and establish a framework for application, storage, potential remediation of Carbon Capture, Sequestration, Utilization and Storage. It establishes several funds for the deposit of moneys generated from the program. The Department believes that the funds can be established and invested using existing resources.

Revenue potential is uncertain at this stage. While the 45Q credit will reduce the state's corporate income tax collection because the state tax code adopts by reference the federal code, there are numerous fees, penalties, and other charges that will generate the revenue necessary to administer this new program. Additionally, there is the potential for the state to monetize carbon injection from other jurisdictions for a fee once the program is underway. For these reasons, and because obtaining class VI primacy from the Environmental Protection Agency will take time, the Department of Revenue cannot say within an acceptable margin of error what the ultimate revenue potential will be at this stage.

# Fiscal Note

State of Alaska  
2023 Legislative Session

Bill Version:	SB 49
Fiscal Note Number:	4
(S) Publish Date:	1/27/2023

Identifier: 0567-DEC-AQ-01-26-23  
 Title: CARBON STORAGE  
 Sponsor: RLS BY REQUEST OF THE GOVERNOR  
 Requester: Governor

Department: Department of Environmental Conservation  
 Appropriation: Air Quality  
 Allocation: Air Quality  
 OMB Component Number: 2061

**Expenditures/Revenues**

Note: Amounts do not include inflation unless otherwise noted below. (Thousands of Dollars)

	FY2024	Included in	Out-Year Cost Estimates				
	Appropriation Requested	Governor's FY2024 Request	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
<b>OPERATING EXPENDITURES</b>	<b>FY 2024</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>FY 2028</b>	<b>FY 2029</b>
Personal Services	***		***	***	***	***	***
Travel							
Services							
Commodities							
Capital Outlay							
Grants & Benefits							
Miscellaneous							
<b>Total Operating</b>	***	<b>0.0</b>	***	***	***	***	***

**Fund Source (Operating Only)**

None							
<b>Total</b>	***	<b>0.0</b>	***	***	***	***	***

**Positions**

Full-time							
Part-time							
Temporary							

**Change in Revenues**

None	***		***	***	***	***	***
<b>Total</b>	***	<b>0.0</b>	***	***	***	***	***

**Estimated SUPPLEMENTAL (FY2023) cost:** 0.0 *(separate supplemental appropriation required)*

**Estimated CAPITAL (FY2024) cost:** 0.0 *(separate capital appropriation required)*

**Does the bill create or modify a new fund or account?** No  
*(Supplemental/Capital/New Fund - discuss reasons and fund source(s) in analysis section)*

**ASSOCIATED REGULATIONS**

Does the bill direct, or will the bill result in, regulation changes adopted by your agency? Possible  
 If yes, by what date are the regulations to be adopted, amended or repealed? Unknown

**Why this fiscal note differs from previous version/comments:**

Not applicable, initial version.
----------------------------------

Prepared By:	Jason Olds	Phone:	(907)465-5109
Division:	Air Quality	Date:	01/26/2023 08:00 AM
Approved By:	Jason Brune	Date:	01/26/23
Agency:	Commissioner		



## FISCAL NOTE ANALYSIS

STATE OF ALASKA  
2023 LEGISLATIVE SESSION

## Analysis

The Division of Air Quality supports the efforts described in this bill to reduce carbon emissions into the atmosphere.

The Division of Air Quality's mission to control and mitigate air pollution and for conserving the clean air is funded primarily through permit administration and emission fees under 18 AAC 50.400 and are reset on a four-year cycle. The existing fee regulations, adopted in 2022, assumes that pollution emissions will remain relatively stable over the next four years by companies holding air quality permits. However, this bill allows companies to reduce those atmospheric emissions by pumping them back into the ground and would reduce their expelled tonnage. The Division's work of permitting air quality sources, monitoring, and associated compliance activities would not diminish despite companies reducing their emission footprint, but the associated revenue based currently on tonnage polluted would be reduced as a result of this bill.

The fiscal impact is indeterminate at this time.

It is unclear to what extent, and how quickly, oil and gas permittees may utilize carbon sequestration and reduce their emissions possibly to zero. The Division currently permits 42 oil and gas sources with the potential to emit over 250 tons per year. These 42 facilities combined allow for a maximum annual potential to emit 161,327 tons. However, stationary sources are allowed to submit reports of their actual emissions in lieu of paying emission fees on the maximum potential to emit. In FY23, the reported assessable pollution for these 42 facilities emitted 45,685 tons of air emissions. If additional emissions are generated and only carbon dioxide is separated from emissions and sequestered, there may be a net increase in other types of emissions due to the additional equipment used to separate out the emissions, resulting in an increase to fees and program support. Current tonnage fees for regulated pollutants of these facilities are \$84.29/ton.

Depending on the nature of emissions sequestered, this bill could necessitate a revenue substitute for the associated Clean Air Protection Fund (CAPF) revenue that may be lost as a result of air emission reductions.



## Sectional Analysis

### Senate Bill 49 – Carbon Storage (33-GS1567A)

*Sections 1 and 2 amend the Alaska Oil and Gas Conservation Act (AS 31.05)*

**Section 1:** The short title for this act is the “Carbon Capture, Utilization, and Storage Act.”

**Section 2:** Amends AS 31.05.027 to expand the regulatory authority of the Alaska Oil and Gas Conservation Commission (AOGCC) to include land included in a voluntary cooperative, unit plan of development, or operation entered into in accordance with proposed AS 38.05.730 (see Section 14).

**Section 3:** Amends AS 31.05.030(h) to expand AOGCC's existing power to take all actions necessary to obtain state primary enforcement responsibility over Class I wells to include all actions necessary to acquire state primary enforcement over Class VI wells. Class VI wells are used to inject carbon dioxide into deep rock formations for long-term underground storage.

*Section 4 creates a carbon storage closure trust fund in AS 37.14*

**Section 4:** Adds a new section AS 37.14.850 to create a “Carbon Storage Closure Trust Fund,” which is not a dedicated fund, and will include two accounts: an income account and an operating account. The income account consists of payments received by AOGCC under new authorities granted under AS 41.06 by this bill. The income account is to be transferred annually to the operating account by legislative appropriation.

*Sections 5 through 14 Amend the Alaska Land Act (AS 38.05)*

**Section 5:** Amends AS 38.05.069(e), adding carbon storage under AS 38.05.700-38.05.795 (see Section 14) as an exception to the general rule that the DNR director of the division of lands cannot transfer state land classified as agriculture except for agricultural purposes, thereby allowing for agricultural lands to be transferred for mineral disposal for carbon storage.

**Section 6:** Amends AS 38.05.070(a) to exempt carbon storage leasing from application of AS 38.05.070–105 when state lands are leased for purposes other than extrication of natural resources.

**Section 7:** Amends AS 38.05.130 to include carbon storage in requirements for liability of lessees to pay damages to landowners, post bond for that purpose, and provision for lessees to access the state mineral estate if a surface owner refuses to engage in a surface use agreement. This is the same statutory process that exists for other mineral estate development.

**Section 8:** Amends AS 38.05.135(a) to include the “Alaska Carbon Underground Storage Act” (see Section 14) in requirements and limitations for the State’s mineral estate leasing and development.

**Section 9:** Amends AS 38.05.135(c) to include provision for payments of rents or charges under the “Alaska Carbon Underground Storage Act” (see Section 14).

**Section 10:** Amends AS 38.05.135(d) to include provision for penalties on late payments of rents or charges under the “Alaska Carbon Underground Storage Act” (see Section 14).

**Section 11:** Amends AS 38.05.135(e) to include provision for interest on overpayments of rents or charges under the “Alaska Carbon Underground Storage Act” (see Section 14).

**Section 12:** Amends AS 38.05.140(a) to require carbon storage lessees under the “Alaska Carbon Underground Storage Act” (see Section 14) to be the same as the lessee of non-conventional gas under AS 38.05.180(ff)(3) or coal bed methane under AS 38.05.180(gg) where mineral leases are issued on the same land.

**Section 13:** Amends AS 38.05.184(b) to prohibit carbon storage licenses or leases from being issued in the Kachemak Bay oil and gas closure area.

**Section 14:** Adds new subsections AS 38.05.700–795 under the title “Alaska Carbon Underground Storage Act.”

1. **AS 38.05.700:** Policy statement that it is in the public interest to promote geologic storage of carbon dioxide.
2. **AS 38.05.705:** Provision for applicability carbon storage statutes and authority for DNR to adopt regulations to implement these statutes.
3. **AS 38.05.710:** Allows the commissioner to issue carbon storage exploration licenses on state land and establishes work commitment obligations, minimum economic terms, the bonding is required, default provisions, renewal provisions, and the escalation of minimum economic terms.
4. **AS 38.05.715:** Procedures for issuance of a carbon storage exploration license. These are modeled after existing procedures for oil and gas exploration licensing under [AS 38.05.133](#).

5. **AS 38.05.720:** Provision allowing conversion of an AS 38.05.715 carbon storage exploration license to a carbon storage lease.
6. **AS 38.05.725:** Provision for an oil and gas lessee who must convert a Class II injection well to a Class VI injection well to also apply for a carbon storage lease.
7. **AS 38.05.730:** Requirements for plans of development and operations, and provision for unitization, as with oil and gas leasing.
8. **AS 38.05.735:** Payments from carbon storage licenses and leases are to be deposited in the general fund except for the amount allocated to the Permanent Fund under art. IX, sec. 15, of the Alaska Constitution.
9. **AS 38.05.795:** Definitions for specific terms used in the “Alaska Carbon Underground Storage Act.”

*Sections 15 through 21 apply to the State Pipeline Coordinator’s authority under the AS 38.35 Right of Way Leasing Act.*

**Section 15:** Amends AS 38.35.020(a) to include carbon dioxide and carbon storage in the authority for right-of-way leasing.

**Section 16:** Amends AS 38.05.020(b), which allows the commissioner of DNR to exempt the construction or operation of field gathering lines from the requirement of a right-of-way lease under AS 38.35. The proposed amendment would allow the commissioner to exempt construction or operation of a pipeline transporting carbon dioxide within a field for the purpose of an enhanced oil recovery project or field pressurization measure within that same field from the requirement of a right-of-way lease under AS 38.35.

**Section 17:** Amends the title of AS 38.35.122 to read “Products pipeline *and carbon dioxide transportation pipeline* leases.” It grants the commissioner of DNR the discretion to include any or all of the terms of AS 38.35.120 for carbon dioxide transportation pipeline right-of-way purposes. AS 38.35.120 contains covenants required to be included in a lease to a pipeline that is not a natural gas pipeline contract carrier.

*Sections 18-21 amend or add definition to AS 38.35.230 which contain definitions applicable to AS 38.35.*

**Section 18:** Amends the definition of “lease” in AS 38.35.230(3) to include a reference to a pipeline transporting carbon dioxide.

**Section 19:** Amends the definition of “pipeline” or “pipeline facility” in AS 38.35.230(7) to include the transportation of carbon dioxide.

**Section 20:** Amends the definition of “transportation” in AS 38.35.230(10) to include a pipeline carrying carbon dioxide.

**Section 21:** Adds as a new subsection to define “carbon dioxide” as the meaning given in AS 38.05.795 (see Section 14).

*Sections 22 through 38 apply to AOGCC statutes under Title 41.  
Sections 22-30 are conforming amendments to the geothermal resource statutes.*

**Section 22:** Amends AS 41.06.005 regarding AOGCC and DNR’s jurisdiction over management of geothermal resources to clarify applicability to geothermal statutes (AS 41.06.005–060).

**Section 23:** Amends AS 41.06.020 to clarify applicability to geothermal statutes (AS 41.06.005–060) regarding the authority of AOGCC over geothermal resources.

**Section 24:** Amends AS 41.06.030(b) to clarify applicability to geothermal statutes (AS 41.06.005–060) regarding the authority of AOGCC to adopt regulations regarding geothermal resources.

**Section 25:** Amends AS 41.06.035(b) to clarify applicability to geothermal statutes (AS 41.06.005–060) regarding the authority of AOGCC to adopt regulations and issue orders regarding the establishment of drilling units for pools and orders regarding unitized operation and integration of interests.

**Section 26:** Amends AS 41.06.040(a) to clarify applicability to geothermal statutes (AS 41.06.005–060) regarding directing the AOGCC to adopt regulations regarding geothermal statutes.

**Section 27:** Amends AS 41.06.050(e) to clarify applicability to geothermal statutes (AS 41.06.005–060) regarding AOGCC issuing permits to drill for geothermal resources.

**Section 28:** Amends AS 41.06.055(c) to clarify that the geothermal well regulatory cost charges only apply under geothermal statutes (AS 41.06.005–060).

**Section 29:** Amends AS 41.06.055(d) to specify revenue collected for operating costs under geothermal statutes (AS 41.06.005–060) are to be identified and lapse into the general fund each year.

**Section 30:** Amends AS 41.06.060 to include definitions for geothermal statutes (AS 41.06.005–060).

**Section 31:** Adds a new article to AS 41.06, titled “Article 2. Carbon Dioxide Injection and Storage,” beginning at AS 41.06.105:

1. **AS 41.06.105:** Contains a policy statement providing that it is in the public interest to inject carbon dioxide into oil and gas reservoirs in a manner protective of waters and reservoir integrity. It also recognizes that in the event cooperation of mineral interest holders in an area cannot be obtained, regulatory procedures that enable cooperative management are required.
2. **AS 41.06.110:** Provides that the AOGCC has jurisdiction over carbon dioxide storage facilities to prevent waste, protect correlative rights, and ensure public health and safety. The term "waste" is defined in AS 41.06.210.
3. **AS 41.06.115:** Concerns AOGCC's authority to carry out the purposes and intent of AS 41.06.105 - 41.06.210. Subsection (a) contains an expansive statement of AOGCC's jurisdiction over persons and property necessary to carry out the purposes and intent of AS 41.06.105 - 41.06.210. Subsection (b) provides that the operation of AS 41.06.105 - 41.06.210 may be suspended pursuant to a unit agreement if unit operations are regulated by the United States and the agreement accomplishes "conservation of resources." The phrase "conservation of resources" is not specific to the CCUS permitting context and, if desired, could be amended to align with the purposes of AS 41.06.110 or to refer to the integrity of a geologic reservoir. Subsection (c) contains a list of specific regulatory authorities held by AOGCC. Subsection (d) provides that the provisions of AS 31.05 apply to wells drilled in search of, in support of, and for carbon dioxide storage, except in the event of a conflict with AS 41.06.105 - 41.06.210. Subsection (e) provides that nothing in AS 41.06.105 - AS 41.06.210 limits the authority of DNR over (1) carbon storage exploration licensing or leasing; or (2) approval and management of carbon storage units or operations that include state land.
4. **AS 41.06.120:** Provides that waste is prohibited in a carbon storage facility or reservoir. It also grants the AOGCC the authority to investigate whether waste exists or is imminent, or whether facts exist that justify action to prohibit waste. The section contains a statement that injection of carbon dioxide and "substances commonly associated with carbon dioxide injection" is not waste.
5. **AS 41.06.125:** Provides specifications for storage facility permitting.
6. **AS 41.06.130:** Creates a public hearing requirement for storage facility permits issued by AOGCC.
7. **AS 41.06.135:** Specifies the requirements for carbon storage facility permits.

8. **AS 41.06.140:** Allows the AOGCC to include parameters, limitations, or restrictions in a permit and to protect and adjust rights and obligations of persons affected by geologic storage.
9. **AS 41.06.145:** Concerns amalgamation of property interests and forced pooling for storage facilities.
10. **AS 41.06.150:** Creates specifications for a carbon storage facility certificate.
11. **AS 41.06.155:** Creates requirements for AOGCC to ensure environmental protection and reservoir integrity in storage facilities and reservoirs.
12. **AS 41.06.160:** Clarifies preservation of rights, including deconfliction of development of other minerals by drilling through or near a storage reservoir.
13. **AS 41.06.165:** Provides authority for AOGCC to collect fees and creation of a “carbon dioxide storage facility administrative fund” under the general fund.
14. **AS 41.06.170:** Specifies that storage operators hold title to injected carbon dioxide until a certificate is issued under AS 41.06.175, including liability for damage associated with injected carbon dioxide.
15. **AS 41.06.175:** Specifies criteria for certificate of completion a transfer of title of CO<sub>2</sub>.
16. **AS 41.06.180:** Provides authority for AOGCC to collect a “carbon storage facility injection surcharge” for post-closure administration to be deposited in the “carbon storage closure trust fund” established in AS 37.14.850.
17. **AS 41.06.185:** Provision for AOGCC to impose civil penalties for violations of its carbon storage statutes.
18. **AS 41.06.190:** Exclusion of AOGCC’s carbon storage statutes from enhanced oil recovery (EOR), except for when an EOR-related reservoir is converted to a storage reservoir.
19. **AS 41.06.195:** Authority for AOGCC to enter into agreements with other government entities and agencies for carbon storage purposes.
20. **AS 41.06.200:** Authority for AOGCC to determine amounts for injection and storage, including EOR. Also provides for fees and applicability for credits and other carbon management goals.
21. **AS 41.06.210:** Definitions for terms used in AOGCC’s carbon storage statutes.

*Sections 32-35 are conforming amendments to parks and recreational facilities laws (AS 41.21)*

**Section 32:** Amends AS 41.21.167(a) to add an exclusion for carbon storage under AS 38.05.700–799.

**Section 33:** Amends AS 41.21.491(d) to include carbon storage in the exception from the mineral estate closure described in AS 41.21.491(a).

**Section 34:** Amends AS 41.21.502(c) to include carbon storage leasing under AS 38.05.700–799, but prohibits mineral entry under AS 38.05.181–275.

**Section 35:** Amends AS 41.21.617 to close land described in AS 38.05.700–799 to commercial timber harvest and sale under state land disposal.

**Section 36:** Adds new subsection AS 44.37.020(d) for DNR to administer storage facilities and stored carbon under AS 41.06.175.

**Section 37:** Provides for DNR and AOGCC to adopt regulations to implement carbon storage under AS 44.62.

**Section 38:** Requests a title change for AS 41.06 from “Geothermal Resources” to “Geothermal and Carbon Storage.”

**Section 39:** Section 37 takes effect immediately.





# Carbon Capture, Utilization & Storage Act (CCUS)

SB 49

HB 50

## Diversify Alaska's revenue portfolio

- New revenue from carbon storage companies.
- Enhance recovery from oil and gas fields.
- Synergies with new oil production projects and LNG export business models.
- Bring new industries to Alaska to capitalize on carbon capture streams.
- Promote clean energy industry job creation.

## Bring decades-long success of oil and gas regulatory framework to CCUS

- Alaskan agencies have expertise with related technologies and regulatory frameworks.
- While the carbon storage industry is relatively new, it is already more than two decades old and depends on mature technologies.

## Why carbon storage is important?

Carbon emissions (CO and CO<sub>2</sub>) can act as “greenhouse gases” to warm the atmosphere. Many national and state governments incentivize or require businesses to compensate for their greenhouse gas emissions. One way to do this is through capture and underground storage.

## Where the carbon comes from and where it goes?

Carbon oxides can be captured in exhaust streams at power plants, industrial process facilities, oil and gas treatment plants, or through direct air capture. They are transported to injection sites by pipeline, truck, or ship and used in enhanced oil recovery or stored. CO<sub>2</sub> can also be used for production of commodities such as fuels, chemicals, construction materials, fertilizers, food and beverages, or for use in medical applications.

## How this affects the oil and gas industry and state revenue?

Many companies want or are required to account for carbon oxide emissions in development projects. This legislation could help foster new investment and development in Alaska. Streams of captured CO<sub>2</sub> could also enhance oil and gas recovery and attract new industries to Alaska, creating jobs and revenues.

## If private landowners are affected by carbon storage projects?

Private landowners retain their rights as surface owners. These situations are usually handled by a private surface use agreement between the landowner and developer. Where [AS 38.05.125](#) creates a split estate and landowners and developers are unable to agree on surface use terms, DNR can resolve disputes under [AS 38.05.130](#) and [11 AAC 86.145](#).

## Revenue and Costs

- Division of Oil & Gas will charge fees for applications and licenses, and annual rentals for leases.
- Once operations begin, injection fees similar to royalties at a rate of at least \$2.50 per ton will be charged. Fees will be collected to fund program oversight and monitoring after closure of injection facilities.
- AOGCC will assess fees to fund oversight of wells and facilities during drilling, operations, and closure.

## Costs: DNR Division of Oil & Gas

**2 new positions.** Some regulatory functions, such as licensing and leasing, follow existing oil, gas, and geothermal models and can be managed by existing staff. Additional staff for commercial and technical oversight are required. Additional capital funding is needed for consultants.

## Costs: DCCED Alaska Oil & Gas Conservation Commission

**2 new positions.** Additional expertise in carbon oxide injection is required. Program setup and Class VI primacy requires general fund appropriations for legal support and contractual services. Permitting and oversight fees will eventually cover staffing and operations costs like with oil and gas, managed through the Carbon Dioxide Storage Facility Administrative Fund. Post-injection monitoring is funded from the Carbon Storage Closure Trust Fund.



**PEER-STATE CARBON CAPTURE,  
UTILIZATION, AND SEQUESTRATION  
REGULATORY REGIMES**

A review of carbon capture, utilization, and storage legislation, with applicability to Alaska

January 30, 2023

Prepared for:  
Alaska Department of Natural Resources

Prepared by:  
Stantec Consulting Services

Project Number:  
185755566

## Peer-State Carbon Capture, Utilization, and Sequestration Regulatory Regimes

<b>Revision</b>	<b>Description</b>	<b>Author</b>	<b>Date</b>	<b>Quality Check</b>	<b>Date</b>	<b>Independent Review</b>	<b>Date</b>
0	Draft	LB	10/26/22	CHW	10/27/22	JD	10/27/22
1	Response to Comments	LB	12/13/22	CHW	1/4/23	EKS	1/4/23
2	Revision	LB	1/24/23	CHW	1/27/23		



## Peer-State Carbon Capture, Utilization, and Sequestration Regulatory Regimes

The conclusions in the Report titled Peer-State CCUS Regulatory Regimes are Stantec's professional opinion, as of the time of the Report, and concerning the scope described in the Report. The opinions in the document are based on conditions and information existing at the time the scope of work was conducted and do not take into account any subsequent changes. The Report relates solely to the specific project for which Stantec was retained and the stated purpose for which the Report was prepared. The Report is not to be used or relied on for any variation or extension of the project, or for any other project or purpose, and any unauthorized use or reliance is at the recipient's own risk.

Stantec has assumed all information received from Alaska Department of Natural Resources (the "Client") and third parties in the preparation of the Report to be correct. While Stantec has exercised a customary level of judgment or due diligence in the use of such information, Stantec assumes no responsibility for the consequences of any error or omission contained therein.

This Report is intended solely for use by the Client in accordance with Stantec's contract with the Client. While the Report may be provided to applicable authorities having jurisdiction and others for whom the Client is responsible, Stantec does not warrant the services to any third party. The report may not be relied upon by any other party without the express written consent of Stantec, which may be withheld at Stantec's discretion.

Prepared by:

  
Signature


Lisel Ballmer

Reviewed by:

  
Signature

Craig Wilson

Approved by:

  
Signature

Eric Snelling



## Table of Contents

<b>EXECUTIVE SUMMARY .....</b>	<b>IV</b>
<b>ACRONYMS / ABBREVIATIONS.....</b>	<b>V</b>
<b>1 INTRODUCTION.....</b>	<b>1</b>
1.1 Carbon Capture, Transportation, Utilization, and Storage Overview .....	1
1.2 Statement of Need.....	2
1.3 History.....	2
<b>2 REVIEW METHODS .....</b>	<b>3</b>
<b>3 REVIEW OUTCOMES: THEMES .....</b>	<b>3</b>
<b>4 REGULATORY PURPOSE.....</b>	<b>7</b>
4.1 Definitions .....	7
<b>5 AUTHORITY ESTABLISHMENT .....</b>	<b>10</b>
5.1 Duties of Authority .....	10
5.2 Cooperative Agreements and Contracts .....	11
5.3 Public Participation .....	11
<b>6 FISCAL SUPPORT .....</b>	<b>12</b>
6.1 Fees .....	12
6.2 Financial Responsibility and Assurance.....	13
6.3 Tax Incentives .....	13
6.4 Federal 45Q and Other Tax Credits and Incentives.....	14
<b>7 PERMITTING PROCESS.....</b>	<b>16</b>
7.1 Pre-Application .....	16
7.2 Permit Hearings .....	18
7.3 Permit Consultation .....	18
7.4 Permit Requirements.....	19
7.5 Permit Provisions.....	21
7.6 Amalgamating Property Interests .....	21
<b>8 RESOURCE DESIGNATION .....</b>	<b>22</b>
8.1 Pore Space Licensing.....	22
8.2 Mineral Ownership.....	23
8.3 Preservation of Rights .....	24
<b>9 LIABILITY.....</b>	<b>25</b>
9.1 Pore Space Liability.....	26
9.2 Operating Liability.....	26
9.3 Long-term Liability .....	27
9.4 Federal Liability .....	30
9.5 Funding Long-term Liability .....	31
<b>10 OPERATIONS .....</b>	<b>32</b>
10.1 Measuring, Monitoring, and Verification Plan.....	32
10.2 Storage Amount.....	32
10.3 Enhanced Recovery Projects .....	33
10.4 Penalties .....	34
10.5 Certificate of Project Completion .....	35



<b>11</b>	<b>ENVIRONMENTAL PROTECTION CONSIDERATIONS</b> .....	<b>36</b>
<b>12</b>	<b>REVIEW OUTCOME: PRIMACY</b> .....	<b>38</b>
12.1	States with Primacy .....	38
12.2	Steps to Primacy and Timeline.....	39
<b>13</b>	<b>SUMMARY OF MAJOR ISSUES</b> .....	<b>39</b>
13.1	Pore space licensing .....	39
13.2	Amalgamation of Property Interests .....	40
13.3	Class VI Primacy .....	40
13.4	Measurement, Monitoring, and Verification.....	40
13.5	Long Term Liability .....	41
13.6	Mineral Interests .....	41
13.7	Fiscal Issues .....	41
<b>14</b>	<b>CONCLUSION</b> .....	<b>42</b>
<b>15</b>	<b>REFERENCES</b> .....	<b>42</b>

**LIST OF TABLES**

Table 1	Regulatory Themes.....	4
Table 2	Sample of CCUS Peer-State Regulatory Themes.....	5
Table 3	Regulatory Purpose .....	7
Table 4	Carbon Dioxide Definitions .....	8
Table 5	Pore Space Definitions .....	9
Table 6	Duties of Authority.....	10
Table 7	Cooperative Agreements & Contracts .....	11
Table 8	Public Participation.....	12
Table 9	Fees .....	12
Table 10	Tax Incentives .....	14
Table 11	State Tax Credits and Incentives .....	15
Table 12	Public Participation.....	18
Table 13	Permit Consultation.....	19
Table 14	Permit Requirements .....	20
Table 15	Permit Provisions .....	21
Table 16	Amalgamation of Property Interests.....	22
Table 17	Pore Space Licensing .....	23
Table 18	Mineral Ownership .....	24
Table 19	Preservation of Rights.....	24
Table 20	Pore Space Liability .....	26
Table 21	Title and Liability .....	26
Table 22	Long-Term Liability.....	28
Table 23	Federal Liability .....	30
Table 24	Long-Term Liability Funding Requirements.....	31
Table 25	Funding Long-Term Liability .....	31
Table 26	Storage Amount .....	33
Table 27	Enhanced Recovery.....	33
Table 28	Civil Penalty Amounts .....	34
Table 29	Penalty Language .....	34
Table 30	Timeline for Certificates of Completion .....	36
Table 31	Certificates of Completion.....	36
Table 32	Environmental Considerations .....	37



# Peer-State Carbon Capture, Utilization, and Sequestration Regulatory Regimes

## LIST OF FIGURES

Figure 1 Conceptual Diagram of Carbon Capture and Storage Activities .....	1
Figure 2 Carbon Sequestration Storage Sequence .....	17
Figure 3 CCUS Project Flow Diagram .....	27
Figure 4 Certificate of Completion Flowchart.....	35

## LIST OF APPENDICES

APPENDIX A RECOMMENDATIONS .....	1
----------------------------------	---



## **Executive Summary**

The State of Alaska Department of Natural Resources has retained Stantec Consulting (Stantec) to undertake an overview and analysis of peer state regulatory frameworks governing carbon capture, utilization, and storage (“CCUS”). This report is designed to help inform decisions by the State of Alaska in considering seeking primacy from the U.S. Environmental Protection Agency (EPA) to permit Class VI underground injection wells for long-term storage of carbon dioxide (CO<sub>2</sub>) within Alaska and making public lands available for CCUS.

Carbon capture, utilization, and storage is the process of separating carbon dioxide from exhaust gas streams of industrial processes, collecting and transporting carbon dioxide for storage, with the intent that the carbon dioxide will be utilized for other activities (i.e., enhanced oil recovery) or stored in perpetuity (sequestration). CCUS has been occurring globally for over 40 years, first for use in enhanced oil recovery activities in the United States, and later for sequestration in the Sleipner project in Norway, which has been underway since 1996. Carbon storage – the long-term geological storage of carbon dioxide – is considered an important part of the global effort to reduce the emission of greenhouse gases (“GHGs”) into the atmosphere.

This report describes common issues in CCUS legislation across other states (and a few countries) which should be considered in drafting of new state legislation. This report is meant to be one of many tools for the State to utilize when writing CCUS legislation and discussing state primacy over Class VI underground injection wells.

Most legislations reviewed were initially written around 2010 and were amended throughout the next decade. When amending legislations, states appeared to follow the lead of the two states with Class VI primacy: North Dakota and Wyoming. Slight variations occur with timelines and requirements, but most legislations are similar. Alaska will be able to take note of these similarities and apply it to its unique management of natural resources.





## Acronyms / Abbreviations

ADNR	Alaska Department of Natural Resources
AOGCC	Alaska Oil & Gas Conservation Commission
CCUS	Carbon Capture, Utilization, and Sequestration
CO <sub>2</sub>	Carbon Dioxide
EOR	Enhanced Oil Recovery
EPA	Environmental Protection Agency
EU	European Union
GHG	Green House Gases
MMV	Measuring, Monitoring, and Verification
N/A	Not Applicable
NEPA	National Environmental Policy Act
UIC	Underground Injection Control
U.S.C.	United States Code



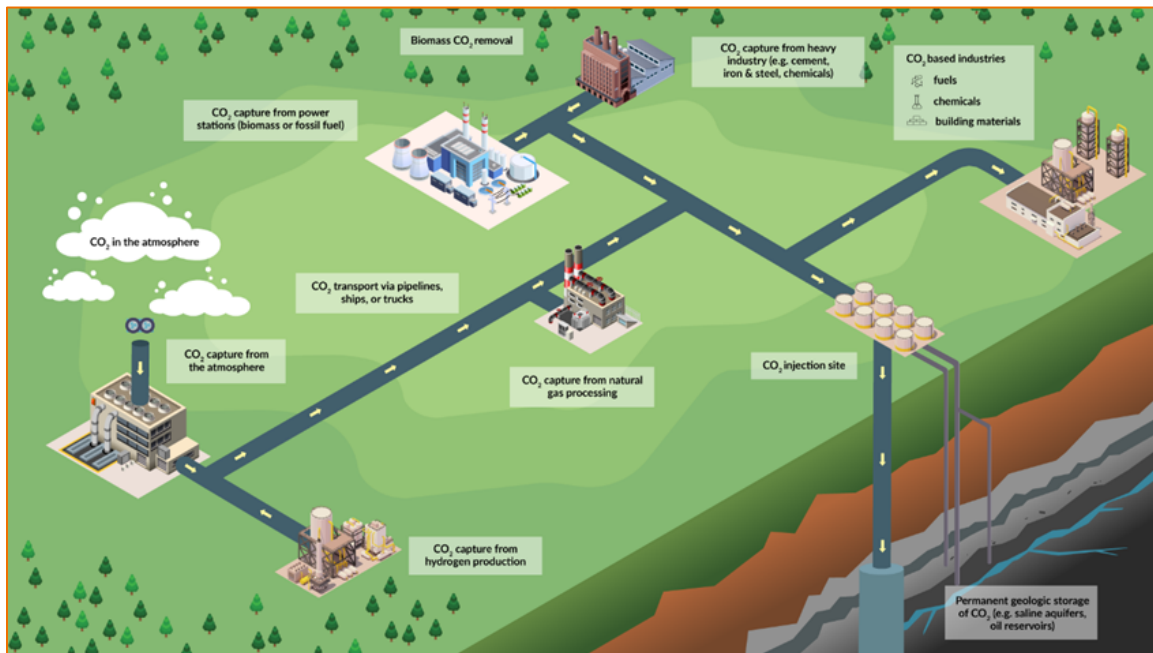
# 1 Introduction

This report was prepared by Stantec Consulting (Stantec) for the State of Alaska Department of Natural Resources under contract MA 230000011 CCUS Consulting Services. The purpose of this report is to provide an overview of carbon capture, utilization, and storage (“CCUS”) legislation in other states, with an analysis of their applicability to Alaska.

## 1.1 Carbon Capture, Transportation, Utilization, and Storage Overview

Carbon capture, utilization, and storage is the process of separating carbon dioxide from exhaust gas streams of industrial processes, collecting and transporting carbon dioxide for utilization for enhanced oil recovery or storage, with the intent that the carbon dioxide will be stored in perpetuity (also known as sequestration). A conceptual diagram of the major activities associated with CCUS is shown in **Figure 1**. There are three main steps in the carbon capture and utilization/storage process:

- Carbon capture
- Carbon transportation
- Carbon storage and utilization



**Figure 1 Conceptual Diagram of Carbon Capture and Storage Activities**

(NRCan 2021)



## **1.2 Statement of Need**

CCUS projects gives Alaska and the oil and gas industry the opportunity to engage in the growing market of decarbonization. It also gives Alaska another opportunity to lease State land and pore space.

The market of decarbonization and CCUS has gained new interest with the passing of the Infrastructure Investment and Jobs Act and the Inflation Reduction Act in recent years. Both acts have provisions designed to promote CCUS activity. The Infrastructure Investment and Jobs Act appropriated funds for permitting CCUS projects and Inflation Reduction Act increased the Section 45Q federal carbon capture tax credits. Now, there is growing momentum for CCUS, and states must prepare for a new market.

The main two objectives of this legislative effort are to authorize CCUS activity in Alaska and make public lands available for CCUS activities. This report serves as a discussion on legislation closely focused on CCUS from other states and countries.

## **1.3 History**

Established in 1974, the Environmental Protection Agency's ("EPA") Underground Injection Control ("UIC") program regulates construction, operation, permitting, and closure of injection wells used to place fluids underground for storage or disposal. Before 2010, the UIC program covered five classes of injection wells; each well class is based on the type and depth of injection activity and the risk of endangering an underground source of drinking water. Class I, IV, and V wells are used for waste disposal while Class II and III wells are used for resource extraction. In December 2010, the EPA published the Carbon Dioxide (CO<sub>2</sub>) Geologic Sequestration Wells Final Rule, making Class VI wells the newest class of injection wells for CCUS.

Class VI wells were established in part due to the success of Class II wells used to store hydrocarbons. Class II wells are primarily permitted for enhanced oil and gas recovery, a process that involves the injection of fluids to retain or increase reservoir pressure and as a result, displace extractable oil and gas. A small number of Class II wells operate as injection wells for the storage of hydrocarbon in underground formations such as salt caverns, or porous geologic material.

Like Class II hydrocarbon storage wells, Class VI wells inject carbon products as a liquid (or as a supercritical fluid) into underground formations. But instead of storing the injected material for later use (as a reserve), Class VI wells are intended to keep the material permanently sequestered.

As of September 2022, there are only two active EPA permitted Class VI wells in the United States. The lack of Class VI permits issued across the United States is partly due to the catch-up time needed by states to develop CCUS legislation to support the UIC program. The delay is also due to a lack of primacy. Primary enforcement authority ("primacy") refers to State, territory, or tribal responsibilities associated with implementing EPA approved UIC programs within that state, territory, or tribe. Delegating Class VI primacy to states from the federal government helps alleviate the EPA's workload. States that do not have the authority to issue Class VI permits rely on the EPA's UIC program for permitting. North



Dakota and Wyoming are currently the only states with Class VI permitting primacy; North Dakota has issued two Class VI permits, with one already active.

Alaska has received primacy to issue Class II well permits within its borders under a Memorandum of Agreement with EPA but has not yet investigated Class VI primacy.

## **2 Review Methods**

This section describes an evaluation of 11 states where CCUS legislation is currently in place: Kansas, Kentucky, Louisiana, Mississippi, Nebraska, North Dakota, Oklahoma, Texas, Utah, West Virginia, and Wyoming. Five applicable international CCUS legislations were also reviewed: Australia, Canada's province of Alberta, the European Union, Norway, and the United Kingdom. The review period lasted from August 2022 to October 2022. Each legislation was reviewed to answer the questions below:

- How does the legislation identify and describe the purpose of geologic sequestration? Does that purpose include references to greenhouse gas emissions?
- How does legislation define carbon sequestration?
- How could this legislation be applicable to Alaska?
- How does the legislation define pore space?
- Does the legislation determine pore space ownership?
- What is the timeline for certification of project completion and release of liability?
- Does the legislation describe penalties for breaking code? Negligence?
- Does the legislation describe carbon credits?
- What is the order of issues addressed? What does the legislation address first?
- Is there a logical flow to the order of issues?

As part of the review, key issues were thematically grouped into categories for easier comprehension. In general, states touched on similar issues but did not use the exact same language in reference to them.

## **3 Review Outcomes: Themes**

The review identified several common regulatory themes, shown in **Table 1** and **Figure 2**. These have been grouped into the eight themes listed below and discussed in more detail in the report.

- Regulatory Purpose and Scope
- Establishment of Authority
- Resource Designation
- Fiscal Support
- Permitting Process
- Liability
- Storage Operations
- Environmental Considerations



**Peer-State Carbon Capture, Utilization, and Sequestration Regulatory Regimes  
Review Outcomes: Themes  
February 1, 2023**

The following report sections expand on how states differ in addressing each of the above themes in their CCUS legislations. The themes are described in **Table 1**. The themes were derived from finding similarities in states' CCUS legislation sections. **Table 2** shows a sample of that process; sections are color-coded to identify themes.

**Table 1 Regulatory Themes**

<b>Regulatory Purpose and Scope</b>	Refers to the introduction of the CCUS legislation. It describes how the CCUS legislation would benefit the state, therefore communicating what the State prioritizes. It also defines key words in the legislation.
<b>Establishment of Authority</b>	Refers to state's various responsibilities during the permit application process and operations of CCUS injection wells. It also defines which agency in the state will be the authority.
<b>Fiscal Support</b>	Encompasses issues around finances, such as proving financial responsibility, fees, and establishing administrative and trust funds.
<b>Permitting Process</b>	Encompasses all the requirements, provisions, and steps when applying for a CCUS injection well permit.
<b>Resource Designation</b>	Encompasses all the issues regarding ownership over natural resources, such as pore space, carbon dioxide, mineral rights, etc.
<b>Liability</b>	Outlines the liabilities of the CCUS applicant during the application process, operations, and post-operation (long-term).
<b>Storage Operations</b>	Encompasses all the processes involved with a CCUS well after a permit is approved. It covers issues of operation and closure.
<b>Environmental Considerations</b>	Refers to how each state regulates CCUS injection wells to protect the environment, public health and safety, and state resources.



**Peer-State Carbon Capture, Utilization, and Sequestration Regulatory Regimes**  
**Review Outcomes: Themes**  
**February 1, 2023**

**Table 2 Sample of CCUS Peer-State Regulatory Themes**

(In order of appearance and phrasing in legislation)

<b>Wyoming</b>	<b>North Dakota</b>	<b>Texas</b>	<b>Louisiana</b>	<b>Mississippi</b>	<b>Nebraska</b>	<b>Utah</b>	<b>West Virginia</b>
Purpose	Purpose	Purpose	Purpose	Purpose	Purpose	Purpose	Purpose
Definitions	Definitions	Definitions	Definitions	Definitions	Definitions	Definitions	Definitions
Authority Established	Authority Established	Jurisdiction (Authority Established)	Authority Established	Authority Established	Rights (ownership)	Authority Established	Permit Requirements
Regulatory	Permit Requirements	Applicability	Regulatory	Regulatory	Authority Established	Permit Requirement	Public Participation
Enforcement	Permit Hearings	Permitting	Enforcement	Enforcement	Permit Requirements	Hearings	Permit Provisions
Permit Requirements	Permit Consultations	Information required of applicant	Hearings, Rules, Emergency, Public Records	Approval of reservoir	Hearings	Findings to Issue Permit	Add Rule making authority
Permit Hearings	Permit Provisions	Fees	Underground Injection control	Protection of Correlative Rights	UIC Authority	Permit Provisions	Environmental Protection
Permit Consultations	Amalgamating Property Interests	Letter from executive director	Certificate of completion	Unit operation	Rights	Amalgamation of Interests	Other Activities
Permit Provisions	Certificate	Rules	Eminent domain	Permit provisions	Fee	carbon dioxide storage amalgamation unit establishment	Cooperative Agreements
Environmental Protection	Environmental Protection	Consistency with federal requirements	Liability release	Permit hearings	Completion	Requirement record	carbon dioxide ownership
Ownership & Rights	Preservation of rights	Memorandum of understanding		Compliance and enforcement	Penalties	Preservation of rights	Certification of Completion
Fees	Fees	Fiscal responsibility		Storage operations	Trusts	Title	Administration fund
Administration Fees	Administration Fees	Definitions		Fees	Authorization	Certification of Project Completion	Fees
carbon dioxide Trust fund	carbon dioxide Trust fund	Ownership of anthropogenic carbon dioxide		carbon dioxide storage fund		Cooperative Agreements / Contracts	Carbon Credits



**Peer-State Carbon Capture, Utilization, and Sequestration Regulatory Regimes**  
**Review Outcomes: Themes**  
**February 1, 2023**

Wyoming	North Dakota	Texas	Louisiana	Mississippi	Nebraska	Utah	West Virginia
Title & Liability	Title to carbon dioxide	Anthropogenic carbon dioxide storage trust fund		Title / Liability		Public Interests	Pore/Container space
Certificate of Project Completion / Release	Certificate of Project Completion / Release	Extraction of carbon dioxide		Cessation of storage operation		Adoption of Procedure	Pore ownership
Oil and Gas conservation Commission	Penalties			Release bond/assurance / deposit		Fees	Funds
Enhanced Recovery	Enhanced Recovery					Trust	Judicial Review
Ownership of materials injected	Cooperative Agreements / Contracts						
Permit Requirements	Trusts/Monopolies						
Unitization of geologic sequestration sites	Participation of Public Interest						
Special revenue account (fees)	Storage Amount						
Administration fund							
Fund post-completion							
Authority							

Regulatory Theme Legend
Storage Regulatory Purpose & Scope
Establishment of Authority
Resource Designation
Fiscal Support
Permitting Process
Liability
Operations
Environmental Considerations



## 4 Regulatory Purpose

The regulatory purpose justifies the policy by explaining how it will benefit the state. There is an array of purpose statements, highlighting the differing state priorities. Many states have more robust sections than those provided as examples below. States may or may not factor in public health and safety, industrial and commercial interests, natural resources, and greenhouse gas emissions. A summary of regulatory purpose statements is provided in **Table 3**.

**Table 3 Regulatory Purpose**

State	Purpose Statement
Oklahoma S.B. 610 Section 1.B.1.	“Carbon dioxide is a valuable commodity to the citizens of the State, particularly for its value in enhancing the recovery of oil and gas and for its use in other industrial and commercial processes and applications.”
Mississippi S.B 2723 Section 2. 53-11-3 (1)(f)-(g)	“(f) It is for the public benefit and in the public interest that the maximum amount of the State’s oil and gas reserves be produced to the extent that it is economically and technologically feasible.  (g) It is for the public benefit and in the public interest that, to the extent that it is economically and technologically feasible, carbon dioxide be injected into and stored in oil and gas reservoirs and other geologic formations in a manner protective of waters of the State.”
Kansas HB 2419 New sec. 2.b.	“For the purposes of protecting the health, safety and property of the people of the State, and preventing escape of carbon dioxide into the atmosphere and pollution of soil and surface and subsurface water detrimental to public health or to plant, animal and aquatic life, the Commission, on or before July 1, 2008, shall adopt separate and specific rules and legislations establishing requirements, procedures and standards for the safe and secure injection of carbon dioxide and maintenance of underground storage of carbon dioxide.”
North Dakota S.B. 2095 38-22-01	“It is in the public interest to promote the geologic storage of carbon dioxide. Doing so will benefit the State and the global environment by reducing greenhouse gas emissions. Doing so will help ensure the viability of the State’s coal and power industries, to the economic benefit of North Dakota and its citizens. Further, geologic storage of carbon dioxide, a potentially valuable commodity, may allow for its ready availability if needed for commercial, industrial, or other uses, including enhanced recovery of oil, gas, and other minerals. Geologic storage, however, to be practical and effective requires cooperative use of surface and subsurface property interests and the collaboration of property owners. Obtaining consent from all owners may not be feasible, requiring procedures that promote, in a manner fair to all interests, cooperative management, thereby ensuring the maximum use of natural resources.”

### 4.1 Definitions

How states define key CCUS terms can be important in how legislation is regulated. Most states start by defining the following key words and phrases:

- Anthropogenic carbon dioxide
- Carbon capture, sequestration, and utilization
- Pore space





**Peer-State Carbon Capture, Utilization, and Sequestration Regulatory Regimes**  
**Regulatory Purpose**  
**February 1, 2023**

- Pore space ownership

The definition(s) of carbon dioxide have potential implications for how CCUS operations may be impacted by current, non CCUS legislations. Captured carbon dioxide could fall under the definition of hazardous, waste, a pollutant, or a commodity depending on the existing, non CCUS legislations in states. Therefore, carbon dioxide may be expanded to multiple definitions (such as carbon dioxide streams, captured carbon dioxide, anthropogenic carbon dioxide) or include many forms.

Several states include the term "anthropogenic" when defining carbon dioxide. Anthropogenic refers to originating in human activity, as opposed to naturally occurring carbon dioxide.

**Table 4 Carbon Dioxide Definitions**

State	Definition
Alabama 2022 AL S 36 Section 1	"(2) GAS. All natural gas, casinghead gas, carbon oxides, ammonia, hydrogen, nitrogen, noble gases, and occluded natural gas found in coal beds, and all other hydrocarbons not defined as oil in Section 9-17-1(3), except and not including liquid petroleum gas.
Kentucky H.B. 259 Section 1. A. (2)	"Carbon dioxide" means anthropogenic carbon dioxide of sufficient purity and quality as to not compromise the safety and efficiency of the reservoir to securely contain it."
West Virginia H.B. 4491 §22-11B-2 (1)	"Carbon dioxide" means carbon dioxide produced by anthropogenic sources which is of such purity and quality that it will not compromise the safety of geologic storage and will not compromise those properties of a storage reservoir which allow the reservoir to effectively enclose and contain a stored gas."
Mississippi S.B. 2723 53-11-5. (b)(i)	"Carbon dioxide" means: (i) naturally occurring carbon dioxide; (ii) geologically sourced carbon dioxide; (iii) anthropogenic carbon dioxide; or (iv) carbon dioxide stream. The term includes phases of carbon dioxide, whether fluid, liquid or gaseous, stripped, segregated, or divided from any other fluid stream thereof."
Nebraska NE L650	"(2) Carbon dioxide stream means carbon dioxide from anthropogenic sources, plus incidental associated substances derived from the source materials and the production or capture process, and any substances added to the stream to enable or improve the injection process if such substances will not compromise the safety of geologic storage and will not compromise those properties of a storage reservoir which allow the reservoir to effectively enclose and contain the stored carbon dioxide stream;"
Louisiana LAC Title 43, Part XVII §3601	"Carbon Dioxide—naturally occurring, geologically sourced, or anthropogenically sourced carbon dioxide including its derivatives and all mixtures, combinations, and phases, whether liquid or gaseous, stripped, segregated, or divided from any other fluid stream thereof. Carbon Dioxide Stream—the carbon dioxide that has been captured from an emission source (e.g., a power plant), plus incidental associated substances derived from the source materials and the capture process, and any substances added to the stream to enable or improve the injection process. This meaning does not apply to any carbon dioxide stream meeting the definition of a hazardous waste under Title 40, Code of Federal Regulations, Part 261."
Indiana IC 14-39-1-1	"As used in this chapter, "carbon dioxide" means a fluid consisting of more than ninety percent (90%) carbon dioxide molecules."



**Peer-State Carbon Capture, Utilization, and Sequestration Regulatory Regimes**  
**Regulatory Purpose**  
**February 1, 2023**

“Pore Space” is another key definition in CCUS legislations. There is a discrepancy between the definitions of pore space across states over the origins of pore space.

**Table 5 Pore Space Definitions**

State	Definition
West Virginia H.B.4491 §(22-11B-2) (9)	“A cavity or void, whether natural or artificially created, in a subsurface sedimentary stratum and is also known as container space or storage rights.”
Utah H.B. 244 40-6-2.(23)(c)	“(a) "Pore space" means subsurface porous material possessing free space, naturally or artificially created, between the mineral grains. (b) "Pore space": (i) is expressed as a percentage; and (ii) depends on the size and sorting of the subsurface material's particles as a cubic or hexagonal package. (c) "Pore space" does not include void or cavern space created by the removal of minerals in the course of solution mining or other mining operations..”
Indiana IC 14-39-2-2(i)	“Pore space” means subsurface cavities or voids that can be used as a storage space for carbon dioxide.

“Pore Space Ownership” is equally as important as pore space. The majority of the states follow the “American rule” whereby the surface owner, not the mineral owner, owns the right to the pore space. Under this rule the mineral estate includes ownership of the underground minerals, but not of the geological formation, including the pore space. Several states have enacted pore space use and ownership statutes, including Montana, North Dakota, Oklahoma, and Wyoming. These states have all defined pore space as private property owned by the surface owner.

Only three of 11 states explicitly defined pore space ownership beyond “pore space owners.” In Utah’s definition, the scope of pore space is naturally occurring geologic formations, so the cavities created by mineral extraction are a separate entity and are under the jurisdiction of the mineral rights owner. Like most states, Utah also specified “title to pore space underlying the surface estate is vested in the owner of the surface estate.”

Contradicting Utah’s legislation definitions, the Supreme Court of North Dakota determined the use of the term “land” in the state’s Damage and Disruption Code (§ 38-11.1-04) authorized surface owners to recover compensation for a mineral developer’s use of the surface owners’ pore space for the disposal of saltwater generated as a result of drilling operations.

Alaska is unique in that the Alaska Statehood Act vested the state with public ownership of the mineral estate and limited divestiture of that ownership. In effect, the Alaska Statehood Act prohibits private ownership of mineral rights on lands granted to the State from the Federal government. As well, the Supreme Court of Alaska in the case of *City of Kenai v. Cook Inlet Natural Gas Storage Alaska, LLC*. concluded that “the State reserved to itself the mineral estate, which includes the underground storage rights” of the pore space created from mineral extraction.



If the state assumes primacy for Class VI UIC well program, any state regulations regarding pore space use would also apply to federal lands in lieu of EPA regulations.

## 5 Authority Establishment

Statutory authority must be granted to a state agency for development and implementation of a CCUS program.

### 5.1 Duties of Authority

This can also be referred to as Jurisdiction, defining which state agency is vested authority to regulate CCUS. State commissions overseeing the oil and gas industry typically also serve as the regulatory authority over CCUS. Oil and gas commissions approve other surface-related facilities and equipment. For example, the Texas Railroad Commission regulates the oil and gas industry, pipeline transporters, and surface mining operations. North Dakota’s Industrial Commission approves all oil and gas development, provides research grants, and assists in financing public infrastructure.

**Table 6 Duties of Authority**

State	Duties of Authority
Alabama 2022 AL S 36 §9-17-151.	"(2) The underground storage of carbon oxides, ammonia, hydrogen, nitrogen, and noble gases is in the public interest and welfare of this state and is for a public purpose.
North Dakota S.B. 2095 38-22-03 1-7	"1. Over all persons and property necessary to administer and enforce this chapter and its objectives. 2. To regulate activities relating to a storage facility, including construction, operation, and closure. 3. To enter, at a reasonable time and manner, a storage facility to inspect equipment and facilities; to observe, monitor, and investigate operations; and to inspect records required to be maintained at the facility. 4. To require that storage operators provide assurance, including bonds, that money is available to fulfill the storage operator’s duties. 5. To exercise continuing jurisdiction over storage operators and storage facilities, including the authority, after notice and hearing, to amend provisions in a permit and to revoke a permit. 6. To dissolve or change the boundaries of any Commission-established oil or gas field or unit that is within or near a storage reservoir’s boundaries. 7. To grant, for good cause, exceptions to this chapter’s requirements and implementing rules."



State	Duties of Authority
Texas S.B. 1387 Section 2. Chapter 27. Subchapter C- 1. Sec. 27.041.	<p>“(A) Except as provided by subsection (B), the Railroad Commission has Jurisdiction over the geologic storage of carbon dioxide in, and the injection of carbon dioxide into, a reservoir that is initially or may be productive of oil, gas, or geothermal resources or a saline formation directly above or below that reservoir.</p> <p>(B) The jurisdiction of the Railroad Commission over the geologic storage of carbon dioxide in, and the injection of carbon dioxide into, a saline formation described by subsection (A) is subject to the review of the Legislature based on the recommendations made in the preliminary report...Except as provided by subsection (B) , the Railroad Commission has Jurisdiction over a well used for the purpose provided by subsection (A) regardless of whether the well was initially completed for that purpose or was initially completed for another purpose and is converted to the purpose provided by subsection (A). Oklahoma appointed both the Corporation Commission and Department of Environmental Quality for CCUS legislation. A Memorandum of Understanding addressed areas in which implementation of the act would require interagency cooperation or interaction between the two agencies overseeing CCUS.”</p>

## 5.2 Cooperative Agreements and Contracts

The state’s designated Authority is authorized to enter into legally binding agreements with other government agencies and private entities to facilitate CCUS legislations.

**Table 7 Cooperative Agreements & Contracts**

State	Cooperative Agreements and Contracts
West Virginia H.B. 2860 22-11A-9.	<p>“The secretary is authorized to enter into cooperative agreements with other governments or government entities for the purpose of regulating carbon dioxide storage projects that extend beyond State regulatory authority under this article.”</p>
North Dakota S.B. 2095 38-22-20 1.-2.	<p>“The Commission may enter into agreements with other governments, government entities, and State agencies for the purpose of carrying out this chapter’s objectives. The Commission may enter into contracts with private persons to assist it in carrying out this chapter’s objectives. Unless the circumstances require otherwise, the Commission shall, in entering such contracts, follow the process set out in section 38-08-04.4. If an emergency exists the Commission may enter contracts without public notice and without competitive bidding.”</p>

## 5.3 Public Participation

Support from the public and other industry is critical to the long-term viability of CCUS. Engagement events, open houses, and hearings are ways for the public to be involved in the CCUS process. Since citizens may not possess a lot of information about carbon sequestration, these events can educate them about what is happening in their community.

According to the CCUS State Workgroup Public Outreach, hosted by the American Petroleum Institute, the public are concerned about safety, possible impacts to fish, land use conversion, and unknown long-term risk. In Alaska, public concerns may also include tectonic stability, increased use of transportation infrastructure, and noise.



**Table 8 Public Participation**

<b>State</b>	<b>Public Participation</b>
Utah H.B. 244 40-11-19.	“The governing body of a controlling State interest or interest of a political subdivision is authorized to consent to and participate in a geologic carbon storage project.”
North Dakota S.B. 2095 38-22-22	“Participation of public interests. The entity or official controlling State interests or the interests of political subdivisions is authorized to consent to and participate in a geologic storage project.”

## 6 Fiscal Support

Alaska Oil & Gas Conservation Commission (“AOGCC”) currently receives agency funding from fees on current oil and gas production. Implementing a Class VI permitting program under the current revenue model would result in several to many years wait between permitting a well and receipt of operational storage fees from the well. Some variety of bridge funding, such as federal grants, for the program may be needed to sustain the program until CCUS projects are operational. Bridge funding is a form of temporary, intermediate funding intended to cover AOGCC’s short-term permitting expenses until long-term funding (i.e., royalties and taxes) is received.

### 6.1 Fees

States impose fees to cover the costs of permitting, monitoring, and inspecting CCUS injection wells, enforcing CCUS legislations, and conducting hearings. Fees are generally required at every stage of the CCUS injection well process (application, permitting, operation, and closure). No specific fee amounts are called out in any state legislation. Fees are typically split between two funds: administrative funds and long-term storage trust funds. Administrative fund fees generally cover processing permit applications and regulating storage facilities during construction, operation, and pre-closure phases. Long-term storage trust funds hold money for activities in the post-closure phase as described in Section 3.7.5. Many states also have a stipulation to reduce fees once a storage trust fund reaches or exceeds a certain amount. For example, Mississippi’s Carbon Dioxide Storage Fund must reach or exceed \$2,500,000 per geologic sequestration facility for fees to be reduced.

**Table 9 Fees**

<b>State</b>	<b>Fees</b>
West Virginia H.B. 2860 22-11A-5 (b)	“Upon filing an application, an applicant shall pay a reasonable fee, as established by the secretary in legislative rules, to the department for the costs of reviewing, evaluating and processing the permit, serving notice of an application and holding any hearings. The fee shall be credited to a separate account and shall be used by the department as required to complete the tasks necessary to process, publish and reach a decision on the permit application.”



State	Fees
Texas S.B. 1387 Sec. 27.044	“The Railroad Commission may impose fees to cover the cost of permitting, monitoring, and inspecting anthropogenic carbon dioxide injection wells for geologic storage and geologic storage facilities; and enforcing and implementing this subchapter and rules adopted by the Railroad Commission under this subchapter. Fees collected by the Railroad Commission under this section shall be deposited to the credit of the Anthropogenic Carbon Dioxide Storage Trust.”
North Dakota S.B. 2095 38-22-14 1.	“Storage operators shall pay the Commission a fee on each ton of carbon dioxide injected for storage. The fee must be in the amount set by Commission rule. The amount must be based on the Commission’s anticipated expenses that it will incur in regulating storage facilities during their construction, operational, and pre-closure phases.”

## 6.2 Financial Responsibility and Assurance

A storage operator needs to prove they can pay all required fees, operate the CCUS project, and support the state in monitoring the site after the cessation of injections. Financial assurance is essential for short-term fiscal support needs and long-term fiscal support. Short-term fiscal support needs refer to the cost of permitting, constructing, and operating CCUS projects. Long-term fiscal support needs refer to a long-term storage trust fund. Long-term trust funds are meant to hold money for activities in the post-closure phase and are described in more detail in Section 9.5.

To demonstrate financial assurance for short-term needs, a storage operator can fund administrative funds, bonds, credit lines, insurance, and/or self-insurance.

## 6.3 Tax Incentives

CCUS projects are not traditional income producers and are expensive to construct and operate, so tax credits and/or incentives are the revenue and thus, essential to help grow the industry. Other states with CCUS legislation have adopted property tax exemptions to help incentivize CCUS projects within the state. Tax incentives like property tax exemptions could reduce the significant start-up costs for CCUS projects.

North Dakota’s legislation exempts carbon dioxide pipelines from property tax during construction and first 10 years of operation. The state will also reimburse local government for foregone property tax revenue from the carbon dioxide pipeline exemption. Montana’s legislation allows for 50% of the assessed value of certain “clean energy” projects up to first \$1 million in value to be exempted from property tax. The simplest tax incentive is Kansas, which exempted all CCUS property from property tax entirely.



**Table 10 Tax Incentives**

State	Tax Incentive
Kansas §79-233(a)	“Property exempt from taxation; carbon dioxide capture, sequestration or utilization property. (a) The following described property, to the extent herein specified, shall be exempt from all property taxes levied under the laws of the state of Kansas: Any carbon dioxide capture, sequestration or utilization property; and any electric generation unit which captures and sequesters all carbon dioxide and other emissions.”
Montana §15-24-3111	“(1) A facility listed in subsection (3), clean advanced coal research and development equipment, and renewable energy research and development equipment may qualify for an abatement of property tax liability pursuant to this part. (2)(a) If the abatement is granted for a facility listed in subsection (3), the qualifying facility must be assessed at 50% of its taxable value for the qualifying period. (b) If the abatement is granted for clean advanced coal research and development equipment or renewable energy research and development equipment, the qualifying equipment, up to the first \$1 million of the value of equipment at a facility, must be assessed at 50% of its taxable value for the qualifying period. There is no abatement for any portion of the value of equipment at a facility in excess of \$1 million.”
North Dakota § 57-06-17.1	“Property, not including land, is exempt from taxation during construction and for the first ten full taxable years following initial operation if it consists of a pipeline, constructed after 1996, and necessary associated equipment for the transportation or storage of carbon dioxide for secure geologic storage or use in enhanced recovery of oil or natural gas.”

## 6.4 Federal 45Q and Other Tax Credits and Incentives

The federal 45Q tax credit is a performance-based tax credit designed to incentivize CCUS projects through a tax liability offset per every captured metric ton of carbon dioxide that is geologically sequestered. The original Section 45Q tax credit was enacted by the Energy Improvement and Extension Act of 2008. The Inflation Reduction Act of 2022 raised the 45Q tax credit from \$50 per metric ton to \$85 per metric ton. The Act also gives CCUS operators a “Direct Pay Election” for five years, allowing them to claim 45Q credits as cash refunds instead of as offsets against other taxes. The Inflation Reduction Act also allows taxpayers to sell 45Q tax credits tax-free by transferring the 45Q tax credits to other taxpayers in exchange for cash. As stated before, tax credits (and now cash refunds) are the desired revenue for a CCUS project and are essential for the market.

In addition to the 45Q credit, several states offer tax credits or incentives for CCUS projects. These vary widely in scope and scale, ranging from credits, exemption or reduction of property tax, severance tax, gross receipt tax, and sales tax. Texas has the greatest variety of carbon sequestration incentives, including sales tax exemptions, franchise tax credits, and severance tax reductions, mostly associated with EOR.

California and Oregon grant credits to fuel suppliers that have reduced their carbon footprint through CCUS activities.



**Peer-State Carbon Capture, Utilization, and Sequestration Regulatory Regimes  
Fiscal Support  
February 1, 2023**

**Table 11 State Tax Credits and Incentives**

<b>State</b>	<b>Tax Incentives</b>	<b>Non-tax Incentives</b>
California	EOR Credit	The Low Carbon Fuel Standard (with CCS protocol) provides suppliers of low-carbon fuels with credits that can be sold to suppliers of higher-carbon fuels. California's economy-wide cap-and-trade program covers 80 percent of the state's economy. Operators of low carbon power resources, such as power facilities with CCUS, can mostly avoid carbon allowance costs, providing a competitive advantage in the California electricity market.
Illinois	N/A	Illinois utilities are required to source electricity from "clean coal facilities" as part of the goal for at least 25 percent of electricity in Illinois to come from coal plants that capture and sequester CO2 emissions by 2025.
Kansas	Accelerated Depreciation Property Tax Exemption Carbon Farming Tax Credit	N/A
Kentucky	Sales and Use Tax Exemption Severance Tax Credit Credit on Corporate Income Taxes Credit on Personal Income Taxes	N/A
Louisiana	Sales and Use Tax Exemption Severance Tax Reduction	N/A
Michigan	Severance Tax Reduction	Integrated Renewable Portfolio Standard includes, to a limited extent, carbon capture and sequestration technology installed on a coal plant towards the renewable target.
Mississippi	Ad Valorem Tax Exemption Severance Tax Reduction Gross Income Tax Reduction	N/A
Montana	Reduced Property Tax	New electric generation capacity fueled by coal constructed after January 1, 2007, is required to capture and sequester at least 50 percent of CO2 emissions.
New Mexico	Alternative Energy Product Manufacturers Tax Credit Act	Public utilities may recover costs related to clean energy projects.
North Dakota	Sales and Use Tax Exemption Property Taxes Exemption Gross Receipts Tax Reduction	Includes CO2 pipelines as common carriers.
Oklahoma	Gross Production Tax Exemption	N/A
Oregon	N/A	Clean Fuels Program
Pennsylvania	N/A	The use of non-sulfur diesel fuel derived from coal is permitted as long as the fuel's carbon emissions are offset through geologic carbon sequestration or by participation in a carbon offset program.
Texas	Franchise Tax Credit Severance Tax Reductions Sales and Use Tax Exemption Gross Receipts Tax Exemption and Other Tax Incentives	Includes CO2 pipelines as common carriers if certain conditions are met.
Wyoming	Sales Tax Exemption Severance Tax Credit	N/A

Note: Adapted from Conners et al. (2020)





## 7 Permitting Process

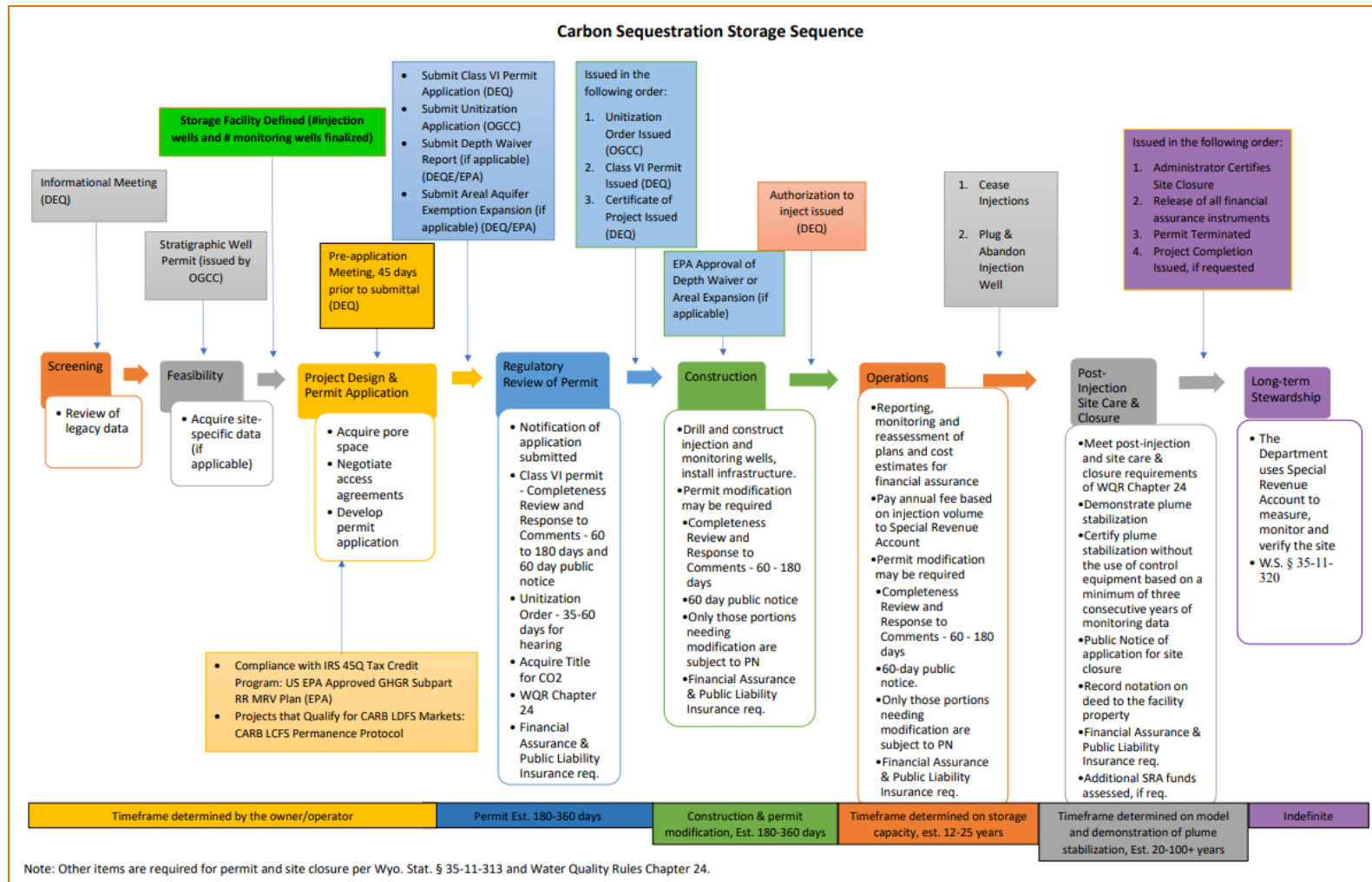
The permitting process may involve separate permits for carbon dioxide sequestration, such as transportation. Each state lists what conditions an applicant shall follow to receive a CCUS permit. Permit conditions usually include complying with application requirements, paying a fee for the cost of processing the application, and paying a cost that assists in public notice and participation.

### 7.1 Pre-Application

States without primacy do not have pre-application steps or requirements, such as a pre-application meeting, prior to submitting a Class VI application with the EPA. One state with primacy, Wyoming, has requirements prior to submitting a Class VI application. The state has clear steps for screening a site, determining feasibility, and multiple pre-application meetings (**Figure 2**).



**Peer-State Carbon Capture, Utilization, and Sequestration Regulatory Regimes  
Permitting Process  
February 1, 2023**



**Figure 2 Carbon Sequestration Storage Sequence**

(Wyoming Department of Environmental Quality, n.d.)



## 7.2 Permit Hearings

Hearings are held to hear evidence and accept public comment concerning an active permit application with potential environmental impacts. Hearings also inform all stakeholders (mineral rights owners, pore space owners, surface owners) of project updates. Some states give exact timelines of the hearing process while others leave it up to the designated authority.

**Table 12 Public Participation**

State	Permit Hearings
<p>North Dakota S.B. 2095 38-22-06</p>	<p>“1. The Commission shall hold a public hearing before issuing a permit. 2. Notice of the hearing must be published for two consecutive weeks in the official newspaper of the county or counties where the storage reservoir is proposed to be located and in any other newspaper the Commission requires. Publication deadlines must comply with Commission requirements. 3. Notice of the hearing must be given to each mineral lessee, mineral owner, and pore space owner within the storage reservoir and within one-half mile of the storage reservoir’s boundaries. 4. Notice of the hearing must be given to each surface owner of land overlying the storage reservoir and within one-half mile of the reservoir’s boundaries. 5. Notice of the hearing must be given to any additional persons that the Commission requires. 6. Service of hearing notices required by this section must conform to personal service provisions in rule 4 of the North Dakota rules of civil procedure. 7. Hearing notices required by this section must comply with deadlines set by the Commission. 8. Hearing notices required by this section must contain the information the Commission requires.”</p>
<p>Utah H.B. 244 40-11-7. (1)-(4)</p>	<p>“(1) The board shall hold a public hearing before authorizing the division to issue a permit. (2) The board shall conduct the hearing in accordance with Title 63G, Chapter 4, 474 Administrative Procedures Act. (3) The board shall give notice no fewer than 30 days prior to the hearing by: (a) one publication in a daily newspaper of general circulation in Salt Lake City, Utah; (b) in all newspapers of general circulation published in the county or counties in 478 which the land affected is situated; and(c) by publication in accordance with Section 45-1-101. (4) In addition to the notice required in Subsection (3), an applicant shall provide notice of the hearing and a copy of the permit application, no fewer than 30 days before the hearing to (a) each mineral lessee within one-half mile of the storage reservoir’s boundaries; (b) each mineral owner within one-half mile of the storage reservoir’s boundaries; (c) each pore space owner within one-half mile of the storage reservoir’s boundaries; (d) each surface owner of land within one-half mile of the storage reservoir’s boundaries.”</p>

## 7.3 Permit Consultation

The permitting authority may want to consult with other departments before issuing a permit. These may include the state’s department of public health or environment. In Alaska permit consultation and coordination would be required between several agencies, including the Department of Natural Resources, Alaska Oil and Gas Conservation Commission, Department of Environmental Conservation, and potentially others.



**Table 13 Permit Consultation**

State	Permit Consultation
Wyoming H.B. 90. 35-11-313 (f)	The administrator of the water quality division of the department of environmental quality, after receiving public comment and after consultation with the State geologist, the Wyoming oil and gas conservation Commission and the advisory board created under this act, shall recommend to the director rules, legislations and standards.”

## 7.4 Permit Requirements

Permit requirements necessitate an applicant to demonstrate a thorough review of the CCUS project site and its potential impacts on ground water, human health, and the environment. UIC programs are authorized through the Safe Drinking Water Act 42 U.S.C. 300f *et seq.* UIC programs are also exempt from the National Environmental Policy Act (“NEPA”) environmental assessment under Section 511(c) of the Clean Water Act because the UIC program itself requires sufficient environmental assessment. Although CCUS permits do not need to go through the NEPA permitting process, the project must still comply with all applicable federal and state environmental laws and follow the UIC and state permit requirements.



**Table 14 Permit Requirements**

State	Permit Requirements
<p>North Dakota S.B. 2095 38-22-08</p>	<p>“1. That the storage operator has complied with all requirements set by the Commission. 2. That the storage facility is suitable and feasible for carbon dioxide injection and storage. 3. That the carbon dioxide to be stored is of a quality that allows it to be safely and efficiently stored in the storage reservoir. 4. That the storage operator has made a good-faith effort to get the consent of all persons who own the storage reservoir’s pore space. 5. That the storage operator has obtained the consent of persons who own at least sixty percent of the storage reservoir’s pore space. 6. Whether the storage facility contains commercially valuable minerals and, if it does, a permit may be issued only if the Commission is satisfied that the interests of the mineral owners or mineral lessees will not be adversely affected or have been addressed in an arrangement entered into by the mineral owners or mineral lessees and the storage operator. 7. That the proposed storage facility will not adversely affect surface waters or formations containing fresh water. 8. That carbon dioxide will not escape from the storage reservoir. 9. That substances that compromise the objectives of this chapter or the integrity of a storage reservoir will not enter a storage reservoir. 10. That the storage facility will not endanger human health nor unduly endanger the environment. 11. That the storage facility is in the public interest. 12. That the horizontal and vertical boundaries of the storage reservoir are defined. These boundaries must include buffer areas to ensure that the storage facility is operated safely and as contemplated. 13. That the storage operator will establish monitoring facilities and protocols to assess the location and migration of carbon dioxide injected for storage and to ensure compliance with all permit, statutory, and administrative requirements. 14. That all nonconsenting pore space owners are or will be equitably compensated.”</p>

Nebraska follows similar requirements, but also calls for a geologic study that includes seismic assessment. The state also specifies how carbon dioxide will not escape from the reservoir through the atmosphere nor water.

“In accordance with the United States Environmental Protection Agency Underground Injection Control program, that the storage operator has completed a comprehensive geologic study which includes a seismic risk assessment.”

Utah also follows similar requirements, but also requires plans for ensuring compliance, requires 70% of pore space owners to consent to CCUS, and explicitly limits carbon dioxide escapement.

“Carbon dioxide will not escape from the storage reservoir at a rate exceeding the lower of 1% or the standard recommended by the Environmental Protection Agency.”



## 7.5 Permit Provisions

Permit provisions refer to extra requirements or conditions in the state CCUS legislation. West Virginia added a provision about agents and Mississippi included many provisions regarding oil and gas production in connection with a CCUS project.

**Table 15 Permit Provisions**

State	Permit Provisions
West Virginia H.B. 4491 §22-11B-6 (a)-(b)	“The secretary may include in any permit or order all things necessary to carry out this article’s objectives and to protect and adjust the respective rights and obligations of persons affected by a carbon dioxide sequestration facility. Every well operator required to designate an agent under this article shall, within five days after the termination of the designation, notify the secretary of the termination and designate a new agent.”
Mississippi S.B. 2723 53-11-15 (1)(c)(i)	<p>“A provision for:</p> <ul style="list-style-type: none"> <li>(i) access to and use of a reasonable amount of the surface area within the unit area by the storage operator and his agents in connection with constructing, equipping, operating, maintaining and terminating operations of the geologic sequestration facility; and</li> <li>(ii) payment of the reasonable costs of compensable damages to the surface and reasonable consideration for use of the surface area.”</li> </ul>

## 7.6 Amalgamating Property Interests

Amalgamating property interests means combining many properties from one single large property, usually facilitated by multiple property owners.

Amalgamating property can also be facilitated by a state government, like eminent domain. While eminent domain refers to the right of a government to expropriate private property to public use in return for payment of compensation, amalgamating property interests refers to the government’s right to order the pooling of the desired pore space licensing for a CCUS project in return for payment of compensation. The pore space owners still own their pore space, but the state may allow the pore space to be licensed to the project, with compensation, regardless of if all the pore space owner consented to the licensing.

Naturally, some owners may want to license pore space to a CCUS project while others may not. Since subsurface property is harder to delineate than surface property lines, a nonconsenting owner’s pore space may not be separable from the desired pore space reservoir. Therefore, amalgamating can be necessary.

Before ordering an amalgamation of property, the state needs to see the applicant/storage operator make “good faith” attempts to acquire the license to use the desired pore space. A “good faith” attempt refers to a diligent and honest effort to contact the pore space owners to secure licensing.

In addition to good faith efforts, an applicant/storage operator needs to secure a certain percentage of the interest in pore space. The minimum percentage of the interest in pore space (licensing) required varies



among states. At the very least, an applicant/storage operator needs a majority approval, 51%. Some states, such as Utah, set the minimum percent required at 70%.

States vary in how they amalgamate properties of consenting and nonconsenting owners for a CCUS permit.

**Table 16 Amalgamation of Property Interests**

State	Amalgamation of Property Interests
Utah H.B. 244 40-11-11. (1) & 40-11-6.(3)(c)	“The board may hold a hearing to consider the need for the amalgamation of a tract of land for geologic carbon storage.:  (c) that owners who own no less than 70% of the reservoir’s pore space have provided written consent to the use of the owners’ pore space for a storage facility;
North Dakota S.B. 2095 38-22-10	“If a storage operator does not obtain the consent of all persons who own the storage reservoir’s pore space, the Commission may require that the pore space owned by nonconsenting owners be included in a storage facility and subject to geologic storage. When the Commission issues a permit it shall also issue a certificate stating that the permit has been issued, describing the area covered, and containing other information the Commission deems appropriate. The Commission shall file a copy of the certificate with the county recorder in the county or counties where the storage facility is located.”

## 8 Resource Designation

Title to resources should be addressed early in the CCUS legislation to assist in creating a regulatory scope. Resources to identify ownership and title includes pore space, carbon throughout the CCUS process, minerals, and property. The rights of owners are also addressed in other state CCUS legislation.

### 8.1 Pore Space Licensing

Pore space ownership is not a clear and settled area of property rights law in all states. However, most states are leaning towards the American rule, designating ownership of pore space (any geological formations below the surface) to the surface estate owners. These owners have the choice to license their pore space for a CCUS project.

The federal government is also leaning towards the American rule, but the federal government has not explicitly defined pore space ownership. The United States Supreme Court has not ruled on pore space ownership, nor has the Legislative branch enacted any laws. However, the Bureau of Land Management recently issued an Instruction Memorandum (No. 2022-041) as the national policy for right-of-way authorizations for carbon sequestration projects. The Memorandum stated the following regarding pore space ownership:

“Typically, pore space is owned by the surface owner, although it may be separately conveyed. In determining pore-space ownership, title documents should be reviewed. Questions about pore-space ownership should be resolved in coordination with the Solicitor’s Office.”



Governments outside of the United States typically follow the “English rule” and designate pore space ownership to the government itself. Governments of Australia, Norway, and Canada all claim ownership of all underground geologic formations (including minerals and pore space) below the surface. These countries may enter into an agreement with a person that grants them leases and/or licenses to the geologic formations. Alaska more closely follows the English rule than the American rule. In certain cases the federal government may own the surface estate while an Alaska Native Corporation has been granted the mineral rights (subsurface estate).

**Table 17 Pore Space Licensing**

State	Pore Space Licensing
Wyoming H.B. 89 34-1-152 (b)	“The ownership of pore space in strata may be conveyed in the manner provided by law for the transfer of mineral interests in real property. No agreement conveying mineral or other interests underlying the surface shall act to convey ownership of any pore space in the stratum unless the agreement explicitly conveys that ownership interest.”
Alberta, Canada Mines and Minerals Act RSA 2000, c M-17 15.1(1)	<p>“(a) no grant from the Crown of any land in Alberta, or mines or minerals in any land in Alberta, has operated or will operate as a conveyance of the title to the pore space contained in, occupied by or formerly occupied by minerals or water below the surface of that land,</p> <p>(b) the pore space below the surface of all land in Alberta is vested in and is the property of the Crown in right of Alberta and remains the property of the Crown in right of Alberta whether or not</p> <p style="padding-left: 40px;">(i) this Act, or an agreement issued under this Act, grants rights in respect of the subsurface reservoir or in respect of minerals occupying the subsurface reservoir, or</p> <p style="padding-left: 40px;">(ii) minerals or water is produced, recovered or extracted from the subsurface reservoir, and...</p> <p>(3) The Minister may enter into agreements with respect to the use of pore space.”</p>
Country of Norway Legislation for carbon dioxide Section 1-2.	“The Norwegian State has the proprietary right to subsea reservoirs on the continental shelf for exploitation of said reservoirs for storage of CO <sub>2</sub> and has an exclusive right to management of said reservoirs.”
Victoria, Australia Greenhouse Gas Geological Sequestration Act Part 2 14(1)-(4)	<p>“(1) The Crown owns all underground geological storage formations below the surface of any land in Victoria.</p> <p>(2) Subsection (1) does not apply in relation to any land (other than Crown land) to the extent that the underground geological storage formation is within 15.24 metres of the surface of the land.</p> <p>(3) Subsection (1) applies despite any prior alienation of Crown land.</p> <p>(4) The Crown is not liable to pay any compensation in respect of a loss caused by the operation of this section.”</p>

## 8.2 Mineral Ownership

Mineral rights are the ownership rights to underground resources, including fossil fuels, ore, and mineable rocks. Mineral rights are separate from surface rights and can be considered a type of subsurface right, but not completely interchangeable. The ability to mine for minerals may be affected by a CCUS injection well, creating a rivalrous use between subsurface and surface right owners. Therefore, states address





how the state will maintain the rights of mineral rights owners and pore space owners to be non-exclusionary.

**Table 18 Mineral Ownership**

<b>State</b>	<b>Mineral Ownership</b>
Nebraska NE L650 Section 4	“(1) Title to any reservoir estate underlying the surface of lands and waters is vested in the owner of the overlying surface estate unless it has been severed and separately conveyed.”
Wyoming H.B. 89 34-1-202 (c)	“This act shall not alter the law of Wyoming regarding the primacy of the mineral estate and any easement created hereunder shall not limit the right of a mineral owner or his lessee to reasonable use of the surface for the purpose of mineral exploration and production unless the owners and lessees of the entire mineral estate....”
North Dakota S.B 2095 38-22-08 6.	“Whether the storage facility contains commercially valuable minerals and, if it does, a permit may be issued only if the Commission is satisfied that the interests of the mineral owners or mineral lessees will not be adversely affected or have been addressed in an arrangement entered into by the mineral owners or mineral lessees and the storage operator.”

### 8.3 Preservation of Rights

Preservation of rights means the rights acquired in the past are still considered a valid contract, even if the rights were acquired through antiquated rules. Many CCUS legislations explicitly address preserving mineral owners’ rights.

Additionally, many states require the location of the CCUS project to be a site with no valuable minerals, to protect the interests of mineral owners or lessees. The European Union (“EU”) continues this priority of mineral interests. The EU member states legislations allow the states to prioritize other uses of the underground geologic formations and are encouraged to consider other energy-related projects in the same space.

Although resource extraction is prioritized, drilling through an active carbon dioxide storage reservoir for oil and gas production at a greater depth is technically feasible, provided appropriate geologic formations and safety measures are in place.

**Table 19 Preservation of Rights**

<b>State</b>	<b>Preservation of Rights</b>
Indiana IC 14-39-2 Chapter 2 Section 1	(c) Except as otherwise provided in this chapter, this chapter applies to the underground storage of carbon dioxide.  (d) The rights and requirements of this chapter: (1) are subordinate to the rights pertaining to oil, gas, and coal resources; and (2) may not adversely affect oil, gas, and coal resources, except as is strictly necessary to construct and maintain a carbon sequestration project that will provide for the permanent storage of carbon dioxide.
Oklahoma S.B. 610 Section 6. B.	“Nothing in this act shall alter the incidents of ownership, or other rights, of the owners of the mineral estate or adversely affect enhanced oil or gas recovery efforts in the state.”



## Peer-State Carbon Capture, Utilization, and Sequestration Regulatory Regimes

### Liability

February 1, 2023

State	Preservation of Rights
West Virginia H.B. 2860 22-11A-8. (b)	“Nothing in this article is intended to impede or impair the ability of an oil, natural gas, or coalbed methane operator to inject carbon dioxide through an approved enhanced oil, natural gas, or coalbed methane recovery project and to establish, verify, register, and sell emission reduction credits associated with the project.”
North Dakota S.B. 2095 38-22-13	“Nothing in this chapter nor the issuing of a permit: 1. Prejudices the rights of property owners within a storage facility to exercise rights that have not been committed to a storage facility. 2. Prevents a mineral owner or mineral lessee from drilling through or near a storage reservoir to explore for and develop minerals, provided the drilling, production, and related activities comply with commission requirements that preserve the storage facility’s integrity and protect this chapter’s objectives.”
Kentucky H.B. 259 Section 3. (2)	“To be approved, a project shall inject carbon dioxide into pore space that contains no economically recoverable minerals at the time of the injection.”
Mississippi S.B. 2723 53-11-9. (1)(c)(ii)	“The reservoir has a greater value or utility as a reservoir for carbon dioxide storage than for the production of the remaining volumes of reservoir oil, gas, condensate or other commercial mineral, if any, and the requirements of Sections 53-11-11 and 53-11-13 have been satisfied. Approval of a geologic sequestration facility by the board shall provide full and complete authority for the construction, equipping and operation of the geologic sequestration facility without need of further action or grant by any person.”
European Union Directive 2009/31/EC Introduction (19)	“Member States should retain the right to determine the areas within their territory from which storage sites may be selected. This includes the right of Member States not to allow any storage in parts or on the whole of their territory, or to give priority to any other use of the underground, such as exploration, production and storage of hydrocarbons or geothermal use of aquifers. In this context, Member States should in particular give due consideration to other energy-related options for the use of a potential storage site, including options which are strategic for the security of the Member State’s energy supply or for the development of renewable sources of energy.”

## 9 Liability

Liability is the state of being responsible for something, especially by law. All active CCUS projects are still in the beginning stages since the CCUS industry itself is relatively new. No projects have reached the closure or post-closure phase. Post-closure risks, such as carbon dioxide plume migration, have not been fully actualized. To mitigate this limited understanding of sequestered carbon dioxide, the EPA set a minimum monitoring period of 50 years after cessation of injection. During the 50-year period, the carbon dioxide will be monitored to track if it is escaping from the storage reservoir. Although the EPA designates a 50-year monitoring period, it is not clear who is liable for the carbon dioxide itself during or after the monitoring period.

In addition to the lack of experience with sequestered carbon dioxide, a possible change in carbon dioxide ownership and transfer of liability during the post-closure phase adds more uncertainty. Other states and government agencies are preparing for the state to have a role in post-closure site management and take on long-term liability.



## 9.1 Pore Space Liability

In most states, pore space owners do not hold liability for the injected carbon dioxide when licensing their pore space.

**Table 20 Pore Space Liability**

State	Pore Space Liability
Utah H.B. 244 40-11-15 (3).	“An owner of pore space does not incur liability for geologic carbon storage activity by virtue of ownership of or of leasing out the pore space.”
Wyoming S.F. 47 34-1-15”3	(a) All carbon dioxide, and other substances injected incidental to the injection of carbon dioxide, injected into any geologic sequestration site for the purpose of geologic sequestration shall be presumed to be owned by the injector of such material subject to W.S. 35-11-318 and 35-11-319 and all rights, benefits, burdens and liabilities of such ownership shall belong to the injector. This presumption may be rebutted by a person claiming contrary ownership by a preponderance of the evidence in an action to establish ownership.  (b) Except as provided in W.S. 35-11-318 and 35-11-319, no owner of pore space, other person holding any right to control pore space or other surface or subsurface interest holder, shall be liable for the effects of injecting carbon dioxide for geologic sequestration purposes, or for the effects of injecting other substances for the purpose of geologic sequestration which substances are injected incidental to the injection of carbon dioxide, solely by virtue of their interest or by their having given consent to the injection.”

## 9.2 Operating Liability

The storage operator has title, or actual ownership of property, of the carbon dioxide associated with the CCUS project, and thus holds all rights, responsibilities, and liability. No states hold liability for the CCUS project during the operating life of the project.

**Table 21 Title and Liability**

State	Title and Liability
North Dakota S.B. 2095 38-22-16	“The storage operator has title to the carbon dioxide injected into and stored in a storage reservoir and holds title until the Commission issues a certificate of project completion. While the storage operator holds title, the operator is liable for any damage the carbon dioxide may cause, including damage caused by carbon dioxide that escapes from the storage facility.”
Nebraska L.B. 650 Sec. 18	“The storage operator has title to the carbon dioxide injected into and stored in a storage reservoir and holds title until the commission issues a certificate of project completion under Section 19 of this act. While the storage operator holds title, the operator is liable for any damage the carbon dioxide may cause, including damage caused by carbon dioxide that escapes from the storage facility.”
Wyoming S.F. 47 35-11-318. (b)	“An injector shall: have title to any carbon dioxide the injector injects into and stores underground or within a unit area; hold title for any injected or stored carbon dioxide until the department issues a certificate of project completion. During any time, the injector holds title to carbon dioxide under this section, the injector shall be liable for any damage the injected or stored carbon dioxide may cause, including damage caused by carbon dioxide that escapes or is released from where it is being stored underground.”

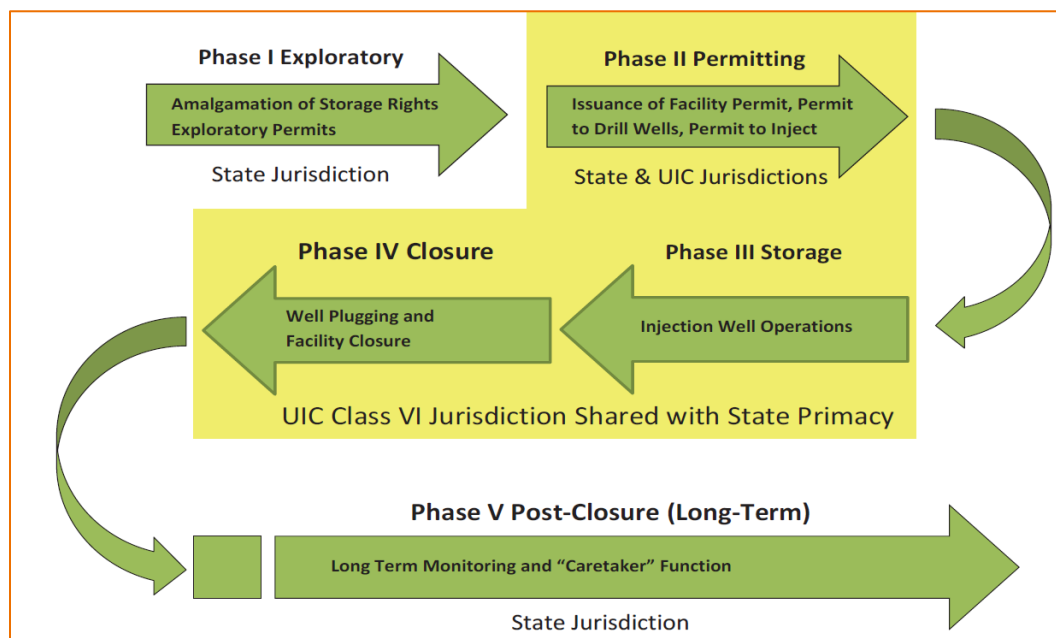


State	Title and Liability
Kansas H.B. 2418 55-1637 (H)	“(H) No rule or regulation adopted under the provisions of this section shall create or impose upon the Commission, any agent or employee thereof or the state of Kansas any liability for the underground storage of carbon dioxide or the maintenance of any carbon dioxide injection well or underground storage of carbon dioxide except as permitted by the Kansas tort claims act. From and after July 1, 2010, any requirement in any rule and regulation adopted by the Commission which conflicts with the prohibition prescribed in this section shall be null and void.”
Utah	“(1) The storage operator has title to the carbon dioxide injected into and stored in a storage reservoir and holds title until the board issues a certificate of project completion.  (2) The storage operator is liable for any damage the stored carbon dioxide may cause, including damage caused by escaping stored carbon dioxide until the board issues a certificate of completion.”

Operational liabilities can be incurred by violation of CCUS statutes or by violations of common law (i.e., negligent operation, trespass, nuisance, or injury to neighboring property owners). The risks associated with operational liabilities is usually addressed through financial assurance requirements (in Section 3.4.1). Alaska has well established financial assurance requirements for the oil and gas industry that can be utilized as models for CCUS projects.

### 9.3 Long-term Liability

Long-term liability refers to Phase V, from the figure below. The storage operator has liability of carbon dioxide from Phase II to Phase IV, highlighted in yellow.



**Figure 3 CCUS Project Flow Diagram**

(IOGCC 2014)



## Peer-State Carbon Capture, Utilization, and Sequestration Regulatory Regimes

### Liability

February 1, 2023

Liability is not guaranteed to be transferred after a project is completed. A state can take on different degrees of long-term liability for Phase V, Post-Closure:

- **Full Liability:** State becomes solely responsible for carbon dioxide in storage reservoir and CCUS project, the storage operator is released from all liability.
  - North Dakota, West Virginia, Wyoming, Alberta, Utah
- **Partial Liability:** State is partially responsible for carbon dioxide in storage reservoir and CCUS project, the storage operator shares liability.
  - Texas, Mississippi, Louisiana
- **No Liability:** State is not responsible for carbon dioxide in storage reservoir and CCUS project, the storage operator has full liability.
  - Federal (BLM)

There is a general trend of the state assuming full liability after the Certificate of Project Completion is issued. States identified with assuming partial liability made caveats for the storage operator being liable for carbon dioxide operations prior to injection, any omission of information, and restoration of facilities. In Louisiana, transfer of ownership does not assume transfer of liability; the state can take ownership but not liability if a CCUS project cannot show mechanical integrity. In all jurisdictions reviewed apart from West Virginia, the title of the storage facility and stored carbon dioxide is transferred to the state. West Virginia transfers the title of the stored carbon dioxide back to the pore space owners, but the liability of that stored carbon dioxide is transferred to the state.

**Table 22 Long-Term Liability**

State	Long-Term Liability
North Dakota SB 2095 38-22-17.6.	"Once a certificate is issued: A. Title to the storage facility and to the stored carbon dioxide transfers, without payment of any compensation, to the state. B. Title acquired by the state includes all rights and interests in, and all responsibilities associated with, the stored carbon dioxide. C. The storage operator and all persons who generated any injected carbon dioxide are released from all regulatory requirements associated with the storage facility. D. Any bonds posted by the storage operator must be released. E. Monitoring and managing the storage facility is the state's responsibility to be overseen by the commission until such time as the federal government assumes responsibility for the long-term monitoring and management of storage facilities."
Texas EC. 382.507. (a)- (b)	"(a) The board shall acquire title to carbon dioxide stored in the carbon dioxide repository on a determination by the board that permanent storage has been verified and that the storage location has met all applicable state and federal requirements for closure of carbon dioxide storage sites. (b) The right, title, and interest in carbon dioxide acquired under this section are the property of the permanent school fund and shall be administered and controlled by the board."



**Peer-State Carbon Capture, Utilization, and Sequestration Regulatory Regimes  
Liability  
February 1, 2023**

State	Long-Term Liability
Texas ec. 382.508. (a)- (b)	<p>“(a) The transfer of title to the state under section 382.507 does not relieve a producer of carbon dioxide of liability for any act or omission regarding the generation of stored carbon dioxide performed before the carbon dioxide was stored.</p> <p>(b) On the date the permanent school fund, under section 382.507, acquires the right, title, and interest in carbon dioxide, the producer of the carbon dioxide is relieved of liability for any act or omission regarding the carbon dioxide in the carbon dioxide repository.</p> <p>(c) this section does not relieve a person who contracts with the board under section 382.504(b) of liability for any act or omission regarding the construction or operation, as applicable, of the carbon dioxide repository.”</p>
West Virginia H.B 4491 §22-11B-12. (c) (1)-(3)	<p>“(c) As of the effective date of a completion certificate:</p> <p>(1) Ownership of the stored carbon dioxide transfers, without payment of any compensation, to the owners of the pore space as established in §22-11B-18 of this code;</p> <p>(2) Ownership acquired by the pore space owners under subdivision (c)(1) of this section includes all rights and interests in the stored carbon dioxide and any associated leasing rights; <u>Provided, That all liability and regulatory requirements associated with the stored carbon dioxide shall become the responsibility of the state and the state shall defend, indemnify, and hold harmless the pore space and surface owners against all claims using only funds from the Carbon Dioxide Storage Facility Trust Fund;</u></p> <p>(3) The storage operator and all persons who transported and/or generated any stored carbon dioxide are released from all liability and regulatory requirements associated with the storage facility;”</p>
Wyoming S.F. 47 35-11-319 (d) (iv)- (vi)	<p>“(iv) The injector and all persons who generated any injected or stored carbon dioxide shall be forever released from all regulatory requirements associated with the continued storage and maintenance of the injected carbon dioxide;</p> <p>(v) Any bond or financial assurance submitted to the department under W.S. 35-11-313 through 35-11- 317 shall be released;</p> <p>(vi) The state, through the department, shall assume responsibility to manage and monitor the stored carbon dioxide until such time when the federal government assumes responsibility for the long term monitoring and management of stored carbon dioxide.”</p>
Mississippi S.B. 2723 53-11-25 (2)	<p>“2) Nothing in this chapter shall establish or create any liability or responsibility on the part of the board or the state to pay any costs associated with facility restoration from any source other than the performance bond, deposit, other assurance of performance, or financial assurances posted or required pursuant to this chapter, nor shall the board or the state have any liability or responsibility to make any payments for costs associated with facility restoration.”</p>
Louisiana H.B. 661 Section 1109 (4)	<p>“It is the intent of this section that the state shall not assume or have any liability by the mere act of assuming ownership of a storage facility after issuance of a certificate of completion of injection operations.”</p>
Alberta, Canada Mines and Minerals Act RSA 2000, c M-17 121(1)(b)	<p>“The Minister...assumes all obligations of the lessee as owner and licensee under the Oil and Gas Conservation Act of the wells and facilities covered by that agreement,</p> <p>(ii) as the person responsible for the injected captured carbon dioxide under the Environmental Protection and Enhancement Act,</p> <p>(iii) as the operator under Part 6 of the Environmental Protection and Enhancement Act in respect of the land within the location of the agreement used by the lessee in relation to the injection of captured carbon dioxide, and</p> <p>(iv) under the Surface Rights Act,”</p>



## 9.4 Federal Liability

For states without primacy, the EPA requires a post-closure plan that includes monitoring for 50 years (40CFR146.93(b)(2)) before the EPA will review potential site closure. The wording of the regulation, and the prefatory text in the Federal Register (FR Vol.75, No. 237, Dec. 10, 2010) implies that the owner or operator of the CCUS facility is directly liable until site closure and may be liable for violations of federal regulations indefinitely. As noted in the Federal Register,

“EPA acknowledges stakeholder interest in liability and long-term stewardship in the context of development and deployment of GS technology, however, under current SDWA provisions EPA does not have authority to transfer liability from one entity (i.e., owner or operator) to another.”  
(page 77272)

Wyoming, North Dakota, Kansas, and West Virginia’s legislations referred to the federal government assuming liability from the storage operator and/or state in the future.

**Table 23 Federal Liability**

State	Federal Liability
Wyoming S.F. 47 35-11-319 (d) (vi)	“(vi) The state, through the department, shall assume responsibility to manage and monitor the stored carbon dioxide until such time when the federal government assumes responsibility for the long term monitoring and management of stored carbon dioxide.”
North Dakota SB 2095 38-22-17.6. E.	“Monitoring and managing the storage facility is the state’s responsibility to be overseen by the commission until such time as the federal government assumes responsibility for the long-term monitoring and management of storage facilities.”
West Virginia H.B 4491 §22-11B-12. (c) (5)	“Notwithstanding ownership of the stored carbon dioxide in the pore space owners as provided herein, monitoring, and managing the storage facility shall become the state’s responsibility to be overseen by the secretary utilizing only money from the Carbon Dioxide Storage Facility Trust Fund until such time as the federal government assumes responsibility for the long-term monitoring and management of storage facilities.”
Kansas H.B. 259 353 Section 6. (3) – (4)	“(3) The ownership and liability for a storage facility may be transferred to: (a) The federal government if a federal program exists; or (b) The Finance and Administration Cabinet pursuant to subsections (4) to (6) of this section if a federal program does not exist.  (4) If no federal program exists, and the storage operator seeks to transfer the ownership and liability of a storage facility to the Finance and Administration Cabinet, after completion of the required period of monitoring following completion and plugging, the storage operator shall notify the division of its intent to transfer ownership of the stored carbon dioxide and associated liability to the Finance and Administration Cabinet. The storage operator shall provide evidence to the division of the satisfactory completion of all permit conditions pertaining to the demonstration carbon injection well. Upon receipt and evaluation of satisfactory evidence, the division shall forward the evidence to the Finance and Administration Cabinet with a recommendation for the transfer of ownership of the stored carbon dioxide and liability. The storage operator may then apply to the Finance and Administration Cabinet for the transfer of ownership and liability for the stored carbon dioxide.”



## 9.5 Funding Long-term Liability

A long-term storage trust fund is meant to hold money for activities in the post-closure phase. Often, liability may only be released if there are sufficient trust funds to address or remediate any duty, obligation, or liability that may arise after a verification of completion is issued, such as long-term monitoring and management of the storage facility. Sufficient storage trust funds assure liability will not be the burden of the state and people. Many states reviewed will not release liability from the storage operators if there are insufficient funds in a long-term trust fund.

**Table 24 Long-Term Liability Funding Requirements**

State	Long-Term Liability Funding Requirements
Louisiana H.B. 661 Section 1109 (2)	"Provided the provisions pertaining to site-specific trust accounts are not applicable, such release from liability will not apply to the owner or last operator of record of a storage facility if the carbon dioxide geologic storage trust fund has been depleted of funds such that it contains inadequate funds to address or remediate any duty, obligation, or liability that may arise after issuance of the certificate of completion of injection operations."

States have many options to fund these long-term liability trust funds:

- Per-ton injection fees
- Lump sum closure fees
- Rent of pore space and surface land
- Royalties or portions on 45Q Tax Credits

CCUS legislations require permitting fees (as described in Section 6.1 Fees) to be deposited in designated administrative and trust funds to facilitate CCUS injection wells. CCUS legislation generally includes a per-ton injection fee during CCUS operations for funding long-term liability trust funds.

**Table 25 Funding Long-Term Liability**

State	Funding Long-Term Liability
North Dakota S.B. 2095 38-22-15 1	"Storage operators shall pay the Commission a fee on each ton of carbon dioxide injected for storage. The fee must be in the amount set by Commission rule. The amount must be based on the Commission's anticipated expenses associated with the long-term monitoring and management of a closed storage facility."
Nebraska L.B 650 Sec. 7. (1)	"(1) A Person applying for a permit shall: (a) comply with application requirements set by the Commission; (b) pay a fee in an amount set by the Commission. The amount of the fee shall be set by rule and legislation and shall be based on the Commission's anticipated cost of processing the application. The fee shall be deposited in the carbon dioxide storage facility administrative fund; and (c) pay to the Commission the costs the Commission incurs in publishing notices for hearings and holding hearings on permit applications."





State	Funding Long-Term Liability
Mississippi § 53-11-23. (1)(c)	“Any per-ton fee shall first be applied to the administration and enforcement costs of the board’s activities required or authorized by this chapter, and any amount exceeding those costs shall be transferred to a separate special fund of the State Oil and Gas Board which is hereby created and is to be known as the Carbon Dioxide Storage Fund.”
Indiana IC 14-39-2-9	<p>(a) A storage operator shall pay the department a fee for every ton of carbon dioxide injected for storage.</p> <p>(b) The storage operator shall provide the department with an estimate of the amount of carbon dioxide to be injected into a storage facility for the period of the permit at the time of application for a carbon sequestration project permit.</p> <p>(c) A storage operator shall pay annually to the department a fee of eight cents (\$0.08) per ton of carbon dioxide estimated to be injected into a storage facility.</p> <p>(d) A storage operator shall reconcile the previous calendar year’s payment with the volume of carbon dioxide actually injected into the storage facility the previous calendar year. The storage operator shall submit payment for the amount of carbon dioxide injected into a storage facility less the amount paid the previous calendar year.</p> <p>(e) The department shall refund a storage operator any overpayment in the current year from the previous calendar year.</p>

## 10 Operations

CCUS operations requirements typically include measuring, monitoring, and verification plans, verification of storage amounts, and penalties for non-compliance.

### 10.1 Measuring, Monitoring, and Verification Plan

CCUS projects can be strictly sequestration, or they can be used for enhanced oil recovery. For both types of projects, measurement and monitoring of carbon dioxide to confirm conformance and containment is a critical activity. Commitment to undertake measurement and monitoring and to report this data is done through a measurement, monitoring, and verification (“MMV”) plan and in many jurisdictions is a condition of project approval.

### 10.2 Storage Amount

Carbon dioxide injection and storage volumes are measured as part of the project’s MMV plan. This data can be applied to carbon credits, allowances, emissions allocations, and offsets, as well as for public reporting requirements.



**Table 26 Storage Amount**

State	Storage Amount
North Dakota S.B 2095 38-22-23	<p>“1. The Commission, under procedures and criteria it may adopt, shall determine the amount of injected carbon dioxide stored in a reservoir that has been or is being used for an enhanced oil or gas recovery project. The Commission may also make such a determination for carbon dioxide stored under this chapter.</p> <p>2. The purpose for determining storage amounts is to facilitate using the stored carbon dioxide for such matters as carbon credits, allowances, trading, emissions allocations, and offsets, and for other similar purposes.</p> <p>3. The Commission may charge a reasonable fee to the person requesting a storage determination. The fee must be set by rule.</p> <p>4. Fees the Commission receives for storage determinations must be deposited into the carbon dioxide storage facility administrative fund.”</p>

### 10.3 Enhanced Recovery Projects

Enhanced oil and gas recovery (“EOR”) is the process that involves the injection of fluids to retain or increase reservoir pressure and as a result, displace extractable oil and gas, the fluid is often naturally occurring or anthropogenic carbon dioxide. EOR is regulated through the EPA’s Class II Underground Injection Control Program. According to an EPA memorandum from 2015, Class II EOR injection wells have the potential to transition into Class VI injection wells because both wells inject carbon products as liquid into underground formations. The memorandum outlines the key principles for transitioning Class II wells. However, the absence of finalized technical guidance from the EPA creates a lack of clarity and consistency for state legislation. EOR injection wells are sometimes included in a CCUS program or regulated separately. Some states, such as Oklahoma, include EOR as a part of CCUS, others do not, such as North Dakota.

**Table 27 Enhanced Recovery**

State	Enhanced Recovery Projects
Oklahoma S.B. 610 Section 3. A.	<p>“The Commission shall have such jurisdiction regardless of whether such carbon dioxide sequestration facility or other injection of carbon dioxide involves enhanced oil or gas recovery.”</p>
North Dakota S.B. 2095 38-22-19	<p>“This chapter does not apply to applications filed with the Commission proposing to use carbon dioxide for an enhanced oil or gas recovery project, rather such applications will be processed under chapter 38-08. 2. The Commission may allow an enhanced oil or gas recovery project to be converted to a storage facility. In considering whether to approve a conversion, and upon conversion, the provisions of this chapter and its implementing rules apply, but if during the conversion process unique circumstances arise, the Commission, to better ensure that the chapter’s objectives are fulfilled, may waive such provisions and may impose additional ones.”</p>



## 10.4 Penalties

Penalties are also referred to as compliance and enforcement. A person or entity who violates any provisions or rules in a CCUS legislation is subject to civil penalty until the person corrects to the provision or rule. The amount of a penalty is determined by the nature of the violation, circumstances and gravity, and hazard or potential hazards to others. Economic or environmental harm, history of previous violations, efforts to correct the violation, and the amount necessary to deter future violations are also factors in the penalty amount. There is a significant discrepancy between states on the maximum civil penalty amount per day per violation. Many states leave penalties up to the discretion of the authority, and a few states have explicit caps on penalties. The table below shows a sample of maximum civil penalties, ascending in amount.

**Table 28 Civil Penalty Amounts**

State	Civil Penalty Amounts
Nebraska	Class II Misdemeanor (\$1,000) or 6 months imprisonment
Mississippi	\$5,000
Louisiana	\$5,000
Utah	\$10,000
Kansas	\$10,000
North Dakota	\$12,500
West Virginia	\$25,000

The language of declaring penalties communicates that the civil penalty cost is cumulative. Kansas law stipulates “every day such violation continues shall be deemed a separate violation.”

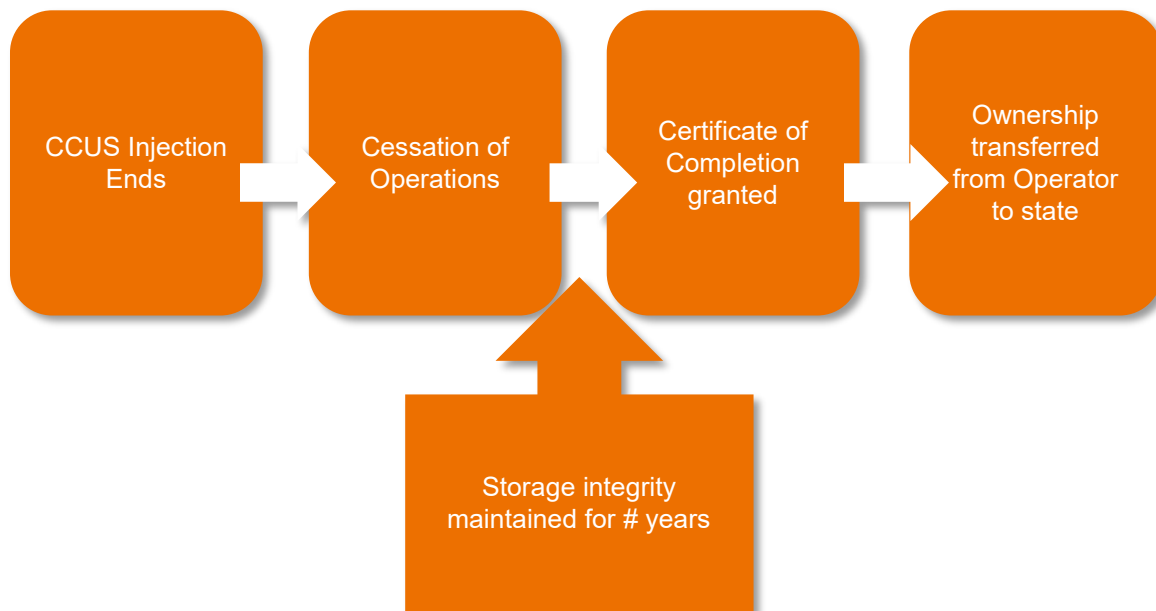
**Table 29 Penalty Language**

State	Language of Penalties
Kansas HB 2419 New Sec. 4. a.	“The Commission, upon a finding that a person has violated any provision of section 2, and amendments thereto, or rules and legislations adopted thereunder, may impose a penalty not to exceed \$ 10,000 per violation which shall constitute an economic deterrent to the violation for which it is assessed and, in the case of a continuing violation, every day such violation continues shall be deemed a separate violation.”
West Virginia H.B.2860 22-11-22. (a)	“Any person who violates any provision of any permit issued under or subject to the provisions of this article or article eleven-a of this chapter is subject to a civil penalty not to exceed \$ 25,000 per day of such violation and any person who violates any provision of this article or of any rule or who violates any standard or order promulgated or made and entered under the provisions of this article, article eleven-a of this chapter or article one, chapter twenty-two-b of this code is subject to a civil penalty not to exceed \$ 25,000 per day of such violation.”



## 10.5 Certificate of Project Completion

There are multiple phases of the project completion process, with the first step typically as termination of carbon dioxide injection. Next, the storage operator must apply for project completion by proving the reservoir can maintain integrity, often referred to as the cessation of storage operations. The application for project completion may also include hearings, public notices, and consultations with other state departments (such as a department of health). Finally, once integrity is established and the state issues a Certificate of Project Completion, the storage operator can transfer ownership to the state.



**Figure 4 Certificate of Completion Flowchart**

For each state, there is a range of minimum years required before the state issues a Certificate of Project Completion. The table below includes which States had explicit year requirements. A longer period between cessation and certification may reduce the chance of an accident while the state holds liability but may deter potential applicants, thus reducing the amount of CCUS injection well applications and its economic and environmental benefits. Regardless of the timeline for getting a Certificate of Project Completion, the EPA's Class VI UIC program requires monitoring of the storage site for 50 years after injection is complete before being considered complete for ownership transfer.

Under the Mines and Minerals Act of Alberta (Canada), the province requires the captured carbon dioxide to behave "in a stable and predictable manner, with no significant risk of future leakage" before assuming liability.



**Table 30 Timeline for Certificates of Completion**

<b>State</b>	<b>Timeline for Certificate of Completion</b>
Mississippi	3 years
North Dakota	10 years
Utah	10 years
Louisiana	10 years
Wyoming	20 years
Norway	20 years

**Table 31 Certificates of Completion**

<b>State</b>	<b>Certificate of Completion</b>
Wyoming SF 47 35-11-319 (a)-(b)	<p>“(a) After all carbon dioxide injections underground or into pore space are completed as provided by a permit issued under W.S. 35-11-313 and upon application by the injector holding title to the carbon dioxide under W.S. 35-11-318, the department may issue a certificate of project completion. The department shall only issue a certificate upon satisfaction of the conditions imposed under subsections (b), (c) and (d) of this section and after providing public notice of the application, an opportunity for public comment and a public hearing on the application.</p> <p>(b) A certificate of project completion shall not be issued until at least twenty (20) years after carbon dioxide injections end.”</p>
Louisiana H.B. 661 Section 1109. A. (1)	<p>“Ten years, or any other time frame established by rule, after cessation of injection into a storage facility, the Commissioner shall issue a certificate of completion of injection operations, upon a showing by the storage operator that the reservoir is reasonably expected to retain mechanical integrity and the carbon dioxide will reasonably remain emplaced, at which time ownership to the remaining project including the stored carbon dioxide transfers to the State. Upon the issuance of the certificate of completion of injection operations, the storage operator, all generators of any injected carbon dioxide, all owners of carbon dioxide stored in the storage facility, and all owners otherwise having any interest in the storage facility, shall be released from any and all duties or obligations under this chapter and any and all liability associated with or related to that storage facility which arises after the issuance of the certificate of completion of injection operations.”</p>

## **11 Environmental Protection Considerations**

The Class VI rule for the UIC program was designed to protect underground sources of drinking water from long-term carbon sequestration, following the Safe Drinking Water Act. Since the UIC program is a federal program that includes environmental assessment, going through the NEPA process would be redundant. The Class VI permit application itself expands on those requirements to protect the environment around the project site through developing leading practices for siting, operation, testing, monitoring, and closure. For example, siting wells requires extensive site characterization of the affected environments.

States can choose to expand on the UIC requirements (which are already expanded from NEPA). In general, most jurisdictions rely on existing legislation, and adapt as needed, to regulate CCUS. For



**Peer-State Carbon Capture, Utilization, and Sequestration Regulatory Regimes  
Environmental Protection Considerations  
February 1, 2023**

instance, in Alberta, Canada, many of the components of CCUS, including injection wells are permitted under the existing Oil and Gas Conservation Act and the Mines and Minerals Act. Environmental protection is also managed through the Environmental Protection and Enhancement Act, as well as numerous other acts and legislation that are already in place primarily to manage oil and gas and other resource developments. In addition, proponents are required to develop an MMV plan for the project that is subject to review by the Alberta Energy Regulator prior to its implementation.

Additional environmental considerations and protection efforts may include categorizing stored carbon dioxide, rehabilitating the land where a CCUS project took place, and refusing any level of risk to public health.

**Table 32 Environmental Considerations**

State	Environmental Considerations
<p>North Dakota S.B. 2095 38-22-12</p>	<p>"The commission shall take action to ensure that a storage facility does not cause pollution or create a nuisance. for the purposes of this provision and in applying other laws, carbon dioxide stored, and which remains in storage under a commission permit, is not a pollutant nor does it constitute a nuisance.</p> <p>2. the commission's authority in subsection 1 does not limit the jurisdiction held by the state department of health. nothing else in this chapter limits the jurisdiction held by the state department of health.</p> <p>3. the commission shall take action to ensure that substances that compromise the objectives of this chapter or the integrity of a storage reservoir do not enter a storage reservoir.</p> <p>4. the commission shall take action to ensure that carbon dioxide does not escape from a storage facility."</p>
<p>West Virginia H.B. 4491 §22-11B-8. (a)-(b)</p>	<p>"For the purposes of this article and in all other respects, any carbon dioxide injected and sequestered in accordance with an underground injection control permit issued by the secretary shall not be considered a pollutant and the operation and existence of such a carbon dioxide sequestration facility shall not be considered a public nuisance.</p> <p>(b) The secretary's and the commission's authority as set forth in this article shall not otherwise limit the authority or jurisdiction of the secretary and the commission in any manner."</p>
<p>Victoria, Australia Greenhouse Gas Geological Sequestration Act Division 2. 7</p>	<p>"The objectives of this Act are to encourage and promote greenhouse gas sequestration operations for the benefit of all Victorians by...establishing a legal framework for the legislation of greenhouse gas sequestration operations aimed at ensuring that...</p> <ul style="list-style-type: none"> <li>(i) greenhouse gas sequestration operations are carried out in ways that minimise impacts on public health and the environment; and</li> <li>(ii) consultation mechanisms are effective and appropriate access to information regarding greenhouse gas sequestration operations is provided; and</li> <li>(iii) land affected by greenhouse gas sequestration operations is rehabilitated." </li></ul>
<p>Country of Norway Legislation of carbon dioxide Section 1-10</p>	<p>"A subsea reservoir shall only be selected as a storage location if there, under the conditions proposed for such use, is not a significant risk of leakage, and there is also not considered to be any risk of health or environmental damage of significance."</p>



## 12 Review Outcome: Primacy

Primary enforcement authority (“primacy”) refers to State, territory, or tribal responsibilities associated with implementing EPA approved UIC programs within that state, territory, or tribe. Delegating Class VI primacy to states helps alleviate the EPA’s workload. Self-regulating via primacy also gives power— although granted — back to the states. States seeking primacy must demonstrate the state has authority over underground injection, the state’s legislation meets the Safe Drinking Water Act Section 1422 requirements and have the capacity to fulfill administrative and enforcement duties. Writing robust legislation that follow the UIC program is one of many steps to program primacy.

Any state legislation implemented by Alaska would need to meet or exceed the EPA criteria for Class VI wells, including:

- Extensive site characterization requirements,
- Injection well construction requirements for materials that are compatible with and can withstand contact with carbon dioxide over the life of the project,
- CCUS injection well operation requirements,
- Comprehensive monitoring requirements addressing well integrity, carbon dioxide injection and storage, and ground water quality during the injection operation and the post-injection site care period,
- Financial responsibility requirements assuring the availability of funds for the life of the project (including post-injection site care and emergency response), and
- Reporting and recordkeeping requirements that provide project-specific information to continually evaluate Class VI operations and confirm protection of underground drinking water sources.

There are four phases of the Primacy application process.

- Phase I: pre-application activities (writing legislation reviewed in this document)
- Phase II: completeness review and determination
- Phase III: application evaluation
- Phase IV: rulemaking and codification

### 12.1 States with Primacy

North Dakota and Wyoming are the only states with Class VI primacy. A significant portion of the language used as examples in the previous section were from the two state’s legislations because they were the most robust out of all 11 states sampled. Louisiana, Texas, and West Virginia’s legislations closely followed the legislations of the primacy states and now those states are in the process of applying for primacy.



Arizona is in the Pre-Application Activities phase of applying for Primacy. West Virginia and Texas are in Pre-Application Activities phase of Program Revision Applications. Louisiana's Program Revision Application (for Class VI Primacy) is currently being evaluated.

## **12.2 Steps to Primacy and Timeline**

The timeline to primacy is not consistent between states. The EPA originally estimated it would take 270 days for a state to apply and obtain Class VI primacy. While it took less than 3 months for the EPA to accept North Dakota and Wyoming's completed Class VI primacy applications, the evaluation process timeline varied. North Dakota's application took five years to be approved while Wyoming's application took six months to be approved (more aligned with the original estimation).

Louisiana submitted a completed Class VI primacy application in September 2021 and is still in the evaluation process (almost 400 days later). Arizona's timeline also lags the EPA's estimation and has been in the pre-application activity stage for four years (since 2018).

While creating state legislation may only take less than a year to write and pass, primacy has a longer, inconsistent timeline.

## **13 Summary of Major Issues**

As noted in this report, there are several major issues to be addressed in developing CCUS legislation.

### **13.1 Pore space licensing**

As previously stated, pore space ownership is not a clear and settled area of property rights law. Therefore, protocols for licensing pore space are also not clear or settled. Most states are primarily following the American rule, designating ownership of pore space (any geological formations below the surface) to the surface estate owners. However, there are two exceptions to the American rule. First, the surface owner does not have title to pore space if there has previously been a severance in the surface and subsurface estate (primarily for mineral extraction). And second, the surface owner may not own all the pore space if pore space is defined to exclude pore space created from mineral extraction activities. Utah follows this exception; all other states appear to assign all pore space to surface owners.

Pore space licensing in Alaska is already unique compared to the lower 48 states. According to the Alaska Constitution and the Alaska Statehood Act, natural and subsurface resources belong to Alaska. Oil and gas companies pay royalties on oil and gas production to ADNR and taxes to the Department of Revenue. Alaska's subsurface ownership is more like Norway and Canada than other American states. Since surface owners do not automatically own all geological formations below the surface, Alaska does not exclusively follow the American rule. If Alaska owns the subsurface estate, Alaska theoretically owns the pore space as well. Alaska may be able to lease the right to use pore space, just as the state leases the right to extract oil, gas, and minerals.





## **13.2 Amalgamation of Property Interests**

As previously described, not every property owner needs to consent for a permit to be issued. The desired storage reservoir (comprised of pore space) for a CCUS project may be owned by multiple owners. Some owners may want to license pore space to a CCUS project while others may not. Since subsurface property is harder to delineate than surface property lines, a nonconsenting owner's pore space may not be separatable from the desired pore space reservoir. Therefore, states can amalgamate property, like they have the power of eminent domain. Amalgamating property interests refers to the government's right to order the pooling of the desired pore space licensing for a CCUS project in return for payment of compensation. The pore space owners still own their pore space, but the state may allow the pore space to be licensed to the project, with compensation. Alaska will need to determine its process for amalgamation and its minimum percentage of consenting pore space and surface owners. If it is determined that Alaska owns the pore space, this process may still focus on getting consent from the surface owners.

## **13.3 Class VI Primacy**

Primary enforcement authority ("primacy") refers to state, territory, or tribal responsibilities associated with implementing EPA approved UIC programs within that state, territory, or tribe. The majority of the states do not have the authority to issue Class VI permits, leaving permitting responsibility with the EPA. Delegating Class VI primacy to states would help alleviate the EPA's workload and may speed up the permitting process back to the estimated 270-day timeline. To do so, states seeking primacy must demonstrate the state has authority over underground injection, the state's legislation meet the Safe Drinking Water Act Section 1422 requirements and have the capacity to fulfill administrative and enforcement duties. Earning primacy will likely take Alaska many years, based on how other states are moving slowly through the process.

## **13.4 Measurement, Monitoring, and Verification**

Because of the propensity of sequestered carbon dioxide to migrate offsite the EPA's Class VI UIC program requires applicants to provide a site-specific "Testing and Monitoring Plan" to cover measurement, monitoring, and verification. These plans require narrative descriptions of a variety of techniques. Measurement, monitoring and verification of permit compliance is an important step to completing a project and ensuring environmental and human health.

Many states do not include detailed, explicit MMV requirements in state policy aside from including the act of "monitoring" in the duties of that state's authority. Monitoring is often referred to in legislation but does not have its own section or extra requirements from the state. This deference to state regulatory agencies could become a source of confusion when applying for CCUS permits.



## **13.5 Long Term Liability**

Long term liability is a major regulatory challenge because of the novelty of geologic sequestration and the uncertainty about its long-term effects on human health and the environment. Even though many states have financial, temporal, and technical conditions a storage operator needs to meet before transferring liability of the CCUS site to the state government, there is still uncertainty if the conditions are enough to determine negligible risk. Therefore, liability is not guaranteed to be transferred after a project is completed. Some states require significantly endowed trust funds to address or remediate any duty, obligation, or liability that may arise after ownership is transferred to the state. These trust funds are industry's current best attempt to ensure liability will not be the burden of the state and people.

## **13.6 Mineral Interests**

Mineral rights are the ownership rights to underground resources, including fossil fuels, ore, and mineable rocks. Mineral rights are a type of subsurface right, but it does not mean a holder of a mineral right has the right to the entirety of a subsurface property. A CCUS injection well and mineral extraction operation within the same property could be mutually exclusive. Therefore, states must address how the state will maintain the rights of both mineral rights owners and pore space owners. A mineral right is a much older and solidified legal concept than pore space, so it is imperative that Alaska prioritizes the holders of oil, gas, and mineral rights.

## **13.7 Fiscal Issues**

States plan to impose fees at every stage of the CCUS injection well process to cover the costs of implementing a Class VI permitting program. Unique to other states, Alaska, specifically the AOGCC, receives funding from revenue of oil and gas production. If this revenue modeled was followed for the Class VI permitting program, it would take many years to receive those fees. Therefore, temporary funding may be needed to cover the initial expenses of implementing the program until those revenue fees can be taken. These fees are intended to be deposited in designated administrative and trust funds to facilitate CCUS injection wells and the program. To address concerns about uncertainty of long-term liability, trust funds hold money for long-term monitoring and management of a closed facility. Alaska will need to structure funding for this program to work.

Alaska's Corporate Income Tax adopts the Federal Income Tax Code without modifications or exceptions, so any Alaska-based taxpayer is eligible to earn the Federal 45Q Tax Credit. Alaska could continue to recognize the Federal 45Q Tax Credit or de-couple from it and adopt an alternative system.

If Alaska treats 45Q tax credits (or cash refunds) as other federal tax credits, the State could increase its corporate income tax revenue.



## 14 Conclusion

Most legislation reviewed for this report were initially written circa 2010 and amended throughout the next decade. When amending legislation, states appear to follow the lead of the two states with Class VI primacy: North Dakota and Wyoming. Slight variations occur with timelines and requirements, but most legislations are similar. Alaska will be able to take note of these similarities and apply it to its unique management of natural resources.

## 15 References

- Bachtel, L., Lau, P., Smith, D., and Klugman, N. (09 June 2022). *Carbon Capture, Utilization, and Storage: Class VI Wells and US State Primacy*. Mayer Brown. [Carbon Capture, Utilization, and Storage: Class VI Wells and US State Primacy | Perspectives & Events | Mayer Brown](#)
- Congressional Research Service. 2021. *The Tax Credit for Carbon Sequestration (Section 45Q)*. Updated June 8.
- Conners, P., Ditzel, K., Emmett, J., and Li, F. (2020). Review of Federal, State, and Regional Tax Strategies and Opportunities for CO<sub>2</sub>-EOR-Storage and CCUS Value Chain. U.S. Department of Energy, Office of Fossil Energy / United States Energy Association. September 21.
- Douglas, N. E. (2022). Instruction Memorandum No. 2022-041. United States Department of the Interior, Bureau of Land Management. [National Policy for the Right-of-Way Authorizations Necessary for Site Characterization, Capture, Transportation, Injection, and Permanent Geologic Sequestration of Carbon Dioxide in Connection with Carbon Sequestration Projects | Bureau of Land Management \(blm.gov\)](#)
- European Parliament, Council of the European Union. (2009). *Directive 2009/31/EC*. Belgium: Official Journal of the European Union.
- Government of Alberta, Canada. (2010). *Mines and Minerals Act: Part 9 Sequestration of Captured Carbon Dioxide*. Edmonton: Alberta Energy Regulator.
- Government of Western Australia. Barrow Island Act. 2003.
- Grevatt, P. C. (23 April 2015). *Key Principles in EPA's Underground Injection Control Program Class VI Rule Related to Transition of Class II Enhanced Oil or Gas Recovery Wells to Class VI*. United States Environmental Protection Agency, Washington, D.C. 20460. Houghton, J. T., L. G. M. Filho, B. A. Callander, N. Harris, A. Kattenberg, and K. Maskell (Eds.). (1996). *Climate Change 1995: The Science of Climate Change*. New York: Cambridge Univ. Press, 572 pp.
- Indiana Legislature. HB 1209. Regular Session 2022.
- International Energy Agency (2022), *Legal and Regulatory Frameworks for CCUS*, IEA, Paris <https://www.iea.org/reports/legal-and-regulatory-frameworks-for-ccus>
- Interstate Oil & Gas Compact Commission (IOGCC). (September 2014). *Guidance for States and Provinces on Operational and Post-Operational Liability in the Legislation of Carbon Geologic Storage*. IOGCC Task Force on Carbon capture and Geologic Storage.
- Javedan, H. 2013. Regulation of Underground Storage of CO<sub>2</sub> Passed by U. S. States. Working paper. Massachusetts Institute of Technology, Carbon Capture and Sequestration Technologies Program. 2013. [https://sequestration.mit.edu/pdf/US\\_State\\_Regulations\\_Underground\\_CO2\\_Storage.pdf](https://sequestration.mit.edu/pdf/US_State_Regulations_Underground_CO2_Storage.pdf)



## Peer-State Carbon Capture, Utilization, and Sequestration Regulatory Regimes

### References

February 1, 2023

Kansas Legis. HB 2419. Regular Session 2007.

Kansas Legislature. HB 2418. Regular Session 2010.

Keeling, C. D., J. F. S. Chin, and T. P. Whorf (1996). *Increased activity in northern vegetation inferred from atmospheric carbon dioxide measurements*. *Nature* (382), 146–149.

Ky. Legis. HB 259. Reg. Session 2011.

Louisiana Legislature. HB 661. Reg. Legis. Sess. 2009.

Louisiana Legislature. SB 353. Reg. Legis. Sess. 2020

Louisiana Legislature. HB 572. Reg. Legis. Sess. 2021.

Lupion, M., H. Javedan, H. Herzog. 2015. "Challenges to Commercial Scale Carbon Capture and Storage: Regulatory Frameworks," Working Paper. Massachusetts Institute of Technology, Carbon Capture and Sequestration Technologies Program. May.  
[https://sequestration.mit.edu/pdf/2015\\_WorkingPaper\\_CCS\\_Regulations\\_Lupion.pdf](https://sequestration.mit.edu/pdf/2015_WorkingPaper_CCS_Regulations_Lupion.pdf)

Machado, F., Laguros, G., and Nuti, I. (06 November 2020). *Winter is coming: Alaska at a crossroad*. IHS Markit. [Winter is coming: Alaska at a crossroad | IHS Markit](#)

Mississippi Legislature. SB 2723. Reg. Session Of Mississippi Legislature 2011.

Mississippi Legislature. Miss. Geologic Sequestration of Carbon Dioxide Act (Code Ann. § 53-11-1). Reg. Sess. 2022.

Natural Resources Canada (NRCAN). (2013). International Energy Agency Greenhouse Gas Weyburn-Midale carbon dioxide Monitoring and Storage Project. Available at:  
[https://www.nrcan.gc.ca/sites/nrcan/files/energy/files/pdf/11-1437\\_eng\\_acc.pdf](https://www.nrcan.gc.ca/sites/nrcan/files/energy/files/pdf/11-1437_eng_acc.pdf)

NRCAN. (No date). Carbon Capture and Storage: Canada's Technology Demonstration Leadership. Available at: <https://www.nrcan.gc.ca/energy/publications/16226>. Accessed July 2022.

Nebraska Legislature. Nebraska Geologic Storage of Carbon Dioxide Act (LB 650). Regular Session. 2021.

Newman, A. (2019). *Oil Season*. Alaska Business, Oil & Gas. [Oil Season - Alaska Business Magazine \(akbizmag.com\)](#)

*Northwest Landowners Association v. State, et al.* (2022) 150 N.D. 20210148. [North Dakota Court System - Northwest Landowners Association v. State, et al. \(ndcourts.gov\)](#)

Norwegian Ministry of Petroleum and Energy. Legislations relating to exploitation of subsea reservoirs on the continental shelf for storage of carbon dioxide and relating to transportation of carbon dioxide on the continental shelf. Royal Decree. 2014.

North Dakota Legislature. SB 2095. Legis. Assembly 2009.

Oklahoma Legislature. Oklahoma Carbon Capture and Geologic Sequestration Act (SB 610). Legis. Session. 2009.

Parliament of Victoria, Australia. Greenhouse Gas Geological Sequestration Act (No. 61). 2008.

Presley, T. (4 February 2019). *Diggin in: Alaska's resource ownership helped build the state, but it won't last forever*. The Midnight Sun. [Digging in: Alaska's resource ownership helped build the state, but it won't last forever - The Midnight Sun \(midnightsunak.com\)](#)



## Peer-State Carbon Capture, Utilization, and Sequestration Regulatory Regimes

### References

February 1, 2023

- Ross, D. and Wildeman, A. (28 September 2022). *EPA UIC Class VI Program Administration Creates Potential Weak Link in Climate Adaptation Strategy*. JD Supra. [EPA UIC Class VI Program Administration Creates Potential Weak Link in Climate Adaptation Strategy | Troutman Pepper - JDSupra](#)
- Stone, R.S., Dutton, E. G., Harris, J. M., and Longenecker, D. (2002). *Earlier spring snowmelt in northern Alaska as an indicator of climate change*. *Journal of Geophysical Research: Atmospheres* 107(D10), 10.1-10.13.
- The United Kingdom of Great Britain and Northern Ireland. Energy Act. 2008.
- Texas Legislature. SB 1387. 2009.
- Texas Legislature. HB 1796. 2009.
- Texas Legislature. HB 1284. 2021.
- US Environmental Protection Agency (EPA). 2010. "Federal Requirements Under the Underground Injection Control (UIC) Program for Carbon Dioxide (CO<sub>2</sub>) Geologic Sequestration (GS) Wells". *Federal Register*, Volume 75, No. 237 (December 10, 2010): 77230-77303. <https://www.govinfo.gov/content/pkg/FR-2010-12-10/pdf/2010-29954.pdf>.
- EPA, Office of Water. 2015. Memorandum – Key Principles in EPA’s Underground Injection Control Program Class VI Rule Related to Transition of Class II Enhanced Oil or Gas Recovery Wells to Class VI. April 23.
- EPA. 2022. Class VI - Wells used for Geologic Sequestration of Carbon Dioxide. [Class VI - Wells used for Geologic Sequestration of Carbon Dioxide | US EPA](#)
- Utah Legislature. Geological Carbon Sequestration Amendments (HB 244). General Session 2022.
- West Virginia Legislature. HB 2860. 2009.
- West Virginia Legislature. HB 4491. 2<sup>nd</sup> Reg. Session 2022.
- Wyoming Legislature. HB 90. Budget Session 2008.
- Wyoming Legislature. HB 89. Budget Session 2008.
- Wyoming Legislature. SF 47. Budget Session 2022.



# APPENDIX



## **Appendix A Recommendations**

Successful development of CCUS projects in Alaska will require state primacy of Class VI underground injection well permitting, since the EPA is unlikely to permit Class VI wells in Alaska in a timely manner and in sufficient quantity to support a nascent industry within the state. The implementation of some form of bridge funding to subsidize program development and initial operation will also be needed to cover program costs until there is sufficient funding from industry to support the state's Class VI well program.

CCUS is a relatively new and rising industry and the slow permitting of Class VI injection wells by the EPA compared to states that have primacy means that states that do not have primacy will be at a disadvantage in attracting CCUS projects. Recent decisions at the federal level, such as the 45Q tax breaks and the administration's plan to reduce GHG, will spur relatively rapid growth of CCUS projects.

A recommended first step would be a legislative bill package authorizing a state agency, preferably AOGCC, to investigate Class VI primacy. This bill package would need to include statutory language defining pore space and other CCUS concepts addressed in this report, establish state authority over pore space on state and private lands and vest AOGCC with that authority, address preservation of existing rights, and provide agency funding to investigate primacy. There may be additional federal funding available for this effort, and coordination with Alaska's Congressional delegation would be needed. Title III of the Infrastructure Investment and Jobs Act (H.R. 3684) provided some funding for this effort, and there are several bills currently in committee that address CCUS (e.g., H.R. 8337 and H.R. 3039).

The state received primacy over Class II injection wells in 1991, but that process has little relevancy to a future Class VI primacy project. A better model might be ADEC's program to gain primacy over National Pollutant Discharge Elimination System (NPDES) permitting in Alaska. A review of other states' experiences in achieving primacy would also be useful. EPA has indicated that the pathway to state primacy takes approximately 270 days, but the experiences of the states with primacy vary widely.

Development of legislations to support the state's application for primacy would also be needed. This report can serve as a compendium of state legislations to support development of Alaska legislations, identifying the relevant issues and providing example language. There is a significant corpus of model and existing legislations that can be utilized in legislations development.

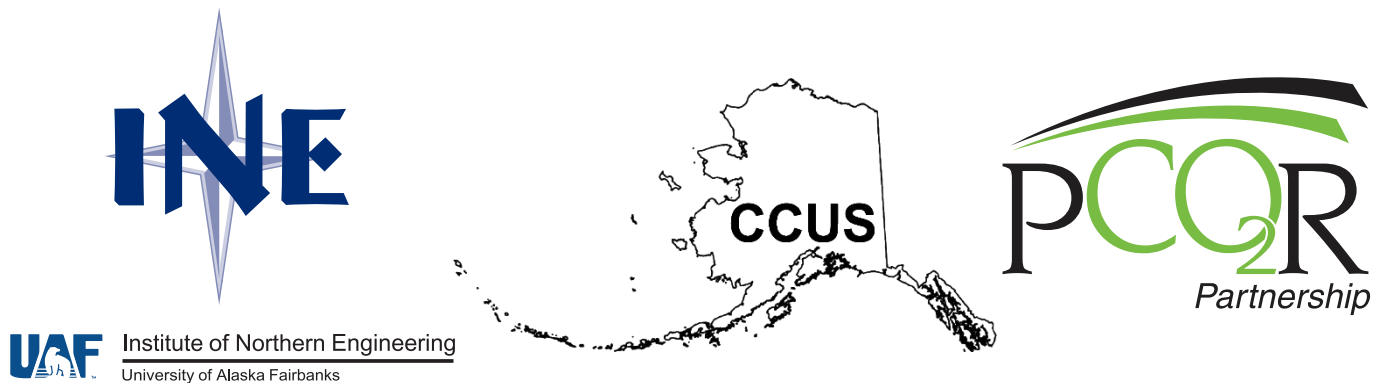
In the interim, carbon dioxide injection for EOR under the Class II UIC well program can be currently permitted by the state. The EPA has ruled that carbon dioxide injection for EOR, whether using anthropogenic or non-anthropogenic sources of carbon dioxide, can be covered under the Class II permit system and that Class II wells can be transitioned to Class VI wells if EOR ends and the quantities of carbon dioxide being sequestered increases the risk to underground drinking water reservoirs. This should only be considered as an interim measure as the requirements for Class VI wells, particularly in siting and construction, are significantly different from Class II wells.



# Issue and Policy Review for Carbon Capture, Utilization, and Storage (CCUS) in the State of Alaska

November 1, 2022

Prepared by the Division of Oil & Gas, Department of Natural Resources, State of Alaska



## Introduction

This paper summarizes five meetings regarding carbon capture, utilization, and storage (CCUS) organized by the University of Alaska with the assistance of the [PCOR partnership](#) and the Alaska Department of Natural Resources (DNR). At these meetings, stakeholders from several State of Alaska agencies, the University of Alaska, the energy and carbon storage industry, and public/non-government organizations came together to discuss a potential CCUS program in the State of Alaska. Many of these stakeholders also collectively contributed to a response to a Request for Information (RFI) from the U.S. Department of Energy (USDOE) highlighting the potential for CCUS in Alaska after passage of the Infrastructure Investment and Jobs Act (IIJA) in 2021. While part of the impetus for investigating legislation and policy options for CCUS is to take advantage of funding available through the USDOE under the IIJA, positioning Alaska to participate in this growing sector is in the long-term interest of the state and could significantly increase investment opportunities, welcome new industry, be an opportunity for existing industry, and create more jobs.

The kickoff meeting in July laid out a plan to review regulatory framework options. A series of background informational meetings were held, and the group convened during a one-day symposium to gather feedback on points of consensus, areas of concern, and lingering questions requiring further investigation. The background informational meetings covered:

1. State property rights and the licensing of State pore space;
2. The amalgamation of property rights and the potential conflicts between existing uses and future CCUS uses;
3. Long-term liability for the CO<sub>2</sub> plume;
4. Fiscal levers available to industry or the state to encourage development; and
5. Class VI underground injection wells.

Participants were provided background briefings on the topics and the groups were then polled on several prompts for each topic. The summary results of these polls are discussed below.



This paper does not represent a final decision by the State of Alaska or any other entity – rather it is informational about the discussions that occurred in these meetings. The ideas generated by these sessions and memorialized in this paper are the result of research and brainstorming exercises, which are still ongoing. More work must be done to review legal implications and ultimately select options for legislation and policy, which will then be subject to the political and legislative process. This paper is organized with a brief introduction to each topic of potential legislative/regulatory concern, a summary of the issues as presented to the small symposium groups, and a summary of the feedback provided by the small symposium groups – to be a resource during these future, formal processes. The conclusion captures the most important points requiring evaluation for legislation and executive policy decisions.

## 1. State property rights & licensing

### Status of State and Private Pore Space Ownership

Codification of pore space rights ownership would be a necessary preliminary step to a CCUS program. Alaska received all mineral rights underlying the land entitlement granted at statehood, and, uniquely among the states, is required to retain those mineral rights for any land it has sold or otherwise disposed. The Alaska Supreme Court held the mineral estate reserved by the State in this compulsory reservation includes the pore space used for storage of injected gases, including CO<sub>2</sub>. As a result, the State owns the pore space both beneath entitlement lands that it holds today and beneath entitlement lands it has sold to others, including private individuals—meaning that the state owns an even broader scope of pore space than its currently-owned surface lands.

The full fee estate held by Regional Alaska Native Corporations includes the pore space. Additionally, various other private mineral rights exist in Alaska. It is unclear, especially where granting documents include only some features of the mineral estate, to whom pore space title belongs in these cases. Ultimately, in the significant acreage where the State has the full mineral estate, the matter is clear, presenting an opportunity to maximize the value of the State's natural resources in partnership with prospective CCUS operators.

### Possible Leasing/Licensing Regimes

To enable a CCUS industry, the State must be empowered to offer its pore space to potential operators consistent with its constitutional mandates, limitations, and processes imposed by the legislature (akin to those in the Alaska Land Act, for example). In general, sovereigns in the CCUS space offer acreage through three general methods:

**Competitive** – Blocks of tracts offered to the highest bidder. This would likely occur in much the same format as the regular lease sales held by the Division of Oil & Gas (DOG).

**Negotiated** – An operator brings a proposal to the sovereign. In this approach, the prospective operator would identify a project area and apply to DOG for a license to carry the project out.

**Nomination/Request for Proposal** – Operators Nominate blocks and there is an opportunity for competing proposals for those blocks. This adds an element of competition to the negotiated approach. This is how DOG's exploration licensing program for oil and gas, and prospecting permits for geothermal, are presently conducted.

---

## Feedback Summary

Symposium members were asked generally how they might design a leasing/licensing program for the State to offer its pore space, what factors led to their recommendation of this methodology and, finally, what factors the State should consider when evaluating proposals offered by operators to utilize State pore space rights for carbon storage.

Participants generally agreed the CCUS industry is in emerging status, so the land managers should be accorded flexibility within any statutory authority granted in how a leasing or licensing program is rolled out and implemented. Suggestions ranged from adapting the existing Exploration License program for greenfield storage projects to providing area-specific or areawide storage competitive lease sales for brownfield areas or other areas where there is established knowledge of subsurface conditions. There was specific enthusiasm for the State to provide for conversion of existing oil and gas leases to CO<sub>2</sub> storage leases by transitioning current oil and gas fields from production operations/enhanced oil recovery injection operations to pure storage/sequestration operations. It was also suggested to provide some form of carbon capture right of first refusal to existing oil and gas field operators for storage projects proposed at producing oil and gas fields to fairly incentivize an operator who has heavily invested and acquired subsurface knowledge. Such a right could also induce an operator to begin CO<sub>2</sub> storage at the end of a field's economic life. There was broad support by participants for a multi-pronged leasing/licensing approach appropriate for the level of subsurface knowledge, risk, and industry interest with maximum flexibility of the land management agency to evolve a leasing/licensing program as experience advances.

Key considerations in specifying this approach to leasing included: provisions to allow or promote, including appropriate compensation, reusing existing oil and gas infrastructure (*e.g.*, pipelines, platforms, or well pads), addressing DR&R liability transferal, and giving flexibility to the land management agency to design a leasing program to minimize regulatory complexity and avoid or mitigate impacts on existing uses. A long lease term for project build-out and avoiding conflict with existing uses were also highlighted. The end goal was to ultimately make Alaska an attractive environment for industry investment.

The goal of a CCUS leasing or licensing regime is the establishment of *operating* injection facilities and not warehousing of acreage and property rights speculation. To that end, symposium participants wanted to ensure operators and proposed projects be evaluated on several factors and not just awarded to the "highest bidder." Participants believed the State should consider an operator's existing leasehold, experience in the lease area, executing CCUS projects, how the CO<sub>2</sub> source pairs with the sink, whether the project might interfere with another project or lease and clearly establish the dominant subsurface mineral estate function based on economic considerations. Long-term financial surety, contractual agreements between extraction and injection operations to ensure avoidance of conflict, work commitments on projects to ensure they progress, and measures to ensure acreage is not "warehoused" were important factors. Methods to transparently and fairly deconflict the use of existing remote infrastructure such as a formulaic method for compensating the developer/owner of the infrastructure for its use by others (and even competitors) and a unified and simplified leasing and permitting regime, especially for transportation infrastructure (pipelines) was also highlighted as being important.

Symposium members were aware of the pivotal role the State will play in establishing (from a property rights perspective) the CCUS industry, and feedback endorsed flexibility in the program, priority for

extractive processes, and for substantive analysis of projects and project operators (*i.e.*, robust qualifications to be awarded a license) to ensure development proceeds. Finally, further work could be done by the State to address geologic uncertainty, which could include geologic investigations by the State or different leasing regimes for areas of known geology versus those that might be considered frontier basins.

## 2. Amalgamation of Property Rights & Mineral Interest Conflicts

### Amalgamation of Property Rights

Given the potential subsurface extent of an injected CO<sub>2</sub> plume, it is possible a storage project will require several parcels of land, potentially with different ownership or lease terms. For example, there could be a mix of Federal, State, Alaska Native Corporation, and private mineral interests overlying an area proposed for CO<sub>2</sub> injection operations. An operator must have a mechanism to amalgamate those parcels and their commensurate rights and interests. Those familiar with oil and gas will recognize the traditional practice of *unitization*. This highly effective legal tool brings together different oil and gas rights, which may have varied lessees, lessors, and ownership interests, under a unit based on the assumed subsurface picture for simple and fair management and protection of respective interests. This amalgamation often occurs by private agreement among the owners and operators, but in instances where consensus cannot be achieved many states provide for compulsory unitization and, indeed, in the oil and gas context, the Alaska Oil and Gas Conservation Commission currently provides processes to settle unitization disputes under the authority granted in AS 31.05.100 and implemented by 11 AAC 25.055 and 25.520. A similar framework of statutes and regulations will provide a stable, predictable environment for CCUS projects, while protecting the correlative rights of property owners, as it has for Alaskan oil and gas since the 1960s.

### Addressing Mineral Interest Conflicts

In addition to the power to amalgamate, it may also be in the State's interest to craft legislation to preemptively settle conflicts between oil and gas extraction and carbon sequestration (meaning which use is dominant or prioritized), how to implement co-location of CCUS and existing oil and gas facilities, and finally, how best to transition a producing oil and gas field (perhaps one using CO<sub>2</sub> for enhanced oil recovery (EOR) to a project permanently sequestering CO<sub>2</sub> and specifically how to transfer end of field life responsibilities for facilities persisting beyond the current oil and gas operator.

### Feedback Summary

Symposium members were asked what geologic or correlative rights factors the AOGCC, the pooling agency in Alaska, should consider when determining whether to amalgamate property rights, how to ensure collocation of CCUS and oil and gas operations occur safely and with minimized use conflicts while still ensuring the State is maximizing the utilization of its resources consistent with its constitutional mandate and, finally, what role the parties to a CCUS project have in negotiating dismantlement agreements for the re-use of existing infrastructure being transferred to a CCUS operator.

Since the AOGCC already has a functioning model for managing these kinds of issues, with a record of success spanning decades, there was consensus they should continue to fulfill this role for CCUS matters and be empowered to weigh factors in much the same way as is permitted for oil and gas matters. Participant feedback indicated statutes and regulations will need to clarify the authority for AOGCC as arbiter for

correlative rights on CCUS resource ownership matters, as a corollary to how codification of pore space ownership in statute would also provide certainty with these authorities and for owners and applicants. As is already the case with oil and gas, public notice and opportunity for public input should be integral to the CCUS process. Generally, the group agreed that, where possible, the successful framework established by AOGCC for oil and gas should be adopted for CCUS.

One group advocated initiating a CCUS program in areas of the State where property rights ownership is clear and the need for amalgamation and chances for conflicts are low, especially in areas where the risk of contaminating subsurface drinking water is low. This will set up initial CCUS projects for success.

Other areas of rights for State agencies to consider will include how to address the interface between federal and state rights and whether there should be a minimum threshold of voluntary participation for compelling pooling. It will also be necessary to address conflicts with adjacent oil and gas or mineral extraction operations. One important area of concern is balancing the primacy of some resources over others. This could be done by establishing a hierarchy in statute of dominant resources so there is transparency and stability about what collocated operations can expect before investment. It may also be wise to not allow CO<sub>2</sub> storage to condemn future mineral extraction. Complete segregation from oil and gas operations and continuous plume monitoring were also suggested. However, this concept may shift over time as the relative value of carbon sequestration increases vis-à-vis oil and gas extraction.

Group members were particularly concerned about how a pooling agency might segregate liability between legacy infrastructure and new operations (*e.g.*, if a plume contacted an old wellbore, would the former well owner be liable if the plume degraded its integrity?). There were also questions about liability or compensation if a plume unexpectedly migrates to pore space not part of the initial CCUS project. Thus, certainty regarding liability at different stages of the CCUS project lifecycle was an important theme among group participants. An emerging CCUS issue is pressure interference across leases; although the plume itself may not extend, the pressure wave that advances ahead of the plume may affect offset acreage.

Infrastructure in Alaska's oil and gas provinces is aging, and the necessity of dismantlement, removal, and restoration (DR&R) is becoming apparent for some assets. However, use of existing well bores, well pads, pipelines, roads, and other facilities may be an efficiency opportunity for the CCUS industry.

When CCUS projects reuse existing infrastructure, the group identified the following concepts to be considered by the State in negotiating DR&R liabilities:

- the laws and regulations should provide a framework to responsibly maximize resource development (including CO<sub>2</sub> storage) benefits to the State;
- the State should *facilitate* negotiations among pore space owners, resource owners, and surface owners, especially in cases where private agreements are not reached;
- the State should establish performance standards for storage operators;
- the State should provide guidance on what types of equipment can be repurposed for CCUS, recognizing facilities with long-term value and defer DR&R appropriately;
- the State could have final approval of private entity DR&R agreements.; and
- the State should maintain the practice of liability for legacy oilfield infrastructure on the oil and gas party when not used in a CCUS project.

### 3. Long term liability

The CCUS industry is rapidly evolving with many sequestration projects still in very early stages. Post-closure risks, while understood to be technically manageable, are not yet sufficiently characterized for the commercial risk market to have fully emerged. Specifically, a CO<sub>2</sub> plume may continue to migrate in the subsurface following the cessation of injection activities. The EPA sets a default post-injection monitoring period of 50 years. This monitoring may include monitoring wells and other surface remote devices to track whether CO<sub>2</sub> is migrating or escaping.

Given the protracted caretaking timeline of a facility, well beyond its profitable activities, other sovereigns are envisioning a role for the jurisdiction to play in post-closure site management and in determining who will hold title to the injected CO<sub>2</sub>. Simply stated, states endure while corporations do not. Carbon Storage Trust Funds are a ubiquitous tool adopted in other jurisdictions for dealing with the costs of long-term management. There are multiple policy choices imbedded in how trust funds are established and managed. We asked the work group to provide feedback on a few challenging aspects of post-closure liability.

#### Feedback Summary

Symposium groups were asked which of the three post-closure liability options—ranging from no liability assumed by the sovereign, limited liability to the sovereign under certain terms or circumstances, or the sovereign assuming all liability—would be most prudent for developing CCUS and what major concerns must be addressed to make the preferred option viable. All groups recommended the State play a role in post-closure site maintenance and liability. There was variation in the degree of liability the State should assume, but consensus was supportive of a discretionary transfer to the State after an appropriate period and satisfaction of requirements, subject to a public notice and comment process. Any transfer would need to clearly enumerate the specific liabilities assumed, secured with funding commensurate to meeting these obligations. The State may also wish to consider adopting a limited liability role initially and potentially scaling up as the post-closure period matures.

When asked if the State's role would differ if it were not the pore space or surface estate owner, several points of agreement were identified. Most participants agreed the State has the most enduring long-term responsibility post closure, regardless of pore space ownership. It was noted there is already established spill response and mining reclamation programs with the State covering non-State lands (*i.e.*, private lands, including those belonging to Alaska Native corporations, and federal lands). These models could provide helpful insight in defining post-closure roles.

Questions remain about the relationship between the State and projects on federal or private lands. Some recommended against assuming any liability for projects on federal lands. There may also be conflicts about post-closure roles on lands belonging to Alaska Native Corporations. Where liability may be transferred to the State from another surface or pore space owner, surface facility DR&R should be completed before transferring liability. Signed agreements should be in place regarding liability and title to injected CO<sub>2</sub> for projects on non-State lands. It may be best to tie the matters of long-term monitoring, long-term liability, and title to injected CO<sub>2</sub> together as mutually inclusive rights and responsibilities.

Options and concerns were solicited for how to construct a "carbon storage trust fund," which could take several forms and would be part of an overall framework of financial assurance for liability of a carbon

storage project. Overwhelming support was expressed for pooling trust funds, rather than allocating storage fees to discrete project accounts. Some noted pooling funds could incentivize individual project operators to reduce financial liability. In addition to the regular pooled fund contribution, additional allocations could be required if the size or risk associated with a project is sufficient. Some also recommended indexing rates to inflation to protect the value of the fund, given the extended timeframe expected for CCS project operations and post-closure monitoring. In the Alaska legal context, implementation of a “trust fund” will require further review by legal counsel of the implications of a dedicated fund and identifying a mechanism to ensure trust funds remain available for their intended purpose year-to-year.

#### 4. Fiscal/incentives issues

The development of a CCUS industrial sector in Alaska has the potential to impact the State fiscal system in several positive ways. Increased industrial activity can lead to higher State corporate income tax receipts, as well as potentially increasing local sales and property tax receipts, and CO<sub>2</sub> injection for enhanced oil recovery may increase oil production tax receipts. However, some aspects of CCUS may interface with the State’s existing fiscal system in unexpected ways. Care should be taken to understand and address these issues in a way that encourages CCUS activities in Alaska without unanticipated or unconsidered impacts to state revenue.

The Alaska Corporate Income Tax adopts the Federal Income Tax Code, including the 45Q Tax Credit (which is scaled/apportioned based on Alaska tax code and taxpayer apportionment) for corporate taxpayers, including (for multi-state taxpayers) for CCUS projects located outside of Alaska. Alaska could choose to decouple from the Federal 45Q tax credit or adopt an alternative system.

Alaska has a statewide oil & gas property tax (2%) and local property taxes (ranging up to 1.8%). Other states with comprehensive CCUS legislation have adopted property tax measures ranging from regular taxation through partial and general exemptions for CCUS. CCUS property could be bifurcated between statewide and local tax rolls, and the State may wish to consolidate CCUS property into one or the other systems. Additionally, the State will want to ensure its other fiscal statutes are updated and conformed with any changes made regarding CCUS fiscal incentives.

#### Feedback Summary

When asked if the State should financially incentivize CCUS projects, the group recommended keeping the tax structure as simple as possible and not create incentives beyond those provided at the federal level. Some also advised avoiding duplicative taxes for storage operations collocated with existing resource extraction operations. Others added the State should minimize access costs, such as for leasing and permitting, instead of offering tax-oriented incentives.

Some participants supported offering tax exemptions, such as property tax relief during the capital recovery phase of a project but avoiding credits that create fiscal obligations. Clarity was also requested as to whether the value of injected CO<sub>2</sub> is subject to property taxes. Another option for incentivizing projects could be to direct the Alaska Industrial Development and Export Authority ([AIDEA](#)) to offer low-interest infrastructure development loans to CCUS developers. It was also cautioned Alaska should only make 45Q credits that flow through the state tax system applicable to Alaska-based projects. Another concept could be to connect incentives to a future return in revenue, such as for EOR projects resulting in greater royalties, or in the case



of industrial usage of the CO<sub>2</sub>. An example of industrial CO<sub>2</sub> use provided would be to ship it to local greenhouses to amplify domestic fruit and vegetable production.

## 5. Class VI primacy

The US Environmental Protection Agency (EPA) classifies types of injection wells and sets regulatory standards for safety pursuant to the Safe Drinking Water Act. The advent of CO<sub>2</sub> injection prompted EPA to develop a new classification of injection well – Class VI – to address the unique risks, such as pressure and corrosion, posed by concentrations of injected CO<sub>2</sub>.

States are encouraged to seek primacy for some or all categories of injection wells to localize permitting and oversight. The oil industry generally prefers working with state agencies because they are typically more responsive, possess greater regional expertise, and—perhaps most importantly—can usually process permits faster. If Alaska were to seek primacy and identify milestone timelines and expected schedules for permit issuance, this clear regulatory process would likely encourage CCUS projects.

Alaska already has primacy for Class II wells, with about 1,500 permitted for enhanced oil recovery (EOR) injection, but it does not have Class VI primacy. Few states do. North Dakota and Wyoming have received primacy, and four other states are seeking it. For AOGCC, Alaska’s regulatory body for permitting wells for oil, gas, and geothermal operations, to seek Class VI primacy, it would require new statutory and regulatory authority, inspector certification and training, funding in the approximate range of \$300,000 to \$1,000,000 annually to support new personnel and software, and a three-to-five-year timeline to pursue the authorization with the EPA.

Operationally, class VI wells are a central component to CCUS projects and CO<sub>2</sub> storage injection. Seeking Class VI primacy would send the clearest signal to prospective CCUS storage operators that Alaska is pursuing a CCUS program and attracting investment in the state. Some funding is available through the IIJA to stand up the program, but it first requires budgetary commitment from the legislature, including receipting authority for any potential federal funding. Once running, permit and injections fees would likely cover ongoing operating costs as the number and type of CCUS projects expands.

### Feedback Summary

Overall, the group recommended the State commit resources to seek Class VI well primacy with a goal toward having shorter permitting and approval timeframes. The benefits of local expertise, combined with a more expeditious review process than the EPA, were noted to potentially accelerate project timelines and thus increase commercial viability. Additionally, having primacy over both Class II and Class VI wells would allow for a single regulating agency to provide clarity on when Class II wells may have to transition to Class VI, ensuring the appropriate well closure standards are implemented. Hosting both within AOGCC would avoid agency regulatory conflict between AOGCC & EPA over injection well regulation.

There was some discussion as to whether there is sufficiently understood industry demand to justify the cost of a Class VI well program. Others noted broadcasting intent for primacy could attract potential developers to choose Alaska for projects. The legislature, at the least, could authorize AOGCC to seek primacy (utilizing “may,” not “shall” statutory language) so it may initiate the process when it has developed the capacity to do so successfully. Sooner rather than later may be necessary to take advantage of federal funding opportunities included in the IIJA. Further, the AOGCC, as the subsurface regulator for oil and gas activities and likely

regulator of CCUS subsurface activities, can ensure operational plans for both types of activities do not interfere with one another.

## Conclusion

From this feedback, the following recommendations are highlighted for potential legislation and policy development:

### State property rights & licensing

- Adapt existing oil and gas leasing methods for use of pore space for CO<sub>2</sub> storage, including expansion of current oil/gas leases to cover CCUS; holding competitive lease sales and areawide programs; and exploration licensing in frontier areas.
- Establish a mechanism to convert existing oil and gas leases into CO<sub>2</sub> storage leases to extend the value of legacy fields and infrastructure, making depleted oil and gas reservoirs more readily available for CCUS projects.
- Consider a right of first refusal for existing oil and gas operators where storage projects are proposed.
- Establish requirements for leasing or licensing projects to consider the operator's capability to safely, effectively, timely build and operate a project, and provide an identified CO<sub>2</sub> source for injection, rather than simply lease to the highest bidder.
- Establish a mechanism to encourage CCUS projects to move forward and not allow pore space to simply be locked up or warehoused for speculative future use.

### Amalgamation of property rights & mineral interest conflicts

- Grant authority to AOGCC for injection, pooling, and correlative rights adjudication related to CO<sub>2</sub> storage in the same way it has for oil, gas, and geothermal resources.
- Specify the appropriate threshold, if any, for compelled pooling.
- Establish a process or processes for resolution of conflicts and liabilities between CO<sub>2</sub> storage facilities and existing oil and gas infrastructure, and provide for clarity on DR&R responsibility where legacy infrastructure is repurposed for CO<sub>2</sub> storage operations.
- Establish the State as the arbiter of agreements among pore space owners, resource owners, and surface owners.
- Address the liability, both financial and legal, of a force-pooled owner.

### Long-term liability

- After closure, State should assume some degree of long-term liability whenever legally possible.
- Develop framework for the State to accept transfer of liability and title to CO<sub>2</sub> when assuming monitoring and management responsibility, regardless of land ownership but subject to financial protections and agreements, as necessary.
- Implement a pooled trust fund for long-term monitoring and management after storage closure.
- Investigate the legal mechanism to constitutionally protect such trust funds.



**Fiscal/incentives**

- Keep the tax structure simple, avoiding duplicative taxes.
- Consider minimizing permitting costs and providing tax exemptions to encourage CCUS projects (rather than direct fiscal incentives) and clarify what aspects of CO<sub>2</sub> injection operations and infrastructure, such as the value of injected CO<sub>2</sub>, are subject to taxation.
- Consider, as other states do, a tax holiday or deferred “start-up” period for CCUS property.

**Class VI well primacy**

- Authorize AOGCC to seek primacy (utilizing “may” not “shall” statutory language).
- Appropriate funds commensurate with the costs seen by other states for starting the primacy process with U.S. EPA and enable the State to receipt available funds for investigating Class VI primacy.

As stated above, this summary is intended to be a resource for policy makers, industry, and the public as CCUS opportunities in Alaska are evaluated. These highlights are not intended to ignore the breadth of recommendations provided by the stakeholders. In addition to the broader summaries provided for each topic in this paper, submitted written materials from the meetings are also available for review.