

Wyoming Joint Minerals, Business and
Economic Development Committee
Gillette, Wyoming – May 31, 2018

Mr. Chairman. Members of the Committee. I am Dan Cole, Vice President, Commercial Development and Governmental Relations for Denbury Resources. Thank you for the opportunity to comment on the status of the now expanded 45Q carbon capture credit, a policy issue that Denbury has been working on for more than seven years.

As the Committee knows, Denbury has a sizeable project portfolio in Wyoming exceeding well over two billion dollars of capital investment over the last eight years. We operate in Sublette, Natrona and Campbell counties. We have recently initiated CO₂ EOR production operations in the Grieve Field Unit with our joint venture partner Elk Petroleum; we are continuing production operations in the Hartzog Draw Field Unit; and have been successfully participating in CO₂ EOR development under our non-operating interest in the Salt Creek Field.

Although suspended briefly, we have resumed taking CO₂ from the ConocoPhillips Lost Cabin facility, which is transported through our Greencore pipeline. We are also developing our CO₂ interests in the Shute Creek Field alongside ExxonMobil, where planning continues for additional pipeline infrastructure between our Riley Ridge facility to Natrona.

This Committee has been intimately involved in the passage of legislation that provides for certification of carbon dioxide incidentally stored during enhanced recovery operations (2015); and legislation addressing permits for conversion of oil and gas operations to the primary purpose of long term storage of CO₂ (2016). Both laws recognize the unique aspects of CO₂ EOR as primarily for the purposes of oil production, while also beneficially resulting in the associated storage of CO₂ incidental to that hydrocarbon extraction activity. Wyoming has historically been a leader in the protection of mineral property rights and the critical role they play in natural resource conservation.

With the expansion of the 2008 45Q federal carbon capture tax credit earlier this year, much has been written and said about how the new credit value will be a boon to the CO₂ EOR industry. Unfortunately, because Congress did not include needed definitional clarity under the provisions that would allow certification in Secure Geological Storage, it is doubtful that any 45Q credit CO₂ will be utilized in Wyoming. This includes for EOR or simply transported through a pipeline.

Currently the IRS requires that for the purposes of claiming the credit, the taxpayer must certify or obtain certification showing the CO₂ was disposed of under a pre-approved EPA Subpart RR Monitoring, Verification and Accounting Greenhouse Gas Reporting Program plan. Subpart RR requires CO₂ monitoring beyond the lease term after EOR production operations cease. It exposes the operator to a host of legal claims that are currently not a threat in the oilfield.

Denbury and most large EOR operators are on record as saying they would not be able to accept 45Q credit CO₂ in their pipeline systems or injected in their field operations until this situation is remedied.

Fortunately, there is a growing coalition of oil and gas, coal mining and electric power producers who are supporting legislation to align the credit with EPA's established and effective requirements that result in associated storage of CO₂ incidental to oilfield production operations.

EPA has clearly separated and distinguished dedicated, intentional CO₂ storage activities from that of associated storage that incurs inherently during CO₂ EOR hydrocarbon production under both the Greenhouse Gas reporting rules and within the Safe Drinking Water Act Underground Injection Control program.

These distinctions recognize the unique and important role the States have in implementing and enforcing effective regulation in this area, particularly when it comes to protecting the correlative rights of the mineral interest owners under the regulations impacting oil and gas extraction.

I have provided the Committee copies of pending Congressional legislation. I would like to commend Senator Barrasso as being a co-sponsor of the Senate bill. I have also included additional materials that illustrate EPA's policy position for your review.

I would be pleased to answer any questions.

Rocky Mountain Region

Reserves Summary⁽¹⁾ (MMBOE)

Proved + Tertiary Potential	
Tertiary Reserves	
Proved	25
Potential	359
Non-Tertiary Reserves	
Proved	85
Total MMBOE ⁽²⁾	471

Tertiary Potential by Field ⁽³⁾	
Bell Creek	20 – 40
Cedar Creek Anticline Area	260 – 290
Gas Draw	10
Grieve	5
Hartzog Draw	30 – 40
Salt Creek	25 – 35



Note: See "Slide Notes" on Slide [] in the appendix to this presentation for footnote explanations.

EPA Federal Register Comments – October 23, 2015

CO₂ storage associated with Class II wells is a common occurrence and CO₂ can be safely stored where injected through Class II-permitted wells for the purpose of enhanced oil or gas-related recovery.

-- 80 Fed. Reg. at 64585

“CO₂ injected via Class II wells becomes sequestered by the trapping mechanisms described above ...”

-- 80 Fed. Reg. at 64588 (emphasis added)

Not all of the CO₂ injected into the oil reservoir is recovered and re-injected. As the CO₂ moves from the injection point to the production well, some of the CO₂ becomes trapped in the small pores of the rock, or is dissolved in the oil and water that is not recovered. The CO₂ that remains in the reservoir is not mobile and becomes sequestered.

-- 80 Fed. Reg. at 64579 (emphasis added)

Scientific/NGO Studies

- “At the end of a CO₂ flood, ***essentially all of the purchased CO₂ is stored*** in the reservoir when the operator closes the field at pressure”.

Kuuskraa, Godec, Dipietro; *CO₂ Utilization from “Next Generation” CO₂ Enhanced Oil Recovery Technology*, Energy Procedia 00 (2011) 000–000, at 3 (paper presented at 11th International Conference on Greenhouse Gas Technologies (GHGT-11), Kyoto, Japan, (November 2012)

- ***“All of the injected CO₂ is retained*** within the subsurface formation. . . or recycled to subsequent projects” (emphasis added).

US National Energy Technology Laboratory (NETL), *Carbon Dioxide Enhanced Oil Recovery Untapped Domestic Energy Supply and Long Term Carbon Storage Solution*, at 17 (“all of the injected CO₂ is retained within the subsurface formation after a project has ended or recycled to subsequent projects”) See also at page 23 (“When a CO₂ EOR flood is finished, the CO₂ that remains underground, stays there”).

- “Carbon dioxide is **inherently stored** in CO₂-EOR operations, with a retention rate of the purchased (new) CO₂ greater than 90-95%... almost all of the purchased CO₂ is retained (stored) in the reservoir...”

Carbon Sequestration Leadership Forum – September 2013 (CSLF Ministerial Meeting – Beijing)

- “Based on IEA’s analysis CCUS-EOR using industrial CO₂ can result in 63% net reduction in CO₂ emissions for every barrel of oil produced.”
- “CCUS combined with EOR involves the incidental geologic trapping or storage of CO₂ that occurs as part of the oil recovery process. The CO₂ that is not trapped is produced with the oil, recaptured, and reinjected – and the process continues until all of the CO₂ is permanently sequestered.”

Clean Air Task Force – *The Emission Reduction Benefits of Carbon Capture Utilization and Storage using CO₂ Enhanced Oil Recovery* - 2016.

State Mineral/Resource Conservation Law Problems with Subpart RR

“It [Subpart RR] thus functionally prohibits facilities from using CO₂ in enhanced oil recovery. Second, the [Subpart RR] restriction tramples state mineral property rights and private mineral leases. See 58 C.J.S Mines and Minerals Sec. 403.”

Opening Brief of Petitioners on Procedural and Record-Based Rules (Clean Power Plan challenge by 27 States), Filed 02/19/2016, USCA Case #15-1363, Document #1599898

CO₂ Regulatory Certainty Act (S.1663 – Hoeven / H.R. 4857 - Cramer)

Summary

- The *CO₂ Regulatory Certainty Act* is a technical correction clarifying the existing statute to ensure that “enhanced oil and gas recovery” is a legally certain means for claiming the Section 45Q carbon sequestration tax credit.
- This amendment requires the Treasury Secretary to align IRS guidance with current EPA regulations that distinguish between the two main methods of CO₂ sequestration – geological storage and EOGR.
- This correction does not change the requirement for EOGR operators to comply with all existing environmental laws and regulations governing EOGR and ensure safe well operation and secure storage of CO₂.

Background

- Enhanced oil and gas recovery is the only current economically viable method for secure geologic storage of CO₂.
- Currently, Section 45Q provides a tax credit to sequester CO₂ via “geological sequestration” (up to \$50/credit/ton) or “enhanced oil and gas recovery” (up to \$35/credit/ton).
- These two CO₂ injection methods are treated separately in existing EPA regulations under the Clean Air Act and the Safe Drinking Water Act.
- However, current IRS guidance documents do not acknowledge EPA’s separate regulatory treatment of these methods and they instead use the generalized and legally ambiguous term “geological storage.”
- This IRS guidance has caused uncertainty for regulators and industry, in both North Dakota and other states, and has disincentivized long-term projects for the beneficial use of CO₂ for EOGR.
- The amendment does not affect the underlying duration, value, or volume of the existing Section 45Q credits. Instead, it clarifies Congressional intent to state that both geological sequestration and EOGR are eligible uses for carbon capture and sequestration.

Co-Sponsors

- Senators Daines, Wicker, Barrasso, and Cochran
- Representatives Cramer, McKinley, S. Johnson, Duncan, Pallazzo, Harper, and Gianforte

April 26, 2018 – Joint Committee on Taxation estimated H.R. 4857 as having “no significant revenue effect.”

115TH CONGRESS
1ST SESSION

S. 1663

To amend the Internal Revenue Code of 1986 to enhance the requirements for secure geological storage of carbon dioxide for purposes of the carbon dioxide sequestration credit.

IN THE SENATE OF THE UNITED STATES

JULY 27, 2017

Mr. HOEVEN introduced the following bill; which was read twice and referred to the Committee on Finance

A BILL

To amend the Internal Revenue Code of 1986 to enhance the requirements for secure geological storage of carbon dioxide for purposes of the carbon dioxide sequestration credit.

1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assembled,*

3 **SECTION 1. SHORT TITLE.**

4 This Act may be cited as the “CO₂ Regulatory Cer-
5 tainty Act”.

1 **SEC. 2. SECURE GEOLOGICAL STORAGE OF CARBON DIOX-**
2 **IDE.**

3 Paragraph (2) of section 45Q(d) of the Internal Rev-
4 enue Code of 1986 is amended to read as follows:

5 “(2) SECURE GEOLOGICAL STORAGE.—

6 “(A) IN GENERAL.—Not later than De-
7 cember 31, 2017, the Secretary, in consultation
8 with the Administrator of the Environmental
9 Protection Agency, the Secretary of Energy,
10 and the Secretary of the Interior, shall establish
11 regulations for determining adequate security
12 measures for the geological storage of carbon
13 dioxide under paragraph (1)(B) or (2)(C) of
14 subsection (a) such that the carbon dioxide does
15 not escape into the atmosphere.

16 “(B) REQUIREMENTS.—The regulations
17 established pursuant to subparagraph (A) shall
18 provide that—

19 “(i) for purposes of paragraph (1)(B)
20 of subsection (a), carbon dioxide shall be
21 considered disposed of in secure geological
22 storage if such carbon dioxide is stored in
23 compliance with rules promulgated by the
24 Environmental Protection Agency under
25 subpart RR of part 98 of title 40, Code of
26 Federal Regulations (as in effect on the

1 date of the enactment of this paragraph),
2 under the Clean Air Act (42 U.S.C. 7401
3 et seq.) and rules under the Safe Drinking
4 Water Act (42 U.S.C. 300f et seq.) which
5 are applicable to carbon dioxide disposed of
6 in secure geological storage and not used
7 as a tertiary injectant in a qualified en-
8 hanced oil or natural gas recovery project,
9 and

10 “(ii) for purposes of paragraph (2)(C)
11 of subsection (a), carbon dioxide shall be
12 considered disposed of in secure geological
13 storage if such carbon dioxide is stored in
14 compliance with rules promulgated by the
15 Environmental Protection Agency which
16 are applicable to carbon dioxide used as a
17 tertiary injectant in a qualified enhanced
18 oil or natural gas recovery project under—

19 “(I) subpart UU of part 98 of
20 title 40, Code of Federal Regulations
21 (as in effect on the date of the enact-
22 ment of this paragraph), under the
23 Clean Air Act, and

24 “(II) subpart C of part 146 of
25 title 40, Code of Federal Regulations

1 (as in effect on the date of the enact-
2 ment of this paragraph), under the
3 Safe Drinking Water Act, to the ex-
4 tent such rules are applicable to Class
5 II wells.”.

6 **SEC. 3. QUALIFIED ENHANCED OIL OR NATURAL GAS RE-**
7 **COVERY PROJECT.**

8 Paragraph (4) of section 45Q(d) of the Internal Rev-
9 enue Code of 1986 is amended—

10 (1) by striking “by substituting” and inserting
11 “determined—

12 “(A) by substituting—”,

13 (2) by striking the period and inserting “,
14 and”, and

15 (3) by inserting at the end the following:

16 “(B) without regard to subparagraph
17 (A)(iii) thereof.”.

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115TH CONGRESS
2D SESSION

H. R. 4857

To amend the Internal Revenue Code of 1986 to enhance the requirements for secure geological storage of carbon dioxide for purposes of the carbon dioxide sequestration credit.

IN THE HOUSE OF REPRESENTATIVES

JANUARY 19, 2018

Mr. CRAMER (for himself, Mr. SAM JOHNSON of Texas, Mr. MCKINLEY, Mr. HARPER, and Mr. PALAZZO) introduced the following bill; which was referred to the Committee on Ways and Means

A BILL

To amend the Internal Revenue Code of 1986 to enhance the requirements for secure geological storage of carbon dioxide for purposes of the carbon dioxide sequestration credit.

1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assembled,*

3 **SECTION 1. SHORT TITLE.**

4 This Act may be cited as the “CO₂ Regulatory Cer-
5 tainty Act”.

1 **SEC. 2. SECURE GEOLOGICAL STORAGE OF CARBON DIOX-**
2 **IDE.**

3 Section 45Q(d)(2) of the Internal Revenue Code of
4 1986 is amended to read as follows:

5 “(2) SECURE GEOLOGICAL STORAGE.—

6 “(A) IN GENERAL.—Not later than De-
7 cember 31, 2018, the Secretary, in consultation
8 with the Administrator of the Environmental
9 Protection Agency, the Secretary of Energy,
10 and the Secretary of the Interior, shall establish
11 regulations for determining adequate security
12 measures for the geological storage of carbon
13 dioxide under paragraph (1)(B) or (2)(C) of
14 subsection (a) such that the carbon dioxide does
15 not escape into the atmosphere.

16 “(B) REQUIREMENTS.—The regulations
17 established pursuant to subparagraph (A) shall
18 provide that—

19 “(i) for purposes of paragraph (1)(B)
20 of subsection (a), carbon dioxide shall be
21 considered disposed of in secure geological
22 storage if such carbon dioxide is stored in
23 compliance with rules promulgated by the
24 Environmental Protection Agency under
25 subpart RR of part 98 of title 40, Code of
26 Federal Regulations (as in effect on the

1 date of the enactment of this paragraph)
2 under the Clean Air Act (42 U.S.C. 7401
3 et seq.), and rules under the Safe Drinking
4 Water Act (42 U.S.C. 300f et seq.), which
5 are applicable to carbon dioxide disposed of
6 in secure geological storage and not used
7 as a tertiary injectant in a qualified en-
8 hanced oil or natural gas recovery project,
9 and

10 “(ii) for purposes of paragraph (2)(C)
11 of subsection (a), carbon dioxide shall be
12 considered disposed of in secure geological
13 storage if such carbon dioxide is stored in
14 compliance with rules promulgated by the
15 Environmental Protection Agency which
16 are applicable to carbon dioxide used as a
17 tertiary injectant in a qualified enhanced
18 oil or natural gas recovery project under—

19 “(I) subpart UU of part 98 of
20 title 40, Code of Federal Regulations
21 (as in effect on the date of the enact-
22 ment of this paragraph) under the
23 Clean Air Act, and

24 “(II) subpart C of part 146 of
25 title 40, Code of Federal Regulations

1 (as in effect on the date of the enact-
2 ment of this paragraph) under the
3 Safe Drinking Water Act, to the ex-
4 tent such rules are applicable to Class
5 II wells.”.

6 **SEC. 3. QUALIFIED ENHANCED OIL OR NATURAL GAS RE-**
7 **COVERY PROJECT.**

8 Section 45Q(d)(4) of the Internal Revenue Code of
9 1986 is amended—

10 (1) by striking “by substituting” and inserting
11 “determined—

12 “(A) by substituting—”,

13 (2) by striking the period and inserting “,
14 and”, and

15 (3) by inserting at the end the following:

16 “(B) without regard to subparagraph
17 (A)(iii) thereof.”.

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