

118TH CONGRESS
2D SESSION

S. _____

To amend the Internal Revenue Code of 1986 to establish a technology-neutral tax credit for increased investment in next-generation carbon dioxide removal technologies.

IN THE SENATE OF THE UNITED STATES

Mr. BENNET (for himself and Ms. MURKOWSKI) introduced the following bill; which was read twice and referred to the Committee on

A BILL

To amend the Internal Revenue Code of 1986 to establish a technology-neutral tax credit for increased investment in next-generation carbon dioxide removal technologies.

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 “Carbon Dioxide Re-
5 moval Investment Act”.

6 **SEC. 2. ESTABLISHMENT OF TECHNOLOGY-NEUTRAL CRED-**

7 **IT FOR CARBON DIOXIDE REMOVAL.**

8 (a) IN GENERAL.—Subpart D of part IV of sub-
9 chapter A of chapter 1 of the Internal Revenue Code of

1 1986 is amended by inserting after section 45AA the fol-
2 lowing new section:

3 **“SEC. 45BB. TECHNOLOGY-NEUTRAL CREDIT FOR CARBON**
4 **DIOXIDE REMOVAL.**

5 “(a) IN GENERAL.—For purposes of section 38, the
6 carbon dioxide removal credit for any taxable year is an
7 amount equal to the applicable amount per metric tons
8 of net carbon dioxide removal (as determined pursuant to
9 subsection (e)) achieved by a qualifying carbon dioxide re-
10 moval project during the 12-year period beginning on the
11 date such project was originally placed in service.

12 “(b) APPLICABLE AMOUNT.—

13 “(1) IN GENERAL.—For purposes of subsection
14 (a), the applicable amount shall be—

15 “(A) in the case of a qualifying carbon di-
16 oxide removal project which uses installed car-
17 bon capture equipment to capture point-source
18 carbon dioxide originating from the combustion
19 or processing of biomass feedstocks, \$110, and

20 “(B) in the case of a qualifying carbon di-
21 oxide removal project which is not described in
22 subparagraph (A), \$250.

23 “(2) INFLATION ADJUSTMENT.—

24 “(A) IN GENERAL.—In the case of any
25 taxable year beginning in a calendar year after

1 2025, the dollar amounts in paragraph (1) shall
2 each be adjusted by multiplying such amount
3 by the inflation adjustment factor for the cal-
4 endar year in which the carbon dioxide removal
5 occurs.

6 “(B) ANNUAL COMPUTATION.—The Sec-
7 retary shall, not later than April 1 of each cal-
8 endar year, determine and publish in the Fed-
9 eral Register the inflation adjustment factor for
10 such calendar year in accordance with this sub-
11 section.

12 “(C) INFLATION ADJUSTMENT FACTOR.—
13 The term ‘inflation adjustment factor’ has the
14 same meaning given such term under section
15 45Y(c)(3), except that such section shall be ap-
16 plied by substituting ‘calendar year 2024’ for
17 ‘calendar year 1992’.

18 “(D) ROUNDING RULE.—If any amount as
19 increased under subparagraph (A) is not a mul-
20 tiple of \$1, such amount shall be rounded to the
21 nearest multiple of \$1.

22 “(c) DEFINITIONS.—In this section—

23 “(1) CARBON DIOXIDE EQUIVALENT.—The
24 term ‘carbon dioxide equivalent’ means with respect
25 to a greenhouse gas, the quantity of such gas that

1 has a global warming potential equivalent to 1 met-
2 ric ton of carbon dioxide.

3 “(2) CARBON DIOXIDE REMOVAL.—The term
4 ‘carbon dioxide removal’ means the removal of car-
5 bon dioxide from the atmosphere through—

6 “(A) the capture of carbon dioxide from
7 the ambient air or upper hydrosphere, and

8 “(B) the storage of such carbon dioxide.

9 “(3) NET CARBON DIOXIDE REMOVAL.—The
10 term ‘net carbon dioxide removal’ means carbon di-
11 oxide removal, net of any associated greenhouse gas
12 emissions (as measured in metric tons of carbon di-
13 oxide equivalent on a lifecycle basis).

14 “(4) QUALIFYING CARBON DIOXIDE REMOVAL
15 APPROACH.—

16 “(A) IN GENERAL.—The term ‘qualifying
17 carbon dioxide removal approach’ means, with
18 respect to any qualifying carbon dioxide re-
19 moval project, a set of similar technologies—

20 “(i) which achieve carbon dioxide re-
21 moval through—

22 “(I) direct air capture and stor-
23 age,

24 “(II) enhanced carbon min-
25 eralization and rock weathering,

1 “(III) terrestrial biomass-based
2 carbon dioxide removal,

3 “(IV) marine-based carbon diox-
4 ide removal, or

5 “(V) any other means, and

6 “(ii) which satisfy each of the fol-
7 lowing criteria (as determined by the Sec-
8 retary, in consultation with the Secretary
9 of Energy and, as deemed necessary, the
10 head of any other relevant Federal agen-
11 cy):

12 “(I) Expected to provide net car-
13 bon dioxide removal based on project-
14 level lifecycle analysis, as described in
15 subsection (e)(2).

16 “(II) Has a high likelihood,
17 based on scientific understanding, of
18 storing the captured carbon dioxide
19 for at least 1,000 years, including
20 through geologic storage, utilization,
21 or other means.

22 “(III) Demonstrates the ability
23 to quantify net carbon dioxide re-
24 moval, within a range of plus or
25 minus 20 percent with a 95 percent

1 confidence interval based on public
2 demonstrations and field trials.

3 “(B) TERRESTRIAL BIOMASS-BASED CAR-
4 BON DIOXIDE REMOVAL.—

5 “(i) IN GENERAL.—In the case of any
6 approach which uses terrestrial biomass to
7 capture carbon dioxide, such approach
8 shall use eligible biomass feedstocks.

9 “(ii) ELIGIBLE BIOMASS FEED-
10 STOCK.—For purposes of this subpara-
11 graph, the term ‘eligible biomass feedstock’
12 means a feedstock which is derived from—

13 “(I) agricultural wastes and resi-
14 dues from land actively cultivated be-
15 fore the date of enactment of this sec-
16 tion, provided that—

17 “(aa) there is not less than
18 a 50 percent retention of resi-
19 dues, or

20 “(bb) an alternate retention
21 rate or best practice (as certified
22 under clause (iii)(III)(aa)) is
23 achieved,

24 “(II) non-invasive organic mate-
25 rial grown on brownfield sites or

1 abandoned mine sites, including or-
2 ganic material grown exclusively for
3 purposes of being used by a qualifying
4 carbon dioxide removal project,
5 “(III) algae or other aquatic pho-
6 tosynthesizing organisms,
7 “(IV) food waste,
8 “(V) removal of invasive plant
9 species,
10 “(VI) other wastes and residues
11 derived from—
12 “(aa) landscape or right-of-
13 way trimming,
14 “(bb) biomass removed for
15 wildfire hazard reduction within
16 200 feet of structures,
17 “(cc) wood and paper mill
18 waste, or
19 “(dd) downed wood from ex-
20 treme weather events, or
21 “(VII) any other source which is
22 certified pursuant to clause
23 (iii)(III)(bb).
24 “(iii) STUDY AND CERTIFICATION.—

1 “(I) STUDY.—Not later than 1
2 year after the date of enactment of
3 this section, the National Academies
4 of Sciences, Engineering, and Medi-
5 cine, in consultation with the Sec-
6 retary of Energy and the Secretary of
7 Agriculture, shall complete 2 separate
8 studies with respect to the following:

9 “(aa) For purposes of clause
10 (ii)(I)(bb), recommend adequate
11 thresholds for residue retention
12 rates and other best practices for
13 various crops and environmental
14 conditions, with the goal of main-
15 taining soil organic carbon, soil
16 health, and biodiversity.

17 “(bb) For purposes of clause
18 (ii)(VII), evaluate the suitability
19 as additional sources for eligible
20 biomass feedstocks of—

21 “(AA) biomass grown
22 on marginal lands that have
23 been or are under intensive
24 cultivation, and

1 “(BB) forest residues
2 (such as small diameter
3 thinning, limbs, and bark)
4 related to wildfire hazard re-
5 duction or ecological forest
6 management with no alter-
7 native options for valoriza-
8 tion.

9 “(II) FEEDSTOCK STUDY.—For
10 purposes of the study described in
11 subclause (I)(bb), such study shall—

12 “(aa) assess—

13 “(AA) the potential risk
14 of the feedstocks described
15 in such subclause displacing
16 food crop production, de-
17 creasing food crop yield, dis-
18 placing the use of forest res-
19 idues for durable products,
20 and other direct and indirect
21 land-use impacts,

22 “(BB) the impact of
23 use of such feedstocks on
24 forest and agricultural soils,
25 including impacts on erosion

1 and carbon and nutrient cy-
2 cling, and

3 “(CC) the impact of
4 use of such feedstocks on
5 biodiversity, and

6 “(bb) provide guidance for
7 robust lifecycle assessment of
8 such feedstocks.

9 “(III) CERTIFICATION.—Fol-
10 lowing the completion of each study
11 described in subclause (I), the Sec-
12 retary of Energy, in consultation with
13 the Secretary of Agriculture, shall,
14 based on the recommendations or
15 evaluations of such study, certify—

16 “(aa) for purposes of clause
17 (ii)(I)(bb), any alternate reten-
18 tion rates or best practices, and

19 “(bb) for purposes of clause
20 (ii)(VII), any additional sources
21 for eligible biomass feedstocks.

22 “(C) MARINE-BASED CARBON DIOXIDE RE-
23 MOVAL.—

24 “(i) IN GENERAL.—In the case of any
25 approach which uses the physical, chem-

1 ical, or biological properties of the ocean to
2 achieve carbon dioxide removal, such ap-
3 proach shall use a certified marine carbon
4 dioxide removal approach.

5 “(ii) CERTIFIED MARINE CARBON DI-
6 OXIDE REMOVAL APPROACH.—For pur-
7 poses of this subparagraph, the term ‘cer-
8 tified marine carbon dioxide removal ap-
9 proach’ means an approach which—

10 “(I) meets the standards estab-
11 lished under clause (iii), and

12 “(II) is certified under clause
13 (iv).

14 “(iii) STANDARDS.—

15 “(I) IN GENERAL.—Not later
16 than 1 year after the date of enact-
17 ment of this section, the Adminis-
18 trator of the National Oceanic and
19 Atmospheric Administration, in con-
20 sultation with the Administrator of
21 the Environmental Protection Agency
22 and the Director of the Bureau of
23 Ocean Energy Management, shall es-
24 tablish science-based environmental
25 safety standards which apply to all

1 qualifying carbon dioxide removal ap-
2 proaches which use the physical,
3 chemical, or biological properties of
4 the ocean to achieve carbon dioxide
5 removal, with such standards as will
6 ensure that an approach is not likely
7 to have significant adverse environ-
8 mental impact, which shall include ac-
9 counting for—

10 “(aa) the positive and nega-
11 tive environmental impacts of
12 such approach (including at-site
13 deployment impacts and up-
14 stream and downstream im-
15 pacts),

16 “(bb) the level of certainty
17 with respect to the type and
18 magnitude of such impacts, and

19 “(cc) the quantity and qual-
20 ity of the body of research re-
21 lated to such impacts.

22 “(II) REVERSAL OF NEGATIVE
23 ENVIRONMENTAL IMPACTS CAUSED BY
24 CLIMATE CHANGE.—For purposes of
25 subclause (I), positive environmental

1 impacts of any qualifying carbon diox-
2 ide removal approach shall include
3 any local reversal of negative environ-
4 mental impacts caused by climate
5 change.

6 “(III) REEVALUATION.—Not
7 later than 3 years after the establish-
8 ment of the standards under sub-
9 clause (I), and every 3 years there-
10 after, the Administrator of the Na-
11 tional Oceanic and Atmospheric Ad-
12 ministration, in consultation with the
13 Administrator of the Environmental
14 Protection Agency and the Director of
15 the Bureau of Ocean Energy Manage-
16 ment, shall review such standards
17 and, pursuant to the requirements
18 under such subclause, update such
19 standards as necessary.

20 “(iv) CERTIFICATION.—Not later than
21 1 year after the date of enactment of this
22 section and every 2 years thereafter, the
23 Administrator of the National Oceanic and
24 Atmospheric Administration, in consulta-
25 tion with the Administrator of the Envi-

1 ronmental Protection Agency and the Di-
2 rector of the Bureau of Ocean Energy
3 Management, shall certify any approach
4 which satisfies the standards established
5 under clause (iii).

6 “(5) QUALIFYING CARBON DIOXIDE REMOVAL
7 PROJECT.—The term ‘qualifying carbon dioxide re-
8 moval project’ means a project—

9 “(A) which—

10 “(i) is owned by the taxpayer,

11 “(ii) is engaged in carbon dioxide re-
12 moval through use of a qualifying carbon
13 dioxide removal approach, and

14 “(iii) is placed in service at an estab-
15 lished location or set of locations, and

16 “(B) the construction of which begins be-
17 fore January 1, 2035.

18 “(d) SELECTION OF QUALIFYING CARBON DIOXIDE
19 REMOVAL APPROACHES.—

20 “(1) IN GENERAL.—Not later than 1 year after
21 date of enactment of this section, the Secretary, in
22 consultation with the Secretary of Energy, shall es-
23 tablish a selection process to determine qualifying
24 carbon dioxide removal approaches pursuant to the
25 requirements in subsection (c)(4).

1 “(2) INITIAL LIST.—Not later than 18 months
2 after date of enactment of this section, the Sec-
3 retary, in consultation with the Secretary of Energy,
4 shall, pursuant to the process described in para-
5 graph (1), compile and publish an initial list of
6 qualifying carbon dioxide removal approaches ac-
7 cording to requirements in subsection (c)(4).

8 “(3) UPDATE.—Not later than 1 year after the
9 publication of the list described in paragraph (2)
10 and annually thereafter, the Secretary, in consulta-
11 tion with the Secretary of Energy, shall, pursuant to
12 the process described in paragraph (1), compile and
13 publish any additional qualifying carbon dioxide re-
14 moval approaches according to requirements in sub-
15 section (c)(4).

16 “(e) DETERMINATION OF AMOUNT OF NET CARBON
17 DIOXIDE REMOVAL.—

18 “(1) IN GENERAL.—Not later than 1 year after
19 date of enactment of this section, the Secretary, in
20 consultation with the Secretary of Energy and the
21 Administrator of the Environmental Protection
22 Agency, shall establish a process for taxpayers to de-
23 termine and publicly report net carbon dioxide re-
24 moval through a qualifying carbon dioxide removal
25 project, as determined based on—

1 “(A) project-level greenhouse gas lifecycle
2 analysis, and

3 “(B) project-level monitoring, reporting,
4 and verification.

5 “(2) LIFECYCLE ANALYSIS.—For purposes of
6 paragraph (1)(A), the project-level greenhouse gas
7 lifecycle analysis shall—

8 “(A) be based on protocols which are sub-
9 ject to such requirements as are determined by
10 the Secretary, in consultation with the Sec-
11 retary of Energy and Administrator of the En-
12 vironmental Protection Agency, to be appro-
13 priate,

14 “(B) include all processes and activities as-
15 sociated with the capture and storage of carbon
16 dioxide, including—

17 “(i) any mass and energy inputs and
18 outputs from raw materials, including bio-
19 mass feedstocks, manufacture, transport,
20 storage, sale, use and disposal,

21 “(ii) land use change and other eco-
22 system perturbations, and

23 “(iii) long-term retention of carbon di-
24 oxide,

1 “(C) calculate net carbon dioxide removal,
2 including accounting for uncertainty associated
3 with the estimate of net carbon dioxide removal,
4 and

5 “(D) only exclude any process from such
6 analysis if such process does not significantly
7 change the outcome of such analysis, with such
8 exclusion to be noted and justified.

9 “(3) MONITORING, REPORTING, AND
10 VERIFICATION.—For purposes of paragraph (1)(B),
11 the project-level monitoring, reporting, and
12 verification shall—

13 “(A) be based on protocols which are sub-
14 ject to such requirements as are determined by
15 the Secretary, in consultation with the Sec-
16 retary of Energy and the Administrator of the
17 Environmental Protection Agency, to be appro-
18 priate,

19 “(B) include the use of independent third-
20 party verifiers (as certified by the Secretary),
21 and

22 “(C) quantify uncertainty associated with
23 measurements and the resulting estimate of net
24 carbon dioxide removal.

1 “(4) GOALS.—The process established under
2 paragraph (1) shall seek to—

3 “(A) to the greatest extent possible, iden-
4 tify best available tools, models, or default val-
5 ues for embodied emissions in order to facilitate
6 consistency and comparability across qualified
7 carbon dioxide removal approaches with respect
8 to—

9 “(i) project-level greenhouse gas
10 lifecycle analysis,

11 “(ii) project-level monitoring, report-
12 ing, and verification, and

13 “(iii) determination of net carbon di-
14 oxide removal,

15 “(B) include reporting requirements which
16 facilitate transparency and evaluation of the net
17 carbon dioxide removal claimed by the taxpayer,
18 and

19 “(C) take into account best practices from
20 other carbon dioxide removal accounting pro-
21 grams in order to minimize inefficiencies and
22 conflicting procedures.

23 “(5) REVIEW.—

24 “(A) IN GENERAL.—Not later than 3 years
25 after date of enactment of this section, and

1 every 3 years thereafter, the Secretary, in con-
2 sultation with the Secretary of Energy and the
3 Administrator of the Environmental Protection
4 Agency—

5 “(i) shall conduct an panel-based re-
6 view by external experts (which may in-
7 clude representatives from government,
8 academia, civil society, and the private sec-
9 tor) of the process established under para-
10 graph (1) to improve the requirements for
11 greenhouse gas lifecycle analysis and moni-
12 toring, reporting, and verification based on
13 the best available science at the time of
14 such review, and

15 “(ii) based on the review described in
16 clause (i), may adjust any requirements
17 applicable under this subsection.

18 “(B) APPLICATION OF UPDATED REQUIRE-
19 MENTS.—Any adjustment under subparagraph
20 (A)(ii) with respect to determination of net car-
21 bon dioxide removal shall only apply to taxable
22 years beginning after the date of such adjust-
23 ment.

24 “(f) SPECIAL RULES.—

1 “(1) ONLY CARBON DIOXIDE REMOVAL WITHIN
2 THE UNITED STATES TAKEN INTO ACCOUNT.—The
3 credit under this section shall apply only with re-
4 spect to carbon dioxide removal which is within—

5 “(A) the United States (within the mean-
6 ing of section 638(1)),

7 “(B) a possession of the United States
8 (within the meaning of section 638(2)), or

9 “(C) any marine environment which is sub-
10 ject to regulation by the United States.

11 “(2) OWNERSHIP INTERESTS.—In the case of a
12 qualifying carbon dioxide removal project in which
13 more than 1 person has an ownership interest, ex-
14 cept to the extent provided in regulations prescribed
15 by the Secretary, net carbon dioxide removal
16 achieved by such project shall be allocated among
17 such persons in proportion to their respective owner-
18 ship interests with respect to the gross net carbon
19 dioxide removal from such project.

20 “(3) COORDINATION WITH OTHER CREDITS.—

21 “(A) CARBON OXIDE SEQUESTRATION
22 CREDIT.—No credit shall be allowed under this
23 section with respect to any qualifying carbon di-
24 oxide removal project for any taxable year for

1 which a credit determined under section 45Q is
2 allowed under section 38 for such taxable year.

3 “(B) QUALIFYING ADVANCED ENERGY
4 PROJECT CREDIT.—No credit shall be allowed
5 under this section with respect to any qualifying
6 carbon dioxide removal project for which a cred-
7 it determined under section 48C is allowed
8 under section 38 for the taxable year or any
9 prior taxable year.

10 “(C) SPECIAL RULE FOR QUALIFIED CAR-
11 BON DIOXIDE REMOVAL PROJECTS INTEGRATED
12 WITH CLEAN ENERGY GENERATION.—

13 “(i) IN GENERAL.—In the case of any
14 qualifying carbon dioxide removal project
15 which produces electricity, hydrogen, or
16 fuel as an output of its qualifying carbon
17 dioxide removal approach, no credit shall
18 be allowed with respect to such electricity,
19 hydrogen, or fuel under section 40B, 45,
20 45V, 45Y, or 45Z unless such electricity,
21 hydrogen, or fuel is consumed by such
22 qualifying carbon dioxide removal project.

23 “(ii) ENERGY CREDIT AND CLEAN
24 ELECTRICITY INVESTMENT CREDIT.—In

1 the case of any qualifying carbon dioxide
2 removal project which includes—

3 “(I) any energy property (as de-
4 fined in section 48(a)(3)) which pro-
5 duces electricity or hydrogen from the
6 process of carbon dioxide removal, or

7 “(II) any qualified facility (as de-
8 fined in section 48E(b)(3)) which pro-
9 duces electricity or hydrogen from the
10 process of carbon dioxide removal,

11 no credit shall be allowed under section 48
12 or 48E with respect to such energy prop-
13 erty or qualified facility.”.

14 (b) ELECTIVE PAYMENT AND TRANSFER OF CRED-
15 IT.—

16 (1) ELECTIVE PAYMENT.—Section 6417 of the
17 Internal Revenue Code of 1986 is amended—

18 (A) in subsection (b)—

19 (i) by designating paragraphs (10)
20 through (12) as paragraphs (11) through
21 (13), respectively, and

22 (ii) by inserting after paragraph (9)
23 the following:

24 “(10) The carbon dioxide removal credit under
25 section 45BB.”, and

- 1 (B) in subsection (d)(1)—
- 2 (i) in subparagraph (E), by striking
- 3 “(C), or (D)” each place it appears and in-
- 4 serting “(C), (D), or (E)”,
- 5 (ii) by redesignating subparagraph
- 6 (E) (as amended by clause (i)) as subpara-
- 7 graph (F), and
- 8 (iii) by inserting after subparagraph
- 9 (D) the following:
- 10 “(E) ELECTION WITH RESPECT TO CAR-
- 11 BON DIOXIDE REMOVAL CREDIT.—
- 12 “(i) IN GENERAL.—If a taxpayer
- 13 other than an entity described in subpara-
- 14 graph (A) makes an election under this
- 15 subparagraph with respect to any taxable
- 16 year in which such taxpayer has, after De-
- 17 cember 31, 2024, placed in service any
- 18 qualifying carbon dioxide removal project
- 19 (as defined in section 45BB(c)), such tax-
- 20 payer shall be treated as an applicable en-
- 21 tity for purposes of this section for such
- 22 taxable year, but only with respect to the
- 23 credit described in subsection (b)(10).
- 24 “(ii) LIMITATION.—

1 (c) CREDIT TO BE PART OF GENERAL BUSINESS
2 CREDIT.—Section 38(b) of the Internal Revenue Code of
3 1986, as amended by sections 13105, 13701, and 13704
4 of Public Law 117-169, is amended by striking “plus” at
5 the end of paragraph (40), by striking the period at the
6 end of paragraph (41) and inserting “, plus”, and by add-
7 ing at the end the following new paragraph:

8 “(42) the carbon dioxide removal credit deter-
9 mined under section 45BB(a).”.

10 (d) CONFORMING AMENDMENT.—The table of sec-
11 tions for subpart D of part IV of subchapter A of chapter
12 1 of the Internal Revenue Code of 1986 is amended by
13 inserting after the item relating to section 45AA the fol-
14 lowing new item:

“Sec. 45BB. Technology-neutral credit for carbon dioxide removal.”.

15 (e) EFFECTIVE DATE.—The amendments made by
16 this Act shall apply to property placed in service after De-
17 cember 31, 2024.