

117TH CONGRESS
2D SESSION

S. 4280

To require the Secretary of Energy to remove carbon dioxide directly from ambient air or seawater, and for other purposes.

IN THE SENATE OF THE UNITED STATES

MAY 19 (legislative day, MAY 17), 2022

Mr. COONS (for himself and Mr. WHITEHOUSE) introduced the following bill; which was read twice and referred to the Committee on Energy and Natural Resources

A BILL

To require the Secretary of Energy to remove carbon dioxide directly from ambient air or seawater, and for other purposes.

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 “Federal Carbon Diox-
5 ide Removal Leadership Act of 2022”.

6 **SEC. 2. FEDERAL REQUIREMENT TO REMOVE CARBON DI-**
7 **OXIDE.**

8 (a) DEFINITIONS.—In this section:

9 (1) ELIGIBLE TECHNOLOGY.—

1 (A) IN GENERAL.—The term “eligible
2 technology” means any equipment, technique,
3 or technology, as determined appropriate by the
4 Secretary, placed into service after January 1,
5 2022, that removes carbon dioxide directly from
6 ambient air or seawater.

7 (B) EXCLUSION.—The term “eligible tech-
8 nology” does not include any equipment, tech-
9 nique, or technology that—

10 (i) removes carbon dioxide that is de-
11 liberately released from naturally occurring
12 subsurface springs; or

13 (ii) removes carbon dioxide through
14 natural photosynthesis, subject to subpara-
15 graph (C).

16 (C) OTHER ELIGIBLE TECHNOLOGY.—

17 (i) IN GENERAL.—Notwithstanding
18 subparagraph (B)(ii), the term “eligible
19 technology”, with respect to a project for
20 the removal of carbon dioxide carried out
21 by an entity with which the Secretary en-
22 ters into a contract under subsection (c),
23 includes any equipment, technique, or tech-
24 nology used in the project that removes
25 carbon dioxide using gasification or pyrol-

1 ysis of solid, nonhazardous, and cellulosic
2 waste materials if the Secretary, by rule,
3 determines that the equipment, technique,
4 or technology, as applicable, is capable
5 of—

6 (I) adequately monitoring, re-
7 porting, and verifying the amount of
8 greenhouse gas emissions (calculated
9 on a lifecycle basis) that are associ-
10 ated with the equipment, technique, or
11 technology; and

12 (II) adequately mitigating the en-
13 vironmental impacts (including im-
14 pacts on biodiversity, land use, and
15 air and water quality) associated with
16 the equipment, technique, or tech-
17 nology.

18 (ii) RULE.—The Secretary shall re-
19 view any rule promulgated pursuant to
20 clause (i) not less frequently than once
21 every 6 years after the date on which the
22 rule is promulgated.

23 (2) LIFECYCLE BASIS.—The term “lifecycle
24 basis” means the net sum of all greenhouse gas
25 emissions (using mass values for all greenhouse

1 gases that are adjusted to account for their relative
2 global warming potential, in consultation with the
3 Administrator of the Environmental Protection
4 Agency) and removals associated with carbon dioxide
5 removal activity, including any emissions associated
6 with—

7 (A) energy and feedstock inputs;

8 (B) the carbon dioxide removal process;

9 and

10 (C) carbon dioxide storage, including use
11 and disposal of any materials or products asso-
12 ciated with carbon dioxide storage.

13 (3) REMOVE.—The term “remove”, with re-
14 spect to carbon dioxide, means—

15 (A) to capture carbon dioxide using an eli-
16 gible technology; and

17 (B) to permanently store that captured
18 carbon dioxide—

19 (i) in dedicated subsurface geologic
20 storage reported under sections 98.440
21 and 146.91(e) of title 40, Code of Federal
22 Regulations (or successor regulations);

23 (ii) in materials, including building
24 materials and mineralized carbon mate-
25 rials; or

1 (iii) through another permanent stor-
2 age method, as determined by the Sec-
3 retary.

4 (4) SECRETARY.—The term “Secretary” means
5 the Secretary of Energy.

6 (5) SMALL REMOVAL PROJECT.—The term
7 “small removal project” means a project for the re-
8 moval of carbon dioxide that removes not more than
9 5 percent of the net metric tons of carbon dioxide
10 required to be removed under subsection (b)(1) for
11 the fiscal year in which the project begins.

12 (b) REMOVAL REQUIREMENT.—

13 (1) AMOUNTS.—The Secretary shall, if eco-
14 nomically feasible as determined under paragraph
15 (2), remove—

16 (A) 50,000 net metric tons of carbon diox-
17 ide, calculated on a lifecycle basis, for each of
18 fiscal years 2024 and 2025;

19 (B) 500,000 net metric tons of carbon di-
20 oxide, calculated on a lifecycle basis, for each of
21 fiscal years 2026 through 2028;

22 (C) 5,000,000 net metric tons of carbon
23 dioxide, calculated on a lifecycle basis, for each
24 of fiscal years 2029 through 2034; and

1 (D) 10,000,000 net metric tons of carbon
2 dioxide, calculated on a lifecycle basis, for fiscal
3 year 2035 and each fiscal year thereafter.

4 (2) ECONOMIC FEASIBILITY.—

5 (A) IN GENERAL.—The removal of carbon
6 dioxide under paragraph (1) shall be considered
7 economically feasible if the removal can be ac-
8 complished, or in the case of a contract under
9 subsection (c), purchased—

10 (i) for each of fiscal years 2024 and
11 2025, at a price per metric ton of carbon
12 dioxide of not more than \$550;

13 (ii) for each of fiscal years 2026
14 through 2028, at a price per metric ton of
15 carbon dioxide of not more than \$400;

16 (iii) for each of fiscal years 2029
17 through 2031, at a price per metric ton of
18 carbon dioxide of not more than \$300;

19 (iv) for each of fiscal years 2032
20 through 2034, at a price per metric ton of
21 carbon dioxide of not more than \$200; and

22 (v) for fiscal year 2035 and each fis-
23 cal year thereafter, at a price per metric
24 ton of carbon dioxide of not more than
25 \$150.

1 (B) INCLUSION OF MONITORING, REPORT-
2 ING, AND VERIFICATION COSTS.—For purposes
3 of subparagraph (A), the price per metric ton
4 of carbon dioxide shall include any costs associ-
5 ated with the monitoring, reporting, and
6 verification required under subsection (d).

7 (C) MULTIYEAR CONTRACTS.—The re-
8 moval of carbon dioxide carried out pursuant to
9 a multiyear contract entered into under sub-
10 section (c) shall be considered economically fea-
11 sible if such removal can be accomplished at the
12 applicable dollar amount for the first fiscal year
13 of the contract, as provided in subparagraph
14 (A), through the entire length of the contract.

15 (3) TIMING.—For each fiscal year, the Sec-
16 retary shall remove the amount of carbon dioxide re-
17 quired under paragraph (1) for that fiscal year not
18 later than 3 years after the beginning of that fiscal
19 year.

20 (4) SMALL REMOVAL PROJECT SET-ASIDE.—To
21 the extent practicable, at least 20 percent of the net
22 metric tons of carbon dioxide required to be removed
23 under paragraph (1) for each of fiscal years 2024
24 through 2034 shall be removed through small re-
25 moval projects.

1 (c) CONTRACTS FOR PROJECTS TO REMOVE CARBON
2 DIOXIDE.—

3 (1) IN GENERAL.—To meet the requirements of
4 subsection (b), the Secretary may enter into con-
5 tracts to carry out projects for the removal of carbon
6 dioxide, including small removal projects.

7 (2) DURATION.—A contract entered into under
8 paragraph (1) shall be for a term of not more than
9 15 years.

10 (3) PRIORITIES.—In entering into contracts
11 under paragraph (1), the Secretary shall give pri-
12 ority to contracts for projects that—

13 (A) minimize the amount of greenhouse
14 gas emissions released by carrying out the
15 project;

16 (B) support the commercialization of inno-
17 vative removal technologies;

18 (C) increase the diversity of commercially
19 available eligible technologies;

20 (D) provide the greatest potential for do-
21 mestic job creation;

22 (E) result in economic development or eco-
23 nomic diversification in regions or localities that
24 have historically generated significant economic
25 activity from the production, processing, trans-

1 portation, or combustion of fossil fuels, includ-
2 ing through the use of coal mines, fossil fuel-
3 fired electricity generating units, and petroleum
4 refining facilities;

5 (F) quantify and mitigate the effect of re-
6 moving carbon dioxide on environmental justice,
7 the environment, and public health; and

8 (G) include robust public engagement and
9 community benefits.

10 (d) MONITORING, REPORTING, AND
11 VERIFICATION.—

12 (1) IN GENERAL.—The Secretary, or an entity
13 with which the Secretary enters into a contract
14 under subsection (c), shall monitor, report, and
15 verify the net metric tons of carbon dioxide that the
16 Secretary or the entity, as applicable, removes for
17 purposes of this section.

18 (2) BEST PRACTICES.—The Secretary shall en-
19 sure that any project carried out under a contract
20 entered into under subsection (c) shall follow the
21 best available practices, as determined by the Sec-
22 retary, for monitoring, reporting, and verifying the
23 net metric tons of carbon dioxide removed under the
24 project, including best practices that—

1 (A) are used by similar carbon dioxide re-
2 moval projects; and

3 (B) are necessary to ensure safe, effective,
4 and efficient removal of carbon dioxide.

5 (3) PROHIBITION ON DOUBLE COUNTING.—Car-
6 bon dioxide that is removed for the purpose of com-
7 plying with any other greenhouse gas emissions
8 management program, including any foreign, Fed-
9 eral, State, local, or private greenhouse gas emis-
10 sions management program, as determined by the
11 Secretary, may not be considered removed under
12 subsection (b) for purposes of meeting the require-
13 ments of that subsection.

14 (e) FEDERAL ASSISTANCE.—Funds received pursu-
15 ant to a contract entered into under subsection (c) shall
16 not be considered Federal assistance or otherwise affect
17 eligibility for any Federal assistance, including a tax in-
18 centive.

19 (f) REPORT.—Not later than January 1, 2027, and
20 every 2 years thereafter, the Secretary shall submit to
21 Congress, and make publicly available, a report that de-
22 scribes the progress made in carrying out the require-
23 ments of this section, including—

1 (1) the amounts of carbon dioxide removed dur-
2 ing the period covered by the report, as verified pur-
3 suant to subsection (d);

4 (2) the total price, and price per metric ton, of
5 removing carbon dioxide for each applicable fiscal
6 year during the period covered by the report;

7 (3) the methods of monitoring, reporting, and
8 verification required under subsection (d);

9 (4) an assessment, to the extent practicable, of
10 how the amounts of carbon dioxide removed during
11 the period covered by the report have affected envi-
12 ronmental justice, the environment, and public
13 health; and

14 (5) information on any labor impact or job cre-
15 ation resulting from carrying out the requirements
16 of this section during the period covered by the re-
17 port.

18 (g) AUTHORIZATION OF APPROPRIATIONS.—There
19 are authorized to be appropriated such sums as are nec-
20 essary to carry out this section.

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