

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.

○