



(Original Signature of Member)

118TH CONGRESS  
2D SESSION

**H. R.**

To provide for methane emission detection and mitigation, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

Mr. CASTEN introduced the following bill; which was referred to the Committee on \_\_\_\_\_

**A BILL**

To provide for methane emission detection and mitigation, 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 “Methane Emissions  
5 Mitigation Research and Development Act”.

6 **SEC. 2. METHANE EMISSION DETECTION AND MITIGATION.**

7 (a) IN GENERAL.—Subtitle F of title IX of the En-  
8 ergy Policy Act of 2005 (42 U.S.C. 16291 et seq.) is  
9 amended by adding at the end the following new section:

1 **“SEC. 969E. METHANE LEAK DETECTION AND MITIGATION.**

2 “(a) TECHNICAL ASSISTANCE.—

3 “(1) IN GENERAL.—The Secretary, in consulta-  
4 tion with the Administrator of the Environmental  
5 Protection Agency, the Secretary of Commerce, and  
6 the heads of other appropriate Federal agencies,  
7 shall carry out a program of methane emissions de-  
8 tection and mitigation research, development, and  
9 demonstration for technologies and methods that  
10 significantly detect, quantify, and mitigate methane  
11 emissions. In carrying out the program, the Sec-  
12 retary shall—

13 “(A) enter into cooperative agreements  
14 with State or local governments, institutions of  
15 higher education, or for-profit entities to pro-  
16 vide technical assistance to—

17 “(i) prevent or respond to methane re-  
18 leases, including prediction, detection, miti-  
19 gation, quantification, and identification of  
20 leaks, vents, and other outflows throughout  
21 the natural gas infrastructure (including  
22 natural gas storage, pipelines, and natural  
23 gas production sites); and

24 “(ii) protect public health in the event  
25 of a major methane release;

1           “(B) in coordination with representatives  
2           from private sector entities, State and local gov-  
3           ernments, and institutions of higher education,  
4           establish a publicly accessible resource for best  
5           practices in the design, construction, mainte-  
6           nance, performance, monitoring, and incident  
7           response for—

8                   “(i) pipeline systems, including com-  
9                   pressor stations;

10                   “(ii) production wells;

11                   “(iii) storage facilities; and

12                   “(iv) other vulnerable infrastructure;

13           “(C) in coordination with representatives  
14           from private sector entities, State and local gov-  
15           ernments, and institutions of higher education,  
16           establish a publicly accessible resource for best  
17           practices in evaluation and incorporation of  
18           emission reduction technologies, including—

19                   “(i) metrics for performance evalua-  
20                   tion; and

21                   “(ii) principles for selection and inte-  
22                   gration of emission reduction technologies  
23                   that are best suited for the project or enti-  
24                   ty concerned;

1           “(D) support research of technologies to  
2           more accurately quantify emissions, including—

3                   “(i) the ability to accurately charac-  
4                   terize and measure methane emissions  
5                   through various atmospheric conditions  
6                   such as wind, rain, fog, and dust;

7                   “(ii) improvements to data analytics  
8                   and machine learning platforms;

9                   “(iii) the ability to characterize tem-  
10                  poral patterns in emissions, such as  
11                  through continuous monitoring or multi-  
12                  tiered system practices;

13                  “(iv) improvements to high-resolution  
14                  spectroscopic databases of methane;

15                  “(v) the ability to remotely detect car-  
16                  bon and ethane isotopes to facilitate attri-  
17                  bution of sources of methane emissions;  
18                  and

19                  “(vi) improvements to Lidar detection  
20                  technologies;

21           “(E) identify high-risk characteristics of  
22           pipelines, wells, storage facilities, and materials,  
23           geologic risk factors, or other key factors that  
24           increase the likelihood or intensity of methane  
25           emissions leaks;

1           “(F) identify methane mitigation methods  
2           and technologies in coal mines; and

3           “(G) in collaboration with private sector  
4           entities and institutions of higher education,  
5           quantify and map significant geologic methane  
6           seeps and other sources of natural emissions  
7           across the United States.

8           “(2) CONSIDERATIONS.—In carrying out the  
9           program under this section, the Secretary shall con-  
10          sider the following:

11           “(A) Historical data of methane emissions.

12           “(B) Public health consequences.

13           “(C) Public safety.

14           “(D) Novel materials and designs for pipe-  
15          lines, compressor stations, components, and  
16          wells (including casing, cement, and wellhead).

17           “(E) Regional geologic traits.

18           “(F) Induced and natural seismicity.

19          “(b) METHANE LEAK DETECTION CONSORTIUM.—

20           “(1) IN GENERAL.—Not later than one year  
21          after the date of the enactment of this section, the  
22          Secretary shall establish and operate a Methane  
23          Emissions Measurement and Mitigation Research  
24          Consortium (in this section referred to as the ‘Con-  
25          sortium’) for the purpose of supporting, to the max-

1 imum extent practicable, data sharing, research  
2 prioritization, and researching cooperative leak de-  
3 tection and repair strategies pertaining to methane  
4 emissions detection, quantification, and mitigation.

5 “(2) MEMBERSHIP.—The members of the Con-  
6 sortium shall be representatives from the National  
7 Institute of Standards and Technology, other rel-  
8 evant Federal agencies, National Laboratories, oil  
9 and gas operators and industry groups, vendors of  
10 methane detection and quantification technologies,  
11 institutions of higher education, community organi-  
12 zations, relevant nongovernmental organizations, and  
13 other entities.

14 “(3) RESPONSIBILITIES.—The Consortium shall  
15 develop and implement a multiyear plan that—

16 “(A) identifies technical goals and mile-  
17 stones for the Consortium; and

18 “(B) facilitates data sharing for the pur-  
19 poses of—

20 “(i) bettering the understanding of  
21 methane emissions from the oil and gas  
22 sector;

23 “(ii) improving emissions detection,  
24 measurement, and mitigation capabilities,

1 including assessing multi-tiered atmos-  
2 pheric measurements; and

3 “(iii) improving the understanding of  
4 methane quantification data analytics and  
5 machine learning platforms, including for  
6 calibration of measurements.

7 “(4) REPORTING.—

8 “(A) IN GENERAL.—The Secretary shall  
9 report on the Consortium’s activities to the ap-  
10 propriate congressional committees.

11 “(B) INITIAL REPORT.—Not later than 18  
12 months after the date of the enactment of this  
13 section, the Secretary shall submit to the appro-  
14 priate congressional committees a report sum-  
15 marizing the activities, findings, and progress  
16 of the program under this section. The report  
17 shall include the following:

18 “(i) A review of LDAR technologies  
19 available to the oil and gas sector for the  
20 purpose of methane emissions measure-  
21 ment and mitigation.

22 “(ii) A summary of research gaps and  
23 priorities related to methane emissions de-  
24 tection, measurement, and mitigation capa-  
25 bilities.

1                   “(iii) A description of the data shar-  
2                   ing and cooperative activities that have  
3                   been initiated pursuant to paragraph  
4                   (3)(B).

5                   “(C) ANNUAL REPORT.—Not later than  
6                   one year after the date on which the report  
7                   under subparagraph (B) is submitted and an-  
8                   nually thereafter, the Secretary shall submit to  
9                   the appropriate congressional committees a re-  
10                  port summarizing the activities, findings, and  
11                  progress of the program under this section. The  
12                  report shall include the following:

13                   “(i) An updated review of LDAR  
14                   technologies available to oil and gas opera-  
15                   tors for the purpose of methane emissions  
16                   measurement and mitigation.

17                   “(ii) A description of the state of  
18                   methane emissions detection and measure-  
19                   ment capabilities.

20                   “(iii) A summary of research prior-  
21                   ities relating to methane emissions detec-  
22                   tion, measurement, and mitigation.

23                   “(iv) An update on the data sharing  
24                   and cooperative activities undertaken by  
25                   members of the Consortium.



1 “(5) SUNSET; TERMINATION.—

2 “(A) IN GENERAL.—The Secretary may  
3 provide support to the Consortium for a period  
4 of not more than ten years, subject to the avail-  
5 ability of appropriations.

6 “(B) MERIT REVIEW.—Not later than five  
7 years after the date on which the Consortium is  
8 established, the Secretary shall conduct a re-  
9 view to determine whether the Consortium has  
10 achieved the technical goals and milestones  
11 identified under paragraph (3)(A).

12 “(6) DEFINITIONS.—In this section:

13 “(A) APPROPRIATE CONGRESSIONAL COM-  
14 MITTEES.—The term ‘appropriate congressional  
15 committees’ means the Committee on Science,  
16 Space, and Technology of the House of Rep-  
17 resentatives and the Committee on Energy and  
18 Natural Resources of the Senate.

19 “(B) LDAR.—The term ‘LDAR’ means a  
20 technology, program, or activity that is intended  
21 to monitor, detect, measure, or repair methane  
22 leaks.

23 “(C) SECRETARY.—The term ‘Secretary’  
24 means the Secretary of Energy.

1           “(7) AUTHORIZATION OF APPROPRIATIONS.—

2           There are authorized to be appropriated to the Sec-  
3           retary to carry out this section the following:

4                   “(A) \$36,000,000 for fiscal year 2025.

5                   “(B) \$38,000,000 for fiscal year 2026.

6                   “(C) \$40,000,000 for fiscal year 2027.

7                   “(D) \$42,000,000 for fiscal year 2028.

8                   “(E) \$44,000,000 for fiscal year 2029.”.

9           (b) CLERICAL AMENDMENT.—The table of contents  
10 in section 1(b) of the Energy Policy Act of 2005 is amend-  
11 ed by adding at the end of the items relating to subtitle  
12 F of title IX of such Act the following new item:

          “Sec. 969E. Methane leak detection and mitigation.”.

13           (c) NATIONAL FACILITIES FOR TESTING AND INTER-  
14 CALIBRATION PROGRAM RELATING TO METHANE.—

15           (1) IN GENERAL.—Not later than one year  
16 after the date of the enactment of this Act and sub-  
17 ject to the availability of appropriations, the Sec-  
18 retary of Commerce, in consultation with the Sec-  
19 retary of Energy and the Administrator of the Envi-  
20 ronmental Protection Agency, shall establish a pro-  
21 gram through the National Institute of Standards  
22 and Technology’s Center for Greenhouse Gas Meas-  
23 urements, Standards, and Information established  
24 pursuant to section 10222 of the Research and De-  
25 velopment, Competition, and Innovation Act (Public

1 Law 117–167; 42 U.S.C. 18932) that establishes  
2 national facilities to advance methane detection,  
3 quantification, and relevant standards and sup-  
4 porting methods for testing and intercalibration of  
5 methane measurements and the publication and  
6 maintenance of standards for such measurements.

7 (2) RESPONSIBILITIES.—The facilities estab-  
8 lished under paragraph (1) shall facilitate detection  
9 and quantification of carbon, carbon isotopes, meth-  
10 ane, ethane, and gases associated with such sources,  
11 provide high-resolution spectroscopic reference data  
12 advancing accuracy of remote sensing technologies,  
13 develop methods relating methane concentration ob-  
14 servations to the associated emission fluxes, and fa-  
15 cilitate the rapid performance testing of existing and  
16 new technologies for the measurement of methane  
17 emissions, including testing conditions with a wide  
18 range of the following:

19 (A) Sizes and extents of emission sources.

20 (B) Geographic diversity.

21 (C) Temporal characteristics.

22 (D) Diversity of atmospheric conditions,  
23 such as wind, rain, fog, clouds, and dust.

24 (E) Diversity of observing platforms.

1 (F) Quantification of atmospheric emission  
2 plumes.

3 (3) ANNUAL REPORT.—Not later than two  
4 years after the date of the enactment of this Act and  
5 annually thereafter, the Secretary of Commerce shall  
6 submit to Congress a report summarizing the activi-  
7 ties, findings, and progress of the program estab-  
8 lished under paragraph (1).

9 (4) AUTHORIZATION OF APPROPRIATIONS.—  
10 There are authorized to be appropriated to the Sec-  
11 retary of Commerce to carry out this section the fol-  
12 lowing:

13 (A) \$15,000,000 for fiscal year 2025.

14 (B) \$17,000,000 for fiscal year 2026.

15 (C) \$19,000,000 for fiscal year 2027.

16 (D) \$21,000,000 for fiscal year 2028.

17 (E) \$23,000,000 for fiscal year 2029 and  
18 each fiscal year thereafter.