

119TH CONGRESS
2D SESSION

S. 4727

To require the Administrator of the Environmental Protection Agency to carry out a study on the environmental impacts of artificial intelligence data centers and associated energy infrastructure, to require the Director of the National Institute of Standards and Technology to convene a consortium on such environmental impacts, and to require the Administrator to develop a reporting system for the reporting of the environmental impacts of artificial intelligence, and for other purposes.

IN THE SENATE OF THE UNITED STATES

JUNE 9, 2026

Mr. MARKEY (for himself, Mr. VAN HOLLEN, Mr. WYDEN, Mr. BOOKER, and Mr. WELCH) introduced the following bill; which was read twice and referred to the Committee on Environment and Public Works

A BILL

To require the Administrator of the Environmental Protection Agency to carry out a study on the environmental impacts of artificial intelligence data centers and associated energy infrastructure, to require the Director of the National Institute of Standards and Technology to convene a consortium on such environmental impacts, and to require the Administrator to develop a reporting system for the reporting of the environmental impacts of artificial intelligence, 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,*

1 **SECTION 1. SHORT TITLE.**

2 This Act may be cited as the “Artificial Intelligence
3 Environmental Impacts Act of 2026”.

4 **SEC. 2. FINDINGS.**

5 Congress finds the following:

6 (1) Multiple estimates indicate that the amount
7 of computational power being used for artificial in-
8 telligence applications has increased rapidly over the
9 last decade.

10 (2) According to the Department of Energy,
11 data center energy demand has tripled in the last
12 decade and is expected to double or triple again by
13 2028.

14 (3) Accelerating use of artificial intelligence
15 greatly increases energy consumption due to the
16 power utilization of computer hardware required for
17 training and operating artificial intelligence models,
18 despite ongoing efficiency gains in both artificial in-
19 telligence models and hardware.

20 (4) Rapid growth in data center infrastructure
21 supporting artificial intelligence and other com-
22 puting-intensive technologies, including cooling sys-
23 tems and backup power equipment, can contribute to
24 air and water pollution, increased energy demand,
25 increasing water scarcity, and land-use changes.

1 (5) According to the Department of Energy,
2 hyperscale facilities are projected to consume be-
3 tween 16,000,000,000 and 33,000,000,000 gallons
4 annually by 2028.

5 (6) Resource and energy-intensive manufac-
6 turing processes are required for the hardware that
7 runs artificial intelligence and other computing-in-
8 tensive technologies, leading to significant environ-
9 mental impacts.

10 (7) Electricity prices have already risen signifi-
11 cantly as demand from data centers grows, and are
12 projected to continue rising rapidly.

13 (8) According to the Energy Information Agen-
14 cy, between January, 2025, and December, 2025,
15 household electricity prices increased by as much as
16 13 percent nationwide.

17 (9) Prices are projected to rise by another 25
18 percent in certain places over the next five years due
19 to increased demand from data centers.

20 (10) Yearly increases in electronic waste
21 (known as “e-waste”) pose environmental and health
22 risks and will likely be exacerbated by outdated and
23 discarded hardware used for artificial intelligence
24 and other computing-intensive technologies.

1 (11) Certain applications of artificial intel-
2 ligence may have direct and indirect positive envi-
3 ronmental impacts, including optimizing systems for
4 energy efficiency, developing renewable energy, ad-
5 vancing planetary systems research, enabling dis-
6 covery of new materials, and automatically moni-
7 toring environmental changes. Applications of artifi-
8 cial intelligence also have direct and indirect nega-
9 tive environmental impacts, including rebound ef-
10 fects, behavioral impacts, and accelerating high-pol-
11 lution activities.

12 (12) Different communities and regions will ex-
13 perience disparate effects from data center infra-
14 structure, with risks ranging from higher energy
15 costs to more adverse environmental effects, and
16 with certain communities at greater risk from cumu-
17 lative negative impacts, such as low-income commu-
18 nities, Black and Brown communities, Indigenous
19 communities, and rural communities.

20 (13) Various options exist to reduce the nega-
21 tive environmental impacts of artificial intelligence,
22 including using more energy-efficient and water-effi-
23 cient models, hardware, and data centers, using re-
24 newable and co-located energy, and examining the
25 impacts of artificial intelligence applications.

1 (14) Promoting transparency on energy use and
2 environmental impacts and developing and maintain-
3 ing accurate environmental impact metrics may help
4 mitigate negative environmental impacts of the rapid
5 growth in artificial intelligence use, while promoting
6 artificial intelligence uses with net positive environ-
7 mental impacts.

8 **SEC. 3. DEFINITIONS.**

9 In this Act:

10 (1) ADMINISTRATOR.—The term “Adminis-
11 trator” means the Administrator of the Environ-
12 mental Protection Agency.

13 (2) ARTIFICIAL INTELLIGENCE.—The term “ar-
14 tificial intelligence” has the meaning given the term
15 in section 5002 of the National Artificial Intelligence
16 Initiative Act of 2020 (15 U.S.C. 9401).

17 (3) ARTIFICIAL INTELLIGENCE DATA CEN-
18 TER.—The term “artificial intelligence data center”
19 means any facility, or group of facilities that—

20 (A) is located on a single site or on contig-
21 uous, adjacent, or otherwise connected sites;

22 (B) has a maximum rated power capacity
23 or total peak power load in excess of 50
24 megawatts; and

1 (C) houses and operates infrastructure for
2 the purpose of artificial intelligence inference,
3 training, pre-training, fine-tuning, or deploy-
4 ment at scale.

5 (4) ARTIFICIAL INTELLIGENCE MODEL.—The
6 term “artificial intelligence model” means a compo-
7 nent of an information system that implements arti-
8 ficial intelligence technology and uses computational,
9 statistical, or machine-learning techniques to
10 produce outputs from a given set of inputs.

11 (5) ARTIFICIAL INTELLIGENCE SYSTEM.—The
12 term “artificial intelligence system” means any data
13 system, software, hardware, application, tool, or util-
14 ity that operates in whole or in part using artificial
15 intelligence.

16 **SEC. 4. STUDY ON ENVIRONMENTAL AND ENERGY-RE-**
17 **LATED IMPACTS OF ARTIFICIAL INTEL-**
18 **LIGENCE.**

19 (a) IN GENERAL.—Not later than 1 year after the
20 date of enactment of this Act, the Administrator, in col-
21 laboration with the Secretary of Energy, the Director of
22 the National Institute of Standards and Technology, the
23 Director of the Office of Science and Technology Policy,
24 the Secretary of the Interior, and the Federal Energy Reg-
25 ulatory Commission, shall carry out, submit to Congress,

1 and make publicly available a report describing the results
2 of, a comprehensive study on the environmental and en-
3 ergy-related impacts of artificial intelligence and related
4 infrastructure.

5 (b) REQUIREMENTS.—The study required under sub-
6 section (a) shall include an examination of the following
7 issues and a forecast for how those issues are expected
8 to change during the 2-year, 5-year, and 10-year periods
9 beginning on the date on which the study is completed:

10 (1) FULL LIFECYCLE IMPACTS OF ARTIFICIAL
11 INTELLIGENCE.—The energy and water use, effects
12 on air and water quality, effects on local ecosystems,
13 local noise and light impacts, energy cost impacts,
14 and the direct, indirect, and value chain greenhouse
15 gas emissions associated with the full lifecycle of ar-
16 tificial intelligence, including effects and impacts as-
17 sociated with—

18 (A) hardware needed for artificial intel-
19 ligence, including the extraction of raw mate-
20 rials, manufacturing, electronic waste, and
21 transportation between all stages associated
22 with that hardware;

23 (B) the design, development, deployment,
24 and use of artificial intelligence models; and

1 (C) the operation of artificial intelligence
 2 data centers to power artificial intelligence, in-
 3 cluding effects relating to—

4 (i) energy infrastructure, including
 5 new or existing grid infrastructure, behind-
 6 the-meter primary onsite power sources,
 7 and backup onsite power sources;

8 (ii) water use, high-temperature water
 9 discharge, and the use of chemical
 10 biocides;

11 (iii) land use for artificial intelligence
 12 data centers and related energy infrastruc-
 13 ture, particularly with respect to scenic,
 14 historical, and cultural landscapes and
 15 units of the National Park System or loca-
 16 tions included on the National Register of
 17 Historic Places; and

18 (iv) cooling systems and other infra-
 19 structure.

20 (2) DESIGN AND LOCATION.—The effect that
 21 design and deployment decisions for artificial intel-
 22 ligence models and associated artificial intelligence
 23 data centers have on the impacts described in para-
 24 graph (1), including design and deployment deci-
 25 sions with respect to—

- 1 (A) the artificial intelligence model to be
- 2 used;
- 3 (B) hardware;
- 4 (C) location;
- 5 (D) energy mix;
- 6 (E) behind-the-meter generation;
- 7 (F) the use of power purchase agreements;
- 8 (G) demand flexibility;
- 9 (H) cooling system methodology; and
- 10 (I) artificial intelligence data center user
- 11 ownership and leasing arrangements.

12 (3) DISASTER RESILIENCE.—The impacts of ar-
13 tificial intelligence data centers on disaster resil-
14 ience, including with respect to local water and en-
15 ergy stress during extreme weather events.

16 (4) POSITIVE IMPACTS.—The potential positive
17 environmental and energy-related impacts associated
18 with applications of artificial intelligence, which may
19 include optimizing systems for energy efficiency, de-
20 veloping renewable energy, advancing planetary sys-
21 tems research, enabling discovery of new materials,
22 and automatically monitoring environmental
23 changes.

24 (5) NEGATIVE IMPACTS.—The negative environ-
25 mental and energy-related impacts associated with

1 applications of artificial intelligence and related in-
 2 frastructure, which may include direct impacts from
 3 data center construction and operation, higher local
 4 energy costs, rebound effects, behavioral impacts,
 5 and accelerating high-pollution activities, such as
 6 fossil fuel extraction.

7 (6) UPDATED STUDY RESULTS.—The results of
 8 the updated data center study carried out under sec-
 9 tion 453(e)(2) of the Energy Independence and Se-
 10 curity Act of 2007 (42 U.S.C. 17112(e)(2)).

11 (7) OTHER ENVIRONMENTAL AND ENERGY-RE-
 12 LATED IMPACTS.—Other environmental and energy-
 13 related impacts, as determined by the Administrator,
 14 in consultation with the heads of Federal agencies
 15 described in subsection (a).

16 (c) PUBLIC INPUT.—

17 (1) PUBLIC COMMENT REQUIRED.—In con-
 18 ducting the study required under subsection (a), the
 19 Administrator shall solicit and consider public com-
 20 ments.

21 (2) PUBLIC HEARINGS.—Not later than 1 year
 22 after the date of enactment of this Act, the Adminis-
 23 trator shall convene public hearings with respect to
 24 the environmental and energy-related impacts of ar-
 25 tificial intelligence and related infrastructure in each

1 region of the Environmental Protection Agency to
2 capture unique regional considerations.

3 **SEC. 5. ARTIFICIAL INTELLIGENCE ENVIRONMENTAL AND**
4 **ENERGY-RELATED IMPACTS CONSORTIUM.**

5 (a) IN GENERAL.—The Director of the National In-
6 stitute of Standards and Technology shall, in consultation
7 with the Administrator, the Secretary of Energy, and such
8 others as the Director considers appropriate, convene a
9 consortium of stakeholders, including members from In-
10 dian Tribes, units of local government, academia, civil so-
11 ciety, and industry, to identify the future measurements,
12 methodologies, standards, and other appropriate needs, in
13 order to measure and report the full range of environ-
14 mental and energy-related impacts of artificial intel-
15 ligence.

16 (b) LOCATION.—The Director may determine the lo-
17 cation of the consortium within the National Institute of
18 Standards and Technology.

19 (c) GOALS.—The goals of the consortium shall in-
20 clude the following:

21 (1) Facilitating consistent, comparable report-
22 ing on the environmental impacts of the full lifecycle
23 of artificial intelligence models and artificial intel-
24 ligence systems.

1 (2) According to technical feasibility, the devel-
 2 opment or cataloging of open-source software and
 3 hardware tools and other resources designed to fa-
 4 cilitate the measurement of environmental impacts
 5 of artificial intelligence models and artificial intel-
 6 ligence systems.

7 (3) Providing recommendations on how to miti-
 8 gate the negative environmental impacts and deploy
 9 the positive use cases, of artificial intelligence.

10 (d) COMPOSITION.—The consortium shall—

11 (1) be composed of representatives with equal
 12 representation between each stakeholder group; and

13 (2) include at least 3 representatives each
 14 from—

15 (A) geographically distinct Tribal commu-
 16 nities within which artificial intelligence data
 17 centers reside; and

18 (B) geographically distinct cities or coun-
 19 ties within which artificial intelligence data cen-
 20 ters reside.

1 **SEC. 6. SYSTEM FOR REPORTING OF ENVIRONMENTAL AND**
2 **ENERGY-RELATED IMPACTS OF ARTIFICIAL**
3 **INTELLIGENCE.**

4 (a) DEFINITION OF COVERED ENTITY.—In this sec-
5 tion, the term “covered entity” means an entity that oper-
6 ates an artificial intelligence data center.

7 (b) REPORTS TO EPA.—A covered entity shall annu-
8 ally submit to the Administrator a report that describes
9 the full range of environmental impacts of the artificial
10 intelligence data centers of the relevant entity in accord-
11 ance with this section.

12 (c) REPORT REQUIREMENTS.—

13 (1) IN GENERAL.—The Administrator, in con-
14 sultation with the Director of the National Institute
15 of Standards and Technology, the Secretary of En-
16 ergy, the consortium convened under section 5, and
17 such other entities as the Administrator considers
18 appropriate, shall develop requirements for covered
19 entities to report under subsection (b) the full range
20 of environmental impacts of artificial intelligence
21 data centers, which shall—

22 (A) include guidelines on how to calculate
23 and report—

24 (i) the resource consumption and in-
25 tensity with respect to energy use, includ-
26 ing electricity use and capacity, resource

1 mix, power sourced from the grid, power
2 sourced from on-site generation, power
3 sourced from backup systems, power usage
4 effectiveness, performance per watt, energy
5 reuse, and carbon intensity per task;

6 (ii) the resource consumption and in-
7 tensity with respect to water use;

8 (iii) local air and water pollution;

9 (iv) electronic waste associated with
10 the full lifecycle of artificial intelligence
11 models and hardware;

12 (v) local noise and light pollution im-
13 pacts; and

14 (vi) other positive and negative im-
15 pacts of artificial intelligence use, as deter-
16 mined by the Administrator;

17 (B) require sufficient detail to allow the
18 Administrator to verify the accuracy and com-
19 pleteness of the submission; and

20 (C) require reports to be prepared in a
21 manner that enables public disclosure under
22 subsection (d).

23 (2) PUBLIC COMMENT.—Before finalizing the
24 requirements under paragraph (1), the Adminis-

1 trator shall solicit comments from the public on a
2 draft version of the requirements.

3 (3) PUBLICATION.—The Administrator shall
4 make available to the public all requirements devel-
5 oped under paragraph (1).

6 (d) AVAILABILITY.—The Administrator shall, to the
7 maximum extent practicable, make the information re-
8 ported pursuant to subsection (b) available on a publicly
9 available website, except for any information that is ex-
10 empt from disclosure pursuant to section 552(b)(4) of title
11 5, United States Code.

12 (e) ENFORCEMENT.—If a covered entity fails to com-
13 ply with the reporting requirements under this section, the
14 Administrator shall seek corrective action and, if no re-
15 ports under subsection (b) are submitted within 6 months
16 of the date on which a report was due, may issue an ad-
17 ministrative penalty in an amount determined by the Ad-
18 ministrators that is based on—

19 (1) the total size of the applicable facilities of
20 the covered entity for which reports have not been
21 submitted; and

22 (2) the length of noncompliance.

23 (f) SAVINGS PROVISION.—Nothing in this section
24 abridges, alters, or modifies the obligations of the Admin-
25 istrator to disclose information pursuant to any other ap-

1 plicable law, including section 552 of title 5, United States
2 Code (commonly known as the “Freedom of Information
3 Act”).

4 **SEC. 7. REPORT TO CONGRESS.**

5 After the Director of the National Institute of Stand-
6 ards and Technology convenes the consortium under sec-
7 tion 5 and not later than 2 years after the date on which
8 the Administrator completes development of the require-
9 ments for reporting under section 6(c), the Administrator,
10 the Secretary of Energy, and the Director of the National
11 Institute of Standards and Technology shall jointly submit
12 to Congress a report detailing the following:

13 (1) The main findings of the consortium con-
14 vened under section 5.

15 (2) A description of the information reported
16 under section 6.

17 (3) Recommendations for legislative or adminis-
18 trative action to mitigate the negative impacts of ar-
19 tificial intelligence.

20 (4) Recommended use-cases for artificial intel-
21 ligence in environmental applications based on net-
22 benefit assessments.

○