118TH CONGRESS
2D SESSION
H. R. 7197

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

IN THE HOUSE OF REPRESENTATIVES

FEBRUARY 1, 2024

Ms. ESHOO (for herself and Mr. BEYER) introduced the following bill; which was referred to the Committee on Science, Space, and Technology, and in addition to the Committee on Energy and Commerce, for a period to be subsequently determined by the Speaker, in each case for consideration of such provisions as fall within the jurisdiction of the committee concerned

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A BILL

To require the Administrator of the Environmental Protection Agency to carry out a study on the environmental impacts of artificial intelligence, to require the Director of the National Institute of Standards and Technology to convene a consortium on such environmental impacts, and to require the Director to develop a voluntary 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,*

3 **SECTION 1. SHORT TITLE.**

4 This Act may be cited as the "Artificial Intelligence

5 Environmental Impacts Act of 2024".

6 **SEC. 2. FINDINGS.**

7 Congress finds the following:

8 (1) Multiple estimates indicate that the amount

9 of computational power being used for artificial in-

10 telligence applications has increased rapidly over the

11 last decade. A 2022 estimate suggested that the

12 number of computational operations being used to

13 create each of the largest artificial intelligence mod-

14 els is currently doubling every 10 months.

15 (2) Accelerating use of artificial intelligence has

16 the potential to greatly increase energy consumption

17 due to the power utilization of computer hardware

18 required for training and operating artificial intel-

19 ligence models, despite ongoing efficiency gains in

20 both artificial intelligence models and hardware.

21 (3) Rapid growth in data center infrastructure,

22 including cooling systems and backup power equip-

23 ment, supporting artificial intelligence and other

24 computing-intensive technologies contributes to pol-

25 lution, water consumption, and land-use changes.

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

6   (5) Yearly increases in electronic waste (known
7   as "e-waste") pose increasing environmental and
8   health risks, and will likely be exacerbated by out-
9   dated and discarded hardware used for artificial in-
10   telligence and other computing-intensive tech-
11   nologies.

12   (6) Many applications of artificial intelligence
13   can have direct and indirect positive environmental
14   impacts. Positive environmental impacts may include
15   optimizing systems for energy efficiency, developing
16   renewable energy, advancing planetary systems re-
17   search, enabling discovery of new materials, and
18   automatically monitoring environmental changes.
19   However, artificial intelligence applications may also
20   have direct and indirect negative environmental im-
21   pacts, including rebound effects, behavioral impacts,
22   and accelerating high-pollution activities.

23   (7) Estimates of the current and future envi-
24   ronmental impacts of artificial intelligence are cur-
25   rently uncertain.

1   (8) Negative environmental effects may have a
2   disparate impact across different regions and com-
3   munities.

4   (9) Various options exist to reduce the negative
5   environmental impacts of artificial intelligence, in-
6   cluding using more efficient models, hardware, and
7   data centers, using renewable energy, and examining
8   the impacts of artificial intelligence applications.

9   (10) Promoting transparency and environ-
10 mental protection measures may help mitigate nega-
11 tive environmental impacts of the rapid growth in
12 artificial intelligence use, while promoting artificial
13 intelligence uses with net positive environmental im-
14 pacts.

15 **SEC. 3. DEFINITIONS.**

16 In this Act:

17 (1) ARTIFICIAL INTELLIGENCE.—The term "ar-
18 tificial intelligence" has the meaning given such
19 term in section 5002 of the National Artificial Intel-
20 ligence Initiative Act of 2020 (15 U.S.C. 9401).

21 (2) ARTIFICIAL INTELLIGENCE MODEL.—The
22 term "artificial intelligence model" means a compo-
23 nent of an information system that implements arti-
24 ficial intelligence technology and uses computational,

1 statistical, or machine-learning techniques to

2 produce outputs from a given set of inputs.

3   (3) ARTIFICIAL INTELLIGENCE SYSTEM.—The

4 term "artificial intelligence system" means any data

5 system, software, hardware, application, tool, or util-

6 ity that operates in whole or in part using artificial

7 intelligence.

8   (4) VOLUNTARY REPORTING ENTITY.—The

9 term "voluntary reporting entity" means any com-

10 pany, organization, or other entity that—

11   (A) develops or operates an artificial intel-

12   ligence system; and

13   (B) chooses to participate in the reporting

14   system developed under section 6.

15 **SEC. 4. STUDY ON ENVIRONMENTAL IMPACTS OF ARTIFI-**

16   **CIAL INTELLIGENCE.**

17 (a) IN GENERAL.—Not later than 2 years after the

18 date of enactment of this Act, the Administrator of the

19 Environmental Protection Agency, in collaboration with

20 the Secretary of Energy, the Director of the National In-

21 stitute of Standards and Technology, and the Director of

22 the Office of Science and Technology Policy, shall carry

23 out, and submit to Congress and make publicly available

24 a report describing the results of, a comprehensive study

25 on the environmental impacts of artificial intelligence.

1   (b) REQUIREMENTS.—The study required under sub-

2 section (a) shall include an examination of—

3   (1) the energy consumption and pollution asso-

4   ciated with the full lifecycle of artificial intelligence

5   models, including the design, development, deploy-

6   ment, and use of those artificial intelligence models;

7   (2) the energy consumption and pollution asso-

8   ciated with the full lifecycle of artificial intelligence

9   hardware, including the extraction of raw materials,

10   manufacturing, and electronic waste associated with

11   that hardware;

12   (3) the energy and water consumption for the

13   cooling of the data centers used in the design, devel-

14   opment, deployment, and use of artificial intelligence

15   models;

16   (4) how choices made during the design, devel-

17   opment, deployment, and use of artificial intelligence

18   models, including the efficiency of the artificial intel-

19   ligence models used, the location, power source, and

20   design of data centers used, and the type of hard-

21   ware used, impact the resulting environmental im-

22   pacts;

23   (5) potential environmental impacts that could

24   be acute at local scales, which may include added

25   power loads that create grid stress, water with-

1 drawals that create water stress, or local noise im-

2 pacts;

3   (6) the positive environmental impacts associ-

4 ated with applications of artificial intelligence, which

5 may include optimizing systems for energy effi-

6 ciency, developing renewable energy, advancing plan-

7 etary systems research, enabling discovery of new

8 materials, and automatically monitoring environ-

9 mental changes;

10   (7) the negative environmental impacts associ-

11 ated with applications of artificial intelligence, which

12 may include rebound effects, behavioral impacts, and

13 accelerating high-pollution activities;

14   (8) disparate impacts in the negative environ-

15 mental impacts of artificial intelligence;

16   (9) other environmental impacts, as determined

17 by the Administrator of the Environmental Protec-

18 tion Agency; and

19   (10) the results of the updated data center

20 study carried out under section 453(e)(2) of the En-

21 ergy Independence and Security Act of 2007 (42

22 U.S.C. 17112(e)(2)).

23 (c) PUBLIC COMMENT REQUIRED.—In conducting

24 the study required under subsection (a), the Administrator

1 of the Environmental Protection Agency shall solicit and

2 consider public comments.

SEC. 5. ARTIFICIAL INTELLIGENCE ENVIRONMENTAL IM-

PACTS CONSORTIUM.

5 (a) IN GENERAL.—The Director of the National In-

6 stitute of Standards and Technology shall, in consultation

7 with the Administrator of the Environmental Protection

8 Agency, the Secretary of Energy, and such others as the

9 Director considers appropriate, convene a consortium of

10 stakeholders, including members from academia, civil soci-

11 ety, 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 impacts of artificial intelligence.

15 (b) LOCATION.—The Director may determine the lo-

16 cation of the consortium within the National Institute of

17 Standards and Technology.

18 (c) GOALS.—The goals of the consortium shall in-

19 clude the following:

20 (1) Facilitating consistent, comparable report-

21 ing on the environmental impacts of the full lifecycle

22 of artificial intelligence models, systems, and hard-

23 ware.

24 (2) According to technical feasibility, the devel-

25 opment or cataloging of open source software and

1 hardware tools and other resources designed to fa-
2 cilitate the measurement of environmental impacts
3 of artificial intelligence models, systems, and hard-
4 ware.

5 (3) Providing recommendations on how to miti-
6 gate the negative, and promote the positive, environ-
7 mental impacts of artificial intelligence.

SEC. 6. REPORTING SYSTEM FOR VOLUNTARY REPORTING

OF ENVIRONMENTAL IMPACTS OF ARTIFI-

CIAL INTELLIGENCE.

11 (a) VOLUNTARY REPORTING SYSTEM.—The Director
12 of the National Institute of Standards and Technology
13 shall, in consultation with the Administrator of the Envi-
14 ronmental Protection Agency, the Secretary of Energy,
15 the consortium convened under section 5, and such others
16 as the Director considers appropriate, develop a system
17 for voluntary reporting by voluntary reporting entities of
18 the full range of environmental impacts of artificial intel-
19 ligence.

20 (b) GUIDELINES.—

21 (1) IN GENERAL.—The Director shall develop
22 guidelines for voluntary reporting entities on how to
23 participate in the voluntary reporting system devel-
24 oped under subsection (a). Such guidelines may in-
25 clude guidelines on how to calculate and report en-

1 ergy consumption, water consumption, pollution, and

2 electronic-waste associated with the full lifecycle of

3 artificial intelligence models and hardware, as well

4 as other positive and negative impacts of artificial

5 intelligence use, as determined by the Director.

6   (2) PUBLIC COMMENTS.—Before finalizing the

7 guidelines under paragraph (1), the Director shall

8 solicit comments from the public on a draft version

9 of the guidelines.

10 (c) AVAILABILITY.—The Director shall, to the max-

11 imum extent practicable and with consideration to privi-

12 leged business information, make submissions to the vol-

13 untary reporting system under subsection (a) available on

14 a public website.

SEC. 7. REPORT TO CONGRESS.

16   Not later than 4 years after the date of the enact-

17 ment of this Act, the Administrator of the Environmental

18 Protection Agency, the Secretary of Energy, and the Di-

19 rector of the National Institute of Standards and Tech-

20 nology shall jointly submit to Congress a report detailing

21 the following:

22   (1) The main findings of the consortium con-

23   vened under section 5.

24   (2) A description of the reporting system cre-

25   ated under section 6.

1   (3) Recommendations for legislative or adminis-
2   trative action to mitigate the negative and promote
3   the positive environmental impacts of artificial intel-
4   ligence.

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