

118TH CONGRESS
2D SESSION

S. 4896

To authorize the National Science Foundation to support research on the development of artificial intelligence-enabled efficient technologies.

IN THE SENATE OF THE UNITED STATES

JULY 31, 2024

Mr. WELCH (for himself and Mr. LUJÁN) introduced the following bill; which was read twice and referred to the Committee on Commerce, Science, and Transportation

A BILL

To authorize the National Science Foundation to support research on the development of artificial intelligence-enabled efficient technologies.

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 “AI Innovation and De-
5 velopment for Efficiency Act of 2024” or the “AIDE Act
6 of 2024”.

1 **SEC. 2. NATIONAL SCIENCE FOUNDATION SUPPORT OF RE-**
2 **SEARCH ON IMPACTS OF ARTIFICIAL INTEL-**
3 **LIGENCE ON EFFICIENT TECHNOLOGIES.**

4 (a) DEFINITIONS.—In this section:

5 (1) ARTIFICIAL INTELLIGENCE.—The term “ar-
6 tificial intelligence” means a machine-based system
7 that can, for a given set of human-defined objectives,
8 make predictions, recommendations or decisions in-
9 fluencing real or virtual environments. Artificial in-
10 telligence systems use machine and human-based in-
11 puts to—

12 (A) perceive real and virtual environments;

13 (B) abstract such perceptions into models
14 through analysis in an automated manner; and

15 (C) use model inference to formulate op-
16 tions for information or action.

17 (2) DIRECTOR.—The term “Director” means
18 the Director of the National Science Foundation.

19 (3) EFFICIENT TECHNOLOGY.—The term “effi-
20 cient technology” means a technology that critically
21 considers minimizing emissions, securing clean air
22 and water, building climate and community resil-
23 iency, promoting healthy food, and other sustain-
24 ability pillars.

25 (4) EPSCoR INSTITUTION.—The term
26 “EPSCoR institution” means an institution of high-

1 er education, nonprofit organization, or other insti-
2 tution located in a jurisdiction eligible to participate
3 in the Established Program to Stimulate Competi-
4 tive Research under section 113 of the National
5 Science Foundation Authorization Act of 1988 (42
6 U.S.C. 1862g).

7 (b) SUPPORT OF RESEARCH.—

8 (1) IN GENERAL.—The Director, in consulta-
9 tion with the heads of other relevant Federal agen-
10 cies, shall support merit-reviewed and competitively
11 awarded research on the development or expansion
12 of artificial intelligence-enabled efficient tech-
13 nologies. Such research projects may include—

14 (A) development of artificial intelligence-
15 enabled efficient technologies, including in the
16 areas of—

- 17 (i) smart grids;
18 (ii) mobility or transportation;
19 (iii) agriculture;
20 (iv) waste reduction;
21 (v) emissions reduction; and
22 (vi) resource conservation;

23 (B) assessments of the feasibility of safe
24 and reliable adoption of artificial intelligence-

1 enabled efficient technologies into critical infra-
2 structure; and

3 (C) research on the effectiveness of ex-
4 panding public understanding, development, or
5 adoption of artificial intelligence-enabled effi-
6 cient technologies.

7 (2) CONSIDERATION FOR CERTAIN FOCUS.—In
8 carrying out the program described in paragraph
9 (1), the Director shall give particular consideration
10 to projects that include efficient technology that fo-
11 cuses on—

12 (A) building new smart technologies to
13 support critical infrastructure efficiency;

14 (B) minimizing pollution and greenhouse
15 gas emissions from critical infrastructure sec-
16 tors; and

17 (C) upgrading existing constructions and
18 infrastructure to be more efficient.

19 (3) IMPACT ASSESSMENTS.—Each research
20 project supported by the Director under paragraph
21 (1) shall include an impact assessment conducted by
22 the researcher that evaluates the energy consump-
23 tion of the artificial intelligence-enabled efficient
24 technology.

1 (4) CONSIDERATION.—In supporting research
2 under this subsection, the Director shall give special
3 consideration to research conducted at EPSCoR in-
4 stitutions.

5 (c) REPORTS.—

6 (1) FINDINGS AND RECOMMENDATIONS.—Not
7 later than 18 months after the date of enactment of
8 this Act, the Director shall report to the Committee
9 on Commerce, Science, and Transportation of the
10 Senate, the Subcommittee on Commerce, Justice,
11 Science, and Related Agencies of the Committee on
12 Appropriations of the Senate, the Committee on
13 Science, Space, and Technology of the House of
14 Representatives, and the Subcommittee on Com-
15 merce, Justice, Science, and Related Agencies of the
16 Committee on Appropriations of the House of Rep-
17 resentatives—

18 (A) the Director’s findings with respect to
19 the feasibility for research opportunities, includ-
20 ing with relevant Federal agencies and private
21 sector critical infrastructure providers, to im-
22 prove the development and integration of artifi-
23 cial intelligence-enabled efficient technologies;
24 and

1 (B) any recommendations of the Director
2 that could facilitate and improve communica-
3 tion and coordination among the National
4 Science Foundation, relevant Federal agencies,
5 and the private sector to effectively develop and
6 implement artificial intelligence-enabled effi-
7 cient technologies.

8 (2) RESULTS OF RESEARCH.—Not later than 4
9 years after the date of enactment of this Act, the
10 Director shall report to the Committee on Com-
11 merce, Science, and Transportation of the Senate,
12 the Subcommittee on Commerce, Justice, Science,
13 and Related Agencies of the Committee on Appro-
14 priations of the Senate, the Committee on Science,
15 Space, and Technology of the House of Representa-
16 tives, and the Subcommittee on Commerce, Justice,
17 Science, and Related Agencies of the Committee on
18 Appropriations of the House of Representatives on
19 the results of the research supported under this sec-
20 tion.

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