

118TH CONGRESS  
2D SESSION

**S.** \_\_\_\_\_

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

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IN THE SENATE OF THE UNITED STATES

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Mr. WELCH (for himself and Mr. LUJÁN) introduced the following bill; which was read twice and referred to the Committee on \_\_\_\_\_

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## 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”.

7 **SEC. 2. NATIONAL SCIENCE FOUNDATION SUPPORT OF RE-**  
8 **SEARCH ON IMPACTS OF ARTIFICIAL INTEL-**  
9 **LIGENCE ON EFFICIENT TECHNOLOGIES.**

10 (a) DEFINITIONS.—In this section:

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

8                   (A) perceive real and virtual environments;

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

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

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

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

21           (4) EPSCoR INSTITUTION.—The term  
22           “EPSCoR institution” means an institution of high-  
23           er education, nonprofit organization, or other insti-  
24           tution located in a jurisdiction eligible to participate  
25           in the Established Program to Stimulate Competi-

1       tive Research under section 113 of the National  
2       Science Foundation Authorization Act of 1988 (42  
3       U.S.C. 1862g).

4       (b) SUPPORT OF RESEARCH.—

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

11           (A) development of artificial intelligence-  
12      enabled efficient technologies, including in the  
13      areas of—

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

20           (B) assessments of the feasibility of safe  
21      and reliable adoption of artificial intelligence-  
22      enabled efficient technologies into critical infra-  
23      structure; and

24           (C) research on the effectiveness of ex-  
25      panding public understanding, development, or

1 adoption of artificial intelligence-enabled effi-  
2 cient technologies.

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

8 (A) building new smart technologies to  
9 support critical infrastructure efficiency;

10 (B) minimizing pollution and greenhouse  
11 gas emissions from critical infrastructure sec-  
12 tors; and

13 (C) upgrading existing constructions and  
14 infrastructure to be more efficient.

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

21 (4) CONSIDERATION.—In supporting research  
22 under this subsection, the Director shall give special  
23 consideration to research conducted at EPSCoR in-  
24 stitutions.

25 (c) REPORTS.—

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

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

20           (B) any recommendations of the Director  
21 that could facilitate and improve communica-  
22 tion and coordination among the National  
23 Science Foundation, relevant Federal agencies,  
24 and the private sector to effectively develop and

1           implement artificial intelligence-enabled effi-  
2           cient technologies.

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