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(Original Signature of Member)

115TH CONGRESS
2D SESSION

H. R. _____

To authorize the Department of Energy to conduct collaborative research with the Department of Veterans Affairs in order to improve healthcare services for veterans in the United States, and for other purpose.

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IN THE HOUSE OF REPRESENTATIVES

M__. _____ introduced the following bill; which was referred to the Committee on _____

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A BILL

To authorize the Department of Energy to conduct collaborative research with the Department of Veterans Affairs in order to improve healthcare services for veterans in the United States, and for other purpose.

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 "Department of Energy

5 Veterans' Health Initiative Act".

6   **SEC. 2. DEFINITIONS.**

7   In this Act:

1   (1) DEPARTMENT.—The term "Department"
2   means the Department of Energy.

3   (2) NATIONAL LABORATORY.—The term "Na-
4   tional Laboratory" has the meaning given that term
5   in section 2 of the Energy Policy Act of 2005 (42
6   U.S.C. 15801).

7   (3) SECRETARY.—The term "Secretary" means
8   the Secretary of Energy.

9 **SEC. 3. PURPOSES.**

10   The purposes of this Act are to advance Department

11 of Energy expertise in artificial intelligence and high per-

12 formance computing in order to improve health outcomes

13 for veteran populations by—

14   (1) supporting basic research through the appli-
15   cation of artificial intelligence, high performance
16   computing, modeling and simulation, machine learn-
17   ing, and large scale data analytics to identify and
18   solve outcome-defined challenges in the health
19   sciences;

20   (2) maximizing the impact of health and
21   genomics data provided by the Department of Vet-
22   erans Affairs, as well as other sources, on science,
23   innovation, and health care outcomes through the
24   use and advancement of artificial intelligence and

1 high-performance computing capabilities of the De-
2 partment of Energy;

3 (3) promoting collaborative research through
4 the establishment of partnerships to improve data
5 sharing between Federal agencies, National Labora-
6 tories, institutions of higher education, and non-
7 profit institutions;

8 (4) establishing multiple scientific computing
9 user facilities to house and provision available data
10 to foster transformational outcomes; and

11 (5) driving the development of technology to im-
12 prove artificial intelligence, high performance com-
13 puting, and networking relevant to mission applica-
14 tions of the Department of Energy, including mod-
15 eling, simulation, machine learning, and advanced
16 data analytics.

17 **SEC. 4. DEPARTMENT OF ENERGY VETERANS HEALTH RE-**
18 **SEARCH AND DEVELOPMENT.**

19 (a) IN GENERAL.—The Secretary shall establish and
20 carry out a research program in artificial intelligence and
21 high performance computing, focused on the development
22 of tools to solve big data challenges associated with vet-
23 eran's healthcare, and to support the efforts of the De-
24 partment of Veterans Affairs to identify potential health
25 risks and challenges utilizing data on long term

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1 healthcare, health risks, and genomic data collected from

2 veteran populations. The Secretary shall carry out this

3 program through a competitive, merit-reviewed process,

4 and consider applications from National Laboratories, in-

5 stitutions of higher education, multi-institutional collabo-

6 rations, and other appropriate entities.

7 (b) PROGRAM COMPONENTS.—In carrying out the

8 program established under subsection (a), the Secretary

9 may—

10 (1) conduct basic research in modeling and sim-

11 ulation, machine learning, large scale data analytics,

12 and predictive analysis in order to develop novel or

13 optimized algorithms for prediction of disease treat-

14 ment and recovery;

15 (2) develop methods to accommodate large data

16 sets with variable quality and scale, and to provide

17 insight and models for complex systems;

18 (3) develop new approaches and maximize the

19 use of algorithms developed through artificial intel-

20 ligence, machine learning, data analytics, natural

21 language processing, modeling and simulation, and

22 develop new algorithms suitable for high perform-

23 ance computing systems and large biomedical data

24 sets;

1   (4) advance existing and construct new data en-

2   claves capable of securely storing data sets provided

3   by the Department of Veterans Affairs, Department

4   of Defense, and other sources; and

5   (5) promote collaboration and data sharing be-

6   tween National Laboratories, research entities, and

7   user facilities of the Department by providing the

8   necessary access and secure data transfer capabili-

9   ties.

10 (c) COORDINATION.—In carrying out the program re-

11 quired under subsection (a), the Secretary is authorized

12 to—

13   (1) enter into a memorandum of understanding

14   with the Department of Veterans Affairs and other

15   entities in order to maximize the effectiveness of De-

16   partment of Energy research and development to im-

17   prove veterans' healthcare; and

18   (2) consult with the Department of Veterans

19   Affairs and other Federal agencies as appropriate.

20 (d) REPORT.—Not later than two years after the date

21 of the enactment of this Act, the Secretary shall submit

22 to the Committee on Science, Space, and Technology and

23 the Committee on Veterans' Affairs of the House of Rep-

24 resentatives, and the Committee on Energy and Natural

1 Resources and the Committee on Veterans' Affairs of the

2 Senate, a report detailing the effectiveness of—

3   (1) the interagency coordination between each

4 Federal agency involved in the research program

5 carried out under this section;

6   (2) collaborative research achievements of the

7 program; and

8   (3) potential opportunities to expand the tech-

9 nical capabilities of the Department.

10 (e) FUNDING.—The Secretary of Veterans Affairs

11 shall devote $27,000,000 to carry out this section for fis-

12 cal years 2019 and 2020, subject to the availability of ap-

13 propriations, to come from amounts made available for

14 medical and prosthetic research. This section shall be car-

15 ried out using funds otherwise appropriated by law after

16 the date of enactment of this Act.

17 **SEC. 5. ARTIFICIAL INTELLIGENCE, DATA ANALYTICS, AND**

18   **COMPUTATIONAL RESEARCH PILOT PRO-**

19   **GRAM.**

20 (a) IN GENERAL.—The Secretary shall carry out a

21 pilot program to develop tools for big data analytics by

22 utilizing data sets generated by Federal agencies, institu-

23 tions of higher education, nonprofit research organiza-

24 tions, and industry in order to advance artificial intel-

25 ligence technologies to solve complex, big data challenges.

1 The Secretary shall carry out this program through a com-

2 petitive, merit-reviewed process, and consider applications

3 from National Laboratories, institutions of higher edu-

4 cation, multi-institutional collaborations, and other appro-

5 priate entities.

6 (b) PROGRAM COMPONENTS.—In carrying out the

7 pilot program established under subsection (a), the Sec-

8 retary may—

9 (1) establish a cross-cutting research initiative

10 to prevent duplication and coordinate research ef-

11 forts in artificial intelligence and data analytics

12 across the Department;

13 (2) conduct basic research in modeling and sim-

14 ulation, artificial intelligence, machine learning,

15 large scale data analytics, natural language proc-

16 essing, and predictive analysis in order to develop

17 novel or optimized predictive algorithms suitable for

18 high performance computing systems and large bio-

19 medical data sets;

20 (3) develop multivariate optimization models to

21 accommodate large data sets with variable quality

22 and scale in order to visualize complex systems;

23 (4) establish multiple scientific computing user

24 facilities to serve as data enclaves capable of se-

25 curely storing data sets created by Federal agencies,

1 institutions of higher education, nonprofit organiza-

2 tions, or industry at National Laboratories; and

3 (5) promote collaboration and data sharing be-

4 tween National Laboratories, research entities, and

5 user facilities of the Department by providing the

6 necessary access and secure data transfer capabili-

7 ties.

8 (c) REPORT.—Not later than two years after the date

9 of the enactment of this Act, the Secretary shall submit

10 to the Committee on Science, Space, and Technology of

11 the House of Representatives and the Committee on En-

12 ergy and Natural Resources of the Senate a report evalu-

13 ating the effectiveness of the pilot program under sub-

14 section (a), including basic research discoveries achieved

15 in the course of the program and potential opportunities

16 to expand the technical capabilities of the Department

17 through the development of artificial intelligence and data

18 analytics technologies.

19 (d) FUNDING.—For purposes of carrying out this

20 section, the Secretary of Energy shall devote $52,000,000

21 to carry out this section, which shall include $26,000,000

22 for each fiscal years 2019 and 2020, subject to the avail-

23 ability of appropriations. This section shall be carried out

24 using funds otherwise appropriated by law after the date

25 of enactment of this Act.

1 **SEC. 6. SPENDING LIMITATION.**

2   No additional funds are authorized to be appro-

3 priated to carry out this Act and the amendments made

4 by this Act, and this Act and such amendments shall be

5 carried out using amounts otherwise available for such

6 purpose.