

# Union Calendar No. 762

115<sup>TH</sup> CONGRESS  
2<sup>D</sup> SESSION

# H. R. 6398

**[Report No. 115-974, Part I]**

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 purposes.

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## IN THE HOUSE OF REPRESENTATIVES

JULY 17, 2018

Mr. NORMAN (for himself, Mr. DUNN, Mr. HIGGINS of Louisiana, Mr. SMITH of Texas, Mr. LUCAS, Mr. WEBER of Texas, Mr. KNIGHT, Mr. ROHR-ABACHER, Mr. HULTGREN, Mr. BABIN, Mrs. COMSTOCK, Mr. ABRAHAM, Mr. BIGGS, Mr. MARSHALL, and Mrs. LESKO) introduced the following bill; which was referred to the Committee on Science, Space, and Technology, and in addition to the Committee on Veterans' Affairs, 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

SEPTEMBER 25, 2018

Additional sponsors: Mr. LIPINSKI, Mr. BILIRAKIS, Mr. GALLAGHER, Ms. ROSEN, Mr. JOHNSON of Ohio, and Mr. JONES

SEPTEMBER 25, 2018

Reported from the Committee on Science, Space, and Technology with an amendment

[Strike out all after the enacting clause and insert the part printed in *italic*]

SEPTEMBER 25, 2018

Committee on Veterans' Affairs discharged; committed to the Committee of the Whole House on the State of the Union and ordered to be printed

[For text of introduced bill, see copy of bill as introduced on July 17, 2018]

# **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 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 “Department of Energy*  
5 *Veterans’ Health Initiative Act”.*

6 **SEC. 2. DEFINITIONS.**

7 *In this Act:*

8 (1) *DEPARTMENT.*—*The term “Department”*  
9 *means the Department of Energy.*

10 (2) *NATIONAL LABORATORY.*—*The term “Na-*  
11 *tional Laboratory” has the meaning given that term*  
12 *in section 2 of the Energy Policy Act of 2005 (42*  
13 *U.S.C. 15801).*

14 (3) *SECRETARY.*—*The term “Secretary” means*  
15 *the Secretary of Energy.*

16 **SEC. 3. PURPOSES.**

17 *The purposes of this Act are to advance Department*  
18 *of Energy expertise in artificial intelligence and high per-*  
19 *formance computing in order to improve health outcomes*  
20 *for veteran populations by—*

21 (1) *supporting basic research through the appli-*  
22 *cation of artificial intelligence, high performance*  
23 *computing, modeling and simulation, machine learn-*  
24 *ing, and large scale data analytics to identify and*  
25 *solve outcome-defined challenges in the health sciences;*

1           (2) *maximizing the impact of health and*  
2           *genomics data provided by the Department of Vet-*  
3           *erans Affairs, as well as other sources, on science, in-*  
4           *novation, and health care outcomes through the use*  
5           *and advancement of artificial intelligence and high-*  
6           *performance computing capabilities of the Depart-*  
7           *ment of Energy;*

8           (3) *promoting collaborative research through the*  
9           *establishment of partnerships to improve data sharing*  
10          *between Federal agencies, National Laboratories, in-*  
11          *stitutions of higher education, and nonprofit institu-*  
12          *tions;*

13          (4) *establishing multiple scientific computing*  
14          *user facilities to house and provision available data*  
15          *to foster transformational outcomes; and*

16          (5) *driving the development of technology to im-*  
17          *prove artificial intelligence, high performance com-*  
18          *puting, and networking relevant to mission applica-*  
19          *tions of the Department of Energy, including mod-*  
20          *eling, simulation, machine learning, and advanced*  
21          *data analytics.*

22 **SEC. 4. DEPARTMENT OF ENERGY VETERANS HEALTH RE-**  
23 **SEARCH AND DEVELOPMENT.**

24          (a) *IN GENERAL.*—*The Secretary shall establish and*  
25 *carry out a research program in artificial intelligence and*

1 *high performance computing, focused on the development of*  
2 *tools to solve big data challenges associated with veteran's*  
3 *healthcare, and to support the efforts of the Department of*  
4 *Veterans Affairs to identify potential health risks and chal-*  
5 *lenges utilizing data on long term healthcare, health risks,*  
6 *and genomic data collected from veteran populations. The*  
7 *Secretary shall carry out this program through a competi-*  
8 *tive, merit-reviewed process, and consider applications from*  
9 *National Laboratories, institutions of higher education,*  
10 *multi-institutional collaborations, and other appropriate*  
11 *entities.*

12 *(b) PROGRAM COMPONENTS.—In carrying out the pro-*  
13 *gram established under subsection (a), the Secretary may—*

14 *(1) conduct basic research in modeling and sim-*  
15 *ulation, machine learning, large scale data analytics,*  
16 *and predictive analysis in order to develop novel or*  
17 *optimized algorithms for prediction of disease treat-*  
18 *ment and recovery;*

19 *(2) develop methods to accommodate large data*  
20 *sets with variable quality and scale, and to provide*  
21 *insight and models for complex systems;*

22 *(3) develop new approaches and maximize the*  
23 *use of algorithms developed through artificial intel-*  
24 *ligence, machine learning, data analytics, natural*  
25 *language processing, modeling and simulation, and*

1        *develop new algorithms suitable for high performance*  
2        *computing systems and large biomedical data sets;*

3            (4) *advance existing and construct new data en-*  
4        *claves capable of securely storing data sets provided*  
5        *by the Department of Veterans Affairs, Department of*  
6        *Defense, and other sources; and*

7            (5) *promote collaboration and data sharing be-*  
8        *tween National Laboratories, research entities, and*  
9        *user facilities of the Department by providing the nec-*  
10       *essary access and secure data transfer capabilities.*

11        (c) *COORDINATION.*—*In carrying out the program re-*  
12       *quired under subsection (a), the Secretary is authorized*  
13       *to—*

14            (1) *enter into a memorandum of understanding*  
15        *in order to carry out a reimbursable agreement with*  
16        *the Department of Veterans Affairs and other entities*  
17        *in order to maximize the effectiveness of Department*  
18        *of Energy research and development to improve vet-*  
19        *erans' healthcare; and*

20            (2) *consult with the Department of Veterans Af-*  
21        *fairs and other Federal agencies as appropriate.*

22        (d) *REPORT.*—*Not later than two years after the date*  
23       *of the enactment of this Act, the Secretary shall submit to*  
24       *the Committee on Science, Space, and Technology and the*  
25       *Committee on Veterans' Affairs of the House of Representa-*

1 *tives, and the Committee on Energy and Natural Resources*  
2 *and the Committee on Veterans' Affairs of the Senate, a*  
3 *report detailing the effectiveness of—*

4           (1) *the interagency coordination between each*  
5 *Federal agency involved in the research program car-*  
6 *ried out under this section;*

7           (2) *collaborative research achievements of the*  
8 *program; and*

9           (3) *potential opportunities to expand the tech-*  
10 *nical capabilities of the Department.*

11       (e) *FUNDING.—The Secretary of Veterans Affairs shall*  
12 *devote \$27,000,000 to carry out this section during fiscal*  
13 *years 2019 through 2023, subject to the availability of ap-*  
14 *propriations, to come from amounts made available for*  
15 *medical and prosthetic research. This section shall be car-*  
16 *ried out using funds otherwise appropriated by law after*  
17 *the date of enactment of this Act.*

18 **SEC. 5. ARTIFICIAL INTELLIGENCE, DATA ANALYTICS, AND**  
19 **COMPUTATIONAL RESEARCH PILOT PRO-**  
20 **GRAM.**

21       (a) *IN GENERAL.—The Secretary shall carry out a*  
22 *pilot program to develop tools for big data analytics by uti-*  
23 *lizing data sets generated by Federal agencies, institutions*  
24 *of higher education, nonprofit research organizations, and*  
25 *industry in order to advance artificial intelligence tech-*

1 *nologies to solve complex, big data challenges. The Secretary*  
2 *shall carry out this program through a competitive, merit-*  
3 *reviewed process, and consider applications from National*  
4 *Laboratories, institutions of higher education, multi-insti-*  
5 *tutional collaborations, and other appropriate 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 to*  
10 *prevent duplication and coordinate research efforts in*  
11 *artificial intelligence and data analytics across the*  
12 *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 securely*  
25 *storing data sets created by Federal agencies, institu-*



1        *tions of higher education, nonprofit organizations, or*  
2        *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 nec-*  
6        *essary access and secure data transfer capabilities.*

7        *(c) REPORT.—Not later than two years after the date*  
8        *of the enactment of this Act, the Secretary shall submit to*  
9        *the Committee on Science, Space, and Technology of the*  
10       *House of Representatives and the Committee on Energy and*  
11       *Natural Resources of the Senate a report evaluating the ef-*  
12       *fectiveness of the pilot program under subsection (a), in-*  
13       *cluding basic research discoveries achieved in the course of*  
14       *the program and potential opportunities to expand the tech-*  
15       *nical capabilities of the Department through the develop-*  
16       *ment of artificial intelligence and data analytics tech-*  
17       *nologies.*

18       *(d) FUNDING.—For purposes of carrying out this sec-*  
19       *tion, the Secretary of Energy shall devote \$52,000,000 to*  
20       *carry out this section, which shall include \$26,000,000 for*  
21       *each fiscal years 2019 and 2020, subject to the availability*  
22       *of appropriations. This section shall be carried out using*  
23       *funds otherwise appropriated by law after the date of enact-*  
24       *ment of this Act.*

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

2       *No additional funds are authorized to be appropriated*  
3 *to carry out this Act and the amendments made by this*  
4 *Act, and this Act and such amendments shall be carried*  
5 *out using amounts otherwise available for such purpose.*



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