

DEPARTMENT OF ENERGY VETERANS' HEALTH
INITIATIVE ACT

SEPTEMBER 25, 2018.—Committed to the Committee of the Whole House on the
State of the Union and ordered to be printed

Mr. SMITH of Texas, from the Committee on Science, Space, and
Technology, submitted the following

R E P O R T

[To accompany H.R. 6398]

[Including cost estimate of the Congressional Budget Office]

The Committee on Science, Space, and Technology, to whom was referred the bill (H.R. 6398) 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, having considered the same, report favorably thereon with an amendment and recommend that the bill as amended do pass.

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The amendment is as follows:
Strike all after the enacting clause and insert the following:

SECTION 1. SHORT TITLE.

This Act may be cited as the “Department of Energy Veterans’ Health Initiative Act”.

SEC. 2. DEFINITIONS.

In this Act:

- (1) DEPARTMENT.—The term “Department” means the Department of Energy.
- (2) NATIONAL LABORATORY.—The term “National Laboratory” has the meaning given that term in section 2 of the Energy Policy Act of 2005 (42 U.S.C. 15801).
- (3) SECRETARY.—The term “Secretary” means the Secretary of Energy.

SEC. 3. PURPOSES.

The purposes of this Act are to advance Department of Energy expertise in artificial intelligence and high performance computing in order to improve health outcomes for veteran populations by—

- (1) supporting basic research through the application of artificial intelligence, high performance computing, modeling and simulation, machine learning, and large scale data analytics to identify and solve outcome-defined challenges in the health sciences;
- (2) maximizing the impact of health and genomics data provided by the Department of Veterans Affairs, as well as other sources, on science, innovation, and health care outcomes through the use and advancement of artificial intelligence and high-performance computing capabilities of the Department of Energy;
- (3) promoting collaborative research through the establishment of partnerships to improve data sharing between Federal agencies, National Laboratories, institutions of higher education, and nonprofit institutions;
- (4) establishing multiple scientific computing user facilities to house and provision available data to foster transformational outcomes; and
- (5) driving the development of technology to improve artificial intelligence, high performance computing, and networking relevant to mission applications of the Department of Energy, including modeling, simulation, machine learning, and advanced data analytics.

SEC. 4. DEPARTMENT OF ENERGY VETERANS HEALTH RESEARCH AND DEVELOPMENT.

(a) IN GENERAL.—The Secretary shall establish and carry out a research program in artificial intelligence and high performance computing, focused on the development of tools to solve big data challenges associated with veteran’s healthcare, and to support the efforts of the Department of Veterans Affairs to identify potential health risks and challenges utilizing data on long term healthcare, health risks, and genomic data collected from veteran populations. The Secretary shall carry out this program through a competitive, merit-reviewed process, and consider applications from National Laboratories, institutions of higher education, multi-institutional collaborations, and other appropriate entities.

(b) PROGRAM COMPONENTS.—In carrying out the program established under subsection (a), the Secretary may—

- (1) conduct basic research in modeling and simulation, machine learning, large scale data analytics, and predictive analysis in order to develop novel or optimized algorithms for prediction of disease treatment and recovery;
- (2) develop methods to accommodate large data sets with variable quality and scale, and to provide insight and models for complex systems;
- (3) develop new approaches and maximize the use of algorithms developed through artificial intelligence, machine learning, data analytics, natural language processing, modeling and simulation, and develop new algorithms suitable for high performance computing systems and large biomedical data sets;
- (4) advance existing and construct new data enclaves capable of securely storing data sets provided by the Department of Veterans Affairs, Department of Defense, and other sources; and
- (5) promote collaboration and data sharing between National Laboratories, research entities, and user facilities of the Department by providing the necessary access and secure data transfer capabilities.

(c) COORDINATION.—In carrying out the program required under subsection (a), the Secretary is authorized to—

- (1) enter into a memorandum of understanding in order to carry out a reimbursable agreement with the Department of Veterans Affairs and other entities in order to maximize the effectiveness of Department of Energy research and development to improve veterans’ healthcare; and
- (2) consult with the Department of Veterans Affairs and other Federal agencies as appropriate.

(d) **REPORT.**—Not later than two years after the date of the enactment of this Act, the Secretary shall submit to the Committee on Science, Space, and Technology and the Committee on Veterans’ Affairs of the House of Representatives, and the Committee on Energy and Natural Resources and the Committee on Veterans’ Affairs of the Senate, a report detailing the effectiveness of—

- (1) the interagency coordination between each Federal agency involved in the research program carried out under this section;
- (2) collaborative research achievements of the program; and
- (3) potential opportunities to expand the technical capabilities of the Department.

(e) **FUNDING.**—The Secretary of Veterans Affairs shall devote \$27,000,000 to carry out this section during fiscal years 2019 through 2023, subject to the availability of appropriations, to come from amounts made available for medical and prosthetic research. This section shall be carried out using funds otherwise appropriated by law after the date of enactment of this Act.

SEC. 5. ARTIFICIAL INTELLIGENCE, DATA ANALYTICS, AND COMPUTATIONAL RESEARCH PILOT PROGRAM.

(a) **IN GENERAL.**—The Secretary shall carry out a pilot program to develop tools for big data analytics by utilizing data sets generated by Federal agencies, institutions of higher education, nonprofit research organizations, and industry in order to advance artificial intelligence technologies to solve complex, big data challenges. The Secretary shall carry out this program through a competitive, merit-reviewed process, and consider applications from National Laboratories, institutions of higher education, multi-institutional collaborations, and other appropriate entities.

(b) **PROGRAM COMPONENTS.**—In carrying out the pilot program established under subsection (a), the Secretary may—

- (1) establish a cross-cutting research initiative to prevent duplication and coordinate research efforts in artificial intelligence and data analytics across the Department;
- (2) conduct basic research in modeling and simulation, artificial intelligence, machine learning, large scale data analytics, natural language processing, and predictive analysis in order to develop novel or optimized predictive algorithms suitable for high performance computing systems and large biomedical data sets;
- (3) develop multivariate optimization models to accommodate large data sets with variable quality and scale in order to visualize complex systems;
- (4) establish multiple scientific computing user facilities to serve as data enclaves capable of securely storing data sets created by Federal agencies, institutions of higher education, nonprofit organizations, or industry at National Laboratories; and
- (5) promote collaboration and data sharing between National Laboratories, research entities, and user facilities of the Department by providing the necessary access and secure data transfer capabilities.

(c) **REPORT.**—Not later than two years after the date of the enactment of this Act, the Secretary shall submit to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Energy and Natural Resources of the Senate a report evaluating the effectiveness of the pilot program under subsection (a), including basic research discoveries achieved in the course of the program and potential opportunities to expand the technical capabilities of the Department through the development of artificial intelligence and data analytics technologies.

(d) **FUNDING.**—For purposes of carrying out this section, the Secretary of Energy shall devote \$52,000,000 to carry out this section, which shall include \$26,000,000 for each fiscal years 2019 and 2020, subject to the availability of appropriations. This section shall be carried out using funds otherwise appropriated by law after the date of enactment of this Act.

SEC. 6. SPENDING LIMITATION.

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

COMMITTEE STATEMENT AND VIEWS

PURPOSE AND SUMMARY

H.R. 6398, the “Department of Energy Veterans’ Health Initiative Act,” was introduced by Science Subcommittee on Environment

Vice Chairman Ralph Norman. The purpose of H.R. 6398 is to authorize the Department of Energy (DOE, or the Department) to conduct collaborative research with the Department of Veterans Affairs (VA) in order to solve complex, big data challenges focused on veterans' health care and basic science.

This bill also authorizes a two-year, cross-cutting research pilot program to advance research in artificial intelligence, data analytics, and computational research. This pilot program will support DOE's efforts to improve the analysis and interpretation of big data challenges in order to meet the nuclear security, energy, and science mission goals of the Department.

BACKGROUND AND NEED FOR LEGISLATION

DOE funds basic research in high performance computing, artificial intelligence, modeling and simulation, machine learning, and large-scale data analytics across the DOE national lab system. The Department also owns research infrastructure, including the world's fastest supercomputers, and can provide tools and technical expertise in support of industry, academia, and other federal agencies' efforts to solve complex technology challenges.

The VA healthcare system offers one example of a complex data set that could benefit from support and analysis provided through the DOE national lab system. Through its voluntary data collection program entitled the Million Veteran Program (MVP), the VA has collected detailed health information and genomic data on over 600,000 veterans. MVP was established in order to examine how genomic variation influences the progression of disease and response to different treatments.

The VA, however, lacks the tools to effectively analyze this complex data. In order to maximize the potential for analysis, DOE and the VA have partnered together to plan a joint research venture that will benefit both agencies. The partnership combines the healthcare and genomic data generated through MVP with DOE's world-leading high-performance computing and data analytics capabilities.

The combined MVP CHAMPION (Million Veterans Program Computational Health Analytics for Medical Precision to Improve Outcomes Now) initiative will allow DOE and the VA to establish a scientific computing environment that will not only house, protect, and provide MVP data to researchers within the DOE national lab system, but also facilitate the development of big data analytical tools to foster transformational science across the DOE mission. Through the development and application of complex computer models that detect patterns in the VA's data, DOE will be able to identify potential causes and warning signs of various diseases. This analysis could lead to information that could potentially transform the healthcare the VA offers to veterans, particularly through early diagnoses or developing more effective treatment mechanisms.

Further, the MVP will provide enhanced health data through the collection of genetic, lifestyle, military exposure, and health information about veterans that can be used to understand how genes and environment affect health and illness.

This program will also benefit DOE basic research needs by providing a large data set from which to develop computing tools, tech-

nologies, and techniques that can be applied to DOE’s core mission research. In order to further the capabilities achieved through the partnership with the VA, DOE has also established a stand-alone artificial intelligence and big data initiative to explore broader applications of these computing techniques within the DOE core mission.

H.R. 6398 is designed to act on the assessments of the DOE, the VA and the scientific community. Based on the recommendations provided in the April 2017 report, “VA–DOE Joint Workshop for MVP–CHAMPION,” this legislation directs DOE to conduct collaborative research with the VA by establishing a formal program to leverage the Department’s expertise in high performance computing in order to analyze VA-provided health and genomics data. The bill provides DOE the authority to conduct basic research to develop algorithms and optimization models suited to analyzing large biomedical data sets, and to establish data enclaves to securely store and transmit data provided by the VA.

H.R. 6398 also establishes a pilot program within DOE to implement a cross-cutting research initiative in artificial intelligence, data analytics, and computational research. This pilot program will support DOE’s efforts to improve the analysis and interpretation of big data challenges in order to meet the nuclear security, energy, and science mission goals of the Department. The bill provides the Secretary the authority to establish user facilities that can serve as secure data enclaves, in order to accommodate and analyze large data sets and visualize complex systems.

LEGISLATIVE HISTORY

On January 30, 2018, the Committee held a hearing titled, “Department of Energy: Management and Priorities.” Witnesses were: The Honorable Paul Dabbar, Under Secretary for Science, U.S. Department of Energy; and the Honorable Mark Menezes, Under Secretary of Energy, U.S. Department of Energy.

On March 14, 2018, the Committee held a hearing titled, “National Laboratories: World-Leading Innovation in Science.” Witnesses were: Dr. Mark Peters, Director, Idaho National Laboratory; Dr. Susan Seestrom, Advanced Science and Technology Associate Laboratory Director and Chief Research Officer, Sandia National Laboratory; Dr. Mary E. Maxon, Associate Laboratory Director for Biosciences, Lawrence Berkeley National Laboratory; Dr. Chi-Chang Kao, Director, Stanford Linear Accelerator Center, National Accelerator Laboratory; and Dr. Paul Kearns, Director, Argonne National Laboratory.

On May 9, 2018, the Committee held a hearing titled, “An Overview of the Budget Proposal for the Department of Energy for Fiscal Year 2019.” The witness was the Honorable Rick Perry, Secretary, U.S. Department of Energy.

On May 22, 2018, the Research and Technology Subcommittee and the Energy Subcommittee held a hearing titled, “Empowering U.S. Veterans Through Technology.” Witnesses were: Dr. Dimitri Kusnezov, Chief Scientist, National Nuclear Security Administration, U.S. Department of Energy; Mr. Christopher Meek, Founder and Chairman, SoldierStrong; Ms. Martha MacCallum, Advisory Board Member, SoldierStrong; Mr. John Wordin, President and Founder, Project Hero; and Dr. Matthew J. Major, Research Health

Scientist and Assistant Professor of Physical Medicine and Rehabilitation, Northwestern University.

On June 26, 2018, the Research and Technology Subcommittee and the Energy Subcommittee held a hearing titled, “Artificial Intelligence—With Great Power Comes Great Responsibility.” Witnesses were: Dr. Jaime Carbonell, Director, Language Technologies Institute, and Allen Newell Professor, School of Computer Science, Carnegie Mellon University; Dr. Tim Persons, Chief Scientist, U.S. Government Accountability Office; Mr. Greg Brockman, Co-Founder and Chief Technology Officer, OpenAI; and Dr. Fei-Fei Li, Chairperson of the Board and Co-Founder, AI4ALL.

On July 12, 2018, the Energy Subcommittee and the Research and Technology Subcommittee held a hearing titled, “Big Data Challenges and Advanced Computing Solutions.” Witnesses were: Dr. Bobby Kasthuri, Researcher, Argonne National Laboratory and Assistant Professor at The University of Chicago; Dr. Katherine Yelick, Associate Laboratory Director for Computing Sciences, Lawrence Berkeley National Laboratory, and Professor at The University of California, Berkeley; Dr. Matthew Nielsen, Principal Scientist, Industrial Outcomes Optimization, GE Global Research; and Dr. Anthony Rollett, U.S. Steel Professor of Materials Science and Engineering, Carnegie Mellon University.

On July 17, 2018, Representative Ralph Norman introduced H.R. 6398, which was referred primarily to the Committee on Science, Space, and Technology.

On July 18, 2018, the Committee on Science, Space, and Technology approved and ordered reported H.R. 6398, the “Department of Energy Veterans’ Health Initiative Act,” as amended, by voice vote.

COMMITTEE VIEWS

Department of Energy Veterans’ Health Research Initiative

The Committee recognizes that high performance computing (HPC) modeling supports nearly every area of technological advancement and encourages DOE to develop next generation computing facilities through its Advanced Scientific Computing Research (ASCR) program within the DOE Office of Science. In addition to world class supercomputing user facilities, the Department hosts a number of strategic computational partnerships like the Scientific Discovery through Advanced Computing (SciDAC) program, the Energy Sciences Network (ESnet), and the National Energy Research Scientific Computing Center (NERSC). With these capabilities, DOE has a specific research capability and mission need to address big data challenges, and is also uniquely positioned to advance artificial intelligence and machine learning-based approaches to solving these challenges.

The Committee calls for the use of the Department’s unique computing capabilities and infrastructure to support comprehensive research in data analytics related to veterans’ healthcare and services. The Committee finds that further collaboration between DOE and VA can provide significant benefits to both parties, particularly in addressing the needs of U.S. veteran populations and improving the already robust computing capabilities of the Department.

Artificial Intelligence, Data Analytics, and Computational Research Pilot Program

The Committee finds that DOE should continue its efforts in computer science and supporting research fields to address other big data challenges, and accordingly authorizes a pilot program to implement a DOE cross-cutting research initiative in artificial intelligence, data analytics, and computational research. The Committee recommends that the Department continue to expand its core capabilities in these areas, and apply computing techniques developed through its partnership with the VA to other significant big data challenges.

Due to the broad applications possible in basic science research, applied energy research, and within the nuclear stockpile stewardship mission at DOE, the Committee recommends funding for this pilot program be provided equally from the Office of Science and the National Nuclear Security Administration (NNSA). In the delivery of the report required in Section 5 of this legislation, the Committee recommends that the Department provide recommendations on ways to expand this pilot program, including potential federal agencies who could benefit from the application of similar data-driven computing techniques.

SECTION-BY-SECTION

Sec. 1. Short title

This section establishes the short title for the bill as the “Department of Energy Veterans’ Health Initiative Act.”

Sec. 2. Definitions

This section defines the terms “Department,” “National Laboratory,” and “Secretary.”

Sec. 3. Purposes

This section establishes that the purpose of the Act is to use DOE expertise in artificial intelligence and high performance computing to improve health outcomes for veterans and maximize the impact of VA health and genomics data by supporting basic research in artificial intelligence, high performance computing, modeling and simulation, machine learning, and large scale data analytics to identify and solve outcome-defined challenges in health sciences. This section also promotes collaboration through data sharing between federal agencies, national laboratories, institutions of higher learning, and nonprofit institutions, and encourages the establishment of scientific computing user facilities to house, protect, and provide available data.

Section 4. Department of Energy veterans health research and development

This section statutorily establishes a comprehensive research program in artificial intelligence and high-performance computing to develop tools to solve big data challenges associated with veterans’ healthcare through a partnership between DOE and the VA. This section also authorizes key areas of research, including the development of novel or optimized predictive algorithms, models to accommodate large data sets with complex biomedical data, and se-

cure data transfer capabilities. It also authorizes the construction and improvement of data enclaves for secure data storage.

This section authorizes the DOE Secretary to enter into a memorandum of understanding with the VA and other entities to maximize research and development to improve veterans' healthcare. The Secretary is also required to submit a report evaluating the effectiveness of the interagency coordination between each agency involved, the research achievements, and the potential opportunities to expand the technical capabilities of the Department to relevant congressional committees no later than two years after the date of enactment.

This section authorizes the VA to provide a total of \$27,000,000 to be used to carry out this section during fiscal years 2019 through 2023.

Sec. 5. Artificial intelligence, data analytics, and computational research pilot program

This section establishes a DOE pilot program to advance artificial intelligence technologies to solve complex, big data challenges by utilizing data sets generated by Federal agencies, institutions of higher education, nonprofit research organizations, and industry.

This section authorizes the DOE Secretary to establish a cross-cutting research program to coordinate research efforts across the Department, including the development of novel or optimized predictive algorithms, models to accommodate large data sets, and secure data transfer and storage capabilities. The Secretary is also required to submit a report evaluating the effectiveness of the pilot program, the research achievements, and the potential opportunities to expand the technical capabilities of the Department to the relevant congressional committees no later than two years after the date of enactment.

This section authorizes the Department of Energy to provide a total of \$52,000,000 to carry out the activities in this section, with \$26,000,000 authorized for each of fiscal years 2019 and 2020.

Sec. 6. Spending limitation

This section states that no additional funds are authorized to be appropriated to carry out this Act and the amendments made by this Act, and requires that this Act and such amendments be carried out using amounts otherwise available for such purpose.

EXPLANATION OF AMENDMENTS

A manager's amendment offered by Representative Neal Dunn was adopted by the Committee. The amendment made technical changes to the bill.

COMMITTEE CONSIDERATION

On July 18, 2018, the Committee met in open session and ordered reported favorably the bill, H.R. 6398, as amended, by voice vote, a quorum being present.

REPUBLICANS
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 JACK BERGMAN, MICHIGAN
 JIM BANKS, INDIANA
 JENNIFER GONZÁLEZ-COLÓN, PUERTO RICO
 JON TOWERS, STAFF DIRECTOR

CORRESPONDENCE
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 DEMOCRATIC STAFF DIRECTOR

September 20, 2018

The Honorable Lamar Smith
 Chairman
 Committee on Space, Science, and Technology
 2321 Rayburn House Office Building
 Washington, DC 20515

Dear Mr. Chairman:

I am writing to you concerning H.R. 6398, as amended, the "Department of Energy Veterans' Health Initiative Act." As you know, there are provisions in the legislation that fall within the jurisdiction of the Committee on Veterans' Affairs.

In the interest of permitting your committee to proceed expeditiously to floor consideration of this legislation, I am willing to waive this committee's right to sequential referral. I do so with the understanding that by waiving consideration of the bill, the Committee on Veterans' Affairs does not waive any future jurisdictional claim over the subject matters contained in the bill which fall within its jurisdiction. I also request that you urge the Speaker to name members of this committee to any conference committee which is named to consider such provisions.

Please place this letter into the committee report on H.R. 6398, as amended, and into the Congressional Record during consideration of this legislation on the House floor.

Sincerely,



David P. Roe, M.D.
 Chairman

cc: The Honorable Paul D. Ryan, Speaker of the House
 The Honorable Kevin McCarthy, Majority Leader
 The Honorable Timothy J. Walz, Ranking Member, House Veterans' Affairs Committee
 Mr. Thomas J. Wickham Jr., Parliamentarian

LAMAR S. SMITH, Texas
CHAIRMAN

EDDIE BERNICE JOHNSON, Texas
RANKING MEMBER

Congress of the United States
House of Representatives

COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY

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September 20, 2018

The Honorable David P. Roe
Chairman
Committee on Veterans' Affairs
U.S. House of Representatives
Washington, D.C. 20515

Dear Mr. Chairman:

Thank you for your letter regarding the Committee on Veterans' Affairs jurisdictional interest in H.R. 6398, the "Department of Energy Veterans' Health Initiative Act," and your willingness to forego consideration of H.R. 6398 by your committee.

I agree that the Committee on Veterans' Affairs has a valid jurisdictional interest in certain provisions of H.R. 6398, and that the Committee's jurisdiction will not be adversely affected by your decision to forego consideration of H.R. 6398. As you have requested, I will support your request for an appropriate appointment of outside conferees from your Committee in the event of a House-Senate conference on this or similar legislation should such a conference be convened.

Finally, I will include a copy of your letter and this response in the Committee Report and in the *Congressional Record* during the floor consideration of this bill. Thank you again for your cooperation.

Sincerely,


Lamar Smith
Chairman

cc: The Honorable Eddie Bernice Johnson
The Honorable Timothy J. Walz
The Honorable Paul Ryan, Speaker
Mr. Thomas J. Wickham, Jr., Parliamentarian

APPLICATION OF LAW TO THE LEGISLATIVE BRANCH

Section 102(b)(3) of Public Law 104–1 requires a description of the application of this bill to the legislative branch where the bill relates to the terms and conditions of employment or access to public services and accommodations. This bill establishes a collaborative research program between DOE and the VA in order to solve complex, big data challenges focused on veterans’ health care and basic science. As such this bill does not relate to employment or access to public services and accommodations.

STATEMENT OF OVERSIGHT FINDINGS AND RECOMMENDATIONS OF THE COMMITTEE

In compliance with clause 3(c)(1) of rule XIII and clause (2)(b)(1) of rule X of the Rules of the House of Representatives, the Committee’s oversight findings and recommendations are reflected in the descriptive portions of this report.

STATEMENT OF GENERAL PERFORMANCE GOALS AND OBJECTIVES

H.R. 6398 establishes a collaborative research program between DOE and the VA in order to solve complex, big data challenges focused on veterans’ health care and basic science. This bill also authorizes a two-year, cross-cutting research pilot program to advance research in artificial intelligence, data analytics, and computational research at DOE.

DUPLICATION OF FEDERAL PROGRAMS

No provision of H.R. 6398 establishes or reauthorizes a program of the Federal Government known to be duplicative of another Federal program, a program that was included in any report from the Government Accountability Office to Congress pursuant to section 21 of Public Law 111–139, or a program related to a program identified in the most recent Catalog of Federal Domestic Assistance.

DISCLOSURE OF DIRECTED RULE MAKINGS

The Committee estimates that enacting H.R. 6398 does not direct the completion of any specific rule makings within the meaning of 5 U.S.C. 551.

FEDERAL ADVISORY COMMITTEE ACT

The Committee finds that the legislation does not establish or authorize the establishment of an advisory committee within the definition of 5 U.S.C. App., Section 5(b).

UNFUNDED MANDATE STATEMENT

Section 423 of the Congressional Budget and Impoundment Control Act (as amended by Section 101(a)(2) of the Unfunded Mandate Reform Act, P.L. 104–4) requires a statement as to whether the provisions of the reported include unfunded mandates. In compliance with this requirement the Committee has received a letter from the Congressional Budget Office included herein.

EARMARK IDENTIFICATION

H.R. 6398 does not include any congressional earmarks, limited tax benefits, or limited tariff benefits as defined in clause 9 of rule XXI.

COMMITTEE ESTIMATE

Clause 3(d)(2) of rule XIII of the Rules of the House of Representatives requires an estimate and a comparison by the Committee of the costs that would be incurred in carrying out H.R. 6398. However, clause 3(d)(3)(B) of that rule provides that this requirement does not apply when the Committee has included in its report a timely submitted cost estimate of the bill prepared by the Director of the Congressional Budget Office under section 402 of the Congressional Budget Act.

BUDGET AUTHORITY AND CONGRESSIONAL BUDGET OFFICE COST ESTIMATE

With respect to the requirements of clause 3(c)(2) of rule XIII of the Rules of the House of Representatives and section 308(a) of the Congressional Budget Act of 1974 and with respect to requirements of clause (3)(c)(3) of rule XIII of the Rules of the House of Representatives and section 402 of the Congressional Budget Act of 1974, the Committee has received the following cost estimate for H.R. 6398 from the Director of Congressional Budget Office:

U.S. CONGRESS,
CONGRESSIONAL BUDGET OFFICE,
Washington, DC, July 25, 2018.

Hon. LAMAR SMITH,
*Chairman, Committee on Science, Space, and Technology,
House of Representatives, Washington, DC.*

DEAR MR. CHAIRMAN: The Congressional Budget Office has prepared the enclosed cost estimate for H.R. 6398, the Department of Energy Veterans' Health Initiative Act.

If you wish further details on this estimate, we will be pleased to provide them. The CBO staff contact is Janani Shankaran.

Sincerely,

KEITH HALL,
Director.

Enclosure.

H.R. 6398—Department of Energy Veterans' Health Initiative Act

Summary: H.R. 6398 would require \$79 million in appropriated funds to be used by the Department of Energy (DOE) to carry out a pilot program on big data analytics and for the Department of Veterans Affairs (VA) and DOE to conduct collaborative research on veterans' healthcare issues. CBO estimates implementing H.R. 6398 would cost \$76 million over the 2019–2023 period, assuming the availability of those appropriated amounts.

Enacting the bill would not affect direct spending or revenues; therefore, pay-as-you-go procedures do not apply.

CBO estimates that enacting H.R. 6398 would not increase net direct spending or on-budget deficits in any of the four consecutive 10-year periods beginning in 2029.

H.R. 6398 contains no intergovernmental or private-sector mandates as defined in the Unfunded Mandates Reform Act (UMRA).

Estimated cost to the Federal Government: The estimated budgetary effect of H.R. 6398 is shown in the following table. The costs of the legislation fall within budget functions 250 (general science, space, and technology) and 700 (veterans benefits and services).

	By fiscal year, in millions of dollars—						
	2018	2019	2020	2021	2022	2023	2019–2023
INCREASES IN SPENDING SUBJECT TO APPROPRIATION							
Department of Energy:							
Estimated Authorization Level	0	26	26	0	0	0	52
Estimated Outlays	0	14	22	12	4	0	52
Department of Veterans Affairs:							
Estimated Authorization Level	0	6	6	5	5	5	27
Estimated Outlays	0	4	5	5	5	5	24
Total:							
Estimated Authorization Level	0	32	32	5	5	5	79
Estimated Outlays	0	18	27	17	9	5	76

Basis of estimate: For this estimate, CBO assumes the legislation will be enacted near the end of 2018 and that the necessary amounts will be available each year as specified. Estimated outlays are based on historical spending patterns for the affected activities.

Section 6 of the bill states that no additional funds are authorized to be appropriated by H.R. 6398. In CBO's view, however, when a law imposes a new requirement on an agency (such as preparing a plan or completing a study), complying with that new requirement would entail the use of resources, and the cost of carrying out that requirement would be the amount of resources used. Because the requirements in this bill would apply to future fiscal years, for which appropriations have not yet been determined—they could, in fact, influence the amount of budget authority available to the agency in the future. Even if future funding was not affected, the agency would have to spend appropriated resources on that new activity instead of spending them to carry out other responsibilities.

Department of Energy

Section 5 would authorize appropriations of \$52 million to be used over the 2019–2020 period for DOE to carry out a pilot program to advance the use of artificial intelligence for big data analytics. H.R. 6398 also would direct DOE to submit a report to the Congress evaluating the effectiveness of that pilot program. CBO estimates that implementing section 5 would cost \$52 million over the 2019–2023 period.

Department of Veterans Affairs

Section 4 would authorize appropriations of \$27 million to be used by VA and DOE to implement a collaborative research program to analyze large-scale health and genomic data over the 2019–2023 period. The bill does not specify the amount for each year, so CBO assumes that between \$5 million to \$6 million would

be used each year. In 2017, VA initiated plans to partner with DOE to use the high-performance computing capabilities at DOE's national laboratories to identify health trends using genomic data from more than 600,000 veteran volunteers. VA spent \$6 million in 2017 for such efforts.

Under the bill, VA would reimburse DOE for research expenses associated with the program. The bill also would require DOE to submit a report to the Congress on those collaborative efforts. CBO estimates that implementing section 4 would cost \$24 million over the 2019–2023 period.

Pay-As-You-Go considerations: None.

Increase in long-term direct spending and deficits: CBO estimates that enacting H.R. 6398 would not increase net direct spending or on-budget deficits in any of the four consecutive 10-year periods beginning in 2029.

Mandates: H.R. 6398 contains no intergovernmental or private-sector mandates as defined in UMRA.

Estimate prepared by: Federal costs: Janani Shankaran (Department of Energy), Ann Futrell (Department of Veterans Affairs); Mandates: Jon Sperl.

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