(4) $1,004,820,000 for fiscal year 2024; and
(5) $1,055,060,000 for fiscal year 2025.

(Pub. L. 116–283, div. E, title LIV, § 5401, Jan. 1, 2021, 134 Stat. 4540.)

SUBCHAPTER V—DEPARTMENT OF ENERGY ARTIFICIAL INTELLIGENCE RESEARCH PROGRAM

§ 9461. Department of Energy artificial intelligence research program

(a) In general

The Secretary shall carry out a cross-cutting research and development program to advance artificial intelligence tools, systems, capabilities, and workforce needs and to improve the reliability of artificial intelligence methods and solutions relevant to the mission of the Department. In carrying out this program, the Secretary shall coordinate across all relevant offices and programs at the Department, including the Office of Science, the Office of Energy Efficiency and Renewable Energy, the Office of Nuclear Energy, the Office of Fossil Energy, the Office of Electricity, the Office of Cybersecurity, Energy Security, and Emergency Response, the Advanced Research Projects Agency-Energy, and any other relevant office determined by the Secretary.

(b) Research areas

In carrying out the program under subsection (a), the Secretary shall award financial assistance to eligible entities to carry out research projects on topics including—

(1) the application of artificial intelligence systems to improve large-scale simulations of natural and other phenomena;

(2) the study of applied mathematics, computer science, and statistics, including foundations of methods and systems of artificial intelligence, causal and statistical inference, and the development of algorithms for artificial intelligence systems;

(3) the analysis of existing large-scale datasets from science and engineering experiments and simulations, including energy simulations and other priorities at the Department as determined by the Secretary using artificial intelligence tools and techniques;

(4) the development of operation and control systems that enhance automated, intelligent decisionmaking capabilities;

(5) the development of advanced computing hardware and computer architecture tailored to artificial intelligence systems, including the codesign of networks and computational hardware;

(6) the development of standardized datasets for emerging artificial intelligence research fields and applications, including methods for addressing data scarcity; and

(7) the development of trustworthy artificial intelligence systems, including—

(A) algorithmic explainability;

(B) analytical methods for identifying and mitigating bias in artificial intelligence systems; and

(C) safety and robustness, including assurance, verification, validation, security, and control.

(c) Technology transfer

In carrying out the program under subsection (a), the Secretary shall support technology transfer of artificial intelligence systems for the benefit of society and United States economic competitiveness.

(d) Facility use and upgrades

In carrying out the program under subsection (a), the Secretary shall—

(1) make available high-performance computing infrastructure at national laboratories;

(2) make any upgrades necessary to enhance the use of existing computing facilities for artificial intelligence systems, including upgrades to hardware;

(3) establish new computing capabilities necessary to manage data and conduct high performance computing that enables the use of artificial intelligence systems; and

(4) maintain and improve, as needed, networking infrastructure, data input and output mechanisms, and data analysis, storage, and service capabilities.

(e) Report on ethics statements

Not later than 6 months after publication of the study described in section 9451(d)(1)(C) of this title, the Secretary shall report to Congress on options for requiring an ethics or risk statement as part of all or a subset of applications for research activities funded by the Department of Energy and performed at Department of Energy national laboratories and user facilities.

(f) Risk management

The Secretary shall review agency policies for risk management in artificial intelligence related projects and issue as necessary policies and principles that are consistent with the framework developed under section 278h–1(c) of this title (as added by section 5301 of this division).

(g) Data privacy and sharing

The Secretary shall review agency policies for data sharing with other public and private sector organizations and issue as necessary policies and principles that are consistent with the standards and guidelines submitted under section 278h–1(e) of this title (as added by section 5301 of this division). In addition, the Secretary shall establish a streamlined mechanism for approving research projects or partnerships that require sharing sensitive public or private data with the Department.

(h) Partnerships with other Federal agencies

The Secretary may request, accept, and provide funds from other Federal departments and agencies, State, United States territory, local, or Tribal government agencies, private sector for-profit entities, and nonprofit entities, to be available to the extent provided by appropriations Acts, to support a research project or partnership carried out under this section. The Secretary may not give any special consideration to any agency or entity in return for a donation.

(i) Stakeholder engagement

In carrying out the activities authorized in this section, the Secretary shall—

(1) collaborate with a range of stakeholders including small businesses, institutes of higher education, industry, and the National Laboratories;

(2) leverage the collective body of knowledge from existing artificial intelligence and machine learning research; and

(3) engage with other Federal agencies, research communities, and potential users of information produced under this section.

(j) Definitions

In this section:

(1) Secretary

The term ''Secretary'' means the Secretary of Energy.

(2) Department

The term ''Department'' means the Department of Energy.

(3) National laboratory

The term ''national laboratory'' has the meaning given such term in section 15801 of title 42.

(4) Eligible entities

The term ''eligible entities'' means—

(A) an institution of higher education;

(B) a National Laboratory;

(C) a Federal research agency;

(D) a State research agency;

(E) a nonprofit research organization;

(F) a private sector entity; or

(G) a consortium of 2 or more entities described in subparagraphs (A) through (F).

(k) Authorization of appropriations

There are authorized to be appropriated to the Department to carry out this section—

(1) $200,000,000 for fiscal year 2021;

(2) $214,000,000 for fiscal year 2022;

(3) $228,980,000 for fiscal year 2023;

(4) $245,000,000 for fiscal year 2024; and

(5) $262,160,000 for fiscal year 2025.

(Pub. L. 116–283, div. E, title LV, § 5501, Jan. 1, 2021, 134 Stat. 4545.)

REFERENCES IN TEXT

Section 5301 of this division, referred to in subsecs. (f) and (g), means section 5301 of div. E of Pub. L. 116–283, Jan. 1, 2021, 134 Stat. 4536.

§ 9462. Veterans' health initiative

(a) Purposes

The purposes of this section 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 the Department of Veterans Affairs' health and genomics data housed at the National Laboratories, as well as data from 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;

(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, including modeling, simulation, machine learning, and advanced data analytics.

(b) Veterans health research and development

(1) In general

The Secretary of Energy (in this section referred to as 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 large-scale data analytics and management 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.

(2) Program components

In carrying out the program established under paragraph (1), the Secretary may—

(A) 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;

(B) develop methods to accommodate large data sets with variable quality and scale, and to provide insight and models for complex systems;

(C) develop new approaches and maximize the use of algorithms developed through artificial intelligence, machine learning, data analytics, natural language processing, mod-