

111TH CONGRESS  
2D SESSION

# H. R. 4905

To guide and provide for research activities at the Department of Energy  
Office of Science, and for other purposes.

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## IN THE HOUSE OF REPRESENTATIVES

MARCH 22, 2010

Mr. BAIRD (for himself and Mrs. BIGGERT) introduced the following bill;  
which was referred to the Committee on Science and Technology

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## A BILL

To guide and provide for research activities at the Department of Energy Office of Science, 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       Office of Science Authorization Act of 2010”.

6       **SEC. 2. DEFINITIONS.**

7       Except as otherwise provided, in this Act:

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

1           (2) DIRECTOR.—The term “Director” means  
2           the Director of the Office of Science.

3           (3) OFFICE OF SCIENCE.—The term “Office of  
4           Science” means the Department of Energy Office of  
5           Science.

6           (4) SECRETARY.—The term “Secretary” means  
7           the Secretary of Energy.

8   **SEC. 3. OFFICE OF SCIENCE ACTIVITIES.**

9           (a) IN GENERAL.—The Secretary shall carry out,  
10          through the Office of Science, research, development, dem-  
11          onstration, and commercial application activities in science  
12          supporting the missions of the Department, including pro-  
13          grams on basic energy sciences, biological and environ-  
14          mental research, advanced scientific computing research,  
15          fusion energy sciences, high energy physics, and nuclear  
16          physics.

17          (b) SUPPORTING ACTIVITIES.—The activities de-  
18          scribed in subsection (a) shall include providing for rel-  
19          evant facilities and infrastructure, analysis, coordination,  
20          and education and outreach activities.

21          (c) OTHER AUTHORIZED ACTIVITIES.—In addition to  
22          the activities authorized under this Act, the Office of  
23          Science shall carry out such other activities it is author-  
24          ized or required to carry out by law.

1 (d) COORDINATION AND JOINT ACTIVITIES.—The  
2 Department’s Under Secretary for Science shall ensure  
3 the coordination of activities under this Act with the other  
4 activities of the Department, and shall support joint activi-  
5 ties among the programs of the Department.

6 **SEC. 4. BASIC ENERGY SCIENCES PROGRAM.**

7 (a) PROGRAM.—As part of the activities authorized  
8 under section 3, the Director shall carry out a program  
9 in basic energy sciences, including materials sciences and  
10 engineering, chemical sciences, biosciences, and geo-  
11 sciences, for the purpose of providing the scientific founda-  
12 tions for new energy technologies.

13 (b) USER FACILITIES.—

14 (1) IN GENERAL.—The Director shall carry out  
15 a program for the construction, operation, and main-  
16 tenance of national user facilities to support the pro-  
17 gram under this section. As practicable, these facili-  
18 ties shall serve the needs of the Department, indus-  
19 try, the academic community, and other relevant en-  
20 tities to create and examine new materials and  
21 chemical processes for the purposes of advancing  
22 new energy technologies and improving the competi-  
23 tiveness of the United States. These facilities shall  
24 include—

25 (A) high-intensity light sources;

- 1 (B) neutron sources;
- 2 (C) electron beam characterization centers;
- 3 and
- 4 (D) nanoscale science research centers.

5 (2) FACILITY CONSTRUCTION AND UP-  
6 GRADES.—Consistent with the Office of Science’s  
7 project management practices, the Director shall  
8 support construction of—

9 (A) the National Synchrotron Light Source  
10 II; and

11 (B) a Second Target Station at the Spall-  
12 ation Neutron Source.

13 (c) ENERGY FRONTIER RESEARCH CENTERS.—

14 (1) IN GENERAL.—The Director shall carry out  
15 a grant program to provide awards, on a competi-  
16 tive, merit-reviewed basis, to multi-institutional col-  
17 laborations or other appropriate entities to meet en-  
18 ergy research, development, demonstration, and  
19 commercial application needs identified in—

20 (A) the Grand Challenges report of the De-  
21 partment’s Basic Energy Sciences Advisory  
22 Committee;

23 (B) energy-related Grand Challenges for  
24 Engineering, as described by the National  
25 Academy of Engineering; or

1 (C) other relevant reports identified by the  
2 Director.

3 (2) COLLABORATIONS.—A collaboration receiv-  
4 ing a grant under this subsection may include mul-  
5 tiple types of institutions and private sector entities.

6 (3) DURATION.—Grants shall be provided  
7 under this subsection to a collaboration or entity for  
8 a period of not more than 5 years. Grants may be  
9 renewed for an additional 5 years on a competitive,  
10 merit-reviewed basis.

11 (4) NO FUNDING FOR CONSTRUCTION.—No  
12 funding provided pursuant to this subsection may be  
13 used for the construction of new buildings or facili-  
14 ties.

15 (d) ACCELERATOR RESEARCH AND DEVELOP-  
16 MENT.—The Director shall carry out research and devel-  
17 opment on advanced accelerator technologies relevant to  
18 the development of Basic Energy Sciences user facilities,  
19 in consultation with the Office of Science’s High Energy  
20 Physics and Nuclear Physics programs.

21 **SEC. 5. BIOLOGICAL AND ENVIRONMENTAL RESEARCH**  
22 **PROGRAM.**

23 (a) IN GENERAL.—As part of the activities author-  
24 ized under section 3, the Director shall carry out a pro-  
25 gram of research, development, demonstration, and com-

1 mercial application in the areas of biological, climate, and  
2 environmental systems science to support the energy and  
3 environmental missions of the Department.

4 (b) BIOLOGICAL SYSTEMS SCIENCE SUBPROGRAM.—

5 (1) SUBPROGRAM.—As part of the activities au-  
6 thorized under subsection (a), the Director shall  
7 carry out a subprogram of research, development,  
8 and demonstration on fundamental, structural, com-  
9 putational, and systems biology to increase systems-  
10 level understanding of complex biological systems,  
11 which shall include activities to—

12 (A) increase cost-effective sustainable pro-  
13 duction of biomass-based liquid transportation  
14 fuels, bioenergy, and biobased products that  
15 minimize greenhouse gas emissions;

16 (B) remove carbon dioxide from the atmos-  
17 phere, through photosynthesis and other bio-  
18 logical processes, for sequestration and storage;  
19 and

20 (C) destroy, immobilize, or remove con-  
21 taminants from subsurface environments, in-  
22 cluding at facilities of the Department.

23 (2) RESEARCH PLAN.—Not later than 1 year  
24 after the date of enactment of this Act, and at least  
25 once every 2 years thereafter, the Director shall pre-

1       pare and transmit to Congress a research plan de-  
2       scribing how the subprogram authorized under this  
3       subsection will be undertaken.

4               (3) BIOENERGY RESEARCH CENTERS.—

5               (A) ESTABLISHMENT OF CENTERS.—In  
6       carrying out the subprogram under paragraph  
7       (1), the Director shall establish or maintain at  
8       least 3 bioenergy research centers to accelerate  
9       basic biological research, development, dem-  
10      onstration, and commercial application of bio-  
11      mass-based liquid transportation fuels, bio-  
12      energy, and biobased products that reduce  
13      greenhouse gas emissions and are produced  
14      from a variety of regionally diverse feedstocks.

15              (B) GEOGRAPHIC DISTRIBUTION.—The  
16      Secretary shall ensure that the bioenergy re-  
17      search centers under this paragraph are estab-  
18      lished in geographically diverse locations.

19              (C) SELECTION AND DURATION.—

20              (i) IN GENERAL.—A center under this  
21      paragraph shall be selected on a competi-  
22      tive basis for a period of 5 years.

23              (ii) REAPPLICATION.—After the end  
24      of the period described in clause (i), a

1 grantee may reapply for selection on a  
2 competitive, merit-reviewed basis.

3 (4) ENABLING SYNTHETIC BIOLOGY PLAN.—

4 (A) IN GENERAL.—The Secretary, in con-  
5 sultation with other relevant Federal agencies,  
6 the academic community, research-based non-  
7 profit entities, and the private sector, shall de-  
8 velop a comprehensive plan for federally sup-  
9 ported research and development activities that  
10 will support the energy and environmental mis-  
11 sions of the Department and accelerate the  
12 growth of a competitive synthetic biology indus-  
13 try in the United States.

14 (B) PLAN.—The plan developed under sub-  
15 paragraph (A) shall assess the need to create a  
16 database for synthetic biology information, the  
17 need and process for developing standards for  
18 biological parts, components and systems, and  
19 the need for a federally funded facility that en-  
20 ables the discovery, design, development, pro-  
21 duction, and systematic use of parts, compo-  
22 nents, and systems created through synthetic  
23 biology.

24 (C) SUBMISSION TO CONGRESS.—The Sec-  
25 retary shall transmit the plan developed under



1           subparagraph (A) to the Congress not later  
2           than 9 months after the date of enactment of  
3           this Act.

4           (5) COMPUTATIONAL BIOLOGY AND SYSTEMS  
5           BIOLOGY KNOWLEDGEBASE.—As part of the subpro-  
6           gram described in paragraph (1), the Director shall  
7           carry out research in computational biology, acquire  
8           or otherwise ensure the availability of hardware for  
9           biology-specific computation, and establish and  
10          maintain an open virtual database and information  
11          management system to centrally integrate systems  
12          biology data, analytical software, and computational  
13          modeling tools that will allow data sharing and free  
14          information exchange in the scientific community.

15          (6) REPEAL.—Section 977 of the Energy Policy  
16          Act of 2005 (42 U.S.C. 16317) is repealed.

17          (c) CLIMATE AND ENVIRONMENTAL SCIENCES SUB-  
18          PROGRAM.—

19               (1) IN GENERAL.—As part of the activities au-  
20               thorized under subsection (a), the Director shall  
21               carry out a subprogram of climate and environ-  
22               mental science research, which shall include activi-  
23               ties to—

24                       (A) understand, observe, and model the re-  
25                       sponse of the Earth's atmosphere and bio-

sphere, including oceans, to increased greenhouse gas emissions, and any associated changes in climate;

(B) sequester, destroy, immobilize, or remove contaminants and carbon from subsurface environments, including at facilities of the Department; and

(C) develop potential mitigation and adaptation options for increased greenhouse gas emissions and any associated changes in climate.

(2) SUBSURFACE BIOGEOCHEMISTRY RESEARCH.—

(A) IN GENERAL.—As part of the subprogram described in paragraph (1), the Director shall carry out research to advance a fundamental understanding of coupled physical, chemical, and biological processes for controlling the movement of sequestered carbon and subsurface environmental contaminants, including field observations of subsurface microorganisms and field-scale subsurface research.

(B) COORDINATION.—

(i) DIRECTOR.—The Director shall carry out activities under this paragraph in

1 accordance with priorities established by  
2 the Department's Under Secretary for  
3 Science to support and accelerate the de-  
4 contamination of relevant facilities man-  
5 aged by the Department.

6 (ii) UNDER SECRETARY FOR  
7 SCIENCE.—The Department's Under Sec-  
8 retary for Science shall ensure the coordi-  
9 nation of the activities of the Department,  
10 including activities under this paragraph,  
11 to support and accelerate the decontamina-  
12 tion of relevant facilities managed by the  
13 Department.

14 (3) NEXT-GENERATION ECOSYSTEM-CLIMATE  
15 EXPERIMENT.—

16 (A) IN GENERAL.—The Director, in col-  
17 laboration with other relevant agencies who are  
18 participants in the United States Global  
19 Change Research Program, shall carry out the  
20 selection and development of a next-generation  
21 ecosystem-climate change experiment to under-  
22 stand the impact and feedbacks of increased  
23 temperature and elevated carbon levels on eco-  
24 systems.

1 (B) REPORT.—Not later than 1 year after  
2 the date of enactment of this Act, the Director  
3 shall transmit to the Congress a report con-  
4 taining—

5 (i) an identification of the location or  
6 locations that have been selected for the  
7 experiment described in subparagraph (A);

8 (ii) a description of the need for addi-  
9 tional experiments; and

10 (iii) an associated research plan.

11 (4) AMERIFLUX NETWORK COORDINATION AND  
12 RESEARCH.—As part of the subprogram described in  
13 paragraph (1), the Director shall carry out research  
14 and coordinate the AmeriFlux Network to directly  
15 observe and understand the exchange of greenhouse  
16 gases, water, and energy within terrestrial eco-  
17 systems and the response of those systems to climate  
18 change and other dynamic terrestrial landscape  
19 changes. The Director, in collaboration with other  
20 relevant Federal agencies, shall—

21 (A) identify opportunities to incorporate  
22 innovative and emerging observation tech-  
23 nologies and practices into the existing Net-  
24 work;

1 (B) conduct research to determine the  
2 need for increased greenhouse gas observation  
3 facilities across North America to meet future  
4 mitigation and adaptation needs of the United  
5 States; and

6 (C) examine how the technologies and  
7 practices described in subparagraph (A), and  
8 increased coordination among scientific commu-  
9 nities through the Network, have the potential  
10 to help characterize baseline greenhouse gas  
11 emission sources and sinks in the United States  
12 and internationally.

13 (5) REGIONAL AND GLOBAL CLIMATE MOD-  
14 ELING.—As part of the subprogram described in  
15 paragraph (1), the Director, in collaboration with  
16 the Office of Advanced Scientific Computing Re-  
17 search described in section 6, shall carry out re-  
18 search to develop, evaluate, and use high-resolution  
19 regional and global climate and Earth models and  
20 predictions to determine, and support efforts to re-  
21 duce, the impacts of changing climate.

22 (6) INTEGRATED ASSESSMENT RESEARCH.—  
23 The Director shall carry out research into options  
24 for mitigation of and adaptation to climate change  
25 through multiscale models of the entire climate sys-

1       tem. Such modeling shall include human processes  
2       and greenhouse gas emissions, land use, and inter-  
3       action among human and Earth systems.

4               (7) COORDINATION.—The Director shall coordi-  
5       nate activities under this subsection with other Of-  
6       fice of Science activities and with the United States  
7       Global Change Research Program.

8       (d) USER FACILITIES AND ANCILLARY EQUIP-  
9       MENT.—

10              (1) IN GENERAL.—The Director shall carry out  
11       a program for the construction, operation, and main-  
12       tenance of user facilities to support the program  
13       under this section. As practicable, these facilities  
14       shall serve the needs of the Department, industry,  
15       the academic community, and other relevant entities.

16              (2) INCLUDED FUNCTIONS.—User facilities de-  
17       scribed in paragraph (1) shall include facilities which  
18       carry out—

19                      (A) genome sequencing and analysis of  
20                      plants, microbes, and microbial communities  
21                      using high throughput tools, technologies, and  
22                      comparative analysis;

23                      (B) molecular level research in biological  
24                      interactions, subsurface science, and the inter-  
25                      faces of natural and engineered materials; and

1 (C) measurement of cloud and aerosol  
2 properties used for examining atmospheric proc-  
3 esses and evaluating climate model perform-  
4 ance, including ground stations at various loca-  
5 tions, mobile resources, and aerial vehicles.

6 **SEC. 6. ADVANCED SCIENTIFIC COMPUTING RESEARCH**  
7 **PROGRAM.**

8 (a) IN GENERAL.—As part of the activities author-  
9 ized under section 3, the Director shall carry out a re-  
10 search, development, demonstration, and commercial ap-  
11 plication program to advance computational and net-  
12 working capabilities to analyze, model, simulate, and pre-  
13 dict complex phenomena relevant to the development of  
14 new energy technologies and the competitiveness of the  
15 United States.

16 (b) COORDINATION.—

17 (1) DIRECTOR.—The Director shall carry out  
18 activities under this section in accordance with prior-  
19 ities established by the Department's Under Sec-  
20 retary for Science to determine and meet the com-  
21 putational and networking research and facility  
22 needs of the Office of Science and all other relevant  
23 energy technology programs within the Department.

24 (2) UNDER SECRETARY FOR SCIENCE.—The  
25 Department's Under Secretary for Science shall en-

1       sure the coordination of the activities of the Depart-  
2       ment, including activities under this section, to de-  
3       termine and meet the computational and networking  
4       research and facility needs of the Office of Science  
5       and all other relevant energy technology programs  
6       within the Department.

7       (c) REPORTS.—

8               (1) ADVANCED COMPUTING FOR ENERGY APPLI-  
9       CATIONS.—Not later than one year after the date of  
10      enactment of this Act, the Secretary shall transmit  
11      to the Congress a plan to integrate and leverage the  
12      expertise and capabilities of the program described  
13      in subsection (a), as well as other relevant computa-  
14      tional and networking research programs and re-  
15      sources supported by the Federal Government, to  
16      advance the missions of the Department’s applied  
17      energy and energy efficiency programs.

18              (2) EXASCALE COMPUTING.—At least 18  
19      months prior to the initiation of construction or in-  
20      stallation of any exascale-class computing facility,  
21      the Secretary shall transmit a plan to the Congress  
22      detailing the proposed facility’s cost projections and  
23      capabilities to significantly accelerate the develop-  
24      ment of new energy technologies.



1 (d) APPLIED MATHEMATICS AND SOFTWARE DEVEL-  
 2 OPMENT FOR HIGH-END COMPUTING SYSTEMS.—The Di-  
 3 rector shall carry out activities to develop, test, maintain,  
 4 and support mathematics, models, and algorithms for  
 5 complex systems, as well as programming environments,  
 6 tools, languages, and operating systems for high-end com-  
 7 puting systems (as defined in section 2 of the Department  
 8 of Energy High-End Computing Revitalization Act of  
 9 2004 (15 U.S.C. 5541)).

10 (e) HIGH-END COMPUTING FACILITIES.—The Direc-  
 11 tor shall—

12 (1) provide for sustained access by the research  
 13 community in the United States to high-end com-  
 14 puting systems and to Leadership Systems (as de-  
 15 fined in section 2 of the Department of Energy  
 16 High-End Computing Revitalization Act of 2004 (15  
 17 U.S.C. 5541)), including provision of technical sup-  
 18 port for users of such systems; and

19 (2) conduct research and development on next-  
 20 generation computing architectures and platforms to  
 21 support the missions of the Department.

22 **SEC. 7. FUSION ENERGY RESEARCH PROGRAM.**

23 (a) PROGRAM.—As part of the activities authorized  
 24 under section 3, the Director shall carry out a fusion en-  
 25 ergy sciences research and development program to effec-

1 tively address the scientific and engineering challenges to  
2 building a cost-competitive fusion power plant and a com-  
3 petitive fusion power industry in the United States.

4 (b) ITER.—The Director shall coordinate and carry  
5 out the responsibilities of the United States with respect  
6 to the ITER international fusion project pursuant to the  
7 Agreement on the Establishment of the ITER Inter-  
8 national Fusion Energy Organization for the Joint Imple-  
9 mentation of the ITER Project.

10 (c) IDENTIFICATION OF PRIORITIES.—Not later than  
11 180 days after the date of enactment of this Act, the Sec-  
12 retary shall transmit to the Congress a report on the De-  
13 partment’s proposed research and development activities  
14 in magnetic fusion over the 10 years following the date  
15 of enactment of this Act under four realistic budget sce-  
16 narios. The report shall—

17 (1) identify priorities for initiation of facility  
18 construction and facility decommissioning under  
19 each of those scenarios;

20 (2) provide an assessment of the need for a fa-  
21 cility or facilities that can examine and test potential  
22 fusion materials; and

23 (3) provide an assessment of whether a single  
24 new facility that substantially addresses magnetic  
25 fusion, inertial fusion, and next generation fission

1 materials research needs is feasible, in conjunction  
2 with the expected capabilities of facilities operational  
3 as of the date of enactment of this Act.

4 (d) FUSION MATERIALS RESEARCH AND DEVELOP-  
5 MENT.—The Director, in coordination with the Assistant  
6 Secretary for Nuclear Energy of the Department, shall  
7 carry out research and development activities to identify,  
8 characterize, and create materials that can endure the  
9 neutron, plasma, and heat fluxes expected in a commercial  
10 fusion power plant.

11 (e) FUSION SIMULATION PROJECT.—In collaboration  
12 with the Office of Science’s Advanced Scientific Com-  
13 puting Research program described in section 6, the Di-  
14 rector shall carry out a computational project to advance  
15 the capability of fusion researchers to accurately simulate  
16 an entire fusion energy system.

17 (f) INERTIAL FUSION ENERGY RESEARCH AND  
18 TECHNOLOGY DEVELOPMENT PROGRAM.—The Secretary  
19 shall carry out a program of research and technology de-  
20 velopment in inertial fusion for energy applications, in-  
21 cluding ion beam and laser fusion.

22 **SEC. 8. HIGH ENERGY PHYSICS PROGRAM.**

23 (a) PROGRAM.—As part of the activities authorized  
24 under section 3, the Director shall carry out a research

1 program on the elementary constituents of matter and en-  
2 ergy and the nature of space and time.

3 (b) NEUTRINO RESEARCH.—As part of the program  
4 described in subsection (a), the Director shall carry out  
5 research activities on the nature of the neutrino, which  
6 may—

7 (1) include collaborations with the National  
8 Science Foundation on relevant projects; and

9 (2) utilize components of existing accelerator  
10 facilities to produce neutrino beams of sufficient in-  
11 tensity to explore research priorities identified by the  
12 High Energy Physics Advisory Panel or the National  
13 Academy of Sciences.

14 (c) DARK ENERGY AND DARK MATTER RE-  
15 SEARCH.—As part of the program described in subsection  
16 (a), the Director shall carry out research activities on the  
17 nature of dark energy and dark matter. These activities  
18 shall be consistent with research priorities identified by  
19 the High Energy Physics Advisory Panel or the National  
20 Academy of Sciences, and may include—

21 (1) the development of space-based and land-  
22 based facilities and experiments; and

23 (2) collaborations with the National Aeronautics  
24 and Space Administration, the National Science

1 Foundation, or international collaborations on rel-  
2 evant research projects.

3 (d) ACCELERATOR RESEARCH AND DEVELOP-  
4 MENT.—The Director shall carry out research and devel-  
5 opment in advanced accelerator concepts and technologies  
6 to reduce the necessary scope and cost for the next genera-  
7 tion of particle accelerators.

8 (e) INTERNATIONAL COLLABORATION.—The Direc-  
9 tor, as practicable and in coordination with other appro-  
10 priate Federal agencies as necessary, shall maximize the  
11 access of United States researchers to the most advanced  
12 facilities and research capabilities in the world, including  
13 the Large Hadron Collider.

14 **SEC. 9. NUCLEAR PHYSICS PROGRAM.**

15 (a) PROGRAM.—As part of the activities authorized  
16 under section 3, the Director shall carry out a research  
17 program, and support relevant facilities, to discover and  
18 understand various forms of nuclear matter.

19 (b) FACILITY CONSTRUCTION AND UPGRADES.—  
20 Consistent with the Office of Science’s project manage-  
21 ment practices, the Director shall carry out—

22 (1) an upgrade of the Continuous Electron  
23 Beam Accelerator Facility to a 12 gigaelectronvolt  
24 beam of electrons; and

1           (2) construction of the Facility for Rare Isotope  
2       Beams.

3       (c) ISOTOPE DEVELOPMENT AND PRODUCTION FOR  
4 RESEARCH APPLICATIONS.—The Director shall carry out  
5 a program for the production of isotopes, including the  
6 development of techniques to produce isotopes, that the  
7 Secretary determines are needed for research or other pur-  
8 poses. In making this determination, the Secretary shall  
9 consider any relevant recommendations made by Federal  
10 advisory committees, the National Academies, and inter-  
11 agency working groups in which the Department partici-  
12 pates.

13 **SEC. 10. SCIENCE LABORATORIES INFRASTRUCTURE PRO-**  
14 **GRAM.**

15       (a) PROGRAM.—The Director shall carry out a pro-  
16 gram to improve the safety, efficiency, and mission readi-  
17 ness of infrastructure at Office of Science laboratories.  
18 The program shall include projects to—

19           (1) renovate or replace space that does not  
20       meet research needs;

21           (2) replace facilities that are no longer cost ef-  
22       fective to renovate or operate;

23           (3) modernize utility systems to prevent failures  
24       and ensure efficiency;

1           (4) remove excess facilities to allow safe and ef-  
2       ficient operations; and

3           (5) construct modern facilities to conduct ad-  
4       vanced research in controlled environmental condi-  
5       tions.

6       (b) MINOR CONSTRUCTION PROJECTS.—

7           (1) AUTHORITY.—Using operation and mainte-  
8       nance funds or facilities and infrastructure funds  
9       authorized by law, the Secretary may carry out  
10      minor construction projects with respect to labora-  
11      tories administered by the Office of Science.

12          (2) ANNUAL REPORT.—The Secretary shall  
13      submit to Congress on an annual basis a report on  
14      each exercise of the authority under subsection (a)  
15      during the preceding fiscal year. Each report shall  
16      provide a brief description of each minor construc-  
17      tion project covered by the report.

18          (3) COST VARIATION REPORTS.—If, at any time  
19      during the construction of any minor construction  
20      project, the estimated cost of the project is revised  
21      and the revised cost of the project exceeds the minor  
22      construction threshold, the Secretary shall imme-  
23      diately submit to Congress a report explaining the  
24      reasons for the cost variation.

25          (4) DEFINITIONS.—In this section—

1 (A) the term “minor construction project”  
 2 means any plant project not specifically author-  
 3 ized by law for which the approved total esti-  
 4 mated cost does not exceed the minor construc-  
 5 tion threshold; and

6 (B) the term “minor construction thresh-  
 7 old” means \$10,000,000, with such amount to  
 8 be adjusted by the Secretary in accordance with  
 9 the Engineering News-Record Construction  
 10 Cost Index, or an appropriate alternative index  
 11 as determined by the Secretary, once every five  
 12 years after the date of enactment of this Act.

13 (5) NONAPPLICABILITY.—Sections 4703 and  
 14 4704 of the Atomic Energy Defense Act (50 U.S.C.  
 15 2743 and 2744) shall not apply to laboratories ad-  
 16 ministered by the Office of Science.

17 **SEC. 11. AUTHORIZATION OF APPROPRIATIONS.**

18 There are authorized to be appropriated to the Sec-  
 19 retary for the activities of the Office of Science—

20 (1) \$6,221,000,000 for fiscal year 2011, of  
 21 which—

22 (A) \$2,020,000 shall be for Basic Energy  
 23 Sciences activities under section 4;



1 (B) \$700,000 shall be for Biological and  
2 Environmental Research activities under section  
3 5; and

4 (C) \$469,000 shall be for Advanced Sci-  
5 entific Computing Research activities under sec-  
6 tion 6;

7 (2) \$6,656,000,000 for fiscal year 2012, of  
8 which—

9 (A) \$2,220,000 shall be for Basic Energy  
10 Sciences activities under section 4;

11 (B) \$791,000 shall be for Biological and  
12 Environmental Research activities under section  
13 5; and

14 (C) \$515,000 shall be for Advanced Sci-  
15 entific Computing Research activities under sec-  
16 tion 6;

17 (3) \$7,122,000,000 for fiscal year 2013, of  
18 which—

19 (A) \$2,440,000 shall be for Basic Energy  
20 Sciences activities under section 4;

21 (B) \$894,000 shall be for Biological and  
22 Environmental Research activities under section  
23 5; and

1 (C) \$567,000 shall be for Advanced Sci-  
2 entific Computing Research activities under sec-  
3 tion 6;

4 (4) \$7,621,000,000 for fiscal year 2014, of  
5 which—

6 (A) \$2,690,000 shall be for Basic Energy  
7 Sciences activities under section 4;

8 (B) \$957,000 shall be for Biological and  
9 Environmental Research activities under section  
10 5; and

11 (C) \$624,000 shall be for Advanced Sci-  
12 entific Computing Research activities under sec-  
13 tion 6; and

14 (5) \$8,154,000,000 for fiscal year 2015, of  
15 which—

16 (A) \$2,960,000 shall be for Basic Energy  
17 Sciences activities under section 4;

18 (B) \$1,060,000 shall be for Biological and  
19 Environmental Research activities under section  
20 5; and

21 (C) \$686,000 shall be for Advanced Sci-  
22 entific Computing Research activities under sec-  
23 tion 6.

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