105TH CONGRESS
*1st Session*
HOUSE OF REPRESENTATIVES
REPT. 105–67
Part 1

# DEPARTMENT OF ENERGY CIVILIAN RESEARCH AND DEVELOPMENT ACT OF 1997

APRIL 22, 1997.—Ordered to be printed

Mr. SENSENBRENNER, from the Committee on Science, submitted the following

## R E P O R T

together with

## ADDITIONAL AND SUPPLEMENTAL VIEWS

[To accompany H.R. 1277]

[Including cost estimate of the Congressional Budget Office]

The Committee on Science, to whom was referred the bill (H.R. 1277) to authorize appropriations for fiscal year 1998 and fiscal year 1999 for the civilian research, development, demonstration, and commercial application activities of the Department of Energy, and for other purposes, having considered the same, reports favorably thereon with an amendment and recommends that the bill as amended do pass.

# CONTENTS



## I. AMENDMENT

The amendment is as follows:

Strike out all after the enacting clause and insert in lieu thereof the following:

**SECTION 1. SHORT TITLE.**

This Act may be cited as the "Department of Energy Civilian Research and Development Act of 1997".

**SEC. 2. DEFINITIONS.**

For purposes of this Act—

(1) the term "CERN" means the European Organization for Nuclear Research;

(2) the term "Department" means the Department of Energy;

(3) the term "Large Hadron Collider project" means the Large Hadron Collider project at CERN; and

(4) the term "Secretary" means the Secretary of Energy.

**SEC. 3. AUTHORIZATION OF APPROPRIATIONS.**

(a) ENERGY SUPPLY RESEARCH AND DEVELOPMENT ACTIVITIES.—There are authorized to be appropriated to the Secretary for Energy Supply Research and Development operating expenses and capital equipment $2,838,719,000 for fiscal year 1998 and $2,847,812,000 for fiscal year 1999, of which—

(1) $272,820,000 for fiscal year 1998 (reduced by $15,000,000 to reflect the use of prior year balances) and $270,342,000 for fiscal year 1999 shall be for Solar and Renewable Resources Technologies, including—

(A) $2,150,000 for fiscal year 1998 and $2,150,000 for fiscal year 1999 for Solar Building Technology Research;

(B) $63,900,000 for fiscal year 1998 and $64,900,000 for fiscal year 1999 for Photovoltaic Energy Systems;

(C) $18,170,000 for fiscal year 1998 and $13,620,000 for fiscal year 1999 for Solar Thermal Energy Systems;

(D) $28,835,000 for fiscal year 1998 and $28,190,000 for fiscal year 1999 for Biopower/Biofuels Energy Systems;

(E) $29,500,000 for fiscal year 1998 and $18,140,000 for fiscal year 1999 for Wind Energy Systems;

(F) $2,800,000 for fiscal year 1998 and $500,000 for fiscal year 1999 for the National Renewable Energy Laboratory;

(G) $19,518,000 for fiscal year 1998 and $19,518,000 for fiscal year 1999 for Geothermal Electric Research and Development and Deployment;

(H) $1,000,000 for fiscal year 1998 for Hydropower;

(I) $44,500,000 for fiscal year 1998 and $36,500,000 for fiscal year 1999 for Electric Energy Systems and Storage, of which—

(i) $8,000,000 for fiscal year 1998 shall be for Electric and Magnetic Fields Research and Development;

(ii) $32,500,000 for fiscal year 1998 and $32,500,000 for fiscal year 1999 shall be for High-Temperature Superconductivity Research and Development; and

(iii) $4,000,000 for fiscal year 1998 and $4,000,000 for fiscal year 1999 shall be for Energy Storage Systems;

(J) $50,000,000 for fiscal year 1998 and $75,000,000 for fiscal year 1999 shall be for a Solar and Renewable Energy Science Initiative, to be managed by the Director of the Office of Energy Research, in consultation with the Assistant Secretary for Energy Efficiency and Renewable Energy on the goals and priorities of the initiative, for grants to be competitively awarded and subject to peer review for research related to solar and renewable energy; and

(K) $12,447,000 for fiscal year 1998 and $11,824,000 for fiscal year 1999 for Program Direction;

(2) $173,166,000 for fiscal year 1998 and $146,540,000 for fiscal year 1999 shall be for Nuclear Energy, including—

(A) $47,000,000 for fiscal year 1998 and $43,350,000 for fiscal year 1999 for Advanced Radioisotope Power Systems;

(B) $9,500,000 for fiscal year 1998 and $8,809,000 for fiscal year 1999 for Oak Ridge Landlord;

(C) $3,217,000 for fiscal year 1998 and $3,217,000 for fiscal year 1999 for Test Reactor Area Landlord;

(D) $2,000,000 for fiscal year 1998 for Advanced Test Reactor Fusion Irradiations;

(E) $6,000,000 for fiscal year 1998 and $6,000,000 for fiscal year 1999 for University Nuclear Science and Reactor Support;

(F) $70,535,000 for fiscal year 1998 and $60,000,000 for fiscal year 1999 for Termination Costs;

(G) $20,854,000 for fiscal year 1998 and $11,807,000 for fiscal year 1999 for Isotope Support; and

(H) $14,060,000 for fiscal year 1998 and $13,357,000 for fiscal year 1999 for Program Direction;

(3) $77,160,000 for fiscal year 1998 (reduced by $3,535,000 reflecting the use of prior year balances) and $76,828,000 for fiscal year 1999 shall be for Uranium Programs;

(4) $107,870,000 for fiscal year 1998 and $100,237,000 for fiscal year 1999 shall be for Environment, Safety, and Health;

(5) $367,538,000 for fiscal year 1998 and $378,564,000 for fiscal year 1999 shall be for Biological and Environmental Research, including—

(A) $157,037,000 for fiscal year 1998 and $161,748,000 for fiscal year 1999 for Life Sciences;

(B) $100,954,000 for fiscal year 1998 and $103,983,000 for fiscal year 1999 for Environmental Processes;

(C) $66,435,000 for fiscal year 1998 and $68,428,000 for fiscal year 1999 for Environmental Remediation;

(D) $43,112,000 for fiscal year 1998 and $44,405,000 for fiscal year 1999 for Medical Applications and Measurement Sciences; and

(E) $1,000,000 for fiscal year 1998 and $1,000,000 for fiscal year 1999 for the United States-Mexico Foundation for Science for research on biosciences and the environment,

except that, notwithstanding subparagraphs (A) through (E), the total amount which may be appropriated under this paragraph shall not exceed the overall sums stated at the beginning of this paragraph;

(6) $240,000,000 for fiscal year 1998 and $240,000,000 for fiscal year 1999 shall be for Fusion Energy Sciences, of which $5,000,000 for fiscal year 1998 and $5,000,000 for fiscal year 1999 shall be for General Plasma Science;

(7) $659,812,000 for fiscal year 1998 and $678,888,000 for fiscal year 1999 shall be for Basic Energy Sciences, including—

(A) $391,047,000 for fiscal year 1998 and $402,060,000 for fiscal year 1999 for Materials Sciences, of which not to exceed $5,000,000 for each such fiscal year may be used for the High Flux Beam Reactor at Brookhaven National Laboratory;

(B) $199,933,000 for fiscal year 1998 and $205,931,000 for fiscal year 1999 for Chemical Sciences;

(C) $41,371,000 for fiscal year 1998 and $42,612,000 for fiscal year 1999 for Engineering and Geosciences; and

(D) $27,461,000 for fiscal year 1998 and $28,285,000 for fiscal year 1999 for Energy Biosciences;

(8) $140,907,000 for fiscal year 1998 and $145,134,000 for fiscal year 1999 shall be for Computational and Technology Research, including—

(A) $117,490,000 for fiscal year 1998 and $121,014,000 for fiscal year 1999 for Mathematical, Information, and Computational Sciences;

(B) $15,829,000 for fiscal year 1998 and $16,304,000 for fiscal year 1999 for Laboratory Technology Research; and

(C) $7,588,000 for fiscal year 1998 and $7,816,000 for fiscal year 1999 for Advanced Energy Projects;

(9) $1,500,000 for fiscal year 1998 and $1,500,000 for fiscal year 1999 shall be for Energy Research Analysis;

(10) $29,070,000 for fiscal year 1998 and $27,434,000 for fiscal year 1999 shall be for Energy Research-Energy Supply Program Direction;

(11) $682,387,000 for fiscal year 1998 and $682,387,000 for fiscal year 1999 shall be for Environmental Restoration and Waste Management (Non-Defense), including—

(A) $457,625,000 for fiscal year 1998 and $457,625,000 for fiscal year 1999 for Environmental Restoration;

(B) $153,004,000 for fiscal year 1998 and $153,004,000 for fiscal year 1999 for Waste Management; and

(C) $71,758,000 for fiscal year 1998 and $71,758,000 for fiscal year 1999 for Nuclear Material and Facility Stabilization;

(12) $11,554,000 for fiscal year 1998 and $11,152,000 for fiscal year 1999 shall be for Technical Information Management; and

(13) $93,480,000 for fiscal year 1998 and $88,806,000 for fiscal year 1999 shall be for Field Operations.

(b) ENERGY ASSETS ACQUISITION.—There are authorized to be appropriated to the Secretary for the purchase, construction, expansion, and acquisition of real plant, property, and other physical assets for energy supply research and development activities, $43,582,000 for fiscal year 1998 and $45,332,000 for fiscal year 1999, of which—

(1) for Solar and Renewable Resources Technology, $2,200,000 for fiscal year 1998 shall be for completion of Project 96–E–100, Field Test Laboratory Building Renovation and Expansion, National Renewable Energy Laboratory;

(2) for Nuclear Energy, $4,425,000 for fiscal year 1998 and $6,425,000 for fiscal year 1999 shall be for completion of Project 95–E–201, Test Reactor Area Fire and Life Safety Improvements, Idaho National Engineering and Environmental Laboratory;

(3) for Uranium Programs—

(A) $400,000 for fiscal year 1998 and $5,200,000 for fiscal 1999 for completion of Project 98–U–200, $DUF_6$ Cylinder Storage Yards, K–25 Plant, Oak Ridge, Tennessee; and

(B) $6,000,000 for fiscal year 1998 and $10,700,000 for fiscal year 1999 for completion of Project 96–U–201, $DUF_6$ Cylinder Storage Yards, Paducah, Kentucky, Gaseous Diffusion Plant;

(4) for Basic Energy Sciences, $7,000,000 for fiscal year 1998 and $4,000,000 for fiscal year 1999 for completion of Project 96–E–300, Combustion Research Facility, Phase II, Sandia National Laboratories, Livermore, California;

(5) for Multiprogram Energy Laboratories-Facilities Support, $21,260,000 for fiscal year 1998 and $19,007,000 for fiscal year 1999 for—

(A) Project MEL–001, Multiprogram Energy Laboratories Infrastructure Project, Various Locations, $7,259,000 for fiscal year 1998 and $12,161,000 for fiscal year 1999;

(B) Project 96–E–333, Multiprogram Energy Laboratories Upgrades, Various Locations, $5,273,000 for fiscal year 1998 and $268,000 for fiscal year 1999;

(C) Project 95–E–308, Sanitary System Modifications, Phase II, Brookhaven National Laboratory, Upton, New York, $568,000 for fiscal year 1998;

(D) Project 95–E–307, Fire Safety Improvements-Phase III, Argonne National Laboratory, Argonne, Illinois, $718,000 for fiscal year 1998;

(E) Project 95–E–301, Central Heating Plant Rehabilitation-Phase I, Argonne National Laboratory, Argonne, Illinois, $3,442,000 for fiscal year 1998; and

(F) Project 94–E–363, Roofing Improvements, Oak Ridge National Laboratory, Oak Ridge, Tennessee, $4,000,000 for fiscal year 1998 and $6,578,000 for fiscal year 1999; and

(6) for Environmental Restoration and Waste Management (Non-Defense), $2,297,000 for fiscal year 1998, of which—

(A) $1,900,000 shall be for completion of Project 94–E–602, Bethel Federal Facility Agreement Upgrade, Oak Ridge National Laboratory; and

(B) $397,000 shall be for completion of Project 93–E–900, Long-Term Storage of TMI–2 Fuel; Idaho National Energy and Environmental Laboratory, Idaho.

(c) GENERAL SCIENCE AND RESEARCH ACTIVITIES.—There are authorized to be appropriated to the Secretary for General Science and Research Activities operating expenses and capital equipment—

(1) $865,210,000 for fiscal year 1998 (reduced by $15,000,000 to reflect the use of prior year balances), including—

(A) $599,185,000 for High Energy Physics;

(B) $256,525,000 for Nuclear Physics; and

(C) $9,500,000 for Program Direction; and

(2) $941,000,000 for fiscal year 1999, including—

(A) $607,645,000 for High Energy Physics;

(B) $324,330,000 for Nuclear Physics; and

(C) $9,025,000 for Program Direction.

None of the funds authorized for High Energy Physics by this subsection or subsection (d) may be used for the Large Hadron Collider project, unless the Secretary, in consultation with the Director of the National Science Foundation, has transmitted to the Committee on Science of the House of Representatives and the Committee on Energy and Natural Resources of the Senate a report on the impacts of such funding on the operations and viability of United States high energy and nuclear physics facilities.

(d) SCIENCE ASSETS ACQUISITION.—There are authorized to be appropriated to the Secretary for the purchase, construction, expansion, and acquisition of real plant, property, and other physical assets for general science and research activities, $126,870,000 for fiscal year 1998, of which—

(1) $50,850,000 shall be for High Energy Physics, including—

(A) $30,950,000 for completion of Project 92–G–302, Fermilab Main Injector, Fermi National Accelerator Laboratory, Illinois;

(B) $9,400,000 for completion of Project 97–G–303, Stanford Linear Accelerator Center Master Station Upgrade, California;

(C) $5,500,000 for architectural engineering and technical design work for Project 98–G–304, Neutrinos at the Main Injector, Fermi National Accelerator Laboratory, Illinois; and

(D) $5,000,000 for completion of Project 98–G–305, Fermilab C-Zero Area Experimental Hall, Fermi National Accelerator Laboratory, Illinois; and

(2) $76,020,000 shall be for Nuclear Physics, for completion of Project 91–G–300, Relativistic Heavy Ion Collider, Brookhaven National Laboratory, Upton, New York.

(e) FOSSIL ENERGY RESEARCH AND DEVELOPMENT.—There are authorized to be appropriated to the Secretary for Fossil Energy Research and Development operating expenses, capital equipment, and construction, $348,854,000 for fiscal year 1998 and $348,185,000 for fiscal year 1999, of which—

(1) $105,831,000 for fiscal year 1998 and $104,206,000 for fiscal year 1999 shall be for Coal operating expenses, including—

(A) $5,064,000 for fiscal year 1998 and $5,064,000 for fiscal year 1999 for Coal Preparation;

(B) $5,816,000 for fiscal year 1998 and $5,816,000 for fiscal year 1999 for Direct Liquefaction;

(C) $4,223,000 for fiscal year 1998 and $4,223,000 for fiscal year 1999 for Indirect Liquefaction;

(D) $741,000 for fiscal year 1998 and $741,000 for fiscal year 1999 for Advanced Clean Fuels Research Advanced Research and Environmental Technology;

(E) $5,462,000 for fiscal year 1998 and $5,462,000 for fiscal year 1999 for Advanced Pulverized Coal-Fired Powerplant;

(F) $10,927,000 for fiscal year 1998 and $10,927,000 for fiscal year 1999 for Indirect Fired Cycle;

(G) $22,342,000 for fiscal year 1998 and $20,717,000 for fiscal year 1999 for High-Efficiency-Integrated Gasification Combined Cycle;

(H) $17,875,000 for fiscal year 1998 and $17,875,000 for fiscal year 1999 for High-Efficiency Pressurized Fluidized Bed;

(I) $9,734,000 for fiscal year 1998 and $9,734,000 for fiscal year 1999 for Advanced Clean/Efficient Power Systems Advanced Research and Environmental Technology; and

(J) $23,647,000 for fiscal year 1998 and $23,647,000 for fiscal year 1999 for Advanced Research and Technology Development;

(2) $47,419,000 for fiscal year 1998 and $46,464,000 for fiscal year 1999 shall be for Oil Technology operating expenses, including—

(A) $31,157,000 for fiscal year 1998 and $31,157,000 for fiscal year 1999 for Exploration and Production Supporting Research;

(B) $3,931,000 for fiscal year 1998 and $3,931,000 for fiscal year 1999 for Recovery Field Demonstrations;

(C) $6,411,000 for fiscal year 1998 and $5,456,000 for fiscal year 1999 for Exploration and Production Environmental Research; and

(D) $5,920,000 for fiscal year 1998 and $5,920,000 for fiscal year 1999 for Processing Research and Downstream Operations;

(3) $85,877,000 for fiscal year 1998 and $85,877,000 for fiscal year 1999 shall be for Gas operating expenses, including—

(A) $14,123,000 for fiscal year 1998 and $14,123,000 for fiscal year 1999 for Natural Gas Research Exploration and Production;

(B) $993,000 for fiscal year 1998 and $993,000 for fiscal year 1999 for Natural Gas Research Delivery and Storage;

(C) $31,379,000 for fiscal year 1998 and $31,379,000 for fiscal year 1999 for Natural Gas Research Advanced Turbine Systems;

(D) $4,808,000 for fiscal year 1998 and $4,808,000 for fiscal year 1999 for Natural Gas Research Utilization;

(E) $4,617,000 for fiscal year 1998 and $4,617,000 for fiscal year 1999 for Natural Gas Research Environmental Research/Regulatory Analysis;

(F) $1,210,000 for fiscal year 1998 and $1,210,000 for fiscal year 1999 for Fuel Cells Advanced Research;

(G) $16,335,000 for fiscal year 1998 and $16,335,000 for fiscal year 1999 for Fuel Cells Molten Carbonate Systems to continue cost-shared cost reduction and performance improvement of one system; and

(H) $12,412,000 for fiscal year 1998 and $12,412,000 for fiscal year 1999 for Fuel Cells Advanced Concepts;

(4) $61,783,000 for fiscal year 1998 and $62,494,000 for fiscal year 1999 shall be for Program Direction and Management Support operating expenses, including—

(A) $13,676,000 for fiscal year 1998 and $12,992,000 for fiscal year 1999 for Headquarters Program Direction; and

(B) $48,107,000 for fiscal year 1998 and $49,502,000 for fiscal year 1999 for Energy Technology Center Program Direction;

(5) $2,000,000 for fiscal year 1998 and $2,000,000 for fiscal year 1999 shall be for Plant and Capital Equipment, for construction of General Plant Projects;

(6) $12,935,000 for fiscal year 1998 and $12,935,000 for fiscal year 1999 shall be for Fossil Energy Environmental Restoration operating expenses;

(7) $5,836,000 for fiscal year 1998 and $5,836,000 for fiscal year 1999 shall be for Cooperative Research and Development operating expenses;

(8) $2,173,000 for fiscal year 1998 and $2,173,000 for fiscal year 1999 shall be for Fuels Conversion, Natural Gas, and Electricity operating expenses; and

(9) $25,000,000 for fiscal year 1998 and $30,000,000 for fiscal year 1999 shall be for a Fossil Energy Science Initiative to be managed by the Director of the Office of Energy Research, in consultation with the Assistant Secretary for Fossil Energy on the goals and priorities of the initiative, for grants to be competitively awarded and subject to peer review for research relating to fossil energy.

Notwithstanding paragraphs (1) through (9), the total amount which may be appropriated under this subsection shall not exceed the overall sums stated at the beginning of this subsection.

(f) ENERGY CONSERVATION RESEARCH AND DEVELOPMENT.—There are authorized to be appropriated to the Secretary for Energy Conservation Research and Development operating expenses and capital equipment, $416,908,000 for fiscal year 1998 (reduced by $20,000,000 to reflect the use of prior year balances) and $439,403,000 for fiscal year 1999, of which—

(1) $41,004,000 for fiscal year 1998 and $40,230,000 for fiscal year 1999 shall be for the Building Technology, State and Community Sector (Non-Grants), including—

(A) $8,762,000 for fiscal year 1998 and $8,762,000 for fiscal year 1999 for Building Systems Design for Building America Program;

(B) $20,550,000 for fiscal year 1998 and $20,250,000 for fiscal year 1999 for Building Equipment and Materials; and

(C) $11,692,000 for fiscal year 1998 and $11,218,000 for fiscal year 1999 for Management and Planning;

(2) $125,380,000 for fiscal year 1998 and $125,048,000 for fiscal year 1999 shall be for the Industry Sector, including—

(A) $55,660,000 for fiscal year 1998 and $55,660,000 for fiscal year 1999 for Industries of the Future (Specific);

(B) $39,120,000 for fiscal year 1998 and $39,120,000 for fiscal year 1999 for Industries of the Future (Crosscutting);

(C) $23,950,000 for fiscal year 1998 and $23,950,000 for fiscal year 1999 for Technology Access; and

(D) $6,650,000 for fiscal year 1998 and $6,318,000 for fiscal year 1999 for Management and Planning;

(3) $179,576,000 for fiscal year 1998 and $179,225,000 for fiscal year 1999 shall be for the Transportation Sector, including—

(A) $2,700,000 for fiscal year 1998 and $2,700,000 for fiscal year 1999 for Clean Cities;

(B) $124,046,000 for fiscal year 1998 and $124,046,000 for fiscal year 1999 for Advanced Automotive Technologies;

(C) $18,000,000 for fiscal year 1998 and $18,000,000 for fiscal year 1999 for Advanced Heavy Vehicle Technologies;

(D) $30,500,000 for fiscal year 1998 and $30,500,000 for fiscal year 1999 for Transportation Materials Technologies; and

(E) $7,030,000 for fiscal year 1998 and $6,679,000 for fiscal year 1999 for Implementation and Program Management,

except that, notwithstanding subparagraphs (A) through (E), the total amount which may be appropriated under this paragraph shall not exceed the overall sums stated at the beginning of this paragraph;

(4) $20,948,000 for fiscal year 1998 and $19,900,000 for fiscal year 1999 shall be for Policy and Management; and

(5) $50,000,000 for fiscal year 1998 and $75,000,000 for fiscal year 1999 shall be for an Energy Efficiency Science Initiative to be managed by the Director of the Office of Energy Research, in consultation with the Assistant Secretary for Energy Efficiency and Renewable Energy on the goals and priorities of the initiative, for grants to be competitively awarded and subject to peer review for research relating to energy efficiency.

**SEC. 4. FUNDING LIMITATIONS.**

None of the funds authorized by this Act for fiscal year 1998 or fiscal year 1999 may be used for the following programs, projects, and activities, except to fulfill contractual obligations:

(1) Nuclear Energy Advanced Light Water Reactor.

(2) Nuclear Energy Commercial Reactor.

(3) Nuclear Energy Security.

(4) Nuclear Energy Termination Costs Gas Turbine-Modular Helium Reactor.

(5) Nuclear Energy Termination Costs Advanced Light Water Reactor.

(6) Fossil Energy Research and Development Advanced Research and Technology Development Coal Technology Export.

(7) Clean Coal Technology Program.

**SEC. 5. NATIONAL ACADEMY OF SCIENCES REPORTS.**

(a) HIGH ENERGY AND NUCLEAR PHYSICS.—The Secretary shall enter into appropriate arrangements with National Academy of Sciences for the Academy to prepare a report on the high energy and nuclear physics activities of the Department, assuming a combined budget of $977,080,000 for all activities authorized under section 3 (c) and (d) for fiscal year 1998, and $941,000,000 for each of the fiscal years 1999, 2000, 2001, and 2002. The report shall include—

(1) a priority list of research opportunities, including both ongoing and proposed activities;

(2) an analysis of the relevance of each research facility to the research opportunities listed under paragraph (1);

(3) recommendations for the optimal balance among facility operations, construction, and research support and the optimal balance between university and laboratory research programs; and

(4) recommended schedules for the continuation, consolidation, or termination of each research program, and continuation, upgrade, transfer, or closure of each research facility.

Not later than December 31, 1997, the Secretary shall transmit to the Committee on Science of the House of Representatives and the Committee on Energy and Natural Resources of the Senate the report prepared under this subsection.

(b) BASIC ENERGY SCIENCES.—(1) The Secretary shall enter into appropriate arrangements with the National Academy of Sciences for the Academy to prepare a report on the basic energy sciences activities of the Department, based on the following three budget options for the entire Basic Energy Sciences account and all related research and energy asset activities:

(A) Provision of $683,000,000 for each of the fiscal years 1999 through 2002.

(B) Provision of $683,000,000 for fiscal year 1999, and an amount reflecting a three percent reduction in each year thereafter through fiscal year 2002.

(C) Provision of $683,000,000 for fiscal year 1999, and an amount reflecting a three percent increase in each year thereafter through fiscal year 2002.

(2) None of the figures described in paragraph (1)(A) through (C) shall be altered to reflect inflationary allowances. The report shall include—

(A) a priority list of research opportunities, including both ongoing and proposed activities;

(B) an analysis of the relevance of each research facility to the research opportunities listed under subparagraph (A);

(C) recommendations for the optimal balance among facility operations, construction, and research support and the optimal balance between university and laboratory research programs; and

(D) recommended schedules for the continuation, consolidation, or termination of each research program, and continuation, upgrade, transfer, or closure of each research facility.

Not later than December 31, 1997, the Secretary shall transmit to the Committee on Science of the House of Representatives and the Committee on Energy and Natural Resources of the Senate the report prepared under this paragraph.

(c) NATIONAL SPALLATION NEUTRON SOURCE.—The Secretary shall enter into appropriate arrangements with National Academy of Sciences for the Academy to prepare a report containing a detailed evaluation of the costs of construction and operation of the National Spallation Neutron Source at alternative appropriate sites, including at least the Argonne National Laboratory, the Brookhaven National Laboratory, the Los Alamos National Laboratory, and the Oak Ridge National Laboratory. Such report shall also include an identification of other advantages and disadvantages of each site evaluated. Not later than December 31, 1997, the Secretary shall transmit to the Committee on Science of the House of Representatives and the Committee on Energy and Natural Resources of the Senate the report prepared under this subsection. Along with such report, the Secretary shall include a recommendation from the Department for the preferred site that will meet its program criteria, taking into consideration the effect of delay on neutron science work, existing expertise in the field of neutron science, affiliations with institutions of higher education in neutron science, and State allocations or commitments to facilities.

**SEC. 6. PROHIBITION ON USE OF CLEAN COAL TECHNOLOGY RESERVE FUNDS.**

No funds in the Clean Coal Technology Reserve may be used to initiate or carry out a clean coal technology program based outside the United States.

**SEC. 7. NEXT GENERATION INTERNET.**

None of the funds authorized by this Act, or any other Act enacted before the date of the enactment of this Act, may be used for the Next Generation Internet. Notwithstanding the previous sentence, funds may be used for the continuation of programs and activities that were funded and carried out during fiscal year 1997.

**SEC. 8. LIMITATIONS.**

(a) PROHIBITION OF LOBBYING ACTIVITIES.—None of the funds authorized by this Act shall be available for any activity whose purpose is to influence legislation pending before the Congress, except that this subsection shall not prevent officers or employees of the United States or of its departments or agencies from communicating to Members of Congress on the request of any Member or to Congress, through the proper channels, requests for legislation or appropriations which they deem necessary for the efficient conduct of the public business.

(b) LIMITATION ON APPROPRIATIONS.—No sums are authorized to be appropriated to the Secretary for fiscal years 1998 and 1999 for the activities for which sums are authorized by this Act, unless such sums are specifically authorized to be appropriated by this Act.

(c) ELIGIBILITY FOR AWARDS.—

(1) IN GENERAL.—The Secretary shall exclude from consideration for grant agreements made by the Department after fiscal year 1997 any person who re-

ceived funds, other than those described in paragraph (2), appropriated for a fiscal year after fiscal year 1997, under a grant agreement from any Federal funding source for a project that was not subjected to a competitive, merit-based award process. Any exclusion from consideration pursuant to this subsection shall be effective for a period of 5 years after the person receives such Federal funds.

(2) EXCEPTION.—Paragraph (1) shall not apply to the receipt of Federal funds by a person due to the membership of that person in a class specified by law for which assistance is awarded to members of the class according to a formula provided by law.

(3) DEFINITION.—For purposes of this subsection, the term "grant agreement" means a legal instrument whose principal purpose is to transfer a thing of value to the recipient to carry out a public purpose of support or stimulation authorized by a law of the United States, and does not include the acquisition (by purchase, lease, or barter) of property or services for the direct benefit or use of the United States Government. Such term does not include a cooperative agreement (as such term is used in section 6305 of title 31, United States Code) or a cooperative research and development agreement (as such term is defined in section 12(d)(1) of the Stevenson-Wydler Technology Innovation Act of 1980 (15 U.S.C. 3710a(d)(1))).

**SEC. 9. NOTICE.**

(a) NOTICE OF REPROGRAMMING.—If any funds authorized by this Act are subject to a reprogramming action that requires notice to be provided to the Appropriations Committees of the House of Representatives and the Senate, notice of such action shall concurrently be provided to the Committees on Science and Commerce of the House of Representatives and the Committee on Energy and Natural Resources of the Senate.

(b) NOTICE OF REORGANIZATION.—The Secretary shall provide notice to the Committees on Science, Commerce, and Appropriations of the House of Representatives, and the Committees on Energy and Natural Resources and Appropriations of the Senate, not later than 15 days before any major reorganization of any program, project, or activity of the Department.

**SEC. 10. SENSE OF CONGRESS ON THE YEAR 2000 PROBLEM.**

With the year 2000 fast approaching, it is the sense of Congress that the Department should—

(1) give high priority to correcting all 2-digit date-related problems in its computer systems to ensure that those systems continue to operate effectively in the year 2000 and beyond;

(2) assess immediately the extent of the risk to the operations of the Department posed by the problems referred to in paragraph (1), and plan and budget for achieving Year 2000 compliance for all of its mission-critical systems; and

(3) develop contingency plans for those systems that the Department is unable to correct in time.

**SEC. 11. BUY AMERICAN.**

(a) COMPLIANCE WITH BUY AMERICAN ACT.—No funds appropriated pursuant to this Act may be expended by an entity unless the entity agrees that in expending the assistance the entity will comply with sections 2 through 4 of the Act of March 3, 1933 (41 U.S.C. 10a–10c, popularly known as the "Buy American Act").

(b) SENSE OF CONGRESS.—In the case of any equipment or products that may be authorized to be purchased with financial assistance provided under this Act, it is the sense of Congress that entities receiving such assistance should, in expending the assistance, purchase only American-made equipment and products.

(c) NOTICE TO RECIPIENTS OF ASSISTANCE.—In providing financial assistance under this Act, the Secretary of Energy shall provide to each recipient of the assistance a notice describing the statement made in subsection (a) by the Congress.

## II. PURPOSE OF THE BILL

The purpose of the bill is to authorize appropriations for Fiscal Year 1998 and Fiscal Year 1999 for the civilian research, development, demonstration, and commercial application activities of the Department of Energy under the jurisdiction of the Committee on Science.

## III. Background and Need for Legislation

Three circumstances dictate the need for this legislation: (1) the importance of preserving and strengthening the Nation's scientific leadership; (2) the lack of specific authorizations for the bulk of the Department of Energy's civilian research, development, demonstration and commercial application activities under the Committee on Science's jurisdiction; and (3) the necessity to balance the budget.

The Committee on Science believes the Nation's future is tied to science, and that the Federal Government should play an important role in the promotion and support of our scientific endeavors. As we enter the next millennium, our nation faces many challenges that can be met by enhancing the country's scientific and technical base. Whether finding a cure for a deadly disease, developing technologies which minimize waste and pollution, or discovering clean and safe energy sources to sustain us well into the future, a healthy scientific research and development base is required.

The Department of Energy is a major funding source for science. The Department of Energy's Office of Energy Research supports the Federal Government's third largest basic research program, and is exceeded in size only by the National Institutes of Health and the National Science Foundation. In addition, the Department supports major energy research and development efforts, including solar and renewable energy, energy efficiency, fossil energy, and nuclear and fusion energy. However, with the exception of Hydrogen Research which is authorized through 2001 by the Hydrogen Future Act of 1996 (Public Law 104-271), very few of the Department's programs have specific authorizations—nearly all such authorizations contained in the Energy Policy of Act of 1992 either have or will soon expire. This circumstance, in and of itself, dictates a compelling need for a comprehensive authorization bill to provide guidance and direction to the Department that preserves and strengthens the Nation's science base and our energy future.

The Committee also enthusiastically supports the efforts to balance the budget. For if Congress and the Administration fail to achieve this goal, future funding for all discretionary programs, including science and technology programs, will be jeopardized. Twenty years ago, non-defense discretionary spending accounted for almost 22.3 percent of the budget while interest on the national debt was a mere 7 percent. Today, the Federal Government spends 16.1 percent of the federal budget on non-defense discretionary programs and 15 percent on servicing the national debt. As interest on the public debt and the entitlement program spending continues to grow, less and less funding will be available for non-defense discretionary spending programs such as energy and scientific research. To prepare America for an increasingly technologically-advanced competitive world and to prepare our next generation of scientists and engineers, we need to first assure our Federal financial house is in order.

Given the circumstance of a stringent budget environment and the desire to enhance our science base, the Committee has examined closely each of the programs, projects and activities proposed by the Department of Energy in its Fiscal Year 1998 budget re-

quest and has used the following five criteria in prioritizing its funding recommendations:

1. Federal Research and Development should focus on essential programs that are long-term, high-risk, non-commercial, cutting edge, well-managed, and have great potential for scientific discovery; funding for programs that do not meet this standard should be eliminated or decreased to reduce budget demands and to enable new initiatives.

2. Federal R&D should be highly relevant to and tightly focused on agency missions, with accountability and procedures for evaluating quality and results.

3. Beyond the demonstration of technical feasibility, activities associated with evolutionary advances or incremental improvements to a product or process, or the marketing or commercialization of a product or process should be left to the private sector.

4. Where possible, international, industry and state science partnerships should be nurtured as a way to leverage U.S. taxpayer R&D investment.

5. Infrastructure necessary for carrying out essential federal R&D programs needs to be prioritized consistent with program requirements.

The Committee believes that this authorization bill, the Department of Energy Civilian Research and Development Authorization of 1997, meets the Committee's responsibilities to set priorities for good fundamental science and a balanced energy research portfolio that is vital to the Nation's future and a balanced budget.

## IV. Summary of Hearings

The Subcommittee on Energy and Environment held hearings dedicated to the Fiscal Year 1998 Department of Energy budget authorization request on March 6, 19 and 20, 1997, and heard testimony from Department of Energy officials and from the General Accounting Office on the Department's management of its major system acquisitions. In addition, a number of non-governmental witnesses addressed the Department's Fiscal Year 1998 budget request and broader Departmental issues at a hearing on April 9, 1997.

Department of Energy officials who testified included: (1) Dr. Martha A. Krebs, Director, Office of Energy Research; (2) the Honorable Patricia Fry Godley, Assistant Secretary for Fossil Energy; (3) the Honorable Christine A. Ervin, Assistant Secretary for Energy Efficiency and Renewable Energy; (4) Dr. Terry R. Lash, Director, Office of Nuclear Energy, Science and Technology; (5) Mr. Peter N. Brush, Principal Deputy Assistant Secretary for Environment, Safety and Health; and (6) Mr. James M. Owendoff, Acting Principal Deputy Assistant Secretary for Environmental Management.

The following also provided testimony concerning the Department of Energy: (1) Mr. Victor S. Rezendes, Director, Resources, Community, and Economic Development Division, U.S. General Accounting Office; (2) Mr. Fred L. Smith, President, Competitive Enterprise Institute; (3) Ms. Anna Aurilio, Staff Scientist, U.S. Public Interest Research Group; (4) Dr. David Baldwin, Senior Vice Presi-

dent, General Atomics; (5) Mr. Ralph DeGennaro, Executive Director, Taxpayers for Common $ense; (6) Mr. Scott Sklar, Executive Director, Solar Unity Network; (7) Mr. Aris Melissaratos, Vice President, Science, Technology, and Quality Division, Westinghouse Electric Corporation; and (8) Mr. Jerry Taylor, Director, Natural Resources Studies Division, CATO Institute.

## V. COMMITTEE ACTIONS

As summarized in the previous section, the Subcommittee on Energy and Environment heard testimony relevant to DOE's Fiscal Year 1998 budget request at hearings held on March 6, 19, 20, and April 9, 1997.

On April 10, 1997, Mr. Calvert, Chairman of the Subcommittee on Energy and Environment, introduced H.R.1277, the Department of Energy Civilian Research and Development Authorization Act of 1997, to authorize appropriations for DOE research, development, demonstration and commercial application activities for Fiscal Years 1998 and 1999.

The Full Committee met to consider H.R. 1277 on Wednesday, April 16, 1997.

*Amendment 1.*—Mr. Calvert, Chairman of the Science Committee's Subcommittee on Energy and Environment, offered a manager's amendment that corrected technical errors and made a number of changes to address bipartisan Member interests. These include the following: (1) provision of $2.0 million over two years with available funds for the United States-Mexico Foundation for Science for research on bioscience and the environment, and $5.4 million over two years for the Clean Cities Initiative; (2) removal of the prohibitions for authorization of appropriations of certain Department of Energy programs, with the exception of those that refer to Nuclear Energy; Coal Technology Export and Clean Coal Technology; (3) initiation of a National Academy of Sciences report on the Department's Basic Energy Sciences program; and (4) assurance that in managing the new Energy Science Initiatives that the Director of Energy Research will consult with the Assistant Secretaries of the programs involved. The amendment was adopted by a voice vote.

*Amendment 2.*—Mr. Doyle offered an amendment to restore funding for Nuclear Energy Security and the Advance Light Water Reactor program. The amendment was withdrawn pending further hearings by the Committee.

*Amendment 3.*—Mr. Boehlert offered an amendment to restore funding for the Large Hadron Collider project. The amendment was withdrawn pending further review of the program by the Committee.

*Amendment 4.*—Mr. Ehlers offered an amendment to eliminate the line item for the Stanford Linear Accelerator Center, which was adopted by a division vote of 18 yeas to 8 noes.

*Amendment 5.*—Mr. Barton offered an amendment to prohibit funding for the Large Hadron Collider project, which was defeated by a division vote of 12 yeas to 20 noes.

*Amendment 6.*—Mr. Davis offered an en bloc amendment to: (1) increase funding for the Energy Conservation Research and Development Building Technologies program by $35,896,000 in Fiscal

Year 1998, and by $36,570,000 in Fiscal Year 1999, with offsetting funds to be derived from the Energy Efficiency Science Initiative; and (2) to delete corresponding funding limitations. Following debate, in which Mr. Davis noted that the manager's amendment deleted practically all of the funding limitations in Section 4, the amendment was withdrawn.

*Amendment 7.*—Ms. Lofgren offered an amendment to restore funding of $9,172,000 in each of Fiscal Years 1998 and 1999 for the Biological and Environmental Research Human Interactions program. The amendment was withdrawn.

*Amendment 8.*—Mr. Roemer offered an amendment to eliminate self-regulation at Department of Energy laboratories, other than defense laboratories. Following debate, the amendment was withdrawn.

*Amendment 9.*—Mr. Brown, on behalf of Mr. Traficant, offered an amendment to add a new Section 10 to the bill that requires any entity that is appropriated funds pursuant to this act or amendments thereto, to comply with sections 2-4 of the Act of March 3, 1933 (41 U.S.C. 10a-10c, popularly known as the "Buy American Act"), and that recipients of funds pursuant to this act shall be notified of subsection (a)'s requirement of compliance with the Buy American Act. The amendment was adopted by voice vote.

With a quorum present, Mr. Roemer, Ranking Democratic Member of the Subcommittee on Energy and Environment moved that the Committee report the bill, H.R. 1277, as amended, to the House and that the staff prepare the legislative report and make technical and conforming changes, and that the Chairman take all necessary steps to bring the bill before the House for consideration. The motion was approved by voice vote.

Mr. Sensenbrenner, Chairman of the Committee on Science, asked and received unanimous consent that Committee Members have 2 subsequent calendar days in which to submit supplemental, minority or additional views on the measure, and that, pursuant to Clause 1 of Rule XX of the Rules of the House of Representatives, the Committee authorize the Chairman to offer such motions as may be necessary in the House to go to conference with the Senate on H.R. 1277 or a similar Senate bill.

## VI. Summary of Major Provisions of the Bill

H.R. 1277 authorizes appropriations for the civilian research, development, demonstration and commercial application activities of the Department of Energy under the jurisdiction of the Committee on Science.

- Authorizes $4,605,143,000 for the Department of Energy DOE Civilian Research and Development (R&D) for fiscal year 1998, up $117,866,000—or 2.6%—over the FY 1997 comparable appropriated level of $4,487,277,000:
  - —Energy Supply Research and Development Activities—$2,838,719,000.
  - —Energy Assets Acquisition—$43,582,000.
  - —General Science and Research Activities—$850,210,000.
  - —Science Assets Acquisition—$126,870,000.
  - —Fossil Energy Research and Development—$348,854,000.

—Energy Conservation Research and Development—$396,908,000.

- Authorizes $4,621,732,000 for Fiscal Year 1999, up $134,455,000—or 3.0%—over FY 1997.
  - —Energy Supply Research and Development Activities—$2,847,812,000.
  - —Energy Assets Acquisition—$45,332,000.
  - —General Science and Research Activities—$941,000,000.
  - —Fossil Energy Research and Development—$348,185,000.
  - —Energy Conservation Research and Development—$439,403,000.
- Major Increases and Initiatives over 2 Years
  - —Increases Solar and Renewable Energy $86.7 million (including the already authorized Hydrogen Research Program) over 1997 ($282.8 million in FY 1998, an increase of $34.6—or 13.9%—over FY 1997; and $300.3 million in FY 1999—an increase of $52.1 million—or 21.0%—over FY 1997).
  - —Increases Energy Conservation R&D $100.5 million over FY 1997 ($396.9 million in FY 1998, an increase of $30.5 million—or 8.3%—over FY 1997; and $439.4 million in FY 1999, an increase of $73.0 million—or 19.9%—over FY 1997).
  - —Increases Environmental Cleanup $222.8 million over FY 1997 ($682.4 million in each of FY 1998 and FY 1999, an annual increase of $111.4 million—or 19.5%—over FY 1997).
  - —Maintains Fossil Energy R&D ($348.9 million in FY 1998 and $348.2 million in FY 1999).
  - —Establishes a $305.0 million Clean Energy Science Initiative over FY 1998 and FY 1999 for competitive, peer-reviewed research in the fields of solar and renewable energy, fossil energy and energy efficiency.
  - —Increases Fusion Energy Sciences $30.0 million over the President's request ($240.0 million in FY 1998 and FY 1999) for initiating and strengthening alternate fusion confinement concepts; increasing utilization of the remaining two major experiments (Doublet DIII-D at General Atomics and Alcator C-MOD at MIT); strengthening and maintaining diversity in the theory and computational programs; and strengthening university-based basic fusion sciences and technology.
  - —Increases Biological and Environmental Research $53.6 million over 1997 ($367.5 million in FY 1998, an increase of $21.3 million—or 6.1%—over FY 1997; and $378.6 million in FY 1999—an increase of $32.3 million—or 9.3%—over FY 1997) for research on the long-term health and environmental consequences of energy production, development, and use, including the Human Genome Project.
  - —Increases Basic Energy Sciences $76.1 million over 1997 ($659.8 million in FY 1998, an increase of $28.5 million—or 4.5%—over FY 1997; and $678.9 million in FY 1999—an increase of $47.6 million—or 7.5%—over FY 1997) to support world-class, peer-reviewed fundamental energy-related research and to operate major scientific user facilities.
  - —Increases High Energy and Nuclear Physics $119.3 million over 1997 ($850.2 million in FY 1998, an increase of $14.3 million—or 1.7%—over FY 1997; and $941.0 million in FY 1999—an increase of $105.0 million—or 12.6%—over FY 1997) for re-

search on the nature of matter and energy at its most fundamental level.

- Taxpayer Savings: $180 million over 2 Years
  - —Cuts DOE R&D bureaucratic overhead by 10.2% over 2 years, saving $70.8 million.
  - —Eliminates funding authorizations for 2 lower-priority Fossil Energy programs, saving $31.5 million.
  - —Reduces funding for Nuclear Energy $77.6 million below FY 1997 ($173.2 million in FY 1998, a decrease of $25.5 million—or 12.8%—below FY 1997; and $146.5 million in FY 1999, a decrease of $52.1 million—or 26.2%—below FY 1997), and eliminates funding authorizations for 5 lower-priority Nuclear Energy programs.
- Other Provisions
  - —Directs the Secretary of Energy to enter into appropriate arrangements with the National Academy of Sciences for reports studying and evaluating the Department's High Energy and Nuclear Physics and Basic Energy Sciences programs, and an evaluation of the cost to construct and operate the National Spallation Neutron Source at alternative appropriate sites.
  - —Prohibits the use of funds in the Clean Coal Technology Reserve Fund to initiate or carry out a clean coal technology program based outside the United States.
  - —Prohibits the use of funds authorized by this Act, or any other Act enacted before the date of the enactment of this Act, for the Next Generation Internet, except for continuation of programs and acivities that were funded and carried out during Fiscal Year 1997.
  - —Prohibits lobbying activities, limits appropriations for Fiscal Years 1998 and 1999, and excludes from consideration for grant agreements, for a period of five years, any person who received funding for a project not subject to a competitive, merit-based award process.
  - —Provides that if any funds authorized by this Act are subject to a reprogramming action that requires notice to be provided to the Appropriations Committees of the House and Senate, then notice of such action shall concurrently be provided to the House Committees on Science and Commerce, and to the Senate Committee on Energy and Natural Resources. Also requires the Secretary of Energy to provide notice to the aforementioned House and Senate Committees, as well as the Appropriations Committees of each body, not later than fifteen days before any major reorganization of any program, project, or activity of the Department.
  - —Expresses the sense of Congress that the Department of Energy should (1) give high priority to correcting all 2-digit date-related ("Year 2000") problems in its computer systems to ensure that those systems continue to operate effectively in the year 2000 and beyond; (2) assess immediately the extent of the risk to its operations by the Year 2000 problem, and plan and budget for achieving Year 2000 compliance for all of its mission-critical systems; and (3) develop contingency plans for those systems that cannot be corrected.

—Requires any entity that is appropriated funds pursuant to this act or amendments thereto, to comply with sections 2-4 of the Act of March 3, 1933 (41 U.S.C. 10a-10c, popularly known as the "Buy American Act"); and that recipients of funds pursuant to this act shall be notified of subsection (a)'s requirement of compliance with the Buy American Act.

## VII. Section-by-Section Analysis and Committee Views

*Section 1. Short Title.*

Section 1 cites the Act as the "Department of Energy Civilian Research and Development Authorization Act of 1997."

*Section 2. Definitions.*

Section 2 defines (1) "CERN" to mean the European Organization for Nuclear Research; (2) "Department" to mean the Department of Energy; (3) "Large Hadron Collider project" to mean the Large Hadron Collider project at CERN; and (4) "Secretary" to mean the Secretary of Energy.

*Section 3. Authorization of Appropriations.*

As shown in Table 1, H.R. 1277 authorizes $4,605,143,000 for Fiscal Year 1998 and $4,621,732,000 for Fiscal Year 1999 for the Department of Energy's civilian research, development, demonstration, and commercial application activities under the jurisdiction of the Committee on Science. In addition to these sums, $25,000,000 for Fiscal Year 1998 and $30,000,000 for Fiscal Year 1999 are authorized for Hydrogen Research by Public Law 104-261, the Hydrogen Futures Act of 1996. Including the already authorized funding for Hydrogen Research, the Department's civilian research, development, demonstration, and commercial application activities are authorized a total of $4,630,143,000 for Fiscal Year 1998—an increase of $126,276,000, or 2.8 percent above the Fiscal Year 1997 comparable appropriation of $4,503,867,000—and a total of $4,651,732,000 for Fiscal Year 1999—an increase of $148,865,000, or 3.3 percent above Fiscal Year 1997.

Also shown in Table 1 is the difference between the Committee's recommended authorization for Fiscal Year 1998 and the Fiscal Year 1997 comparable appropriation, and the difference between the Committee's recommended authorization for Fiscal Year 1999 and the Fiscal Year 1998 recommendation.

[Table 1 follows:]

TABLE 1. TOTAL DEPARTMENT OF ENERGY AUTHORIZATION FOR CIVILIAN RESEARCH, DEVELOPMENT, DEMONSTRATION, AND COMMERCIAL APPLICATION ACTIVITIES FOR FISCAL YEARS 1998 AND 1999

(In Thousands of Dollars)

| Appropriation Account | FY 1997 Comparable Appropriation | FY 1998 Authorization Request | FY 1998 Recommendation | FY 1998 Recommendation Compared With (+ or -) FY 1997 Comparable Appropriation | FY 1999 Recommendation | FY 1999 Recommendation Compared With (+ or -) FY 1998 Recommendation |
|---|---|---|---|---|---|---|
| Energy Supply Research and Development Activities (H.R. 1277) | 2,653,821 | 2,984,497 | 2,838,719 | +184,898 | 2,847,812 | +9,093 |
| Public Law 104-261 (Hydrogen Research) | 15,000 | 15,000 | 25,000 | +10,000 | 30,000 | +5,000 |
| Total Energy Supply Research and Development Activities (H.R. 1277) | 2,668,821 | 2,999,497 | 2,863,719 | +194,898 | 2,877,812 | +14,093 |
| Energy Assets Acquisition (H.R. 1277) | 86,501 | 88,914 | 43,582 | -42,919 | 45,332 | +1,750 |
| General Science and Research Activities (H.R. 1277) | 835,960 | 875,910 | 850,210 | +14,250 | 941,000 | +90,790 |
| Science Assets Acquisition (H.R. 1277) | 165,000 | 126,870 | 126,870 | -38,130 | 0 | -126,870 |
| Fossil Energy Research and Development (H.R. 1277) | 364,704 | 346,408 | 348,854 | -15,850 | 348,185 | -669 |
| Energy Conservation Research and Development (H.R. 1277) | 366,412 | 444,927 | 396,908 | +30,496 | 439,403 | +42,495 |
| Clean Coal Technology Program | 14,879 | 0 | 0 | -14,879 | 0 | 0 |
| Total, H.R. 1277 | 4,487,277 | 4,867,526 | 4,605,143 | +117,866 | 4,621,732 | +16,589 |
| Public Law 104-261 (Hydrogen Research) | 15,000 | 15,000 | 25,000 | +10,000 | 30,000 | +5,000 |
| Total, Department of Energy | 4,502,277 | 4,882,526 | 4,630,143 | +127,866 | 4,651,732 | +21,589 |

*Section 3(a)—Energy Supply Research and Development Activities.*

The Energy Supply Research and Development Activities appropriation account funds 13 line items: (1) Solar and Renewable Resources Technologies; (2) Nuclear Energy; (3) Uranium Programs; (4) Environment, Safety and Health; (5) Biological and Environmental Research; (6) Fusion Energy Sciences; (7) Basic Energy Sciences; (8) Computational and Technology Research; (9) Energy Research Analysis; (10) Energy Research-Energy Supply Program Direction; (11) Environmental and Waste Management (Non-Defense); (12) Technical Information Management; and (13) Field Operations.

As shown in Table 2, which summarizes the Committee's authorization recommendations for Fiscal Years 1998 and 1999, H.R. 1277 authorizes $2,838,719,000 for Fiscal Year 1998 and $2,847,812,000 for Fiscal Year 1999 for Energy Supply Research and Development Activities. In addition to these sums, $25,000,000 for Fiscal Year 1998 and $30,000,000 for Fiscal Year 1999 are authorized for Hydrogen Research by Public Law 104-261, the Hydrogen Futures Act of 1996. Including the already authorized funding for Hydrogen Research, Energy Supply Research and Development Activities are authorized a total of $2,863,718,000 for Fiscal Year 1998—an increase of $194,898,000, or 7.3 percent above the Fiscal Year 1997 comparable appropriation of $2,668,821,000—and a total of $2,877,812,000 for Fiscal Year 1999—an increase of $208,991,000, or 7.8 percent above the Fiscal Year 1997 comparable appropriation.

[Table 2 follows:]

## TABLE 2. TOTAL DEPARTMENT OF ENERGY AUTHORIZATION FOR ENERGY SUPPLY RESEARCH AND DEVELOPMENT ACTIVITIES FOR FISCAL YEARS 1998 AND 1999

(In Thousands of Dollars)

| Program/Subprogram/Activity | FY 1997 Comparable Appropriation | FY 1998 Authorization Request | FY 1998 Recommendation | FY 1998 Recommendation Compared With (+ or -) FY 1997 Comparable Appropriation | FY 1999 Recommendation | FY 1999 Recommendation Compared With (+ or -) FY 1998 Recommendation |
|---|---|---|---|---|---|---|
| Solar and Renewable Resources Technologies (H.R. 1277) | 252,153 | 327,500 | 272,820 | +20,668 | 270,342 | -2,478 |
| Use of Prior Year Balances | -18,933 | -15,000 | -15,000 | +3,933 | 0 | +15,000 |
| Total, Solar and Renewable Resources Technologies (H.R. 1277) | 233,220 | 312,500 | 257,820 | +24,600 | 270,342 | +12,522 |
| Public Law 104-261 (Hydrogen Research) | 15,000 | 15,000 | 25,000 | +10,000 | 30,000 | +5,000 |
| Total, Solar and Renewable Resources Technologies | 248,220 | 327,500 | 282,820 | +34,600 | 300,342 | +17,522 |
| | | | | | | |
| Nuclear Energy | 198,669 | 221,917 | 173,166 | -25,503 | 146,540 | -26,626 |
| Uranium Programs | 39,200 | 75,600 | 73,625 | +34,425 | 76,828 | +3,203 |
| Environment, Safety and Health | 110,253 | 108,916 | 107,870 | -2,383 | 100,237 | -7,633 |
| | | | | | | |
| Biological and Environmental Research | | | | | | |
| Life Sciences | 148,721 | 157,037 | 157,037 | +8,316 | 161,748 | +4,711 |
| Environmental Processes | 112,333 | 110,126 | 100,950 | -11,379 | 103,903 | +3,029 |
| Environmental Remediation | 34,615 | 66,435 | 66,435 | +31,820 | 68,428 | +1,993 |
| Medical Applications and Measurement Science | 57,293 | 43,112 | 43,112 | -14,181 | 44,405 | +1,293 |
| United States-Mexico Foundation for Science | 0 | 0 | 1,000 | +1,000 | 1,000 | 0 |
| Subtotal, Biological and Environmental Research | 352,962 | 376,710 | 367,530 | +14,568 | 378,564 | +11,034 |
| Use of Prior Year Balances | -6,702 | 0 | 0 | +6,702 | 0 | 0 |
| General Reduction | 0 | 0 | -1,000 | -1,000 | -1,000 | 0 |
| Total, Biological and Environmental Research | 346,260 | 376,710 | 367,530 | +21,270 | 378,564 | +11,034 |
| | | | | | | |
| Fusion Energy Sciences | 223,061 | 225,000 | 240,000 | +16,939 | 240,000 | 0 |
| | | | | | | |
| Basic Energy Sciences | | | | | | |
| Materials Sciences | 364,571 | 392,475 | 391,047 | +26,476 | 402,060 | +11,013 |
| Chemical Sciences | 204,599 | 199,933 | 199,933 | -4,666 | 205,931 | +5,998 |
| Engineering and Geosciences | 42,920 | 41,371 | 41,371 | -1,549 | 43,612 | +2,241 |
| Energy Biosciences | 28,285 | 27,661 | 27,661 | -1,124 | 28,282 | +621 |
| Subtotal, Basic Energy Sciences | 640,675 | 661,340 | 659,012 | +19,137 | 678,885 | +19,873 |
| Use of Prior Year Balances | -9,404 | 0 | 0 | +9,404 | 0 | 0 |
| Total, Basic Energy Sciences | 631,271 | 661,340 | 659,012 | +28,541 | 678,885 | +19,873 |
| | | | | | | |
| Computational and Technology Research | | | | | | |
| Mathematical, Information, and Computational Sciences | 124,860 | 152,490 | 117,490 | -7,370 | 121,014 | +3,524 |
| Laboratory Technology Transfer | 26,310 | 15,829 | 15,829 | -8,481 | 16,304 | +475 |
| Advanced Energy Projects | 11,790 | 7,588 | 7,588 | -4,112 | 7,816 | +228 |
| Subtotal, Computational and Technology Research | 160,870 | 175,907 | 140,907 | -19,963 | 145,134 | +4,227 |
| Use of Prior Year Balances | -2,522 | 0 | 0 | +2,522 | 0 | 0 |
| Total, Computational and Technology Research | 158,348 | 175,907 | 140,907 | -17,441 | 145,134 | +4,227 |
| | | | | | | |
| Energy Research Analysis | 1,751 | 1,500 | 1,500 | -251 | 1,500 | 0 |
| Energy Research-Energy Supply Program Direction | 30,600 | 30,600 | 29,070 | -1,530 | 27,434 | -1,636 |
| | | | | | | |
| Environment Restoration and Waste Management (ERWM) (Non-Defense) | | | | | | |
| Environment Restoration | 328,000 | 457,625 | 457,625 | +129,625 | 457,625 | 0 |
| Waste Management | 173,034 | 153,004 | 153,004 | -20,030 | 153,004 | 0 |
| Nuclear Materials and Facilities Stabilization | 73,100 | 71,758 | 71,758 | -1,342 | 71,758 | 0 |
| Subtotal, Environment Restoration and Waste Management (Non-Defense) | 574,134 | 682,387 | 682,387 | +108,253 | 682,387 | 0 |
| Use of Prior Year Balances | -3,183 | 0 | 0 | +3,183 | 0 | 0 |
| Total, Environment Restoration and Waste Management (Non-Defense) | 570,951 | 682,387 | 682,387 | +111,436 | 682,387 | 0 |
| | | | | | | |
| Technical Information Management | 11,837 | 11,987 | 11,564 | -293 | 11,152 | -392 |
| Field Operations | 98,499 | 100,233 | 93,489 | -5,010 | 88,866 | -4,623 |
| Total, Energy Supply Research and Development Activities (H.R. 1277) | 2,653,831 | 2,964,497 | 2,838,719 | +184,888 | 2,847,013 | +9,093 |
| Public Law 104-261 (Hydrogen Research) | 15,000 | 15,000 | 25,000 | +10,000 | 30,000 | +5,000 |
| Total, Energy Supply Research and Development Activities | 2,668,831 | 2,999,497 | 2,863,719 | +194,888 | 2,877,013 | +14,093 |

*Subsection 3(a)(1)—Solar and Renewable Resources Technologies.*

The Committee's authorization recommendations for Solar and Renewable Energy Technologies for Fiscal Years 1998 and 1999 are shown in Table 3. H.R. 1277 authorizes $272,820,000 (reduced by $15,000,000 to reflect the use of prior year balances) for Fiscal Year 1998 and $270,342,000 for Fiscal Year 1999 for Solar and Renewable Energy Technologies. In addition to these sums, $25,000,000 for Fiscal Year 1998 and $30,000,000 for Fiscal Year 1999 are authorized for Hydrogen Research by Public Law 104-261, the Hydrogen Futures Act of 1996. Including the already authorized funding for Hydrogen Research, Solar and Renewable Energy Technologies are authorized a total of $297,820,000 (reduced by $15,000,000 to reflect the use of prior year balances) for Fiscal Year 1998—an increase of $34,600,000, or 13.9 percent above the Fiscal Year 1997 comparable appropriation of $248,220,000—and a total of $300,342,000 for Fiscal Year 1999—an increase of $52,122,000, or 21.0 percent above the Fiscal Year 1997 comparable appropriation.

[Table 3 follows:]

## TABLE 3. TOTAL DEPARTMENT OF ENERGY AUTHORIZATION FOR SOLAR AND RENEWABLE ENERGY TECHNOLOGIES FOR FISCAL YEARS 1998 AND 1999

(In Thousands of Dollars)

| Program/Subprogram/Activity | FY 1997 Comparable Appropriation | FY 1998 Authorization Request | FY 1998 Recommendation | FY 1998 Recommendation Compared With (+ or -) FY 1997 Comparable Appropriation | FY 1999 Recommendation | FY 1999 Recommendation Compared With (+ or -) FY 1998 Recommendation |
|---|---|---|---|---|---|---|
| **Solar and Renewable Resources Technologies** | | | | | | |
| Solar | | | | | | |
| Solar Building Technology Research | 2,500 | 4,000 | 2,150 | -350 | 2,150 | 0 |
| Photovoltaic Energy Systems | 60,000 | 77,000 | 63,900 | +3,900 | 64,900 | +1,000 |
| Solar Thermal Energy Systems | 22,250 | 19,800 | 18,170 | -4,080 | 13,620 | -4,550 |
| Biopower/Biofuels Energy Systems | 55,300 | 76,540 | 28,835 | -26,465 | 28,190 | -645 |
| Wind Energy Systems | 29,000 | 42,858 | 29,500 | +500 | 18,140 | -11,360 |
| Renewable Energy Production Incentive Program | 2,000 | 4,000 | 0 | -2,000 | 0 | 0 |
| International Solar Energy Program | 750 | 7,000 | 0 | -750 | 0 | 0 |
| Solar Technology Transfer | 0 | 1,360 | 0 | 0 | 0 | 0 |
| National Renewable Energy Laboratory | 500 | 2,800 | 2,800 | +2,300 | 500 | -2,300 |
| Total, Solar | 172,300 | 235,358 | 145,355 | -26,945 | 127,500 | -17,855 |
| Geothermal | | | | | | |
| Geothermal Electric Research and Development and Deployment | 23,518 | 26,518 | 19,518 | -4,000 | 19,518 | 0 |
| Geothermal Heat Pump Deployment | 6,482 | 3,482 | 0 | -6,482 | 0 | 0 |
| Total, Geothermal | 30,000 | 30,000 | 19,518 | -10,482 | 19,518 | 0 |
| Hydropower | 1,000 | 1,000 | 1,000 | 0 | 0 | -1,000 |
| Renewable Indian Energy Resources | 4,000 | 0 | 0 | -4,000 | 0 | 0 |
| Electric Energy Systems and Storage | | | | | | |
| Electric and Magnetic Fields Research and Development | 8,000 | 8,000 | 8,000 | 0 | 0 | -8,000 |
| High-Temperature Superconductivity Research and Development | 19,750 | 32,500 | 32,500 | +12,750 | 32,500 | 0 |
| Energy Storage Systems | 4,000 | 4,000 | 4,000 | 0 | 4,000 | 0 |
| Climate Challenge | 0 | 1,000 | 0 | 0 | 0 | 0 |
| Total, Electric Energy Systems and Storage | 31,750 | 45,500 | 44,500 | +12,750 | 36,500 | -8,000 |
| Solar and Renewable Energy Science Initiative | 0 | 0 | 50,000 | +50,000 | 75,000 | +25,000 |
| Program Direction | 13,102 | 15,642 | 12,447 | -655 | 11,824 | -623 |
| Subtotal, Solar and Renewable Resources Technologies | 252,152 | 324,018 | 272,820 | +20,668 | 270,342 | -2,478 |
| Use of Prior Year Balances | -18,932 | -15,000 | -15,000 | +3,932 | 0 | +15,000 |
| **Total, Solar and Renewable Resources Technologies (H.R. 1277)** | **233,220** | **309,018** | **257,820** | **+24,600** | **270,342** | **+12,522** |
| **Public Law 104-261 (Hydrogen Research)** | **15,000** | **15,000** | **25,000** | **+10,000** | **30,000** | **+5,000** |
| **Total, Solar and Renewable Resources Technologies** | **248,220** | **324,018** | **282,820** | **+34,600** | **300,342** | **+17,522** |

As shown in Table 3 and included in bill language are the following amounts:

(A) $2,150,000 for Fiscal Year 1998 and $2,150,000 for Fiscal Year 1999 for Solar Building Technology Research;

(B) $63,900,000 for Fiscal Year 1998 and $64,900,000 for Fiscal Year 1999 for Photovoltaic Energy Systems;

(C) $18,170,000 for Fiscal Year 1998 and $13,620,000 for Fiscal Year 1999 for Solar Thermal Energy Systems;

(D) $28,835,000 for Fiscal Year 1998 and $28,190,000 for Fiscal Year 1999 for Biopower/Biofuels Energy Systems;

(E) $29,500,000 for Fiscal Year 1998 and $18,140,000 for Fiscal Year 1999 for Wind Energy Systems;

(F) $2,800,000 for Fiscal Year 1998 and $500,000 for Fiscal Year 1999 for the National Renewable Energy Laboratory;

(G) $19,518,000 for each of Fiscal Years 1998 and 1999 for Geothermal Electric Research and Development and Deployment;

(H) $1,000,000 for Fiscal Year 1998 for Hydropower;

(I) $44,500,000 for Fiscal Year 1998 and $36,500,000 for Fiscal Year 1999 for Electric Energy Systems and Storage, of which—

(i) $8,000,000 for Fiscal Year 1998 for Electric and Magnetic Fields Research and Development;

(ii) $32,500,000 for Fiscal Year 1998 and $32,500,000 for Fiscal Year 1999 for High-Temperature Superconductivity Research and Development; and

(iii) $4,000,000 for Fiscal Year 1998 and $4,000,000 for Fiscal Year 1999 for Energy Storage Systems;

(J) $50,000,000 for Fiscal Year 1998 and $75,000,000 for Fiscal Year 1999 for a Solar and Renewable Energy Science Initiative, to be managed by the Director of the Office of Energy Research, in consultation with the Assistant Secretary for Energy Efficiency and Renewable Energy on the goals and priorities of the Initiative, for grants to be competitively awarded and subject to peer review for research related to solar and renewable energy; and

(K) $12,447,000 for Fiscal Year 1998 and $11,824,000 for Fiscal Year 1999 for Program Direction.

The Committee authorization recommendations for Solar and Renewable Resources Technologies contained in bill language for Fiscal Years 1998 and 1999 do not provide authorization of appropriations for the Renewable Energy Production Incentive Program, the International Solar Energy Program, Solar Technology Transfer, Geothermal Heat Pump Deployment, Renewable Indian Energy Resources, and Electric Energy Systems and Storage Climate Challenge. In addition, the Committee authorization recommendations contained in bill language for Fiscal Year 1999 do not provide authorization of appropriations for Hydropower or for Electric and Magnetic Fields Research and Development.

*Committee Views—Solar and Renewable Energy Science Initiative.*

The Committee strongly supports research on alternative energy sources—and particularly research on solar and renewable energy—and believes much more emphasis needs to be placed on basic and applied research in these areas. For example, in testi-

mony before the Subcommittee on Energy and Environment on March 19, 1997, the Department's Assistant Secretary for Energy Efficiency and Renewable Energy estimated that the Department's funding for basic research in energy efficiency and solar and renewable energy programs accounts for only five percent of the overall funding for these programs. In order to restore a more appropriate balance between research and development activities in these programs, the Committee recommendation establishes a Solar and Renewable Energy Science Initiative to be funded at $50,000,000 in Fiscal Year 1998 and at $75,000,000 in Fiscal Year 1999 for grants to be competitively awarded and subject to peer review for research related to solar and renewable energy—including research related to photovoltaics, solar thermal, biopower/biofuels, wind, geothermal, hydrogen, and electric energy systems and storage. The Initiative funds are to be managed by the Department's Director of the Office of Energy Research, in consultation with the Assistant Secretary for Energy Efficiency and Renewable Energy on the goals and priorities of the Initiative. The Committee expects that the majority of the Initiative's grants will be for university-based and private-sector laboratory research and emphasizes that the Initiative's funds are to be available only for competitively-awarded and peer-reviewed grants, and are not be used to fund either National Laboratory or in-house research unless such funds have been competitively-awarded and peer-reviewed in competitions that solicit applications from all types of research performers.

*Subsection 3(a)(2)—Nuclear Energy.*

The Committee's authorization recommendations for Nuclear Energy for Fiscal Years 1998 and 1999 are shown in Table 4. H.R. 1277 authorizes $173,166,000 for Fiscal Year 1998 and $146,540,000 for Fiscal Year 1999 for Nuclear Energy.

[Table 4 follows:]

## TABLE 4. DEPARTMENT OF ENERGY AUTHORIZATION FOR NUCLEAR ENERGY FOR FISCAL YEARS 1998 AND 1999
(In Thousands of Dollars)

| Program/Subprogram/Activity | FY 1997 Comparable Appropriation | FY 1998 Authorization Request | FY 1998 Recommendation | FY 1998 Recommendation Compared With (+ or -) FY 1997 Comparable Appropriation | FY 1999 Recommendation | FY 1999 Recommendation Compared With (+ or -) FY 1998 Recommendation |
|---|---|---|---|---|---|---|
| Nuclear Energy | | | | | | |
| Nuclear Energy Research and Development | | | | | | |
| Light Water Reactor | 38,000 | 0 | 0 | -38,000 | 0 | 0 |
| Advanced Radioisotope Power Systems | 38,810 | 47,000 | 47,000 | +8,190 | 43,350 | -3,650 |
| Oak Ridge Landlord | 11,520 | 9,500 | 9,500 | -2,020 | 8,809 | -691 |
| Test Reactor Area (TRA) Landlord | 2,000 | 3,217 | 3,217 | +1,217 | 3,217 | 0 |
| Advanced Test Reactor Fusion Irradiations | 800 | 2,000 | 2,000 | +1,200 | 0 | -2,000 |
| University Nuclear Science and Reactor Support | 4,000 | 6,000 | 6,000 | +2,000 | 6,000 | 0 |
| Nuclear Energy Security | 0 | 39,761 | 0 | 0 | 0 | 0 |
| Total, Nuclear Energy Research and Development | 95,130 | 107,478 | 67,717 | -27,413 | 61,376 | -6,341 |
| Termination Costs | 79,100 | 76,035 | 70,535 | -8,565 | 60,000 | -5,500 |
| Isotope Support | 12,704 | 21,704 | 20,854 | +8,150 | 11,807 | -850 |
| Program Direction | 14,800 | 16,700 | 14,060 | -740 | 13,357 | -2,640 |
| Subtotal, Nuclear Energy | 201,734 | 221,917 | 173,166 | -28,568 | 146,540 | -48,751 |
| Use of Prior Year Balances | -3,065 | 0 | 0 | +3,065 | 0 | 0 |
| Total, Nuclear Energy | 198,669 | 221,917 | 173,166 | -25,503 | 146,540 | -48,751 |

As shown in Table 4 and included in bill language are the following amounts:

(A) $47,000,000 for Fiscal Year 1998 and $43,350,000 for Fiscal Year 1999 for Advanced Radioisotope Power Systems;

(B) $9,500,000 for Fiscal Year 1998 and $8,809,000 for Fiscal Year 1999 for Oak Ridge Landlord;

(C) $3,217,000 for Fiscal Year 1998 and $3,217,000 for Fiscal Year 1999 for Test Reactor Area Landlord;

(D) $2,000,000 for Fiscal Year 1998 for Advanced Test Reactor Fusion Irradiations;

(E) $6,000,000 for Fiscal Year 1998 and $6,000,000 for Fiscal Year 1999 for University Nuclear Science and Reactor Support;

(F) $70,535,000 for Fiscal Year 1998 and $60,000,000 for Fiscal Year 1999 for Termination Costs;

(G) $20,854,000 for Fiscal Year 1998 and $11,807,000 for Fiscal Year 1999 for Isotope Support; and

(H) $14,060,000 for Fiscal Year 1998 and $13,357,000 for Fiscal Year 1999 for Program Direction.

The Committee authorization recommendations for Nuclear Energy contained in bill language for Fiscal Years 1998 and 1999 do not provide authorization of appropriations for the Light Water Reactor (consistent with the Department's Fiscal Year 1998 budget request) or the Nuclear Energy Security Programs. Also, the Committee authorization recommendations contained in bill language for Fiscal Year 1999 do not provide authorization of appropriations for Advanced Test Reactor Fusion Irradiations (consistent with the Department's Fiscal Year 1998 budget request justification materials). In addition, Section 4 provides that no funds authorized by this Act for Fiscal Years 1998 and 1999 may be use for the following 5 Nuclear Energy programs, except to fulfill contractual obligations: (1) Nuclear Energy Advanced Light Water Reactor; (2) Nuclear Energy Commercial Reactor; (3) Nuclear Energy Security; (4) Nuclear Energy Termination Costs Gas Turbine-Modular Helium Reactor; and (5) Nuclear Energy Termination Costs Advanced Light Water Reactor.

*Committee Views—Advanced Light Water Reactor.*

The Advanced Light Water Reactor Program received no further authorization in the bill. The Committee believes that the Department has most likely received sufficient appropriations in prior years to meet all of its obligations in this Program.

*Committee Views—Nuclear Energy Security Program.*

The Nuclear Energy Security (NES) Program is not authorized in the bill. Although some aspects of this program appear to be an appropriate and desirable avenue for federal R&D, the Department of Energy has not provided the needed information to adequately review the scope and substance of this proposed program. Furthermore, the Committee is concerned about possible overlap with activities under the purview of the Nuclear Regulatory Commission. The Committee remains committed to efforts to increase reactor safety and minimize the production of spent nuclear fuel. Thus, the Department is encouraged to present a more detailed, and perhaps revised, outline of the size, scope, and goals of the NES program.

*Committee Views—University Nuclear Science and Reactor Support Program.*

The Committee's authorization recommendations include $6,000,000 in each of Fiscal Years 1998 and 1999 for the University Nuclear Science and Reactor Support Program. These amounts are consistent with the Department's Fiscal Year 1998 budget request and represents a 50 percent increase above the Fiscal Year 1997 appropriation of $4,000,000. The Committee recognizes that in order to maintain the capability in the U.S. to conduct research, address pressing environmental challenges, and preserve the nuclear energy option, the ability to adequately educate and train personnel in nuclear sciences and technology is vital. The Committee also recognizes that our universities and university research reactors play a major role in providing this education and training.

*Subsection 3(a)(3)—Uranium Programs.*

The Committee's authorization recommendations for Uranium Programs are $73,625,000 for Fiscal Year 1998 and $76,828,000 for Fiscal Year 1999 as shown in Table 2. These recommendations assume a 5 percent reduction in Program Direction in Fiscal Year 1998 relative to the Fiscal Year 1997 level, and an additional 5 percent reduction in Program Direction in Fiscal Year 1999 relative to Fiscal Year 1998.

*Subsection 3(a)(4)—Environment, Safety and Health.*

The Committee's authorization recommendations for Environment, Safety and Health are $107,870,000 for Fiscal Year 1998 and $100,237,000 for Fiscal Year 1999 as shown in Table 2. These recommendations assume a 5 percent reduction in Program Direction in Fiscal Year 1998 relative to the Fiscal Year 1997 level, and an additional 5 percent reduction in Program Direction in Fiscal Year 1999 relative to Fiscal Year 1998. In addition, the Fiscal Year 1999 recommendation assumes, consistent with the Department's Fiscal Year budget request justification materials, no funding for State Health Agreements.

*Subsection 3(a)(5)—Biological and Environmental Research.*

The Committee's authorization recommendations for Biological and Environmental Research are $367,538,000 for Fiscal Year 1998 and $378,546,000 for Fiscal Year 1999 as shown in Table 2. These amounts include $1,000,000 in each of Fiscal Year 1998 and 1999 for the U.S.-Mexico Foundation for Science for research on biosciences and the environment.

As shown in Table 2 and included in bill language are the following amounts:

(A) $157,037,000 for Fiscal Year 1998 and $161,748,000 for Fiscal Year 1999 for Life Sciences;

(B) $100,954,000 for Fiscal Year 1998 and $103,983,000 for Fiscal Year 1999 for Environmental Processes;

(C) $66,435,000 for Fiscal Year 1998 and $68,428,000 for Fiscal Year 1999 for Environmental Remediation;

(D) $43,112,000 for Fiscal Year 1998 and $44,405,000 for Fiscal Year 1999 for Medical Applications and Measurement Sciences; and

(E) $1,000,000 for Fiscal Year 1998 and $1,000,000 for Fiscal Year 1999 for the United States-Mexico Foundation for Science for research on biosciences and the environment.

*Committee View—United States-Mexico Foundation for Science.*

The non-governmental United States-Mexico Foundation for Science was established in 1992 by the Governments of Mexico and the United States with the strong support of the research and business communities of both countries. Each country provided equal financial support to the Foundation (a total of $4 million).

The Foundation's mission is to contribute to the technological and scientific strength of the two countries through fostering relevant research, training and human resource development, and promoting collaborative and comprehensive solutions of common problems.

The Foundation is uniquely structured to accomplish this mission. The Foundation's Board of Governors consists of high level and influential members from the Mexican Academy of Scientific Investigation, the National Academy of Medicine, and the Academy of Engineering; and the U.S. National Academies of Science and of Engineering, and the Institute of Medicines. In addition, there are representatives of both Mexican and American businesses who are members of the Board.

The Foundation is binational in structure and has the ability to be flexible in selection of priority areas which are defined as being of mutual interest and potential benefit to both countries. The Foundation has a proven track record of supporting high-quality research projects selected with a peer-review system. The Foundation also currently supports a visiting scientist program, a Hewlett Foundation training program in science and technology policy and graduate and summer scholarship programs.

*Subsection 3(a)(6)—Fusion Energy Sciences.*

The Committee's authorization recommendations for Fusion Energy Sciences are $240,000,000 for each of Fiscal Years 1998 and 1999, of which $5,000,000 for Fiscal Year 1998 and $5,000,000 for Fiscal Year 1999 is for General Plasma Science. These recommendations are increases of $15,000,000 for each Fiscal Year over the Department's Fiscal Year 1998 request of $225,000,000.

*Committee Views—Fusion Energy Sciences.*

The Committee's recommendation provides an additional $15,000,000 million above the Department's Fiscal Year 1998 request in each of Fiscal Years 1998 and 1999 for the Fusion Energy Sciences program with the intent that these dollars be used for: (1) initiating and strengthening work in alternate confinement concepts; (2) increasing utilization of the remaining two major experiments; (3) strengthening and maintaining diversity in the theory and computational programs; and (4) strengthening basic fusion science and technology in the university.

*Committee Views—International Thermonuclear Experimental Reactor (ITER).*

The Committee remains strongly supportive of U.S. participation in international scientific endeavors. In this context, the Committee supports U.S. participation through the completion of the International Thermonuclear Experimental Reactor (ITER) Engineering and Design Activities (EDA) in July, 1998. However, the Committee notes that to date, there is no official indication from the ITER project group itself or the participating parties what the end of EDA might bring in terms of an agreement to go forward to construction. At the same time, there are indications there may be some interim period of as much as 2 to 3 years before a final design and construction agreement is at hand. While the Committee applauds the Department's call for study of the ITER project by the National Academy of Sciences, it remains concerned that there is seemingly no plan to address this interim period.

Therefore, the Committee asks that by February, 1998, the Department of Energy submit a plan to Congress that assumes level funding for the program and which addresses the following issues: (1) What, if anything, is the appropriate role, if any, of the U.S. fusion community in the ITER project after completion of the EDA and prior to a construction agreement?; (2) Given the importance of participation in the international fusion program to the U.S. fusion program, in what other international activities should the U.S. seek to participate during this interim period?; and (3) What elements of the U.S. domestic fusion program should be strengthened and/or maintained in order to ensure that the U.S. has maximum impact on and leverage with the international fusion program in future years?

*Subsection 3(a)(7)—Basic Energy Sciences.*

The Committee's authorization recommendations for Basic Energy Sciences are $659,182,000 for Fiscal Year 1998 and $678,888,000 for Fiscal Year 1999 as shown in Table 2.

As shown in Table 2 and included in bill language are the following amounts:

(A) $391,047,000 for Fiscal Year 1998 and $402,060,000 for Fiscal Year 1999 for Materials Sciences, of which not to exceed $5,000,000 for each such Fiscal Year may be used for the High Flux Beam Reactor at Brookhaven National Laboratory;

(B) $199,933,000 for Fiscal Year 1998 and $205,931,000 for Fiscal Year 1999 for Chemical Sciences;

(C) $41,371,000 for Fiscal Year 1998 and $42,612,000 for Fiscal Year 1999 for Engineering and Geosciences; and

(D) $27,461,000 for Fiscal Year 1998 and $28,285,000 for Fiscal Year 1999 for Energy Biosciences.

*Committee Views—High Flux Beam Reactor and Groundwater Contamination at Brookhaven National Laboratory.*

The High Flux Beam Reactor (HFBR) at the Department's Brookhaven National Laboratory (BNL)—a world-class research reactor that provides beams of neutrons for scientists from around

the world in disciplines ranging from biology and chemistry to physics and materials science—is currently funded at nearly $24,000,000 in Fiscal Year 1997 and the Department's Fiscal Year 1998 budget request includes $25,383,000 for the facility.

The HFBR was shut down in December, 1996, for routine maintenance. Subsequently, in a memo issued to employees on January 17, 1997, BNL notified its staff that routine monitoring by the Laboratory had recently found tritium in the groundwater at a concentration level of about two-and-a-half times the New York State Drinking Water Standard. BNL also announced that the HFBR would remain shut down until the situation was satisfactorily understood by both the Department and the Laboratory.

In spite of a continuing series of press releases issued by BNL, the Department, and the U.S. Environmental Protection Agency (EPA) and assurances by the BNL, the Department, EPA, and the Suffolk County Department of Health Services that the tritium contamination poses no health threat, the Department announced on February 24, 1997, that it would connect 500 more homes near BNL to public water at a cost of $6,200,000 by providing a grant to the Suffolk County Water Authority. These hook-ups are in addition to those already offered to some 800 homeowners. The Department has yet to identify the source of funds to be used to pay for the hook-ups.

The Committee recommendation for Materials Sciences includes bill language limiting the amount authorized to be appropriated for the HFBR to no more than $5,000,000 in each of Fiscal Years 1998 and 1999. This action was taken to express the Committee's frustration with the Department's handling of the situation at BNL and the Department's reluctance to be forthcoming about the cost of the cleanup, the amount of research funds it intends to reprogram to pay for the cleanup, and the rationale for spending $6,200,000 of taxpayers' funds for water hook-ups to public water when the Laboratory, the Department, the EPA, and the Suffolk County Department of Health Services are all on record that the tritium contamination poses no health threat. The Committee expects the Department to fully explain its actions before further funding will be provided beyond the $5,000,000 contained in bill language.

*Subsection 3(a)(8)—Computational and Technology Research.*

The Committee's authorization recommendations for Computational and Technology Research are $140,907,000 for Fiscal Year 1998 and $145,134,000 for Fiscal Year 1999 as shown in Table 2.

As shown in Table 2 and included in bill language are the following amounts:

(A) $117,490,000 for Fiscal Year 1998 and $121,014,000 for Fiscal Year 1999 for Mathematical, Information, and Computational Sciences;

(B) $15,829,000 for Fiscal Year 1998 and $16,304,000 for Fiscal Year 1999 for Laboratory Technology Research; and

(C) $7,588,000 for Fiscal Year 1998 and $7,816,000 for Fiscal Year 1999 for Advanced Energy Projects.

*Committee Views—Next Generation Internet.*

Section 7 prohibits the use of funds authorized by this Act, or any other Act enacted before the date of the enactment of this Act, for the Next Generation Internet (NGI), except for continuation of programs and acivities that were funded and carried out during Fiscal Year 1997. Consequently, the recommended authorizations for Mathematical, Information, and Computational Sciences for each of Fiscal Years 1998 and 1999 have been reduced by $35,000,000. This provision ensures that the Committee will have the opportunity to review and authorize NGI, while at the same time allowing for minimal on-going research in that program. The progression of our country's computer networking technology plays a vital role in our nation's continued leadership in scientific research. The Committee, however, feels it necessary to develop more of a record before addressing funding for NGI, and is working with the Administration to develop a plan concerning NGI. The Committee expects to hold hearings on NGI in the future to better understand how it will further the goals of advancing network technologies.

*Subsection 3(a)(9)—Energy Research Analysis.*

The Committee's authorization recommendations for Energy Research Analysis are $1,500,000 for each of Fiscal Years 1998 and 1999, consistent with the Department's Fiscal Year 1998 budget request.

*Subsection 3(a)(10)—Energy Research-Energy Supply Program Direction.*

The Committee's authorization recommendations for Energy Research-Energy Supply Program Direction are $29,070,000 for Fiscal Year 1998 and $27,434,000 for Fiscal Year 1999. These recommendations assume a 5 percent reduction in Program Direction in Fiscal Year 1998 relative to the Fiscal Year 1997 level, and an additional 5 percent reduction in Program Direction in Fiscal Year 1999 relative to Fiscal Year 1998.

*Subsection 3(a)(11)—Environmental Restoration and Waste Management (Non-Defense).*

The Committee's authorization recommendations for Environmental Restoration and Waste Management (Non-Defense) are $682,387,000 for Fiscal Year 1998 and $682,387,000 for Fiscal Year 1999 as shown in Table 2.

As shown in Table 2 and included in bill language are the following amounts:

(A) $457,625,000 for Fiscal Year 1998 and $457,625,000 for Fiscal Year 1999 for Environmental Restoration;

(B) $153,004,000 for Fiscal Year 1998 and $153,004,000 for Fiscal Year 1999 for Waste Management; and

(C) $71,758,000 for Fiscal Year 1998 and $71,758,000 for Fiscal Year 1999 for Nuclear Material and Facility Stabilization.

*Committee Views—Environmental Restoration and Waste Management (Non-Defense).*

The Committee's authorization recommendations of $682,387,000 for each of Fiscal Years 1998 and FY 1999 represent an increase of $111,436,000, or 19.5 percent, over the Fiscal Year 1997 comparable appropriation of $570,951,000. The majority of this increase is for accelerated cleanup activities at 46 Formerly Utilized Sites Remedial Action Program (FUSRAP) sites in 14 States with a goal of completing cleanup by 2002. These are sites that are Department-owned or Department-leased, or are at privately-owned sites where radioactive contamination remains from the early years of the Nation's Atomic Energy program, or from commercial operations that Congress authorized the Department to remedy. The Committee endorses the accelerated cleanup of FUSRAP sites and provided the requested funding level. However, the Committee is also aware that the Department will need to work with affected communities and regulators to meet the accelerated cleanup goal and to implement cleanup strategies. Consequently, the Committee intends to closely monitor these cleanup activities and those activities' resource requirements.

*Subsection 3(a)(12)—Technical Information Management.*

The Committee's authorization recommendations for Technical Information Management are $11,554,000 for Fiscal Year 1998 and $11,152,000 for Fiscal Year 1999. These recommendations assume a 5 percent reduction in Program Direction in Fiscal Year 1998 relative to the Fiscal Year 1997 level, and an additional 5 percent reduction in Program Direction in Fiscal Year 1999 relative to Fiscal Year 1998.

*Subsection 3(a)(13)—Field Operations.*

The Committee's authorization recommendations for Field Operations are $93,480,000 for Fiscal Year 1998 and $87,434,000 for Fiscal Year 1999. These recommendations assume a 5 percent reduction in Fiscal Year 1998 relative to the Fiscal Year 1997 level, and an additional 5 percent reduction in Fiscal Year 1999 relative to Fiscal Year 1998.

*Section 3(b)—Energy Assets Acquisition.*

The Energy Assets Acquisition appropriation account is a new account created for construction projects previously funded within the Energy Supply Research and Development appropriation. The Department's Fiscal Year budget request includes full up-front funding of $88,914,000 for 2 new and 11 ongoing projects.

As shown in Table 5, which summarizes the Committee's authorization recommendations for Fiscal Years 1998 and 1999, H.R. 1277 authorizes $43,582,000 for Fiscal Year 1998 and $45,332,000 for Fiscal Year 1999 for Energy Assets Acquisition. The total provided for the two Fiscal Years is equivalent to the $88,914,000 requested for Fiscal Year 1998, but has been spread out over two years in a manner consistent with each project's obligation requirements.

In addition to meeting budget constraints, the Committee did not provide the full up-front funding as requested for Energy Assets

Acquisition because of the Department's poor track record of successfully completing construction projects within originally projected schedules and costs. This record was documented by the General Accounting Office in a November, 1996, report[1] on the Department's management of its major system acquisitions. The GAO found that from 1980 through 1996, DOE conducted 80 projects that it designated as major system acquisitions. Thirty-one of the projects were terminated prior to completion, after expenditures of over $10 billion. Only 15 of the projects were completed, and most of them were finished behind schedule and with cost overruns. Further, 3 of the 15 projects have not yet been used for their intended purpose. The remaining 34 projects are ongoing, many with substantial cost increases and "schedule slippages."

The GAO believes there are four key factors underlying the cost overruns, schedule slippage, and terminations of the Department's most critical projects. These are unclear or changing missions; the incremental funding of projects; a flawed system of incentives both for Department's employees and contractors; and a lack of sufficient Department's personnel with the appropriate skills to effectively oversee contractors' operations. On the positive side, according to GAO, the Department is implementing several initiatives that could help improve its overall management as well as the management of individual major system acquisitions, and GAO believes that their implementation offers the Department an excellent opportunity to address the key factors. The Committee will closely monitor the Department's implementation of these initiatives.

[Table 5 follows:]

[1] *Department of Energy: Opportunity to Improve Management of Major System Acquisitions* (GAO/RCED-97-17, Nov. 26, 1996).

## TABLE 5. DEPARTMENT OF ENERGY AUTHORIZATION FOR ENERGY ASSETS ACQUISITION FOR FISCAL YEARS 1998 AND 1999

(In Thousands of Dollars)

| Appropriation Account/Program/Project | FY 1997 Comparable Appropriation | FY 1998 Authorization Request | FY 1998 Recommendation | FY 1998 Recommendation Compared With (+ or -) FY 1997 Comparable Appropriation | FY 1999 Recommendation | FY 1999 Recommendation Compared With (+ or -) FY 1998 Recommendation |
|---|---|---|---|---|---|---|
| **Energy Assets Acquisition** | | | | | | |
| **Solar and Renewable Resources Technologies** | | | | | | |
| Project 96-E-100, Field Test Laboratory Building Renovation and Expansion, National Renewable Energy Laboratory | 2,800 | 2,200 | 2,200 | -600 | 0 | -2,200 |
| Total, Solar and Renewable Resources Technologies | 2,800 | 2,200 | 2,200 | -600 | 0 | -2,200 |
| **Nuclear Energy** | | | | | | |
| Test Reactor Area (TRA) Landlord | | | | | | |
| 97-E-201, TRA Fire and Life Safety Improvements, Idaho National Engineering and Environmental Laboratory | 1,000 | 10,850 | 4,425 | +3,425 | 6,425 | +2,000 |
| Total, Nuclear Energy | 1,000 | 10,850 | 4,425 | +3,425 | 6,425 | +2,000 |
| **Uranium Programs** | | | | | | |
| Project 98-U-200, DUF$_6$ Cylinder Storage Yards, K-25, Oak Ridge, TN | 0 | 5,600 | 600 | +600 | 5,200 | +4,600 |
| Project 96-U-201, DUF$_6$ Cylinder Storage Yards, Paducah, KY | 4,000 | 16,700 | 6,000 | +2,000 | 10,700 | +4,700 |
| Total, Uranium Programs | 4,000 | 22,300 | 6,600 | +2,600 | 15,900 | +9,300 |
| **Energy Research** | | | | | | |
| **Biological and Environmental Research** | | | | | | |
| Project 94-E-339, Human Genome Laboratory, Lawrence Berkeley National Laboratory, California | 1,000 | 0 | 0 | -1,000 | 0 | 0 |
| Project 91-EB4-100, Environmental and Molecular Sciences Laboratory, Pacific Northwest National Laboratory, Richland, Washington | 35,113 | 0 | 0 | -35,113 | 0 | 0 |
| Total, Biological and Environmental Research | 36,113 | 0 | 0 | -36,113 | 0 | 0 |
| **Basic Energy Sciences** | | | | | | |
| Project 96-E-300, Combustion Research Facility, Sandia National Laboratories, Livermore | 9,000 | 11,000 | 7,000 | -2,000 | 4,000 | -3,000 |
| Total, Basic Energy Sciences | 9,000 | 11,000 | 7,000 | -2,000 | 4,000 | -3,000 |
| **Multiprogram Energy Laboratories-Facilities Support** | | | | | | |
| Project MIEL-001, Multiprogram Energy Laboratories Infrastructure Project, Various Locations | 0 | 19,420 | 7,259 | +7,259 | 12,161 | +4,902 |
| Project 96-E-333, Multiprogram Energy Laboratories Upgrade Various Locations | 17,759 | 5,541 | 5,273 | -12,486 | 268 | -5,005 |
| Project 95-E-300, Sanitary System Modifications, Phase II, Brookhaven National Laboratory, Upton, New York | 1 | 568 | 568 | +567 | 0 | -568 |
| Project 95-E-307, Fire Safety Improvements, Phase III, Argonne National Laboratory, Argonne, Illinois | 1,000 | 718 | 718 | -282 | 0 | -718 |
| Project 95-E-301, Central Heating Plant Rehabilitation-Phase I, Argonne National Laboratory, Argonne, Illinois | 2,500 | 3,442 | 3,442 | +942 | 0 | -3,442 |
| Project 94-E-363, Roofing Improvements, Oak Ridge National Laboratory, Oak Ridge, Tennessee | 0 | 10,578 | 4,000 | +4,000 | 6,578 | +3,578 |
| Total, Multiprogram Energy Laboratories-Facilities Support | 21,360 | 40,267 | 21,360 | 0 | 19,007 | -3,253 |
| Total, Energy Research | 66,373 | 51,267 | 28,260 | -38,113 | 23,007 | -5,253 |
| **Environmental Restoration and Waste Management (Non-Defense)** | | | | | | |
| **Waste Management** | | | | | | |
| Project 94-E-402, Bethel Valley Pool, Facilities Agreement Upgrades, Oak Ridge National Laboratory, Oak Ridge, Tennessee | 1,106 | 1,900 | 1,900 | +794 | 0 | -1,900 |
| Project 91-E-400, Rehabilitation of Waste Management Building 906, Argonne National Laboratory, Argonne, Illinois | 2,066 | 0 | 0 | -2,066 | 0 | 0 |
| Project 88-E-450, Bethel Valley Liquid Low-Level Waste Collection and Transfer System Upgrade, Oak Ridge National Laboratory, Oak Ridge, Tennessee | 2,692 | 0 | 0 | -2,692 | 0 | 0 |
| Total, Waste Management | 5,864 | 1,900 | 1,900 | -3,964 | 0 | -1,900 |
| **Nuclear Material and Facility Stabilization** | | | | | | |
| Project 98-E-900, Long-Term Storage of TMI-2 Fuel Idaho National Engineering and Environmental Laboratory | 6,571 | 397 | 397 | -6,174 | 0 | -397 |
| Total, Nuclear Material and Facility Stabilization | 6,571 | 397 | 397 | -6,174 | 0 | -397 |
| Total, Environmental Restoration and Waste Management (Non-Defense) | 12,435 | 2,297 | 2,297 | -10,138 | 0 | -2,297 |
| **Total, Energy Assets Acquisition** | 86,808 | 86,914 | 43,582 | -43,026 | 65,332 | +1,750 |

As shown in Table 5 and included in bill language are the following amounts:

(1) for Solar and Renewable Resources Technology, $2,200,000 for Fiscal Year 1998 for completion of Project 96-E-100, Field Test Laboratory Building Renovation and Expansion, National Renewable Energy Laboratory;

(2) for Nuclear Energy, $4,425,000 for Fiscal Year 1998 and $6,425,000 for Fiscal Year 1999 for completion of Project 95-E-201, Test Reactor Area Fire and Life Safety Improvements, Idaho National Engineering and Environmental Laboratory;

(3) for Uranium Programs—

(A) $400,000 for Fiscal Year 1998 and $5,200,000 for fiscal 1999 for completion of Project 98-U-200, $DUF_6$ Cylinder Storage Yards, K-25 Plant, Oak Ridge, Tennessee; and

(B) $6,000,000 for Fiscal Year 1998 and $10,700,000 for Fiscal Year 1999 for completion of Project 96-U-201, $DUF_6$ Cylinder Storage Yards, Paducah, Kentucky, Gaseous Diffusion Plant;

(4) for Basic Energy Sciences, $7,000,000 for Fiscal Year 1998 and $4,000,000 for Fiscal Year 1999 for completion of Project 96-E-300, Combustion Research Facility, Phase II, Sandia National Laboratories, Livermore, California;

(5) for Multiprogram Energy Laboratories-Facilities Support, $21,260,000 for Fiscal Year 1998 and $19,007,000 for Fiscal Year 1999 for—

(A) Project MEL-001, Multiprogram Energy Laboratories Infrastructure Project, Various Locations, $7,259,000 for Fiscal Year 1998 and $12,161,000 for Fiscal Year 1999;

(B) Project 96-E-333, Multiprogram Energy Laboratories Upgrades, Various Locations, $5,273,000 for Fiscal Year 1998 and $268,000 for Fiscal Year 1999;

(C) Project 95-E-308, Sanitary System Modifications, Phase II, Brookhaven National Laboratory, Upton, New York, $568,000 for Fiscal Year 1998;

(D) Project 95-E-307, Fire Safety Improvements-Phase III, Argonne National Laboratory, Argonne, Illinois, $718,000 for Fiscal Year 1998;

(E) Project 95-E-301, Central Heating Plant Rehabilitation-Phase I, Argonne National Laboratory, Argonne, Illinois, $3,442,000 for Fiscal Year 1998; and

(F) Project 94-E-363, Roofing Improvements, Oak Ridge National Laboratory, Oak Ridge, Tennessee, $4,000,000 for Fiscal Year 1998 and $6,578,000 for Fiscal Year 1999; and

(6) for Environmental Restoration and Waste Management (Non-Defense), $2,297,000 for Fiscal Year 1998, of which—

(A) $1,900,000 for completion of Project 94-E-602, Bethel Federal Facility Agreement Upgrade, Oak Ridge National Laboratory; and

(B) $397,000 for completion of Project 93-E-900, Long-Term Storage of TMI-2 Fuel; Idaho National Energy and Environmental Laboratory, Idaho.

*Section 3(c)—General Science and Research Activities.*

The General Science and Research Activities appropriation account funds the High Energy and Nuclear Physics programs, which provide insight into the nature of matter and energy, and support large, world-class scientific particle accelerators and detectors for physics research. The Department funds approximately 90 percent of all Federal research in High Energy and Nuclear Physics, which is conducted by more than 3,000 researchers and over 1,000 graduate students from more than 100 universities and the National Laboratories.

The major High Energy Physics facilities are the Alternating Gradient Synchrotron at BNL, the Tevatron at the Fermi National Accelerator (Fermilab)—with both fixed and colliding beam facilities—and the Stanford Linear Accelerator Center (SLAC). Two large construction projects are nearing completion, the B-Factory at SLAC and the Fermilab Main Injector, and the program is negotiating with CERN about U.S. contributions to the Large Hadron Collider (LHC) accelerator and detectors. The program also supports the technology base required to develop the advanced concepts and technologies for new high energy physics facilities.

The Nuclear Physics program conducts research activities to understand the structure of atomic nuclei and the fundamental forces required to hold nuclei together. The experimental research program supports particle accelerators and several other research facilities located at National Laboratories and universities. A Nuclear Theory program complements experimental activities. The program supports the operation and maintenance of facilities and the construction of new facilities. Currently under construction is the Relativistic Heavy Ion Collider (RHIC) at BNL, a colliding beam accelerator that will study nuclear matter as it undergoes a phase transition to a plasma of gluons and quarks.

Table 6 summarizes the Committee's authorization recommendations for General Science and Research Activities for Fiscal Years 1998 and 1999. For Fiscal Year 1998, H.R. 1277 authorizes $865,210,000 for Fiscal Year 1998 (reduced by $15,000,000 to reflect the use of prior year balances), for General Science and Research Activities including $599,185,000 for High Energy Physics, $256,525,000 for Nuclear Physics, and $9,500,000 for Program Direction. And for Fiscal Year 1999, H.R. 1277 authorizes $941,000,000 including $607,645,000 for High Energy Physics, $324,330,000 for Nuclear Physics, and $9,025,000 for Program Direction.

[Table 6 follows:]

## TABLE 6. DEPARTMENT OF ENERGY AUTHORIZATION FOR GENERAL SCIENCE AND RESEARCH ACTIVITIES FOR FISCAL YEARS 1998 AND 1999

(In Thousands of Dollars)

| Appropriation Account/Program | FY 1997 Comparable Appropriation | FY 1998 Authorization Request | FY 1998 Recommendation | FY98 Recommendation Compared With (+ or -) FY 1997 Comparable Appropriation | FY 1999 Recommendation | FY99 Recommendation Compared With (+ or -) FY 1998 Recommendation |
|---|---|---|---|---|---|---|
| General Science and Research | | | | | | |
| High Energy Physics | 575,035 | 624,185 | 599,185 | +24,150 | 607,645 | +8,460 |
| Nuclear Physics | 250,925 | 256,525 | 256,525 | +5,600 | 324,330 | +67,805 |
| General Science Program Direction | 10,000 | 10,200 | 9,500 | -500 | 9,025 | -475 |
| Subtotal, General Science and Research | 835,960 | 890,910 | 865,210 | +29,250 | 941,000 | +75,790 |
| Transfer of SSC Balances to ESR&D | 0 | -15,000 | -15,000 | -15,000 | 0 | +15,000 |
| Total, General Science and Research | 835,960 | 875,910 | 850,210 | +14,250 | 941,000 | +90,790 |

Finally, Subsection 3(c) provides that none of the funds authorized for High Energy Physics by this subsection or Subsection 3(d) may be used for the LHC project, unless the Secretary, in consultation with the Director of the National Science Foundation (NSF), has transmitted to the Committee on Science of the House of Representatives and the Committee on Energy and Natural Resources of the Senate a report on the impacts of such funding on the operations and viability of United States high energy and nuclear physics facilities.

As a result of the restrictive language with regard to the LHC project, the Committee recommendation for High Energy Physics for Fiscal Year 1998 includes a reduction of $35,000,000 from the amounts requested by the Department for the LHC, and for Fiscal Year 1999 includes a reduction of $65,000,000 from the amounts requested by the Department for the LHC. The Committee recommendations for each of Fiscal Years 1998 and 1999 also provide an additional $10,000,000 to meet critical program needs.

*Committee Views—High Energy Physics Funding.*

Passage of the amendment offered by Representative Ehlers during the Full Science Committee markup of H.R. 1277 deleted the provision in the bill, as introduced, that specified that the Stanford Linear Accelerator Center (SLAC) receive a total budget of $141,594,000 in each of Fiscal Years 1998 and 1999. In so doing, the Committee determined that no High Energy Physics center or laboratory would be authorized at a specific level of funding in H.R. 1277. For purposes of clarification, however, it may be important to stress that H.R. 1277, as reported, does not in any way terminate the funding for SLAC or prejudice the annual funding process for the High Energy Physics program in regard to any particular center or laboratory.

In this regard, the Committee is nevertheless concerned that, after a large expenditure of funds to build and maintain SLAC and other High Energy Physics user facilities, the Department has not committed sufficient funds for their adequate operation and utilization. The Committee urges the Department to support the domestic High Energy Physics facilities so that taxpayers can receive an appropriate return on their investment.

*Committee Views—Large Hadron Collider Project.*

CERN, located in Geneva, Switzerland, has initiated the LHC, which is estimated to cost about $6.0 billion (using U.S. costing methods). LHC will consist of a 7 trillion electron volt (TeV) on 7 TeV proton-proton colliding beams facility—7 times the energy of the Tevatron at Fermilab—to be constructed in the existing Large Electron-Positron (LEP) machine tunnel (LEP will be removed).

On February 3, 1997, representatives of the Department of Energy, NSF and CERN initialed a preliminary agreement for U.S. participation in the LHC. The Department plans to contribute $450.0 million to the LHC accelerator and detectors over the period FY 1996 through FY 2004, with an additional amount of approximately $80 million being planned by the NSF for the LHC detectors. The Department's LHC contribution is tentatively broken down as follows: $250.0 million for detectors and $200.0 million for

the accelerator (including $90 million in direct purchases by CERN from U.S. vendors and $110 million for fabrication of components by U.S. laboratories). Under the agreement, the DOE accelerator effort will focus on the design of the interaction regions and their integration into the LHC accelerator.

The Department provided LHC funding in FY 1996 ($6.0 million) and in Fiscal Year 1997 ($15.0 million) for preliminary research and development, design and engineering work on the subsystems and components being proposed for inclusion in the agreement with CERN. The Fiscal Year 1998 request is $35.0 million to support continuation of these research and development and design efforts, and to initiate fabrication of subsystems and components. The Department is also requesting the remaining $394.0 million as an advance appropriation, with $65.0 million available in Fiscal Year 1999; $70.0 million available in Fiscal Year 2000; $70.0 million available in Fiscal Year 2001; $70.0 million available in Fiscal Year 2002; $65.0 million available in Fiscal Year 2003; and $54.0 million available in Fiscal Year 2004.

While supportive of U.S. participation in principle, the Committee nevertheless has four major concerns that the proposed agreement initialed by CERN, NSF and the Department may not be in the Nation's best interest.

First, under the proposed agreement, the U.S. is contributing directly to the construction of the LHC accelerator, which is contrary to the tradition that the project host assume the full accelerator construction cost and that direct project contributions be limited to detectors. While the Committee has no objection to changing tradition per se, it believes that the Department should extract a like commitment from the CERN Member States that a similar procedure will be used when the next High Energy Physics facility is constructed anywhere in the world and that these Member States would make a similar contribution to that facility.

Second, under the proposed agreement the U.S. has no formal management role in the project even with a significant commitment of resources that exceeds that of a number of CERN Member States.

Third, there is concern that several CERN Member States are reducing their contributions to CERN at a time when the U.S. is being asked to contribute a significant level of resources.

And fourth, there is concern that the level of resources that the Department proposes committing to the LHC may negatively impact the utilization of the Nation's current portfolio of High Energy and Nuclear Physics facilities.

While H.R. 1277 does not prevent the Department from committing resources to the LHC, it does require the Secretary, in consultation with the Director of NSF, to provide to the Committee on Science of the House of Representatives and the Committee on Energy and Natural Resources of the Senate a report on the impacts of such funding on the operations and viability of United States High Energy and Nuclear Physics facilities. The Committee intends to support this restriction until the Department adequately addresses the aforementioned concerns.

*Section 3(d)—Science Assets Acquisition.*

The Science Assets Acquisition appropriation account is a new account created for construction projects previously funded within the General Science and Research Activities appropriation. The Department's Fiscal Year budget request includes full up-front funding of $126,870,000 for 2 new and 3 ongoing projects.

As shown in Table 7, which summarizes the Committee's authorization recommendations for Fiscal Years 1998 and 1999, H.R. 1277 authorizes $126,870,000 for Fiscal Year 1998 for Science Assets Acquisition. Although the Committee has concerns about providing full up-front funding for construction projects given the Department's spotty track record on managing its construction projects, the Committee is more confident that the proposed projects—which date back as far as 1991—can be completed as proposed with the projected budgets and schedules.

[Table 7 follows:]

## TABLE 7. DEPARTMENT OF ENERGY AUTHORIZATION FOR SCIENCE ASSETS ACQUISITION FOR FISCAL YEARS 1998 AND 1999

(In Thousands of Dollars)

| Appropriation Account/Project | FY 1997 Comparable Appropriation | FY 1998 Authorization Request | FY 1998 Recommendation | FY 1998 Recommendation Compared With (+ or -) FY 1997 Comparable Appropriation | FY 1999 Recommendation | FY 1999 Recommendation Compared With (+ or -) FY 1998 Recommendation |
|---|---|---|---|---|---|---|
| **Science Assets Acquisition** | | | | | | |
| High Energy Physics | | | | | | |
| Project 92-G-302, Fermilab Main Injector, Fermi National Accelerator Laboratory, Illinois | 52,000 | 30,950 | 30,950 | -21,050 | 0 | -30,950 |
| Project 94-G-304, B-Factory, Stanford Linear Accelerator Center, California | 45,000 | 0 | 0 | -45,000 | 0 | 0 |
| Project 97-G-303, Stanford Linear Accelerator Center Master Station Upgrade, California | 3,000 | 9,400 | 9,400 | +6,400 | 0 | -9,400 |
| Project 98-G-304, Neutrinos at the Main Injector (Engineering only) Fermi National Accelerator Laboratory, Illinois | 0 | 5,500 | 5,500 | +5,500 | 0 | -5,500 |
| Project 98-G-305, Fermilab C-Zero Area Experimental Hall, Fermi National Accelerator Laboratory, Illinois | 0 | 5,000 | 5,000 | +5,000 | 0 | -5,000 |
| Total, High Energy Physics | 100,000 | 50,850 | 50,850 | -49,150 | 0 | -50,850 |
| Nuclear Physics | | | | | | |
| Project 91-G-300, Relativistic Heavy Ion Collider Brookhaven National laboratory, Upton, New York | 65,000 | 76,020 | 76,020 | +11,020 | 0 | -76,020 |
| Total, Nuclear Physics | 65,000 | 76,020 | 76,020 | +11,020 | 0 | -76,020 |
| **Total, Science Assets Acquisition** | **165,000** | **126,870** | **126,870** | **-38,130** | **0** | **-126,870** |

As shown in Table 7 and included in bill language are the following amounts:

(1) $50,850,000 for High Energy Physics, including—

(A) $30,950,000 for completion of Project 92-G-302, Fermilab Main Injector, Fermi National Accelerator Laboratory, Illinois;

(B) $9,400,000 for completion of Project 97-G-303, Stanford Linear Accelerator Center Master Station Upgrade, California;

(C) $5,500,000 for architectural engineering and technical design work for Project 98-G-304, Neutrinos at the Main Injector, Fermi National Accelerator Laboratory, Illinois; and

(D) $5,000,000 for completion of Project 98-G-305, Fermilab C-Zero Area Experimental Hall, Fermi National Accelerator Laboratory, Illinois; and

(2) $76,020,000 for Nuclear Physics, for completion of Project 91-G-300, Relativistic Heavy Ion Collider, Brookhaven National Laboratory, Upton, New York.

*Section 3(e)—Fossil Energy Research and Development.*

The Committee's authorization recommendations for Fossil Energy Research and Development are shown in Table 8, which summarizes the Committee's authorization recommendations for Fiscal Years 1998 and 1999. H.R. 1277 authorizes $348,854,000 for Fiscal Year 1998 and $348,185,000 for Fiscal Year 1999 for Fossil Energy Research and Development.

[Table 8 follows:]

## TABLE 8. DEPARTMENT OF ENERGY AUTHORIZATION FOR FOSSIL ENERGY RESEARCH AND DEVELOPMENT FOR FISCAL YEARS 1998 AND 1999

(In Thousands of Dollars)

| Appropriation Account/Program/Subprogram/Activity | FY 1997 Comparable Appropriation | FY 1998 Authorization Request | FY 1998 Recommendation | FY 1998 Recommendation Compared With (+ or -) FY 1997 Comparable Appropriation | FY 1999 Recommendation | FY 1999 Recommendation Compared With (+ or -) FY 1998 Recommendation |
|---|---|---|---|---|---|---|
| **Fossil Energy R&D** | | | | | | |
| Coal | | | | | | |
| Advanced Clean Fuels Research | | | | | | |
| Coal Preparation | 5,099 | 5,064 | 5,064 | -35 | 5,064 | 0 |
| Direct Liquefaction | 5,057 | 5,816 | 5,816 | +759 | 5,816 | 0 |
| Indirect Liquefaction | 4,252 | 4,223 | 4,223 | -29 | 4,223 | 0 |
| Advanced Research and Environmental Technology | 1,746 | 741 | 741 | -1,005 | 741 | 0 |
| Total, Advanced Clean Fuels Research | 16,154 | 15,844 | 15,844 | -310 | 15,844 | 0 |
| Advanced Clean/Efficient Power Systems | | | | | | |
| Advanced Pulverized Coal-Fired Powerplant | 9,500 | 5,462 | 5,462 | -4,038 | 5,462 | 0 |
| Indirect Fired Cycle | 10,005 | 10,927 | 10,927 | +922 | 10,927 | 0 |
| High Efficiency-Integrated Gasification Combined Cycle | 22,500 | 22,342 | 22,342 | -158 | 20,717 | -1,625 |
| High Efficiency-Pressurized Fluidized Bed | 17,850 | 17,875 | 17,875 | +25 | 17,875 | 0 |
| Advanced Research and Environmental Technology | 9,414 | 9,734 | 9,734 | +320 | 9,734 | 0 |
| Total, Advanced Clean/Efficient Power Systems | 69,269 | 66,340 | 66,340 | -2,929 | 64,715 | -1,625 |
| Advanced Research and Technology Development | 17,625 | 19,729 | 23,647 | +6,022 | 23,647 | 0 |
| Transfer to Cooperative R&D | 0 | -1,064 | 0 | 0 | 0 | 0 |
| Total, Coal | 103,048 | 100,049 | 105,851 | +2,783 | 104,206 | -1,625 |
| Oil Technology | | | | | | |
| Exploration and Production Supporting Research | 29,523 | 33,785 | 31,157 | +1,634 | 31,157 | 0 |
| Recovery Field Demonstrations | 5,396 | 6,033 | 3,931 | -1,465 | 3,931 | 0 |
| Exploration and Production Environmental Research | 5,456 | 6,411 | 6,411 | +955 | 5,456 | -955 |
| Processing Research and Downstream Operations | 5,362 | 5,920 | 5,920 | +558 | 5,920 | 0 |
| Total, Oil Technology | 45,937 | 52,169 | 47,419 | +1,482 | 46,464 | -955 |
| Gas | | | | | | |
| Natural Gas Research | | | | | | |
| Exploration and Production | 14,123 | 14,095 | 14,123 | 0 | 14,123 | 0 |
| Delivery and Storage | 1,000 | 993 | 993 | -7 | 993 | 0 |
| Advanced Turbine Systems | 46,600 | 31,379 | 31,379 | -15,221 | 31,379 | 0 |
| Utilization | 5,841 | 4,808 | 4,808 | -1,033 | 4,808 | 0 |
| Environmental Research/Regulatory Impact Analysis | 2,650 | 4,617 | 4,617 | +1,967 | 4,617 | 0 |
| Total, Natural Gas Research | 70,214 | 56,892 | 55,920 | -14,294 | 55,920 | 0 |
| Fuel Cells | | | | | | |
| Advanced Research | 1,218 | 1,210 | 1,210 | -8 | 1,210 | 0 |
| Molten Carbonate Systems | 36,399 | 23,669 | 16,335 | -20,064 | 16,335 | 0 |
| Advanced Concepts | 12,500 | 12,412 | 12,412 | -88 | 12,412 | 0 |
| Total, Fuel Cells | 50,117 | 46,291 | 29,957 | -20,160 | 29,957 | 0 |
| Total, Gas | 120,331 | 102,983 | 85,877 | -34,454 | 85,877 | 0 |
| Program Direction and Management Support | | | | | | |
| Headquarters Program Direction | 14,396 | 14,659 | 13,676 | -720 | 12,992 | -684 |
| Energy Technology Center (ETC) Program Direction | 54,314 | 48,107 | 48,107 | -6,207 | 49,302 | +1,195 |
| Total, Program Direction and Management Support | 68,710 | 62,766 | 61,783 | -6,927 | 62,494 | +711 |
| Plant and Capital Equipment | 2,000 | 2,532 | 2,000 | 0 | 2,000 | 0 |
| Fossil Energy Environmental Restoration | 13,027 | 12,935 | 12,935 | -92 | 12,935 | 0 |
| Cooperative Research and Development | 5,566 | 5,836 | 5,836 | +270 | 5,836 | 0 |
| Fuels Conversion, Natural Gas and Electricity | 2,188 | 2,173 | 2,173 | -15 | 2,173 | 0 |
| Mining | 5,000 | 4,965 | 0 | -5,000 | 0 | 0 |
| Fossil Energy Science Initiative | 0 | 0 | 25,000 | +25,000 | 20,000 | +5,000 |
| Subtotal, Fossil Energy R&D | 365,807 | 346,408 | 348,854 | -16,953 | 331,985 | +3,131 |
| Use of Prior Year Balances | -1,101 | 0 | 0 | +1,101 | 0 | 0 |
| General Reduction | 0 | 0 | 0 | 0 | -3,800 | -3,800 |
| **Total, Fossil Energy R&D** | 364,706 | 346,408 | 348,854 | -15,852 | 348,185 | -669 |

As shown in Table 8 and included in bill language are the following amounts:

(1) $105,831,000 for Fiscal Year 1998 and $104,206,000 for Fiscal Year 1999 for Coal operating expenses, including—

(A) $5,064,000 for Fiscal Year 1998 and $5,064,000 for Fiscal Year 1999 for Coal Preparation;

(B) $5,816,000 for Fiscal Year 1998 and $5,816,000 for Fiscal Year 1999 for Direct Liquefaction;

(C) $4,223,000 for Fiscal Year 1998 and $4,223,000 for Fiscal Year 1999 for Indirect Liquefaction;

(D) $741,000 for Fiscal Year 1998 and $741,000 for Fiscal Year 1999 for Advanced Clean Fuels Research Advanced Research and Environmental Technology;

(E) $5,462,000 for Fiscal Year 1998 and $5,462,000 for Fiscal Year 1999 for Advanced Pulverized Coal-Fired Powerplant;

(F) $10,927,000 for Fiscal Year 1998 and $10,927,000 for Fiscal Year 1999 for Indirect Fired Cycle;

(G) $22,342,000 for Fiscal Year 1998 and $20,717,000 for Fiscal Year 1999 for High-Efficiency-Integrated Gasification Combined Cycle;

(H) $17,875,000 for Fiscal Year 1998 and $17,875,000 for Fiscal Year 1999 for High-Efficiency Pressurized Fluidized Bed;

(I) $9,734,000 for Fiscal Year 1998 and $9,734,000 for Fiscal Year 1999 for Advanced Clean/Efficient Power Systems Advanced Research and Environmental Technology; and

(J) $23,647,000 for Fiscal Year 1998 and $23,647,000 for Fiscal Year 1999 for Advanced Research and Technology Development.

(2) $47,419,000 for Fiscal Year 1998 and $46,464,000 for Fiscal Year 1999 Oil Technology operating expenses, including—

(A) $31,157,000 for Fiscal Year 1998 and $31,157,000 for Fiscal Year 1999 for Exploration and Production Supporting Research;

(B) $3,931,000 for Fiscal Year 1998 and $3,931,000 for Fiscal Year 1999 for Recovery Field Demonstrations;

(C) $6,411,000 for Fiscal Year 1998 and $5,456,000 for Fiscal Year 1999 for Exploration and Production Experimental Research; and

(D) $5,920,000 for Fiscal Year 1998 and $5,920,000 for Fiscal Year 1999 for Processing Research and Downstream Operations.

(3) $85,877,000 for Fiscal Year 1998 and $85,877,000 for Fiscal Year 1999 for Gas operating expenses, including—

(A) $14,123,000 for Fiscal Year 1998 and $14,123,000 for Fiscal Year 1999 for Natural Gas Research Exploration and Production;

(B) $993,000 for Fiscal Year 1998 and $993,000 for Fiscal Year 1999 for Natural Gas Research Delivery and Storage;

(C) $31,379,000 for Fiscal Year 1998 and $31,379,000 for Fiscal Year 1999 for Natural Gas Research Advanced Turbine Systems;

(D)$4,808,000 for Fiscal Year 1998 and $4,808,000 for Fiscal Year 1999 for Natural Gas Utilization;

(E) $4,617,000 for Fiscal Year 1998 and $4,617,000 for Fiscal Year 1999 for Natural Gas Research Environmental Research/Regulatory Analysis;

(F) $1,210,000 for Fiscal Year 1998 and $1,210,000 for Fiscal Year 1999 for Fuel Cells Advanced Research;

(G) $16,335,000 for Fiscal Year 1998 and $16,335,000 for Fiscal Year 1999 for Fuel Cells Molten Carbonate Systems to continue cost-shared cost reduction and performance improvement of one system; and

(H) $12,412,000 for Fiscal Year 1998 and $12,412,000 for Fiscal Year 1999 for Fuel Cells Advanced Concepts.

(4) $61,783,000 for Fiscal Year 1998 and $62,494,000 for Fiscal Year 1999 for Program Direction and Management Support operating expenses, including—

(A) $13,676,000 for Fiscal Year 1998 and $12,992,000 for Fiscal Year 1999 for Headquarters Program Direction; and

(B) $48,107,000 for Fiscal Year 1998 and, within available Fossil Energy Research and Development funds, $49,502,000 for Fiscal Year 1999 for Energy Technology Center Program Direction.

(5) $2,000,000 for Fiscal Year 1998 and $2,000,000 for Fiscal Year 1999 for Plant and Capital Equipment, for construction of General Plant Projects at the Federal Energy Technology Center sites and at the Bartlesville Project Office.

(6) $12,935,000 for Fiscal Year 1998 and $12,935,000 for Fiscal Year 1999 for Fossil Energy Environmental Restoration operating expenses.

(7) $5,836,000 for Fiscal Year 1998 and $5,836,000 for Fiscal Year 1999 for Cooperative Research and Development operating expenses.

(8) $2,173,000 for Fiscal Year 1998 and $2,173,000 for Fiscal Year 1999 for Fuels Conversion, Natural Gas, and Electricity operating expenses; and

(9) $25,000,000 for Fiscal Year 1998 and $30,000,000 for Fiscal Year 1999 for a Fossil Energy Science Initiative to be managed by the Director of the Office of Energy Research, in consultation with the Assistant Secretary for Fossil Energy on the goals and priorities of the Initiative, for grants to be competitively awarded and subject to peer review for research relating to fossil energy.

The Committee authorization recommendations for Fossil Energy Research and Development contained in bill language for Fiscal Years 1998 and 1999 do not provide authorization of appropriations for the Coal Technology Export Program or for Mining. However, the Committee recommendations for Fiscal Years 1998 and 1999 for the Coal Advanced Research and Technology Development Program assume $4,965,000 in funding each year for research conducted at the Albany (Oregon) Research Center.

*Committee Views—Fossil Energy Science Initiative.*

The Committee strongly supports research on fossil energy sources. Fossil fuels provide some 85 percent of the Nation's energy consumption and the Nation is expected to remain dependent on fossil fuels for the next 20 years. However, the Committee also believes much more emphasis needs to be placed on basic and applied research in these areas. In order to restore a more appropriate balance between research and development activities in these programs, the Committee recommendation establishes a Fossil Energy

Science Initiative to be funded at $25,000,000 in Fiscal Year 1998 and at $30,000,000 in Fiscal Year 1999 for grants to be competitively awarded and subject to peer review for research related to fossil—including research related to coal, oil, and natural gas. The Initiative funds are to be managed by the Department's Director of the Office of Energy Research, in consultation with the Assistant Secretary for Fossil Energy on the goals and priorities of the Initiative. The Committee expects that the majority of the Initiative's grants will be for university-based and private-sector laboratory research and emphasizes that the Initiative's funds are to be available only for competitively-awarded and peer-reviewed grants, and are not be used to fund either National Laboratory or in-house research unless such funds have been competitively-awarded and peer-reviewed in competitions that solicit applications from all types of research performers.

*Section 3(f)—Energy Conservation Research and Development.*

The Committee's authorization recommendations for Energy Conservation Research and Development are shown in Table 9, which summarizes the Committee's authorization recommendations for Fiscal Years 1998 and 1999. H.R. 1277 authorizes $416,908,000 (reduced by $20,000,000 to reflect the use of prior year balances) for Fiscal Year 1998 and $439,403,000 for Fiscal Year 1999 for Energy Conservation Research and Development.

[Table 9 follows:]

## TABLE 9. DEPARTMENT OF ENERGY AUTHORIZATION FOR ENERGY CONSERVATION RESEARCH AND DEVELOPMENT FOR FISCAL YEARS 1998 AND 1999

(In Thousands of Dollars)

| Appropriation Account/Program/Subprogram/Activity | FY 1997 Comparable Appropriation | FY 1998 Authorization Request | FY 1998 Recommendation | FY 1998 Recommendation Compared With (+ or -) FY 1997 Comparable Appropriation | FY 1999 Recommendation | FY 1999 Recommendation Compared With (+ or -) FY 1998 Recommendation |
|---|---|---|---|---|---|---|
| Energy Conservation Research and Development | | | | | | |
| Building Technology, State and Community Sector (Non-Grants) | | | | | | |
| Building Systems Design | 23,596 | 32,841 | 8,762 | -14,834 | 8,762 | 0 |
| Building Equipment and Materials | 26,535 | 55,296 | 20,550 | -5,985 | 20,250 | -300 |
| Municipal Energy Management | 17,362 | 19,150 | 11,692 | -5,670 | 11,218 | -474 |
| Total, Building Technology, State and Community Sector (Non-Grants) | 67,493 | 107,287 | 41,004 | -26,489 | 40,230 | -774 |
| Industry Sector | | | | | | |
| Industries of the Future (Specific) | 46,266 | 55,660 | 55,660 | +9,394 | 55,660 | 0 |
| Industries of the Future (Crosscutting) | 39,350 | 39,120 | 39,120 | -230 | 39,120 | 0 |
| Technology Access | 24,950 | 37,079 | 23,950 | -1,000 | 23,950 | 0 |
| Management and Planning | 7,000 | 7,709 | 6,650 | -350 | 6,318 | -332 |
| Total, Industry Sector | 117,566 | 139,559 | 125,380 | +7,814 | 125,048 | -332 |
| Transportation Sector | | | | | | |
| Technology Deployment | 8,052 | 13,200 | 0 | -8,052 | 0 | 0 |
| Clean Cities | 2,748 | 3,800 | 2,700 | -48 | 2,700 | 0 |
| Advance Automotive Technologies | 104,640 | 129,046 | 124,046 | +19,406 | 124,046 | 0 |
| Advance Heavy Vehicle Technologies | 19,503 | 18,000 | 18,000 | -1,503 | 18,000 | 0 |
| Transportation Materials Technologies | 32,860 | 30,500 | 30,500 | -2,360 | 30,500 | 0 |
| Implementation and Program Management | 7,400 | 8,700 | 7,030 | -370 | 6,679 | -351 |
| Subtotal, Transportation Sector | 175,203 | 203,246 | 182,276 | +7,073 | 181,925 | -351 |
| General Reduction | 0 | 0 | -2,700 | -2,700 | -2,700 | 0 |
| Total, Transportation Sector | 175,203 | 203,246 | 179,576 | +4,373 | 179,225 | -351 |
| Policy and Management | 26,150 | 31,380 | 20,948 | -5,202 | 19,900 | -1,048 |
| Energy Efficiency Science Initiative | 0 | 0 | 50,000 | +50,000 | 75,000 | +25,000 |
| Subtotal, Energy Conservation Research and Development | 386,412 | 481,472 | 416,908 | +30,496 | 439,403 | +22,495 |
| Use of Prior Year Balances | -20,000 | -20,000 | -20,000 | 0 | 0 | +20,000 |
| Total, Energy Conservation Research and Development | 366,412 | 461,472 | 396,908 | +30,496 | 439,403 | +42,495 |

As shown in Table 9 and included in bill language are the following amounts:

(1) $41,004,000 for Fiscal Year 1998 and $40,230,000 for Fiscal Year 1999 for the Building Technology, State and Community Sector (Non-Grants), including—

(A) $8,762,000 for Fiscal Year 1998 and $8,762,000 for Fiscal Year 1999 for Building Systems Design for Building America Program;

(B) $20,550,000 for Fiscal Year 1998 and $20,250,000 for Fiscal Year 1999 for Building Equipment and Materials; and

(C) $11,692,000 for Fiscal Year 1998 and $11,218,000 for Fiscal Year 1999 for Management and Planning.

(2) $125,380,000 for Fiscal Year 1998 and $125,048,000 for Fiscal Year 1999 for the Industry Sector, including—

(A) $55,660,000 for Fiscal Year 1998 and $55,660,000 for Fiscal Year 1999 for Industries of the Future (Specific);

(B) $39,120,000 for Fiscal Year 1998 and $39,120,000 for Fiscal Year 1999 for Industries of the Future (Crosscutting);

(C) $23,950,000 for Fiscal Year 1998 and $23,950,000 for Fiscal Year 1999 for Technology Access; and

(D) $6,650,000 for Fiscal Year 1998 and $6,318,000 for Fiscal Year 1999 for Management and Planning.

(3) $179,576,000 for Fiscal Year 1998 and $179,225,000 for Fiscal Year 1999 for the Transportation Sector, including—

(A) Within available Transportation Sector funds, $2,700,000 for Fiscal Year 1998 and $$2,700,000 for Fiscal Year 1999 for Clean Cities;

(B) $124,046,000 for Fiscal Year 1998 and $124,046,000 for Fiscal Year 1999 for Advanced Automotive Technologies;

(C) $18,000,000 for Fiscal Year 1998 and $18,000,000 for Fiscal Year 1999 for Advanced Heavy Vehicle Technologies;

(D) $30,500,000 for Fiscal Year 1998 and $30,500,000 for Fiscal Year 1999 for Transportation Materials Technologies; and

(E) $7,030,000 for Fiscal Year 1998 and $6,679,000 for Fiscal Year 1999 for Implementation and Program.

(4) $20,948,000 for Fiscal Year 1998 and $19,900,000 for Fiscal Year 1999 for Policy and Management;.

(5) $50,000,000 for Fiscal Year 1998 and $75,000,000 for Fiscal Year 1999 for an Energy Efficiency Science Initiative to be managed by the Director of the Office of Energy Research, in consultation with the Assistant Secretary for Energy Efficiency and Renewable Energy on the goals and priorities of the Initiative, for grants to be competitively awarded and subject to peer review for research relating to energy efficiency.

The Committee authorization recommendations for Energy Conservation Research and Development contained in bill language for Fiscal Years 1998 and 1999 does not provide authorization of appropriations for the Transportation Sector Technology Deployment Program.

*Committee Views—Energy Efficiency Science Initiative.*

The Committee strongly supports energy efficiency research and believes much more emphasis needs to be placed on basic and applied research in these areas. For example, in testimony before the Subcommittee on Energy and Environment on March 19, 1997, the Department's Assistant Secretary for Energy Efficiency and Renewable Energy estimated that the Department's funding for basic research on energy efficiency and solar and renewable energy programs accounts for only five percent of the overall funding for these programs. In order to restore a more appropriate balance between research and development activities in these programs, the Committee recommendation establishes an Energy Efficiency Science Initiative to be funded at $50,000,000 in Fiscal Year 1998 and at $75,000,000 in Fiscal Year 1999 for grants to be competitively awarded and subject to peer review for research related to energy efficiency—including research related to the building, industry, and transportation sectors. The Initiative funds are to be managed by the Department's Director of the Office of Energy Research in consultation with the Assistant Secretary for Energy Efficiency and Renewable Energy on the goals and priorities of the Initiative. The Committee expects that the majority of the Initiative's grants will be for university-based and private-sector laboratory research and emphasizes that the Initiative's funds are to be available only for competitively-awarded and peer-reviewed grants, and are not be used to fund either National Laboratory or in-house research unless such funds have been competitively-awarded and peer-reviewed in competitions that solicit applications from all types of research performers.

*Committee Views—Clean Cities.*

The Committee strongly supports the Clean Cities Initiative, a locally-based public-private partnership that seeks to expand the use of clean fuels. Coordinated by the Department of Energy, the Clean Cities program combines local decision-making and volunteer efforts to carry out plans at the local level to create alternative fuels markets. The Committee has authorized $2,700,090 in each of Fiscal Years 1998 and 1999 to continue this initiative.

*Section 4. Funding Limitations.*

Section 4 provides that no funds authorized by this Act for Fiscal Years 1998 and 1999 may be used for the following seven programs, except to fulfill contractual obligations: (1) Nuclear Energy Advanced Light Water Reactor; (2) Nuclear Energy Commercial Reactor; (3) Nuclear Energy Security; (4) Nuclear Energy Termination Costs Gas Turbine-Modular Helium Reactor; (5) Nuclear Energy Termination Costs Advanced Light Water Reactor; (6) Fossil Energy Research and Development Advanced Research and Technology Development Coal Technology Export; and (7) Clean Coal Technology Program.

*Committee View—Finding Limitations.*

The Committee does support authorization of appropriations for the programs delineated in this section.

*Section 5. National Academy of Sciences Reports.*

*(a) High Energy and Nuclear Physics*—Subsection 5(a) requires the Secretary to enter into appropriate arrangements with the National Academy of Sciences for the Academy to prepare a report on the high energy and nuclear physics activities of the Department, assuming a combined budget of $977,080,000 for all General Science and Research activities authorized under Subsection 3(c) and all Science Assets Acquisition activities authorized under Subsection 3(d) for Fiscal Year 1998, and $941,000,000 for each of the Fiscal Years 1999, 2000, 2001, and 2002. The Secretary is to transmit to the Committee on Science of the House of Representatives and the Committee on Energy and Natural Resources of the Senate the report prepared under this subsection not later than December 31, 1997, which shall include: (1) a priority list of research opportunities, including both ongoing and proposed activities; (2) an analysis of the relevance of each research facility to the research opportunities listed under clause (1); (3) recommendations for the optimal balance among facility operations, construction, and research support and the optimal balance between university and laboratory research programs; and (4) recommended schedules for the continuation, consolidation, or termination of each research program, and continuation, upgrade, transfer, or closure of each research facility.

*(b) Basic Energy Sciences*—Subsection 5(a) requires the Secretary to enter into appropriate arrangements with National Academy of Sciences for the Academy to prepare a report on the basic energy sciences activities of the Department, based on the following three options for the entire Basic Energy Sciences account and all related research and energy asset activities: (A) provision of $683,000,000 for each of Fiscal Years 1999 through 2002; (B) provision of $683,000,000 for Fiscal Year 1999, and an amount reflecting a three-percent reduction in each year thereafter through Fiscal Year 2002; and (C) provision of $683,000,000 for Fiscal Year 1999, and an amount reflecting a three-percent increase in each year thereafter through Fiscal Year 2002. The Secretary is to transmit to the Committee on Science of the House of Representatives and the Committee on Energy and Natural Resources of the Senate the report prepared under this subsection not later than December 31, 1997, which shall include: (1) a priority list of research opportunities, including both ongoing and proposed activities; (2) an analysis of the relevance of each research facility to the research opportunities listed under clause (1); (3) recommendations for the optimal balance among facility operations, construction, and research support and the optimal balance between university and laboratory research programs; and (4) recommended schedules for the continuation, consolidation, or termination of each research program, and continuation, upgrade, transfer, or closure of each research facility.

*(c) National Spallation Neutron Source*—Subsection 5(c) requires the Secretary to enter into appropriate arrangements with National Academy of Sciences for the Academy to prepare a report containing a detailed evaluation of the costs of construction and operation of the National Spallation Neutron Source at alternative appropriate sites, including at least the Argonne National Laboratory, the Brookhaven National Laboratory, the Los Alamos National Laboratory, and the Oak Ridge National Laboratory. Such

report shall also include an identification of other advantages and disadvantages of each site evaluated. Not later than December 31, 1997, the Secretary shall transmit to the Committee on Science of the House of Representatives and the Committee on Energy and Natural Resources of the Senate the report along with a recommendation from the Department for the preferred site that will meet its program criteria, taking into consideration the effect of delay on neutron science work, existing expertise in the field of neutron science, affiliations with institutions of higher education in neutron science, and State allocations or commitments to facilities.

*Committee Views—National Academy of Sciences Reports on High Energy and Nuclear Physics and Basic Energy Sciences.*

The Department's High Energy and Nuclear Physics and Basic Energy Sciences programs maintain large inventories of facilities, requiring a continual balance of research, operations, and facility construction needs. And the Department is well aware that, with large sums devoted to "keeping the lights on" at these facilities, research and operations funding can be more easily squeezed during periods of tight budgets. In fact, the Department has acknowledged through its Scientific Facility Initiative that the operating time at its various facilities is at a minimal level and research programs may be suffering to maintain the facility base.

For several years, the Committee has requested that the Department initiate a process with outside experts to review the Department's long-term plans to meet these programs' competing needs of research, operations, and construction. However, such reviews have not been forthcoming. The Committee does note that the Department has requested a review of the High Energy Physics program by the High Energy Physics Advisory Panel, but the Committee still believes that a review by outside experts is appropriate in high energy physics. The reviews of the High Energy and Nuclear Physics and Basic Energy Sciences programs required by H.R. 1277 are expected to be wide-ranging and to address tough issues such as facility-closure, where appropriate. And the Committee remains committed to working with the Department and the National Academy of Sciences to ensure that the reports are useful and timely.

*Committee View—National Spallation Neutron Source.*

The DOE has been funding work on a one-megawatt spallation neutron source (about six times that of the highest currently available worldwide), called the National Spallation Neutron Source (NSNS) and has declared that if the project is to proceed to construction it will be sited at Oak Ridge National Laboratory. The NSNS, which will likely cost over $1 billion, is an interlaboratory effort involving Lawrence Berkeley National Laboratory, Brookhaven National Laboratory, Los Alamos National Laboratory, and Argonne National Laboratory, with Oak Ridge responsible for project management and coordination of the technical design. There will be the potential for at least three target areas and for 30 to 40 instruments, and it is expected that the NSNS will serve over 1,000 users per year.

House Report 104-149, accompanying the 1996 Energy and Water Development Appropriations Bill (H.R. 1905), concurred with the Department that the NSNS's preferred alternative site was at Oak Ridge National Laboratory. However, the accompanying Senate Report 104-120 rejected the House's endorsement of Oak Ridge as the preferred site and directed the Department to establish and pursue a competitive site selection process for this proposed facility. The conferees, in House Report 104-293, did not take a position on siting the facility.

The Committee takes note of a Department of Energy's Inspector General (IG) April 1995 document entitled *Report on Audit of the Department of Energy's Environmental Molecular Sciences Laboratory*. That report criticized the Department for not exploring all practical alternatives as required by Department Order 4700.1 before deciding to proceed with the construction of a new research laboratory in Richland, Washington. The Committee concurs wih the thrust of IG's report. Namely, that with the current concern about budget constraints, it is imperative that the Department fully evaluate all available options before proceeding with a billion-dollar construction project. Since the Department refuses to take on this task, the Committee directs the Secretary of Energy to engage the National Academy of Sciences to provide such an evaluation. The Academy should recommend whether existing assets, other Department facilities, and national laboratories, could fulfill the mission of the proposed NSNS. Such an evaluation would be consistent with a commitment to deficit reduction and prudent spending, and would maximize utilization of available resources.

*Section 6. Prohibition on Use of Clean Coal Technology Reserve Funds.*

Section 6 prohibits the use of funds in the Clean Coal Technology Reserve to initiate or carry out a clean coal technology program based outside the United States.

*Committee View—Clean Coal Technology Reserve Funds.*

The Committee opposes the use of Clean Coal Technology Reserve funds to initiate or carry out a Clean Coal Technology program based outside the United States, and that any funds in excess of program needs should be returned to the Treasury.

*Section 7. Next Generation Internet.*

Section 7 prohibits the use of funds authorized by this Act, or any other Act enacted before the date of the enactment of this Act, for the Next Generation Internet, except for continuation of programs and acivities that were funded and carried out during Fiscal Year 1997.

*Committee View—Next Generation Internet.*

This provision ensures that the Committee will have the opportunity to review and authorize the Next Generation Internet (NGI), while at the same time allowing for minimal on-going research in that program. The progression of our country's computer networking technology plays a vital role in our nation's continued leadership in scientific research. The Committee, however, feels it

necessary to develop more of a record before addressing funding for NGI, and is working with the Administration to develop a plan concerning NGI. The Committee expects to hold hearings on NGI in the future to better understand how it will further the goals of advancing network technologies.

*Section 8. Limitations.*

*Subsection 8(a)—Prohibition of Lobbying Activities.*

Subsection 8(a) forbids the use of funds authorized by this Act for any activity whose purpose is to influence legislation pending before Congress. However, this subsection does not prevent employees of the departments or agencies from communicating with Members of Congress to conduct public business.

*Committee View—Prohibition of Lobbying Activities.*

The Committee is committed to ensuring that awards for research are used solely for that purpose. Funds should not be used for any purpose, other than that specified in the award. The Committee, however, does not exclude appropriate communications between the executive branch and the Congress.

*Subsection 8(b)—Limitation on Appropriations.*

Subsection 8(b) provides that no sums are authorized to be appropriated that are not specifically authorized to be appropriated by this Act for Fiscal Years 1998 and 1999, or by an Act of Congress in succeeding Fiscal Years.

*Committee View—Limitation on Appropriations.*

The Committee emphasizes that the only funds authorized to be appropriated for DOE's research, development, demonstration and commercial applications activities are made available under this Act. It is the Committee's position that annual authorizations designating specific sums are required for appropriations of such sums to be authorized. Organic act authority permits agency missions and programmatic activity, but is not sufficient to authorize actual funding.

*Subsection 8(c)—Eligibility for Awards.*

Subsection 8(c) requires the head of each federal agency for which funds are authorized under this Act to exclude from consideration for grant agreements, for a period of 5 years, any person who received funds for a project not subject to competitive, merit-based review process after Fiscal Year 1997. The subsection is not applicable to awards to long-standing Cooperative Research and Development Agreement program nor awards to persons who are members of a class specified by law for which assistance is awarded according to formula provided by law.

*Committee View—Eligibility for Awards.*

The Committee has a long-standing position that awards should be made on a competitive, merit-based process that ensures that taxpayers' dollars are spent in the most cost-effective and productive manner.

*Section 9. Notice.*

Section 9(a) requires that if any funds of this Act, or amendments made by this Act, are subject to reprogramming which requires notice to be given to the Appropriations Committees of the House of Representatives and the Senate, notice of such action shall be concurrently provided to the Committees on Science and Commerce of the House of Representatives and the Committee on Energy and Natural Resources of the Senate.

Section 9(b) requires the Secretary to notify the Committees on Science, Commerce, and Appropriations of the House of Representatives and the Committees on Energy and Natural Resources and Appropriations of the Senate if any program, project, or activity of the Department of Energy is preparing to undergo any major reorganization no later than 15 days prior to such reorganization.

*Committee View—Notice.*

The Committee believes that such notice must be given if it is to carry out its oversight responsibilities under the Rules of the House.

*Section 10. Sense of Congress on the Year 2000 Problem.*

It is the sense of Congress that the Department of Energy should give high priority to correcting the year 2000 problem in all of its computer systems to ensure effective operation in the year 2000 and beyond. The Department of Energy needs to assess immediately the risk of the problem upon their systems and develop a plan and a budget to correct the problem for its mission-critical programs. The Department of Energy also needs to begin consideration of contingency plans, in the event that certain systems are unable to be corrected in time.

*Committee Views—Year 2000 Problem.*

Despite knowing of the problem for years, the Federal Government has yet to adequately create strategies to address the year 2000 problem. The Committee believes Congress should continue to take a leadership role in raising awareness about the issue with both government and the private sector.

The potential impact on federal programs if the year 2000 problem is not corrected in an effective and timely manner is substantial and potentially serious. If federal computers are not prepared to handle the change of date on January 1, 2000, there is a risk to all government systems and the programs they support. It is imperative that such corrective action be taken to avert disruption to critical Federal Government programs.

*Section 11. Buy American.*

Section 11 requires any entity that is appropriated funds pursuant to this act or amendments thereto, to comply with sections 2-4 of the Act of March 3, 1933 (41 U.S.C. 10a-10c, popularly known as the "Buy American Act"); and that recipients of funds pursuant to this act shall be notified of subsection (a)'s requirement of compliance with the Buy American Act.

*Committee View—Buy American.*

It is the Committee's position that the Federal Government buy goods manufactured in the United States when feasible, and where cost-effective and practicable.

## VIII. Committee Cost Estimate

Clause 7(a) of rule XIII of the Rules of the House of Representatives requires each committee report accompanying each bill or joint resolution of a public character to contain: (1) an estimate, made by such committee, of the costs which would be incurred in carrying out such bill or joint resolution in the Fiscal Year in which it is reported, and in each of the five Fiscal Years following such Fiscal Year (or for the authorized duration of any program authorized by such bill or joint resolution, if less than five years); (2) a comparison of the estimate of costs described in subparagraph (1) of this paragraph made by such committee with an estimate of such costs made by any Government agency and submitted to such committee; and (3) when practicable, a comparison of the total estimated funding level for the relevant program (or programs) with the appropriate levels under current law. However, clause 7(d) of that rule provides that this requirement does not apply when a cost estimate and comparison prepared by the Director of the Congressional Budget Office under section 403 of the Congressional Budget Act of 1974 has been timely submitted prior to the filing of the report and included in the report pursuant to clause 2(l)(3)(C) of rule XI. A cost estimate and comparison prepared by the Director of the Congressional Budget Office under section 403 of the Congressional Budget Act of 1974 has been timely submitted prior to the filing of this report and included in Section IX of this report pursuant to clause 2(l)(3)(C) of rule XI.

Clause 2(l)(3)(B) of rule XI of the Rules of the House of Representatives requires each committee report that accompanies a measure providing new budget authority (other than continuing appropriations), new spending authority, or new credit authority, or changes in revenues or tax expenditures to contain a cost estimate, as required by section 308(a)(1) of the Congressional Budget Act of 1974 and, when practicable with respect to estimates of new budget authority, a comparison of the total estimated funding level for the relevant program (or programs) to the appropriate levels under current law. H.R. 1277 does not contain any new budget authority, credit authority, or changes in revenues or tax expenditures. Assuming that the sums authorized under the bill are appropriated, H.R. 1277 does authorize additional discretionary spending, as described in the Congressional Budget Office report on the bill, which is contained in Section IX of this report.

## IX. Congressional Budget Office Cost Estimate

[Text of the CBO estimate follows:]

CONGRESSIONAL BUDGET OFFICE
U.S. CONGRESS
WASHINGTON, D.C. 20515

June E. O'Neill
Director

April 18, 1997

Honorable F. James Sensenbrenner, Jr.
Chairman
Committee on Science
U.S. House of Representatives
Washington, D.C. 20515

Dear Mr. Chairman:

The Congressional Budget Office has prepared the enclosed cost estimate for H.R. 1277, the Department of Energy Civilian Research and Development Act of 1997.

If you wish further details on this estimate, we will be pleased to provide them. The CBO staff contacts are Kathleen Gramp and Kim Cawley (for federal costs), both of whom can be reached at 226-2860, and Pepper Santalucia (for the state and local impact), who can be reached at 225-3220.

Sincerely,

for June E. O'Neill

Enclosure

**CONGRESSIONAL BUDGET OFFICE**
**COST ESTIMATE**

April 18, 1997

# H.R. 1277

## Department of Energy Civilian Research and Development Act of 1997

*As ordered reported by the House Committee on Science on April 16, 1997*

### SUMMARY

H.R. 1277 would authorize appropriations for civilian research and development programs at the Department of Energy (DOE) for fiscal years 1998 and 1999 and would make those authorizations subject to certain conditions. For example, some of the authorized amounts would have to be derived from unobligated balances of prior-year appropriations. Other provisions would restrict the use of funds for certain nuclear and fossil energy projects, for new initiatives on the next-generation Internet, and for U.S. participation in the Large Hadron Collider. DOE also would be required to revise its grant eligibility criteria and fund studies by the National Academy of Sciences on research priorities and on the National Spallation Neutron Source. Recipients of DOE funding would be required to comply with the "Buy American Act."

Assuming the appropriation of the authorized amounts, CBO estimates that enacting H.R. 1277 would result in additional discretionary spending of $9.2 billion over the 1998-2002 period. The legislation would not affect direct spending or receipts; therefore, pay-as-you-go procedures would not apply. H.R. 1277 contains no intergovernmental or private-sector mandates as defined in the Unfunded Mandates Reform Act of 1995 (UMRA).

### ESTIMATED COST TO THE FEDERAL GOVERNMENT

The estimated budgetary impact of H.R. 1277 is shown in the table on the following page. For the purposes of this estimate, CBO assumes that the amounts authorized in the bill will be appropriated for each year and that the amounts appropriated for 1998 will be consistent with the bill's directive to use $53.5 million in previously appropriated funds to meet the total program levels authorized in the bill. The table includes outlays of these previously appropriated amounts as spending under current law. We also assume that funds will be appropriated by the start of each fiscal year and that outlays will follow the historical

spending patterns for these programs. CBO estimates that other provisions in the legislation would have no significant budgetary impact.

| | By Fiscal Year, in Millions of Dollars | | | | | |
|---|---|---|---|---|---|---|
| | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
| **SPENDING SUBJECT TO APPROPRIATION** | | | | | | |
| Spending for DOE's Civilian R&D Programs Under Current Law | | | | | | |
| Budget Authority[a] | 4,440 | 0 | 0 | 0 | 0 | 0 |
| Estimated Outlays | 4,622 | 2,441 | 688 | 18 | 0 | 0 |
| Proposed Changes | | | | | | |
| Authorization Level | 0 | 4,605 | 4,622 | 0 | 0 | 0 |
| Estimated Outlays | 0 | 2,031 | 3,911 | 2,534 | 729 | 22 |
| Spending for DOE's Civilian R&D Programs Under H.R. 1277 | | | | | | |
| Authorization Level[a] | 4,440 | 4,605 | 4,622 | 0 | 0 | 0 |
| Estimated Outlays | 4,622 | 4,472 | 4,599 | 2,552 | 729 | 22 |

a. The 1997 level is the amount appropriated for that year.

The costs of this legislation fall within budget functions 250 (general science, space, and technology) and 270 (energy).

**PAY-AS-YOU-GO CONSIDERATIONS:** None.

## ESTIMATED IMPACT ON STATE, LOCAL, AND TRIBAL GOVERNMENTS

The bill contains no intergovernmental mandates as defined in UMRA, but two provisions in the bill would affect eligibility for federal grants. The first would require compliance with the "Buy American Act." The second would exclude grantees from consideration for awards if they had received funds under any other federal grant program that was not subject to a competitive, merit-based award process. The latter provision could change the allocation of funds among grant recipients, including state universities and colleges. CBO

cannot predict how the share of research funding awarded to public universities and colleges would change because of this provision.

**ESTIMATED IMPACT ON THE PRIVATE SECTOR**

This bill would impose no new private-sector mandates as defined in UMRA.

**ESTIMATE PREPARED BY:**

Federal Cost: Kathleen Gramp and Kim Cawley (226-2860)
Impact on State, Local, and Tribal Governments: Pepper Santalucia (225-3220)

**ESTIMATE APPROVED BY:**

Robert A. Sunshine
Deputy Assistant Director for Budget Analysis

## X. Compliance With Public Law 104-4

H.R. 1277 contains no unfunded mandates.

## XI. Committee Oversight Findings and Recommendations

Clause 2(l)(3)(A) of rule XI of the Rules of the House of Representatives requires each committee report to include oversight findings and recommendations required pursuant to clause 2(b)(1) of rule X. The Committee has no oversight findings.

## XII. Oversight Findings and Recommendations by the Committee on Government Reform and Oversight

Clause 2(l)(3)(D) of rule XI of the Rules of the House of Representatives requires each committee report to contain a summary of the oversight findings and recommendations made by the House Government Reform and Oversight Committee pursuant to clause 4(c)(2) of rule X, whenever such findings and recommendations have been submitted to the Committee in a timely fashion. The Committee on Science has received no such findings or recommendations from the Committee on Government Reform and Oversight.

## XIII. Constitutional Authority Statement

Clause 2(l)(4) of rule XI of the Rules of the House of Representatives requires each report of a committee on a bill or joint resolution of a public character to include a statement citing the specific powers granted to the Congress in the Constitution to enact the law proposed by the bill or joint resolution. Article I, section 8 of the Constitution of the United States grants Congress the authority to enact H.R. 1277.

## XIV. Federal Advisory Committee Statement

This legislation does not establish or authorize the establishment of any new federal advisory committee.

## XV. Congressional Accountability Act

The Committee finds that H.R. 1277 does not relate to the terms and conditions of employment or access to public services or accommodations within the meaning of section 102(b)(3) of the Congressional Accountability Act (Public Law 104-1).

## XVI. Committee Recommendations

On April 16, 1997, a quorum being present, the Committee favorably reported the Department of Energy Civilian Research and Development Act of 1997, by a voice vote, and recommends its enactment.

## XVIII. Additional and Supplemental Views

Additional views by Subcommittee Chairman Calvert:

To accompany H.R. 1277

H.R. 1277 increases funding for renewable energy and energy efficiency research. I strongly believe that this Committee's mission is to provide funds for the highest quality, peer reviewed research. To ensure this occurs, in each of the three energy programs -- renewable energy, fossil energy, and energy efficiency, I created an "energy science initiative" account. These accounts, totalling $305 million over two years, will be awarded on a competitive basis. These funds will be available to universities, national labs and private industry.

I am concerned that the Department of Energy has not committed enough funds for facilities at the Stanford Linear Accelerator Center for the Center to operate at an optimum level. The Department should provide an additional $10.0 million from unobligated balances to assure the American people receive the appropriate return on their investment in the Center.

As Chairman of the Energy and Environment Subcommittee, I am proud that the full committee has unanimously passed H.R. 1277 by voice vote. This two year authorization puts us on a path toward a more consistent and solid science policy and I look forward to continuing oversight of the Department of Energy.

## ADDITIONAL VIEWS OF HON. STEVE SCHIFF TO H.R. 1277

### HISPANIC OUTREACH

Hispanic Americans are the fastest growing minority population in the United States. Many Spanish speaking Hispanics are living in close proximity to DOE sites which have been contaminated by radioactive and hazardous waste. I believe that it is very important for DOE to ensure access to the major decision making processes involving these sites to individuals living in affect communities. Therefore, I strongly urge the Department to continue to increase information dissemination efforts to Hispanics in affected communities. The information should be provided in a linguistically appropriate, non-technical manner to ensure that individuals are adequately informed.

Hispanic participation in DOE activities should by no means be limited to environmental remediation and waste management programs. Hispanics can and should benefit from all DOE programs and vice versa, but, unfortunately, many Hispanics are simply not aware of the missions and programs at the Department. I encourage the DOE to continue to reach out, educate, and inform Hispanics, in a culturally and linguistically relevant manner, on a variety of topics related to the mission, programs, and activities of the Department.

Steve Schiff

## Additional Views to HR 1277

Congressman Tom Coburn

While I support some aspects of HR 1277, the Department of Energy Civilian Research and Development Act, I cannot support the funding levels requested by this bill.

The DOE's mission has shifted from energy security to environmental initiatives, which I do not support. But regardless of the DOE's agenda, research and development primarily belongs in the private sector, where competition fuels ingenuity, drives technology, improves efficiency, and stimulates the economy. Acknowledging this, I do not believe the DOE's research and development programs merit a $138 million increase over the next two years.

**ADDITIONAL VIEWS ON THE ADVANCED LIGHT WATER REACTOR**

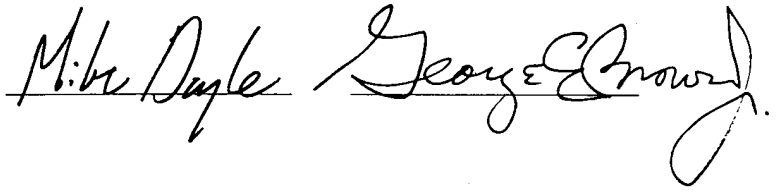
The Advanced Light Water Reactor Program received no further authorization in the bill. We believe that it is possible that the Department has received sufficient appropriations in prior years to meet all of its obligations in this Program. However, we firmly believe that the Department should meet all of its obligations, and if uncosted obligations do exist for this program, that they should be paid in full. Thus, we urge the Department to provide a detailed accounting of the ALWR Program as evidence of any uncosted obligations.

**SUPPLEMENTAL VIEWS ON R&D NEEDS TO REDUCE $CO_2$ EMISSIONS**

The Administration is currently negotiating an agreement with 130 nations of the world to reduce greenhouse gas emissions, and it is likely to be signed in Kyoto later this year. If ratified, this agreement may impose binding limits on $CO_2$ emissions that would come into force in 2010 to 2020.

The Energy Information Agency presently predicts that fossil fuels will be supplying roughly 88% of domestic energy consumption in the year 2015. Thus, if the United States were to agree to $CO_2$ targets, we must further look at how to limit $CO_2$ emissions from fossil fuels. Since 1970, with the help of federally-funded R&D, the energy industry has sharply reduced fossil fuel emissions of $SO_2$, NOx, and particulate matter. Federally-funded R&D has the potential to also provide cost-effective $CO_2$ emissions reductions.

We encourage the Department to quantitatively evaluate the potential $CO_2$ emissions savings from various options, including the coupling of high-efficiency fossil energy systems, or fossil energy systems with $CO_2$ removal and sequestration, with demand-side management technologies. We hope that the Department could share these results with the Committee on Science before the next budget cycle.



## SUPPLEMENTAL VIEWS

On the Establishment of an Energy Science Initiative
for Energy Efficiency, Fossil Energy, and Renewable Energy

We agree with the concept of competitively awarded and peer-reviewed research. However, we have serious misgivings over the provisions of H.R. 1277 which would cause programs in the Office of Energy Efficiency & Renewable Energy (EE) and the Office of Fossil Energy (FE) to have their programs subject to review by the Office of Energy Research.

While we certainly support having federally-funded R&D projects subject to peer review, the arrangement contained in H.R. 1277 is unprecedented. As is the creation of general funds for an Energy Science Initiative. The Science Committee has held no hearings on these matters, and we think it is safe to say that the proponents of this shift cannot say with any certainty what the implications of this shift would be on our ability to conduct important energy research, development and deployment initiatives.

Secretary of Energy Peña plans to testify before the Committee in the near future to discuss the President's budget in these and other areas. We believe that the Committee should have taken the opportunity to see how this major departure from the Department's current structure would impact our energy policy before the Committee considered this legislation.

O