

URANIUM ENRICHMENT DECONTAMINATION AND DECOMMISSIONING
FUND

Appropriations, 2008	\$622,162,000
Budget estimate, 2009	480,333,000
Committee recommendation	515,333,000

Uranium Enrichment D&D Fund.—The Committee provides \$515,333,000, a total of \$35,000,000 above the budget request. Last year’s budget reported that the site closure of the East Tennessee Technology Park would be completed in 2010 rather than in 2008, a 2-year slip. This budget now states that completion cannot be expected sooner than 2015, a further delay of 5 years. This Committee recognizes that this schedule slip is solely due to lack of funding in the request; and has, therefore, provided a total of \$199,495,000, an increase of \$15,265,000, for the decontamination and decommissioning of the East Tennessee Technology Park.

The Committee recommends \$115,614,000 for continued cleanup activities at the Paducah Gaseous Diffusion Plant in Paducah, Kentucky. This amount is the same as appropriated in fiscal year 2008 and \$19,735,000 over the Department’s request. The Committee is concerned that the cuts proposed in the Department’s budget will harm cleanup efforts of the plant and this report includes additional funds to accelerate the decontamination and decommissioning of the C-410 building and the West End Smelter. In recent years, this Committee has provided funds above the requested amount, which have been used to accelerate important projects such as the removal of 1,900 uranium tetrafluoride drums and the disposal of all outdoor Designated Material Storage Areas. From the amounts provided, the Committee recommends the Department continue to support research activities designed to address pressing environmental remediation problems at the Paducah site and provide objective data and analysis to stakeholders such as the Department as well as State and Federal regulators.

Uranium/Thorium Reimbursement.—The Committee recommends no funding for this activity, the same as the request.

SCIENCE

Appropriations, 2008	\$4,017,711,000
Budget estimate, 2009	4,721,969,000
Committee recommendation	4,640,469,000

The Committee recommends \$4,640,469,000 for the Office of Science. This is \$622,758,000 above fiscal year 2008 and represents the single largest increase for any program in the bill. From within available funds, the Office of Science is directed to retain the Nation’s existing capability to produce a wide range of isotopes including californium-252. Consistent with the cost-sharing requirements of Public Law 101–101, the Department is directed to develop a cost recovery strategy to ensure the long-term viability of this program.

HIGH ENERGY PHYSICS

The Committee provides \$804,960,000 for High Energy Physics. The Committee has long been a strong supporter of the Department’s space-based Joint Dark Energy Mission [JDEM] and is

pleased that the recent National Academy of Sciences' Beyond Einstein Program Assessment Committee [BEPAC] judged this mission to be the top priority. The Committee concurs with the view of the Particle Physics Project Prioritization Panel that the cost cap recently announced may limit the scientific capabilities assumed by the BEPAC review, and that an increase in the budget beyond the current funding scenarios would be justified. The Committee recommends the full budget request of \$10,030,000 for conceptual designs for Joint Dark Energy Mission. The Committee recommends full funding of the Non Accelerator Physics, University Research programs and includes \$3,200,000 for EXO 200, neutrinoless double beta decay experiments, an increase of \$1,000,000 to complete construction in 2009.

NUCLEAR PHYSICS

The Committee provides \$510,080,000 for Nuclear Physics, the same as the budget request. Within the available funds, the Committee recommends \$24,900,000 for the Isotope Production and Applications program. The Committee has been frustrated with the lack of cooperation among the various Federal agencies, which has resulted in no Federal request to sustain this important responsibility in previous years. The Committee recommends \$5,000,000 within the available funds for the Research Isotope Development and Production Subprogram to develop and implement a research and production strategy consistent with the National Academy of Science study entitled "State of the Science of Nuclear Medicine." In developing this capability, the Department is encouraged to work with researchers and commercial customers to develop a predictable and reliable supply of isotopes.

The Committee directs the Office of Science to complete a study on the feasibility of expanding the capability of the University of Missouri Research Reactor to supply up to half the United States demand for feedstock medical imaging compounds in the form of molybdenum-99 and technetium-99. The Committee also requests that the Department outline options for preserving U.S. production of californium-252.

BIOLOGICAL AND ENVIRONMENTAL RESEARCH

The Committee provides \$598,540,000 for Biological and Environmental Research, \$30,000,000 more than the budget request.

Biological Research.—The Committee recommends \$423,613,000, an increase of \$10,000,000 to support additional investment in nuclear medicine. The Committee supports the budget request of \$48,500,000 for the operation and maintenance of the Environmental Molecular Sciences Laboratory.

Radiochemistry and Instrumentation.—A recent report the National Academy of Sciences, Advancing Nuclear Medicine through Innovation, recommended the enhancement of the Federal commitment to nuclear medicine research. The Committee is concerned that the Department may be looking to move this research in other directions and emphasizes its commitment to nuclear medicine medical application research at the Department of Energy. Within the funds provided, \$23,121,000 is for Radiochemistry and Instrumentation. Of the \$23,121,000, \$17,500,000 is for nuclear medicine

medical application research. The Committee emphasizes its commitment to nuclear medicine medical application research at the Department of Energy. All of the added funds must be awarded competitively in one or more solicitation that includes all sources—universities, the private sector, and Government laboratories.

The Committees support full funding for Testing and Low Dose Research. The Committees also notes that diagnostics are currently in development between the University of New Mexico [UNM] and Los Alamos National Laboratory utilizing the unique capabilities of Las Alamos National Laboratory at the IPF and LANSCE and the radiopharmaceutical expertise of UNM at the Center for Isotopes in Medicine.

Climate Change Research.—The Committee recommends \$174,927,000, an increase of \$20,000,000 to support improved climate modeling and monitoring within the DOE–NNSA laboratories.

Climate Change Modeling.—The nexus of climate and energy presents enormous challenges to our national security and to our economy. It is imperative that the United States continues to provide strong science leadership that guides policy choices and technology investments. The Committee believes the DOE–NNSA Labs are best equipped to develop and deploy a national system for science-based stewardship that combines advanced modeling, multi-scale monitoring, and impact analysis tools. These labs, with their experience in nuclear weapons nonproliferation and their unique capabilities across a wide range of technical resources are best able to develop and implement this comprehensive climate research strategy. The challenge of certifying the nuclear weapons stockpile in an era of test-ban treaties has produced one of the world's greatest computational resources through the NNSA's Stockpile Stewardship program. These computational capabilities have also been applied to the development of sophisticated global climate models that can assess climate changes far into the future. However, these models are still too coarse to resolve the details of climate change at the scale of watersheds or State boundaries, where many public policy decisions are made. In addition, the models do not capture realistically all of the complex physical processes and feedbacks between the atmosphere, ocean, and land where natural and man-made carbon fluxes are exchanged. The Committee recommends an additional \$10,000,000 to support development of modeling strategies to support a comprehensive modeling program and to focus on scaling global models to regional scale to improve the predictive value of these models. Similarly, more formal information science methods must be applied to move from the current state, where predictions of climate models developed by different groups are averaged over a range of emissions scenarios, to a state where uncertainties are systematically reduced for the most important variables through deliberate validation and verification using experiments to measure sensitivities and feedbacks. These techniques have been implemented in the nuclear stockpile stewardship program to provide much stronger confidence in predictions for complex systems.

The DOE–NNSA Labs can also apply their expertise in developing sensors and measurement systems to provide a comprehen-

sive assessment of global carbon fluxes. Improved measurements must feed into models to depict the complex carbon exchanges that occur between the atmosphere, oceans, terrestrial ecosystem, and human activities at a variety of spatial and temporal scales. A global system will require remote sensing and in situ monitoring of atmospheric greenhouse gases and other chemical indicators to allow attribution of sources and sinks. Remote sensing includes satellite sensors that can observe modest changes in greenhouse gases against a high background signal. Methods to observe plume gas signatures associated with carbon fluxes will be necessary to provide source attribution information. The Committee recommends an additional \$5,000,000 to support research and development of ground and space based monitoring.

In order to make informed policy decision regarding our energy and water need in the future, the Committee encouraged the Department to apply Laboratory expertise in consequence analysis modeling using complex infrastructure data to assess long-term energy impacts through linkages of climate change with infrastructure. The impacts of energy choices are linked to global markets, and to our financial, energy, electrical, and transportation infrastructure. We must understand the sensitivity of this complex system to different policy options for climate change, including linkages that may lead to costly unintended consequences. The Committee recommends an additional \$5,000,000 to develop decision analysis tools that can describe this system at an appropriate level of complexity and integration are required to give rapid insights at regional, national, and global scales on long-term consequences of investments at the intersection of energy technology and climate policy. Because of the inherent sensitivity of the data and potential vulnerabilities, this area requires capabilities at the national security science laboratories.

BASIC ENERGY SCIENCES

The Committee provides \$1,415,378,000 for Basic Energy Sciences. Of these funds \$145,468,000 is provided for construction activities as requested in the budget. The remaining \$1,269,910,000 is for research. Within the research funds provided \$17,000,000 is for the Experimental Program to Stimulate Competitive Research [EPSCoR]. Of the decrease, \$59,495,000 of basic solar research is moved to the EERE solar energy research and development program.

ADVANCED SCIENTIFIC COMPUTING RESEARCH

The Committee provides \$368,820,000 for Advanced Scientific Computing Research, the same as the budget request. The Committee is concerned that the Department has limited cooperation between the NNSA and DOE laboratories in supporting the advanced computing architecture and algorithm development. The Committee expects the Office of Science to continue to support joint research through the Institute for Advanced Architecture and Advanced Algorithms.

FUSION ENERGY SCIENCES

The Committee provides \$493,050,000 for Fusion Energy Sciences, the same as the budget request. The Committee understands the Department's difficult decision to close the National Compact Stellarator Experiment [NCSX] project. The fiscal year 2009 budget request included \$20,342,000 for the NCSX. The Department is directed to reallocate these funds as proposed by the Department to the Committee under Scenario II. The Committee understands this means approximately \$9,000,000 will be used for orderly closeout of NCSX, \$9,250,000 will be used to restore run times for three facilities and support major upgrade work at NSTX, and \$2,000,000 will be used to enhance non-NCSX stellarator research. Recent advances in pulse power have renewed interest in nuclear energy systems that utilize both fusion and fission. The Committee directs the Department to work with laboratories and industry to develop a systems concept that identifies the challenges, opportunities and future research path of such a fusion-fission hybrid system.

SCIENCE LABORATORIES INFRASTRUCTURE

The Committee provides \$110,260,000 to support infrastructure activities, the same as the budget request. The Committee reiterates its strong support for the construction of the Physical Sciences Facility at the Pacific Northwest National Laboratory [PNNL]. This project is funded through three separate accounts, all of which have important national missions at PNNL. Notwithstanding this unique funding arrangement, the Committee expects the Under Secretary of Science to take the lead in ensuring that the fiscal year 2010 budget requests are coordinated among all the parties, and will be sufficient to complete the project in that fiscal year.

SAFEGUARDS AND SECURITY

The Committee provides \$80,603,000 for Safeguards and Security activities, the same as the budget request. The program provides funding for physical security, information protection, and cyber security for the national laboratories and facilities of the Office of Science.

SCIENCE PROGRAM DIRECTION

The Committee provides \$186,695,000 for the Office of Science Program Direction. The reduction from the budget request reflects the Committee's disapproval of the proposed increase in funding for headquarters and the field offices. The Committee supports the \$8,916,000 for the Office of Science and Technical Information.

SCIENCE WORKFORCE DEVELOPMENT

These initiatives support the mission of the Department's Workforce Development for Teachers and Scientists program. The Committee provides \$13,583,000, the same as the budget request.

CONGRESSIONALLY DIRECTED PROJECTS

The Committee recommendation includes \$58,500,000 for the following list of projects.

CONGRESSIONALLY DIRECTED SCIENCE PROJECTS

Project	Committee recommendation
Antibodies Research, University of North Dakota Research Foundation, Grand Forks, ND, to research and develop antibodies for disease threats	\$2,750,000
Bionanotechnology: Research and Commercialization, Louisiana Tech University, Ruston, LA, for bionanotechnology and biofuels research	1,500,000
Center for Advanced Energy Studies, Idaho National Laboratory, Idaho Falls, ID, to conduct a pilot program to demonstrate the Nuclear Science Talent Expansion program	3,000,000
Center for Diagnostic Nanosystems, Marshall University, Huntington, WV, for disease detection and diagnosis research	2,000,000
Center for Nanomedicine and Cellular Delivery, School of Pharmacy, University of MD, Baltimore, MD, for research	750,000
Center of Excellence and Hazardous Materials, Carlsbad, NM, for applied research	2,000,000
Climate Change Modeling Capability, Los Alamos National Lab, Los Alamos, NM, for climate change modeling	5,000,000
Computing Capability, North Dakota State University, Fargo, ND, to increase supercomputing power	5,000,000
Contrast Media and Wound Closure Reduction Study, University of Mississippi, University of Mississippi, MS, for efficiency in Iodine-based medical imaging for diagnostic procedures	650,000
Facilitating blood-brain barrier research, Seattle Science Foundation, Seattle, WA, for cooperative research	1,500,000
Former Workers Medical Surveillance Programs, State University of Iowa, Iowa City, IA, for medical surveillance, needs assessment and former worker medical screenings	1,000,000
Functional MRI Research, University of Vermont College of Medicine, Burlington, VT, to support MRI research	1,250,000
Intermountain Center for River Restoration and Rehabilitation, Utah State University, Logan, UT, to continue researching river restoration and environmental management	600,000
Marine Systems Research, University of Massachusetts at Boston, Boston, MA, for research into aquatic ecosystems, marine biology, fisheries and mammal sustainability	500,000
Materials and Energy Research Development, Tulane University, New Orleans, LA, for environmental and materials research	1,000,000
Matter-Radiation Interactions in Extremes, Los Alamos National Lab, Los Alamos, NM, for advanced materials testing	7,000,000
Mind Institute, University of New Mexico, Albuquerque, NM, to advance the understanding of mental illness through advanced brain imaging	12,000,000
Neuroscience research, Dominican University, River Forest, IL, for research in to memory dysfunctions	500,000
Pioneer Valley Life Sciences Institute Biomedical Research, Pioneer Valley Life Science Institute, Springfield, MA, for research programs	500,000
Regenerative medicine, Rosalind Franklin University of Medicine and Science, North Chicago, IL, for regenerative medicine research	500,000
Research into Proton Beam Therapy, Seattle Cancer Care Alliance, Seattle, WA, to research new uses for proton beam therapy	1,500,000
Sandia Nanotechnology Engineering Center, Sandia National Lab, Albuquerque, NM, for nanotechnology engineering activities	5,000,000
Supercapacitors, Sandia National Laboratories, Albuquerque, NM, for work to be done in Ostego, NY on supercapacitors	1,500,000
Sustainable Biofuels Development Center, Colorado State University, Fort Collins, CO, to support research efforts in alternative energy technologies	1,500,000

NUCLEAR WASTE DISPOSAL

Appropriations, 2008	\$187,269,000
Budget estimate, 2009	247,371,000
Committee recommendation	195,390,000

The Committee recommendation for the Office of Civilian Radioactive Waste Management includes \$195,390,000 from fees collected by the Secretary which are deposited into the fund established by Public Law 97-425, as amended, and \$193,000,000 pro-

DEPARTMENT OF ENERGY—Continued

[In thousands of dollars]

	Revised enacted	Budget estimate	Committee recommendation	Committee recommendation compared to—	
				Revised enacted	Budget estimate
STRATEGIC PETROLEUM RESERVE	186,757	346,923	205,000	+ 18,243	– 141,923
Use of prior year balances		– 2,923			+ 2,923
TOTAL, STRATEGIC PETROLEUM RESERVE	186,757	344,000	205,000	+ 18,243	– 139,000
NORTHEAST HOME HEATING OIL RESERVE	12,335	9,800	9,800	– 2,535	
ENERGY INFORMATION ADMINISTRATION	95,460	110,595	110,595	+ 15,135	
NON-DEFENSE ENVIRONMENTAL CLEANUP					
West Valley Demonstration Project	53,900	57,600	72,900	+ 19,000	+ 15,300
Fast Flux Test Reactor Facility (WA)	10,248	10,755	10,755	+ 507	
Gaseous Diffusion Plants	37,773	81,296	92,696	+ 54,923	+ 11,400
Small Sites		64,413	90,060	+ 90,060	+ 25,647
Use of Prior year balances		– 653			+ 653
Congressionally directed projects			3,000	+ 3,000	+ 3,000
TOTAL, NON-DEFENSE ENVIRONMENTAL CLEANUP	101,921	213,411	269,411	+ 167,490	+ 56,000
URANIUM ENRICHMENT DECONTAMINATION AND DECOMMISSIONING FUND					
Decontamination and decommissioning	602,344	480,333	515,333	– 87,011	+ 35,000
Uranium/thorium reimbursement	19,818			– 19,818	
TOTAL, UED&D FUND/URANIUM INVENTORY CLEANUP	622,162	480,333	515,333	– 106,829	+ 35,000
SCIENCE					
High energy physics:					
Proton accelerator-based physics	373,274	419,577	419,577	+ 46,303	
Electron accelerator-based physics	78,046	48,772	48,772	– 29,274	
Non-accelerator physics	61,238	86,482	86,482	+ 25,244	
Theoretical physics	56,391	63,036	63,036	+ 6,645	

Advanced technology R&D	119,368	187,093	187,093	+ 67,725	.....
Total, High energy physics	688,317	804,960	804,960	+ 116,643	.....
Nuclear physics	415,187	479,019	479,019	+ 63,832	.....
Construction:					
07-SC-02 Electron beam ion source Brookhaven National Laboratory, NY	4,162	2,438	2,438	- 1,724	.....
06-SC-01 Project engineering and design [PED] 12 GeV continuous electron beam accelerator facility up- grade, Thomas Jefferson National Accelerator facility (was project 07-SC-001), Newport News, VA	13,377	28,623	28,623	+ 15,246	.....
Total, Nuclear physics	432,726	510,080	510,080	+ 77,354	.....
Biological and environmental research:					
Biological research	407,530	413,613	423,613	+ 16,083	+ 10,000
Climate change research	136,867	154,927	174,927	+ 38,060	+ 20,000
Total, Biological and environmental research	544,397	568,540	598,540	+ 54,143	+ 30,000
Basic energy sciences:					
Research:					
Materials sciences and engineering research	946,403	1,125,579	1,038,839	+ 92,436	- 86,740
Chemical sciences, geosciences, and energy biosciences	230,234	297,113	231,071	+ 837	- 66,042
Subtotal, Research	1,176,637	1,422,692	1,269,910	+ 93,273	- 152,782
Construction:					
08-SC-01 Advanced light source [ALS] user support building, LBNL, CA	4,954	11,500	11,500	+ 6,546	.....
08-SC-10 Project engineering and design [PED] Photon ultrafast laser science and engineering [PULSE] building renovation, SLAC, CA	941	.....	.....	- 941	.....
08-SC-11 Photon ultrafast laser science and engineering [PULSE] building renovation, SLAC, CA	6,391	3,728	3,728	- 2,663	.....
07-SC-06 Project engineering and design [PED] National Synchrotron light source II [NSLS-II]	29,727	93,273	93,273	+ 63,546	.....
05-R-320 LINAC coherent light source [LCLS]	50,889	36,967	36,967	- 13,922	.....
705-R-321 Center for functional nanomaterials [BNL]	363	.....	.....	- 363	.....
Subtotal, Construction	93,265	145,468	145,468	+ 52,203	.....
Total, Basic energy sciences	1,269,902	1,568,160	1,415,378	+ 145,476	- 152,782
Advanced scientific computing research	351,173	368,820	368,820	+ 17,647	.....
Fusion energy sciences program	286,548	493,050	493,050	+ 206,502	.....

DEPARTMENT OF ENERGY—Continued

[In thousands of dollars]

	Revised enacted	Budget estimate	Committee recommendation	Committee recommendation compared to—	
				Revised enacted	Budget estimate
Science laboratories infrastructure:					
Laboratories facilities support:					
Infrastructure support:					
Payment in lieu of taxes	1,506	1,385	1,385	- 121	.....
Excess facilities disposal	8,748	14,844	14,844	+ 6,096	.....
Oak Ridge landlord	5,033	5,079	5,079	+ 46	.....
Subtotal, Infrastructure support	15,287	21,308	21,308	+ 6,021	.....
Construction:					
09-SC-72 Seismic life-safety, modernization and replacement of general purpose buildings Phase 2, PED/Construction, LBNL		12,495	12,495	+ 12,495	.....
09-SC-73, Interdisciplinary science building Phase 1, PED, BNL		8,240	8,240	+ 8,240	.....
09-SC-74, Technology and engineering development facilities PED, TJNAF		3,700	3,700	+ 3,700	.....
08-SC-71 Modernization of laboratory facilities PED, ORNL		14,103	14,103	+ 14,103	.....
07-SC-05 Physical science facilities, PNNL		41,155	41,155	+ 41,155	.....
03-SC-001 Science laboratories infrastructure MEL-001 Multiprogram energy laboratory infrastructure projects, various locations	49,574	9,259	9,259	- 40,315	.....
Subtotal, Construction	49,574	88,952	88,952	+ 39,378	.....
Total, Science laboratories infrastructure	64,861	110,260	110,260	+ 45,399	.....
Safeguards and security	75,946	80,603	80,603	+ 4,657	.....
Science program direction:					
Headquarters	75,525	82,846	75,525	.....	- 7,321
Office of Science and Technical Information		8,916	8,916	+ 8,916	.....
Field offices	102,254	112,151	102,254	.....	- 9,897
Total, Science program direction	177,779	203,913	186,695	+ 8,916	- 17,218
Workforce development for teachers and scientists	8,044	13,583	13,583	+ 5,539	.....

Congressionally directed projects	123,623	.....	58,500	- 65,123	+ 58,500
SUBTOTAL, SCIENCE	4,023,316	4,721,969	4,640,469	+ 617,153	- 81,500
Use of prior year balances .....	.....	.....	.....	.....	.....
Less security charge for reimbursable work	- 5,605	.....	.....	+ 5,605	.....
TOTAL, SCIENCE	4,017,711	4,721,969	4,640,469	+ 622,758	- 81,500
NUCLEAR WASTE DISPOSAL					
Repository program	117,906	172,388	118,457	+ 551	- 53,931
Program direction	69,363	74,983	74,983	+ 5,620	.....
Congressionally directed projects .....	.....	.....	1,950	+ 1,950	+ 1,950
TOTAL, NUCLEAR WASTE DISPOSAL	187,269	247,371	195,390	+ 8,121	- 51,981
INNOVATIVE TECHNOLOGY GUARANTEE PROGRAM					
Administrative operations	5,459	19,880	19,880	+ 14,421	.....
Offsetting collection	- 1,000	- 19,880	- 19,880	- 18,880	.....
Advance appropriation (Public Law 110-161)	42,000	25,000	25,000	- 17,000	.....
Proposed change in subsidy cost .....	.....	355,000	355,000	+ 355,000	.....
TOTAL, INNOVATIVE TECHNOLOGY GUARANTEE PROGRAM	46,459	380,000	380,000	+ 333,541	.....
DEPARTMENTAL ADMINISTRATION					
Administrative operations:					
Salaries and expenses:					
Office of the Secretary	5,751	5,700	5,700	- 51	.....
Chief Financial Officer	41,998	45,048	45,048	+ 3,050	.....
Management	65,033	67,000	67,000	+ 1,967	.....
Human capital management	27,986	31,436	31,436	+ 3,450	.....
Chief Information Officer	47,106	53,738	53,738	+ 6,632	.....
Congressional and intergovernmental affairs	4,733	4,700	4,700	- 33	.....
Economic impact and diversity	5,614	3,545	3,545	- 2,069	.....
General Counsel	29,889	31,233	31,233	+ 1,344	.....
Policy and international affairs	18,831	19,469	19,469	+ 638	.....
Public affairs	3,339	3,780	3,780	+ 441	.....