

News from the Office of Science

*Nuclear Sciences Advisory Committee Meeting
21 August 2008*

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I. FY 2009 HEWD and SEWD Marks

II. Staffing News

HEWD Committee General Comments

From the Subcommittee Mark (Full Text of Subcommittee Mark Not Yet Available) 

- ... The Committee recommendation provides additional funds over the request for the Office of Science and supports the projected doubling of this area of research and development funding over the decade from 2006 to 2016.

- **RESEARCH PRIORITIES AND COORDINATION**

... The Committee is pleased ... that the Department has taken ... steps in this direction, including the completion of 20 planning workshops arranged by SC in consultation with the applied technology programs ...; integrated budget documentation for 6 key research and development areas ...; and the proposal to fund over two dozen EFRCs The Committee directs the Department to continue to support and expand these efforts and take the steps needed to ensure that R&D integration is implemented at all levels across the Department in planning, budgeting, and execution. The Department is directed to provide the Committee with a report detailing progress on these efforts no later than March 1, 2009.

Unfortunately, the budget request woefully underfunds many critical applied energy research and development activities in the applied energy technology programs, particularly EERE. This Committee strongly rejects this unbalanced approach by providing robust funding for applied research and development to complement increases in basic science. ... The Committee directs SC to work with the energy technology programs to identify priority, long-term applied science efforts that should be considered for enhanced investment by the applied technology programs, jointly with the Office of Science as appropriate. The Department is directed to provide the Committee with a report detailing progress on these efforts no later than March 1, 2009.

- **OFFICE OF SCIENCE**

The Committee is pleased with the efforts made by the Department to improve energy research and development integration across SC and with the applied energy programs. ... The Committee is concerned, however, that the integration efforts have been either top-down, being undertaken at the level of Under Secretaries, or unique events such as workshop series and EFRCs. The Department should ... institutionalize mechanisms for coordination to ensure that these efforts are no longer the exception but the rule, and integrate such coordination with the Department's processes for planning, budgeting, and execution. With these additional steps, the Committee believes that the Department will make substantial progress in bridging the divide between basic science and applied technology, one of the main motivations underlying proposals for the creation of a new Advanced Research Projects Agency-Energy (ARPA-E).

SEWD Committee General Comments

From the Press Release (Full Text of Subcommittee Mark Available)

SUMMARY: 2009 ENERGY AND WATER APPROPRIATIONS

http://appropriations.senate.gov/News/2008_07_08_Fiscal_Year_2009_Energy_and_Water_Development_Subcommittee_Bill_Summary.pdf?CFID=27946566&CFTOKEN=56351909

http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=110_cong_reports&docid=f:sr416.110.pdf

- The Subcommittee legislation would provide **\$27.016 billion** for the Department of Energy. This level is **\$ 1.124 billion** over the President's budget request.
- Energy and Efficiency and Renewable Energy programs would receive more than **\$1.9 billion**, which is \$673M over request and \$206 million above FY 2008.
- Electricity and Energy Reliability would receive **\$166.9 million**, which is \$32 million above the budget request and \$28 million over FY 2008. The funding would provide increased investment to support renewable energy integration into the electric transmission grid.
- Nuclear Energy would receive **\$803 million**, which is \$121 over the FY 2008 funding level.
- Fossil Energy would receive **\$876.73 million**, which is \$122 million over the request and \$133 million over FY 2008.
- The Naval Petroleum and Oil Shale Reserves would receive **\$19 million**, which is equal to the budget request.
- The Strategic Petroleum Reserve would receive **\$205 million**.
- The Energy Information Administration would receive **\$110.5 million**, which is equal to the budget request.
- Non-Defense EM would receive **\$266.4 million**, which is \$53 million above the budget request.
- **The Office of Science would receive more than \$4.649 billion which is \$623 million above FY 2008.**
- The Yucca Mountain project would receive **\$386.4 million**, the same as current year funding.
- The bill would provide **\$380 million** to authorize the \$38.5 billion in loan guarantees.
- Weapons Activities would receive **\$6.524 billion**, which is \$227 million above FY 2008.
- Nuclear Nonproliferation would receive more than more than **\$1.909 million**.
- Defense Environmental Cleanup would receive more than **\$5.771 billion**, which is \$474 million above the budget request and \$422 above FY 2008.

Office of Science FY 2009 Budget

House and Senate Marks by Office of Science Program Element

Office of Science
FY 2009 Funding Status
(budget authority in thousands of dollars)

	FY 2008			FY 2009							
	Prior Approp.	Supplemental	Current Approp.	Request	Req. vs. 08 (Curr.)	House	House vs. Request	Senate	Sen. vs. Request		
Basic Energy Sciences	1,269,902	+13,500	1,283,402	1,568,160	+284,758	1,599,660	+31,500	1,415,378	-152,782	▶	page 27
Advanced Scientific Computing	351,173	—	351,173	368,820	+17,647	378,820	+10,000	368,820	—	▶	page 29
Biological and Environmental Research	544,397	—	544,397	568,540	+24,143	578,540	+10,000	598,540	+30,000	▶	page 30
High Energy Physics	689,331	+32,000	721,331	804,960	+83,629	804,960	—	804,960	—	▶	page 31
Nuclear Physics	432,726	+1,500	434,226	510,080	+75,854	517,080	+7,000	510,080	—	▶	page 32
Fusion Energy Sciences	286,548	+15,500	302,048	493,050	+191,002	499,050	+6,000	493,050	—	▶	page 33
Science Lab Infrastructure	66,861	—	66,861	110,260	+43,399	145,760	+35,500	110,260	—	▶	page 34
Science Program Direction	177,779	—	177,779	203,913	+26,134	203,913	—	186,695	-17,218	▶	page 35
Workforce Development	8,044	—	8,044	13,583	+5,539	13,583	—	13,583	—	▶	page 36
Safeguards and Security	75,946	—	75,946	80,603	+4,657	80,603	—	80,603	—	▶	page 37
Subtotal, Science	3,902,707	+62,500	3,965,207	4,721,969	+756,762	4,821,969	+100,000	4,581,969	-140,000	—	—
ARPA-E	—	—	—	—	—	15,000	+15,000	—	—	▶	page 38
Safeguards and Security (reimbursable charge)	-5,605	—	-5,605	—	+5,605	—	—	—	—		
Congressionally-directed projects	123,623	—	123,623	—	-123,623	39,700	+39,700	58,500	+58,500		
Rainforest Rescission	-44,569	—	-44,569	—	+44,569	—	—	—	—		
Use of prior year balances	-3,014	—	-3,014	—	+3,014	-15,000	-15,000	—	—		
Undistributed	—	—	—	—	—	—	—	+8,600	+8,600		
Total, Science	3,973,142	+62,500	4,035,642	4,721,969	+686,327	4,861,669	+139,700	4,649,069	-72,900	—	—

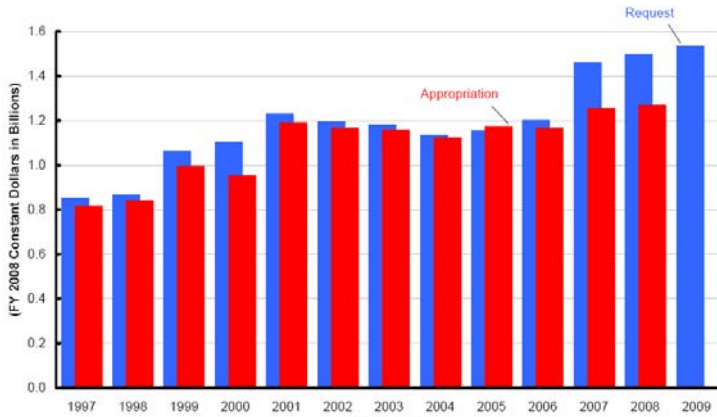
Caution: Don't spend the money yet.

12-Year History of Request vs. Appropriation for SC Programs (FY08 Constant Dollars)*

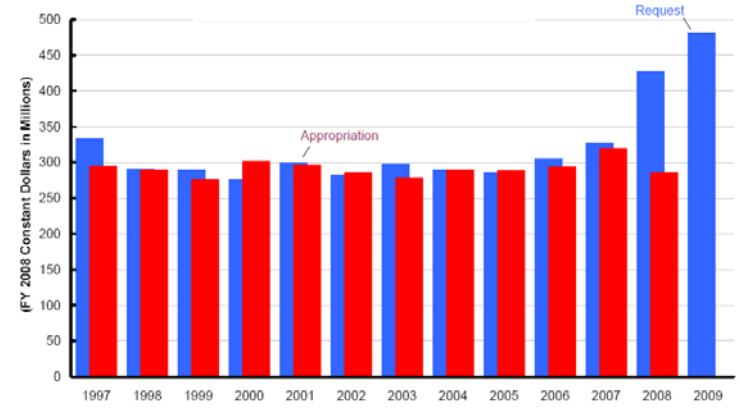
Over the years, BES and ASCR saw large % growths, but only BES is not now at the ACA level.

* Prior to FY 2008 Supplemental

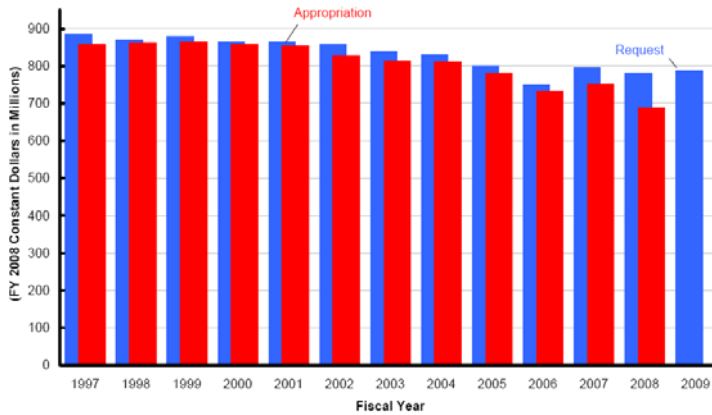
BES



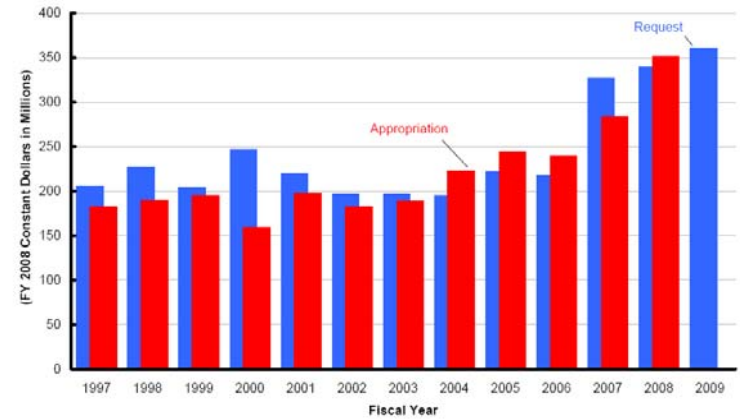
FES



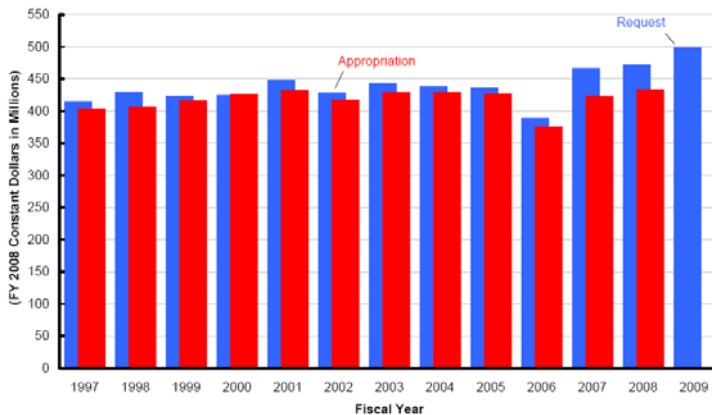
HEP



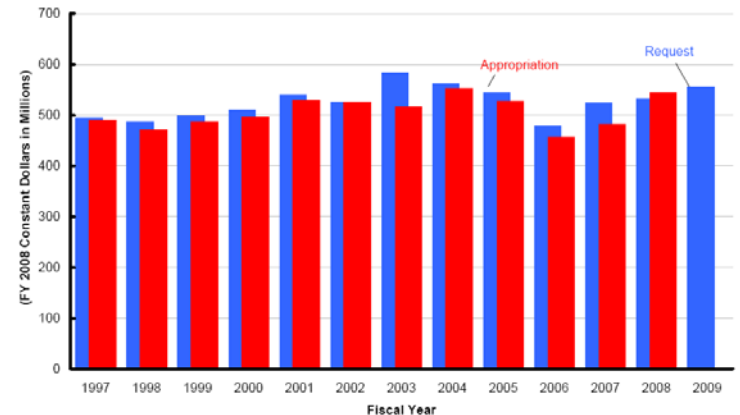
ASCR



NP

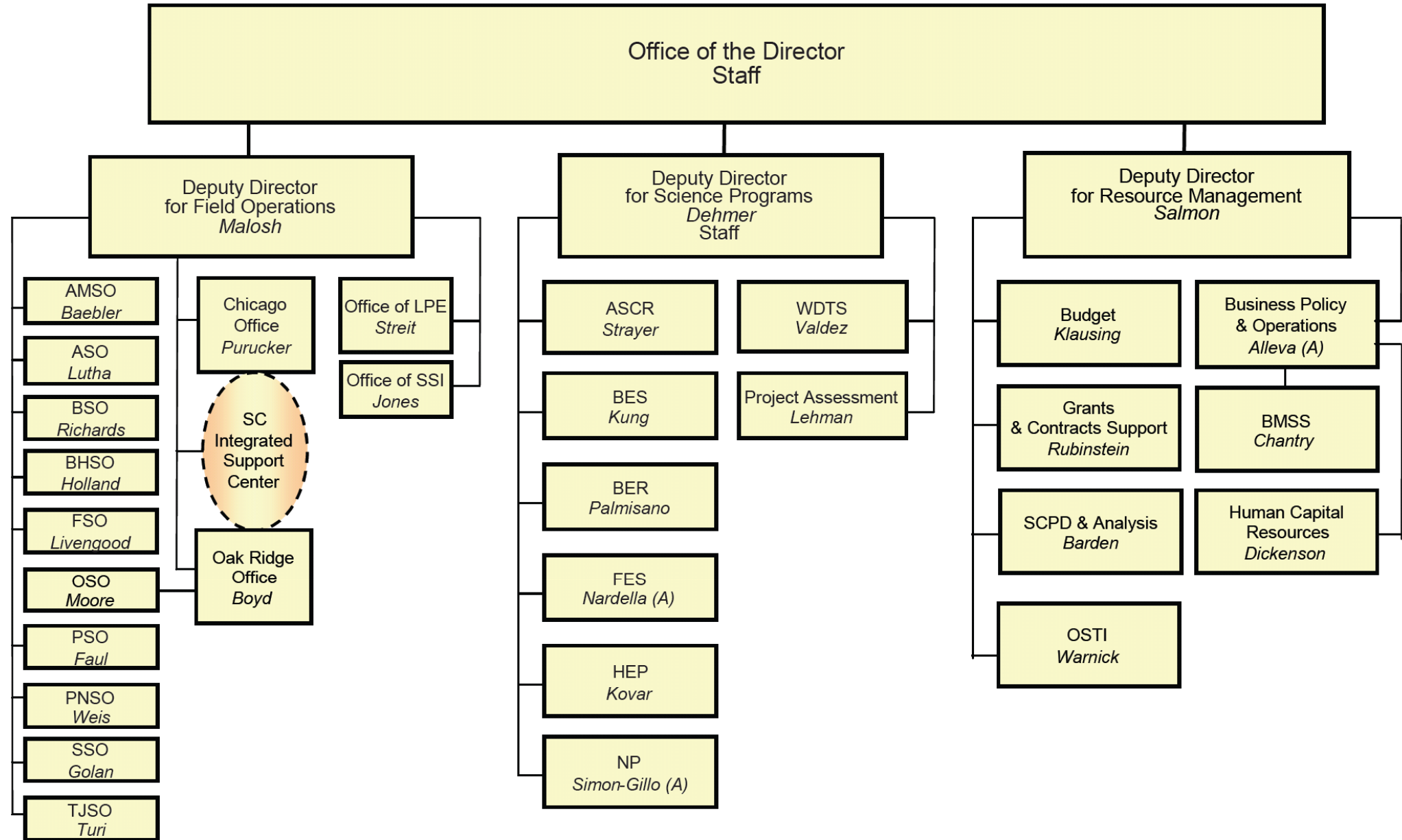


BER



Office of Science Organizational Structure

Many Key Positions Have Been Filled during the Past Several Months



END

HEWD Mark

- The Committee recommendation for Basic Energy Sciences is \$1,599,660,000, an increase of \$31,500,000 over the budget request ...
- Research – An additional \$17,000,000 is provided to accelerate the completion of the LCLS LUSI project and for LCLS operations to enable substantially more science to be done in the early stages of the operation of LCLS while it is the only x-ray free electron laser in the world.
- This funding includes \$100,000,000 for EFRC activities ... This Committee has long advocated ... open competition for research funding that features head-to-head competition between national labs and universities ..., and supports the Department's decision to broadly compete the EFRCs in this manner. The Committee encourages the Department to update and expand upon its Basic Research Needs workshop series in order to ensure that any new science opportunities and challenges relevant to DOE's mission needs can be identified and addressed as they arise.
- Construction.-The funding includes an increase of \$14,500,000 over the budget request ... for continued PED as well as to initiate construction of NSLS-II at BNL

SEWD Mark

- 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.

From the SEWD mark for EERE:

- Solar Energy.—The Committee recommends \$229,000,000, an increase of \$72,880,000 over the President's request. A total of \$59,495,000 of this increase is transferred from the Office of Science, Basic Energy Sciences program. The distribution of the \$229,000,000 for Solar Energy is as follows: \$156,833,000 for Photovoltaic Energy Systems; \$50,000,000 for Concentrating Solar Power; and \$22,167,000 for Solar Heating and Lighting.

Basic Energy Sciences

HEWD Mark

SEWD Mark

(For more details, see the BES presentation by H. Kung.)

	Delta FY 2008 Appropriation - FY2009 (Dollars in Thousands)	
	President's Request	SEWD
Known Obligations		
Construction projects and MIEs	55,660	55,660
Construction projects' Other Project Costs	-8,560	-8,560
EPSCoR	0	2,320
GPP/GPE	-6,150	-6,150
SBIR/STTR	4,527	2,206
Funds remaining for (1) Facility operations increases to maintain optimal operations (including a scheduled rampup in funding for the SLAC linac of \$35.2M resulting from the HEP to BES transfer) and (2) Research (including the scheduled \$100M for Energy Frontier Research Centers).	252,781	100,000
Total	298,258	145,476

- Impacts:
 - The move of basic solar research from BES to EERE would affect about 300 researchers.
 - The \$152,782K reduction from the President's Request would make initiation of the \$100 M EFRC program difficult.

Advanced Scientific Computing Research

HEWD Mark

- The Committee recommendation is \$378,820,000, an increase of \$10,000,000 over the budget request and \$27,647,000 over the current fiscal year.
- The increase includes \$5,000,000 above the budget request to expand its Innovative and Novel Computational Impact on Theory and Experiment (INCITE) activities, ...
- A further \$5,000,000 is provided to enhance advanced scientific computing research activities relevant to two of the six integrated research and development areas identified in the request. Including these additional funds, \$5,000,000 is provided for Advanced Mathematics for Optimization of Complex Systems, Control Theory, and Risk Assessment, and \$2,969,000 is provided for Carbon Dioxide Capture and Storage.
- These increases reflect the Committee's view of the importance of scientific computation not only in revolutionizing the way science is done, but also for applying these techniques to a wide range of modeling efforts relevant to the broader missions of the department.

SEWD Mark

- 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.

Biological and Environmental Research

HEWD Mark

- The Committee recommendation for Biological and Environmental Research is \$578,540,000, an increase of \$10,000,000 over the budget request.
- Biological Research.—The Committee recommendation is \$418,613,000, an increase of \$5,000,000 over the budget request ... to be used to restore support for research efforts in radiochemistry and instrumentation
- Climate Change Research.—The Committee recommendation is \$159,927,000, an increase of \$5,000,000 above the budget request ... \$2,500,000 is provided to enhance integrated assessment activities, and \$2,500,000 is provided to enhance climate forcing research activities ...
- Capabilities in climate change research are spread across multiple agencies: long-term, ground-based monitoring of the environment is generally the province of NOAA, while the long-term ecological research sites are supported through NSF. Climate modeling at DOE benefits from the Department's preeminence in scientific computing, but climate modeling is also done by groups sponsored by NSF, NOAA, and NASA. As the Department increases its efforts in climate modeling, the Committee would like to see the Department take the initiative in coordinating these activities with the efforts supported by those agencies.

SEWD Mark

- The Committee provides \$598,540,000 for Biological and Environmental Research, \$30,000,000 more than the budget request.
- Biological Research.—The Committee recommends an increase of \$10,000,000 to support additional investment in nuclear medicine.
- Radiochemistry and Instrumentation.—The Committee ... emphasizes its commitment to nuclear medicine medical application research at the DOE. Within the funds provided, \$23,121,000 is for Radiochemistry and Instrumentation ... and \$17,500,000 is for nuclear medicine medical application research.
- 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. 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 recommends an additional \$10,000,000 to support development of modeling strategies
- The DOE–NNSA Labs can also apply their expertise in developing sensors and measurement systems to provide a comprehensive assessment of global carbon fluxes. ... 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 DOE to apply Laboratory expertise ... to assess long-term energy impacts through linkages of climate change with infrastructure. ... The Committee recommends an additional \$5,000,000 to develop decision analysis tools ... 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.

HEWD Mark

- The Committee recommends a total of \$804,960,000 for high energy physics, the same as the budget request. ...
- The Committee commends the Department for its efforts to engage the high energy physics scientific community to provide a bold vision for the future of the Nation's efforts in this area that is both realistic and scientifically compelling, particularly given the difficult budget constraints faced by the field in fiscal year 2008.
- ... the Committee directs the Department to work with the NSF to pursue opportunities to couple facilities at FNAL with facilities and experiments at the proposed DUSEL ...
- Over the past few years, the Committee has consistently supported the DOE/NASA JDEM, a space probe which may provide a better understanding of the nature of the "dark energy" ... The Committee is pleased with the efforts made by the Office of Science to work with NASA ... and encourages the organizations to formalize the agreement with a MOU as soon as possible

SEWD Mark

- 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

HEWD Mark

- The Committee recommendation for nuclear physics is \$517,080,000, an increase of \$7,000,000 over the budget request ...
- The requested funding will support operations of the TJNAF and RHIC. ... An additional \$7,000,000 above the budget request is provided to initiate and accelerate construction of the 12 GeV upgrade to CEBAF at TJNAF. ...
- The request also includes funding for the isotope production program, which has been transferred to the Nuclear Physics account from the Nuclear Energy program. The Committee is encouraged to note that the request includes \$3,090,000 for research isotope development and production, an area identified by the National Academies as vital for the future of this program, and one of the motivations for the transfer of this program.

SEWD Mark

- 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 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."
- 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.

HEWD Mark

- The Committee recommendation for fusion energy sciences is \$499,050,000, an increase of \$6,000,000 over the budget request...
- The Committee provides \$214,500,000 for the U.S. contribution to ITER, as requested.
- The Committee supports the decision by the Department to terminate NCSX and provides \$9,000,000 to ensure orderly closeout of the project. The additional \$6,000,000 above the request, as well as the funding which had been requested for NCSX and is not required for closeout, are to be utilized by the Department to help revitalize the domestic fusion energy sciences program.
- Given the tremendous potential of fusion energy to provide a long-term solution to our energy needs, this Committee believes it is essential that the U.S. continue to play a leadership role in this area. To this end, the Department is directed to provide the Committee with a report no later than March 1, 2009 which describes a bold, credible plan for a world-leading U.S. fusion program as this area becomes an increasingly international endeavor.

SEWD Mark

- 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 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

HEWD Mark

- The Committee recommendation provides a total of \$145,760,000 for Science Laboratories Infrastructure, \$35,500,000 above the budget request.
- With the most recent estimate of the projected cost for disposal of excess facilities exceeding \$400,000,000, it is encouraging to see the Department ... has increased its request for removal and cleanup efforts at its national laboratories ...
- The Committee provides \$36,723,000, \$21,879,000 above the budget request, for excess facilities disposition activities.
- With the maintenance backlog estimated to exceed \$518,000,000, the Committee is pleased to see ... a ten-year Infrastructure Modernization Initiative. In order to accelerate these efforts, the Committee provides \$25,103,000 for modernization of laboratory facilities at Oak Ridge National Laboratory, \$11,000,000 above the budget request, and \$10,740,000 for Phase I of the Interdisciplinary Science Building project at Brookhaven National Laboratory, \$2,500,000 above the request, to expedite the initiation of construction of this project

SEWD Mark

- 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.

Science Program Direction

HEWD Mark

- The Committee recommendation is \$203,913,000 for Science program direction, the same as the budget request.
- This amount includes: \$112,151,000 for program direction at DOE field offices, \$82,846,000 for program direction at DOE headquarters, and \$8,916,000 for the Office of Scientific and Technical Information (OSTI).

SEWD Mark

- 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

Workforce Development for Teachers and Scientists

HEWD Mark

- The Committee provides \$13,583,000 for workforce development for teachers and scientists ..., the same as the requested amount.
- The Committee concurs with the proposed expansion of the Department's professional development program for science teachers. By utilizing the Department's intellectual and physical assets to provide teachers with the opportunity to become teacher-scientists rather than teachers who happen to teach science, this program can significantly enhance the ability of teachers to involve their students in doing science rather than just reading about and reproducing well-established principles

SEWD Mark

- 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.

Safeguards and Security

HEWD Mark

- The Committee recommends \$80,603,000, the same as the budget request, to meet safeguards and security requirements at Office of Science facilities.

SEWD Mark

- 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.

HEWD Mark

ADVANCED RESEARCH PROJECTS AGENCY- ENERGY (ARPA-E)

- The Committee recommendation includes \$15,000,000 in order to establish the Advanced Research Projects Agency-Energy within the Department to overcome the long-term and high-risk technological barriers in the development of energy technologies, as authorized by section 5012 of the America COMPETES Act (Public Law 110-69).

SEWD Mark

Status of Appropriations Legislation for Fiscal Year 2009

Available at This Website

Address <http://thomas.loc.gov/home/approp/app09.html> Go Links

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Status of Appropriations Legislation for Fiscal Year 2009

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Subcommittee jurisdictions: [House](#) | [Senate](#)

July 16, 2008

Appropriations	House Approvals			Senate Approvals			Conference Approvals			Public Law
	Committee Report	Comm. Vote	House Vote	Committee Report	Comm. Vote	Senate Vote	Conf. Report	House Vote	Senate Vote	
Budget Resolution HConRes312 SConRes70	H.Rept. 110-543	3/6/08	3/13/08 rc	S. Cmte. Print 110-39	3/6/08	3/14/08 rc	H.Rept. 110-659	6/5/08 rc	6/4/08 rc	President does not sign
Agriculture										
Commerce/Justice/Science S3182		6/25/08		S.Rept. 110-397	6/19/08					
Defense										
Energy & Water S3258		6/25/08		S.Rept. 110-416	7/10/08					
Financial Services S3260		6/25/08		S.Rept. 110-417	7/10/08					
Homeland Security S3181		6/24/08		S.Rept. 110-396	6/19/08					
Interior & Environment										
Labor/HHS/Education S3230				S.Rept. 110-410	6/26/08					
Legislative Branch										
Military/Veterans		6/24/08								
State/Foreign Operations										
Transportation/HUD S3261				S.Rept. 110-418	7/10/08					

vv = voice vote; uc = unanimous consent; rc = roll call vote

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