DEPARTMENT OF ENERGY
FY 1998 CONGRESSIONAL BUDGET REQUEST
ENERGY SUPPLY RESEARCH AND DEVELOPMENT ACTIVITIES

PROPOSED APPROPRIATION LANGUAGE

For expenses of the Department of Energy activities including the purchase[, construction] and acquisition of [plant and] capital equipment and other expenses necessary for energy supply, research and development, and uranium supply and enrichment activities in carrying out the purposes of the Department of Energy Organization Act (42 U.S.C. 7101, et seq.), including [the acquisition or condemnation of any real property or any facility or for plant or facility acquisition, construction, or expansion;] purchase of passenger motor vehicles (not to exceed [24] 13 for replacement only), [$2,710,908,000] $2,999,497,000, to remain available until expended, of which $15,000,000 shall be derived by transfer from unobligated balances under "General Science and Research" originally available for Superconducting Super Collider termination activities, to be merged with this account and to be available for the time and purposes for which this account is available, and of which not to exceed $25,000 may be for official reception and representation expenses for transparency activities.

EXPLANATION OF CHANGE

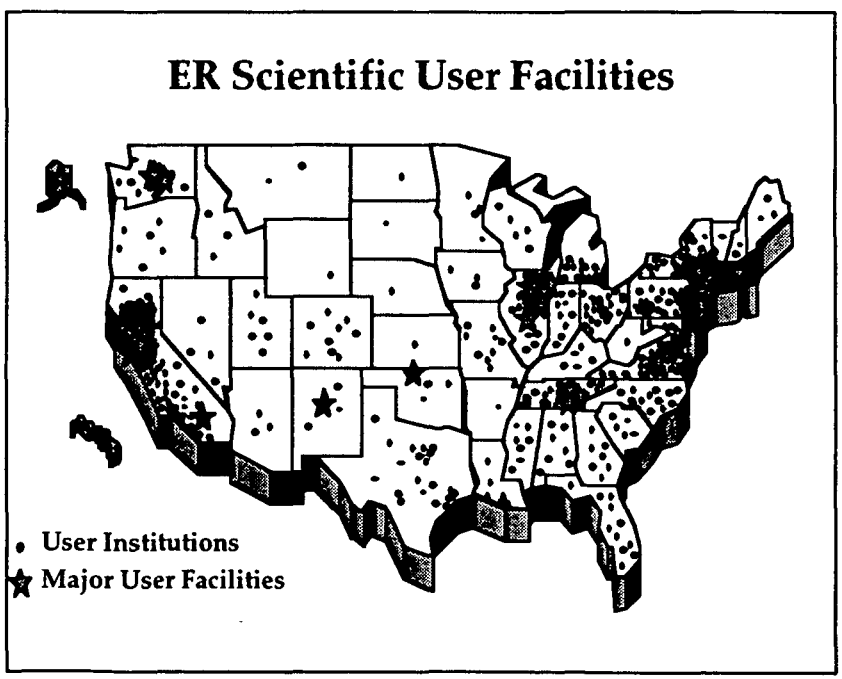
The primary change is the deletion of references to construction which is proposed under its own appropriation, Energy Assets Acquisition appropriation. Other changes include the use of prior year balances from "General Science and Research", and making funds available for "official reception and representation."

Department of Energy
FY 1998 Budget Request to Congress
(discretionary dollars in thousands)

	FY 1996 Current Appropriation	FY 1996 Comparable Appropriation	FY 1997 Current Appropriation	FY 1997 Comparable Appropriation	FY 1998 Request
Energy Research					
Biological and environmental research	410,956	337,148	389,075	352,962	376,710
Fusion Energy	238,940	238,940	232,500	232,500	225,000
Basic energy sciences	774,333	637,203	649,675	640,675	661,240
Computational and technology research	—	139,440	153,500	153,500	175,907
Energy research analyses	3,337	3,337	2,000	2,000	1,500
Laboratory technology transfer	16,672	—	—	—	—
Advisory and oversight	5,936	—	—	—	—
Policy and management	2,116	—	—	—	—
Multiprogram energy labs - facility support	34,044	6,506	21,260	—	—
University and science education programs	20,066	19,252	—	—	—
Program direction	—	33,484	30,600	30,600	30,600
Small business innovation research (SBIR)	66,763	66,763	—	—	—
Subtotal, Energy Research	1,573,163	1,482,073	1,478,610	1,412,237	1,470,957
Use of prior year balances	-36,741	-36,741	-21,053	-21,053	—
Total, Energy Research	1,536,422	1,445,332	1,457,557	1,391,184	1,470,957
Energy Assets Acquisition					
Biological and environmental research	—	*62,620*	—	*36,113*	—
Basic energy sciences	—	*5,186*	—	*9,000*	*11,000*
Multiprogram energy labs - facility support	—	*27,538*	—	*21,260*	*40,267*
Total, Energy Assets Acquisition	—	*95,344*	—	*66,373*	*25,260*

Mission

The Office of Energy Research (ER) invests in basic research to enable the Department to meet its science and technology intensive missions. Our programs produce scientific and technical knowledge needed to develop energy technology options. They provide understanding of the health and environmental implications of energy production and use. They maintain U.S. leadership in understanding the fundamental nature of energy and matter. ER programs provide and operate the large scale facilities required in natural sciences to ensure a competitive U.S. position in the search for knowledge. They help ensure the availability of scientific talent for future growth. These programs will help expand the Nation's human and intellectual resources to ensure that America's capabilities for scientific and technological innovation are constantly replenished.



Our research covers an unusually broad spectrum of scientific disciplines, including materials sciences, chemical sciences, engineering sciences, geosciences, energy biosciences, computational and applied mathematical sciences, high energy and nuclear physics, fusion energy science, biological and biomedical sciences, and environmental science. Over the past several years under the Scientific Facilities Initiative, started in FY 1996, ER has improved access to its basic research facilities for scientists in these fields.

ER's activities comprise over 95 percent of the science and technology business line of the DOE Strategic Plan, *Fueling a Competitive Economy*. ER programs support several thousand individual projects and hundreds of laboratories, universities, and other research facilities through-out the United States. Through direct support and access to our user facilities, ER enables multi-disciplinary research on important national problems and supports individual investigations by scientists and engineers in many disciplines.

Basic research supported by ER is increasingly important to America. Some of the biggest U.S. corporations have cut back sharply on research into 'basic science'--the exploration of how nature works at a fundamental level--to pursue short-term goals and to commercialize products more quickly. As 16 chairpersons and CEO's of major U.S. corporations wrote to the Congress, "History has shown that it is Federally sponsored research that provides the truly patient capital needed to carry out basic research and create an environment for inspired risk-taking that is essential to

technological discovery. " ER's unique stewardship of areas of basic research, for example, plasma science, accelerator science, and nuclear medical applications help improve the everyday quality of life as they advance science.

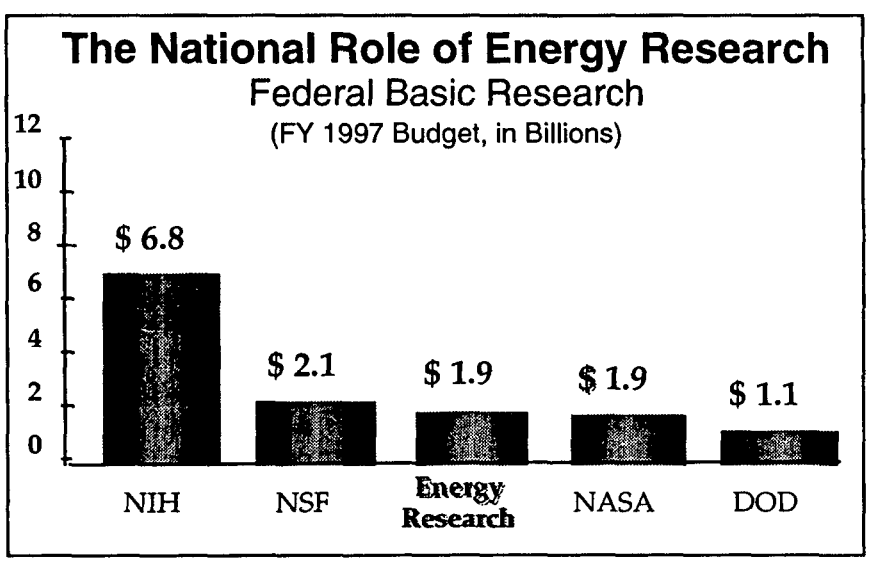
ER supports the Federal Government's third largest basic research program. Only the National Institutes of Health and National Science Foundation programs are larger. If ER's plant and capital equipment funding for its unique large science facility investment were included, Energy Research would be larger than the National Science Foundation. Over 18,000 scientists and engineers from almost 600 universities, companies and government laboratories performed research at ER's laboratories and many special user facilities in 1996. These facilities include large, expensive x-ray and gamma-ray "light" sources, research reactors, and high energy and nuclear physics particle accelerators located in 11 states. Our research at universities helps educate and nurture the next generation of scientists and engineers. These young people bring the creative enthusiasm of youth to tackle national problems.

Over the past 50 years, DOE has established an extensive national laboratory and university network of expertise in science and engineering. This network has supported the research of over 67 Nobel Prize winners. Today multidisciplinary research at these institutions produces knowledge, instruments, techniques, and materials that others can use for additional research or for technology development. Our human genome research, for example, originated from concerns about the genetic effects of energy-related nuclear radiation and chemical byproducts. Today, its discoveries enable medical researchers to develop new bio-technology for diagnosing and treating diseases such as cancer.

Consistent with the Department's Strategic Plan, ER set five goals. The goals sustain our longstanding traditions of emphasizing scientific excellence and working in partnership with other organizations dedicated to advancing energy and supporting science. Reaching these goals will help provide America with the range of energy and policy options it needs for future prosperity.

The goals are:

- Assure that ER's programs are of the highest quality and are highly productive; that they strengthen and diversify the Nation's scientific work force; and that they are widely known, valued, and trusted.
- Enable the United States to uphold and enhance its world leadership in science, mathematics, and engineering needed by all sectors of the Nation to enhance energy productivity and ensure reliable energy services while preserving human and environmental health and safety.
- Obtain major new insights into the nature of energy and matter to better understand our natural world.
- Provide the best and most advanced scientific research facilities and infrastructure to advance science, improve existing energy options and create new energy choices.
- Ensure that ER activities are protective of our workers, the public and the environment.



Strategy

ER's budget request of $2,525.0 million for FY 1998 is shown in Table 1 by major ER program. ER is seeking $672.2 million for its Basic Energy Sciences program, $376.7 million for its Biological and Environmental Research program, $675.0 million for its High Energy Physics program, $332.6 million for the Nuclear Physics program, $225.0 million for the Fusion Energy Sciences program, and $175.9 million for Computational and Technology Research. The request includes $40.3 million for the Multiprogram Energy Laboratories Facilities support program, $10.2 million for General Science Program Direction, $30.6 million for ER Energy Supply Program Direction, and $1.5 million for Energy Research Analyses. The request is offset by use of $15.0 million of unobligated SSC termination funds. Included in the above request is $178.1 million to fully fund FY 1998 fixed asset requirements identified in new separate accounts in FY 1998.The Office of Energy Research also oversees the $12.0 million Technical Information Management program.

In addition to the above, an advance appropriation of $394 million is proposed to fund the Large Hadron Collider (LHC). LHC funding was provided in FY 1996 ($6 million) and FY 1997 ($15 million). In addition to the FY 1998 request of $35 million, this advance appropriation of $394 million affirms the Administration's commitment to the U.S. Contribution to the LHC project and caps the level of the total DOE contribution to LHC component fabrication at $450 million.

ER's FY 1998 request includes a balanced set of investments that uphold the Office's leadership in fundamental research, scientific facilities, and building the nation's scientific and technical strength. To leverage these investments with limited resources, we are working with university, industrial, national laboratory and international research partners to multiply the effectiveness of our activities.

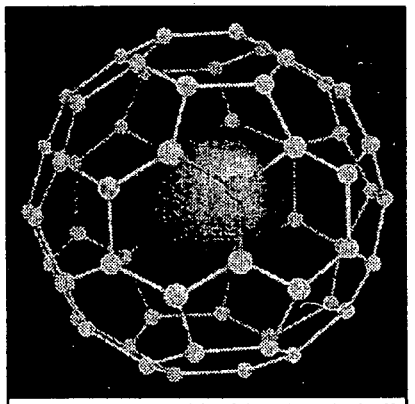
Strategies to support our goals reaffirm our traditional reliance on merit review with peer evaluation of investigator-initiated proposals as we seek new directions for our research programs.

The strategies are:

- *Assure excellence in research.* We emphasize initiation of proposals by investigators and select the best using peer review. Our various standing advisory committees help us use the Nation's science and technology communities to identify the most important research to support and the best way to do it. Our program managers measure research quality within technical areas or disciplines with scheduled periodic evaluations, including assessment by panels of technical experts. For excellence in the future, we reach out to improve the quality of and access to science, mathematics, and engineering education to replenish America's storehouse of scientific talent.

Top Quark Chasers-
Some of the 420 physicists and students behind Fermilab's D-Zero detector

- *Support science with a purpose.* To warrant Office of Energy Research support, a research project must be mission-relevant. That is, it must advance knowledge in key fields and disciplines, further pursuit of departmental missions, or enable timely response to national goals. Our programs also cover fields not covered by traditional disciplines that offer challenges for new knowledge and opportunities for fulfilling departmental missions and national goals.
- *Provide major scientific facilities.* To keep the United States at the forefront of the search for knowledge, ER supports large, sophisticated research facilities to help meet the Nation's science and technology goals. Specifically, we focus on providing the facilities most needed by the scientific community, which are too expensive for a single institution or group of institutions to build. We make the facilities available for the best research proposed by university, industrial, and government scientists as decided by peer review. Our strategy includes streamlined management of these facilities and investments in technology development. Timely repair and maintenance of their general purpose infrastructure advances the capabilities and reduces the costs of facilities.
- *Coordinate research on complex national problems important to DOE missions.* ER programs coordinate and fund multidisciplinary research at universities and the National Laboratories on complex national problems requiring a long investment horizon to find satisfactory solutions. The problems are found in areas such as fusion energy sciences, global climate change and the carbon cycle, including carbon dioxide sequestration, and advanced and environmentally conscious manufacturing. Additional areas include advanced materials and processing, medical applications of advanced imaging techniques, high performance computing and communications, and mapping and sequencing the human genome. The National Laboratories with their multidisciplinary teams are special resources for coordinating and performing this research.
- *Continuously improve the quality of our administrative processes.* We increase our effectiveness and productivity by improving program management practices and by using performance based contracts with our laboratories. Quality improvement includes leveraging resources through domestic and international partnerships. ER's programs seek out America's excellent scientists, employees, and contractors.
- *Advocate effectively the role and relevance of the research we support.* We are reaching out more than ever through presentations, newsletters, and the Internet to inform the public about the exciting results of the research we support.



An atom trapped inside a Buckyball

The Office's basic research portfolio has brought great success in advancing science, the Department's missions and the welfare of the Nation. In 1996, research supported by the Office of Energy Research shared the Nobel Prize in chemistry. The winners discovered a new carbon form (shaped like a soccer ball and called Buckministerfullerene or "Buckyballs") with potential for practical applications ranging from superconductivity to medical applications. Research from the 1996 field experiments of the Atmospheric Radiation Monitoring Project, showed that existing climate models underestimated the absorption of solar radiation in the atmosphere. Since absorption of radiation by clouds plays a key role in determining global climate, this research will help to improve current climate models. New atmospheric measurements will be initiated in 1997 in the arctic region near Point Barrow, Alaska. These measurements, to be taken in collaboration with the National Science Foundation, will be especially valuable as most scientists believe that global warming will show up first in arctic regions. The William R. Wiley Environmental Molecular Sciences Laboratory, a unique scientific user facility for molecular-level research in environmental and life sciences, was officially dedicated in FY 1997.

Energy Research DNA-clone resources played a key role in the hunt for a second gene, BRAC2, linked to breast cancer. Other genes located in 1996 include those for: Batten disease, a fatal, inherited disease of the nervous system that develops in childhood; and Fanconi's Anemia (Type A), a disease characterized by developmental abnormalities, bone marrow failure, and increased susceptibility to cancer. Using advanced medical imaging technology pioneered in ER, scientists identified a connection between smoking and the enzyme Monoamine Oxidase in the brain. This reveals a possible neurochemical link between smoking and the decreased risk of Parkinson's disease.

Energy Research FY 1998 Priorities

- **National Spallation Neutron Source**
- **Support Next Generation Internet**
- **Maintain Science Facilities Utilization**
- **Sustain High Energy Physics**
- **Pursue Fusion Research**
- **Targeted Research Investments**

A joint Energy Research-Energy Efficiency team developed a technique for producing long lengths of high-temperature superconducting tape (RABiTS) capable of carrying record current capacities in high magnetic fields. ER researchers learned how to significantly reduce large energy losses from fusion plasma in experiments consistent with theoretical predictions. We also initiated the Joint Center for Human Genome Research to pool the resources and capabilities of three DOE National Laboratories to both advance the technical requirements of the Human Genome program to the benefit of our other mission related research and technology needs.

Initial operations of the superconducting accelerator at the new Thomas Jefferson National Accelerator Facility have been successful, with data accumulation from several experiments. The upgraded and rededicated National Energy Research Scientific Computing Center will better serve the scientific computing needs of the Nation's researchers.

Major Changes

It is important to recognize that in preparing the FY 1998 request, the Administration has designated the Basic Energy Sciences, Biological and Environmental Research, High Energy Physics and Nuclear Physics programs as priority programs, consistent with the National Science Foundation and the National Institutes of Health.

In formulating the program this year we have as our highest priorities: pre-Title I design activities for a National Spallation Neutron Source, helping to advance the "next generation internet," sustaining progress in high energy physics and nuclear physics, transition to a fusion energy sciences program, optimizing use of ER's scientific and computational facilities, selective expansion of programs, and leveraging basic research through partnerships with DOE technology R&D programs. New asset acquisition accounts in the FY 1998 request include full funding for new and on-going construction projects.

In FY 1998, the High Energy Physics program increases support for university and other laboratory's activities and it increases U.S. participation in Europe's Large Hadron Collider project. Participation in the Large Hadron Collider project at CERN enables the U.S. to participate in new discoveries at the highest energy frontier. We request an advance appropriation of $394 million for the DOE contribution to the Large Hadron Collider to provide: $65 million in FY 1999; $70 million in FY 2000; $70 million in FY 2001; $70 million in FY 2002; $65 million in FY 2003; and $54 million in FY 2004.

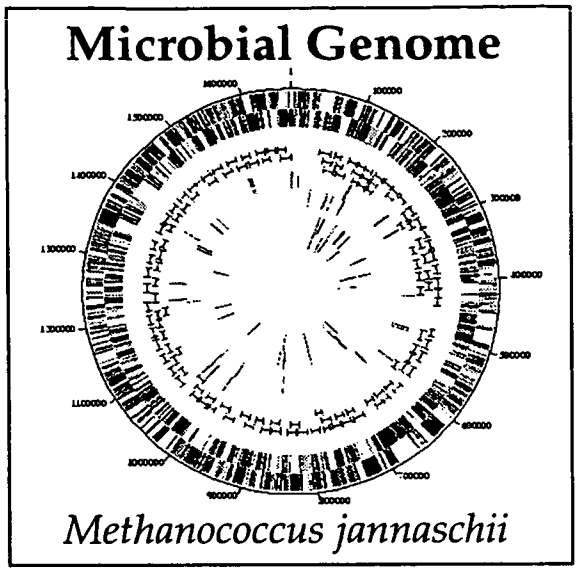
While construction activity in High Energy Physics decreases, Fermilab's Main Injector project remains on the approved funding profile. The Main Injector will provide a doubling of intensity for the fixed target program and a fivefold increase in luminosity. This will, among other things, let us take a closer look at the nature of the top quark. The Collider Detector Facility and D-Zero detector upgrades at Fermilab receive greater emphasis, as do activities to achieve maximal operation of the Tevatron. Our FY 1998 request includes funding for a third detector hall at Fermilab.

The Department has initiated a pilot program intended to evaluate opportunities to reduce the volume of newly generated waste and its associated management and disposal costs resulting from Departmental mission activities. Beginning in FY 1998, the Department will implement a Pilot Waste Management Re-engineering Program at a limited number of sites, including Fermilab and the Stanford Linear Accelerator Center in the High Energy Physics program, at which responsibility for the newly generated waste management programs will be transferred from the Office of Environmental Management to the generating program. Throughout the implementation of the FY 1998 pilot, the regulatory accountability will remain with the program that currently holds the regulatory permits. In addition, the Office of Environmental Management will be responsible for any unavoidable funding shortfalls due to underestimates for FY 1998 waste generation. The department expects that this re-engineered waste management structure will result in increased awareness on the waste generation organizations' part, thereby creating a financial incentive to minimize waste generation. Waste generating programs will be able to clearly track the true costs of their waste generation, and incorporate the associated costs within the formulation of the outyear budgets. To the extent that the programs minimize waste generation, the savings will be available to support increased mission activity. The impacts of this pilot arrangement will be carefully evaluated throughout FY 1998, and will provide the basis of the Administration's decision regarding the continuation and/or expansion of the effort in FY 1999 and beyond. The pilot Waste Management Re-engineering Program was initiated in response to several recommendations received from several Departmental stakeholders, including the National Academy of Sciences and the Environmental Management Advisory Board.

In FY 1998, our Basic Energy Sciences program will operate National user facilities effectively, including increased operating time at the High Flux Isotope Reactor and full operation of the Advanced Photon Source at Argonne National Laboratory. The program provides for pre-Title I design activities for a National Spallation Neutron Source at the Oak Ridge National Laboratory. Carried out by Oak Ridge and other national laboratories, this work will resolve important R&D and engineering design issues.

The program continues to support research for vehicles of the future, environmentally responsive technologies, and sustainable development. This research yields theories, models, materials and other knowledge needed to make lighter, more efficient automobiles and to lower costs and environmental impacts of energy production and use. Advances in theory and modeling of complex materials and phenomena will foster discovery of new materials for improved energy technologies. Design and fabrication of instrumentation for the Short Pulse Spallation Source, at LANSCE, will begin. Program research will further understanding of essential energy processes such as corrosion resistance, chemical reactions in combustion and processing, rock-fluid mechanics, and biological energy conversion. Research into complex phenomena at the atomic and molecular level promises better structural materials and understanding of adhesion in composite materials.

The Nuclear Physics program retains research in Medium Energy Nuclear Physics, Heavy Ion Nuclear Physics and Nuclear Theory at the FY 1997 levels. New astrophysics research begins at Oak Ridge National Laboratory's Radioactive Ion Beam facility and various universities. Support increases for the Relativistic Heavy Ion Collider, for additional experimental equipment and for operating heavy ion facilities. Operation of the Argonne National Laboratory's ATLAS increases with offsetting decreased operations at the Tandem/Alternating Gradient Synchrotron and fewer beam hours at other facilities.



For FY 1998, the Biological and Environmental Research program will give more emphasis to high-throughput DNA sequencing methods for the human genome program. Funds are provided to operate the recently completed Environmental Molecular Science Laboratory and Human Genome Laboratory. An increase in bioremediation research enhances support for the ten-year plan on bioremediation, including the Natural and Accelerated Bioremediation Research. Funds will also support research to better understand the archaea - a third form of life. An archaea specimen, the *Methanococcus Jannaschii* was fully sequenced by our Microbial Genome program in FY 1996. Fully 56% of its 1,738 genes are unlike anything seen before with possible implications for energy and pollution remediation. Our Atmospheric Radiation Monitoring program addresses the most pressing question on environmental processes bearing on the potential for global warming. FY 1998 includes an unmanned aerial vehicle flight mission to complement the current ground-based system. Increased nuclear medicine emphasis goes to innovative imaging methodologies for medical diagnosis and therapy. Support for the Computer Hardware, Advanced Mathematics and Model Physics program lessens with a decrease in climate and hydrology research. A decrease in atmospheric chemistry and carbon cycle research initiates elimination of ocean field research.

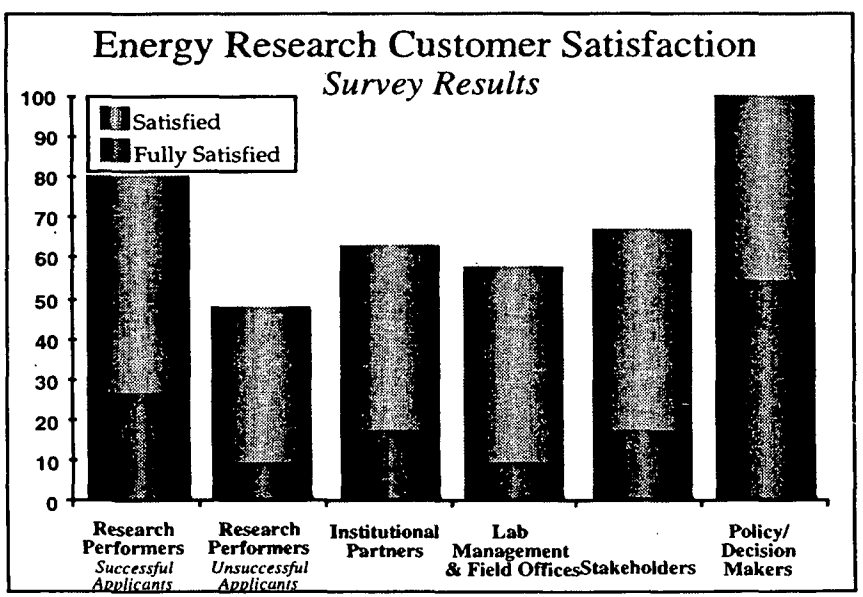
The national Fusion Energy Sciences program will preserve our capabilities to contribute to international efforts to develop fusion as an energy technology at a funding level comparable to FY 1997. It will do this by advancing plasma science; by developing fusion science, technology, and plasma containment innovation in the domestic program; and by remaining a partner in the international effort. The program further broadens the basic plasma science initiative that began in FY 1997. Support increases for theory directed toward alternate confinement concepts and for development of increased computational capability. Research on Inertial Fusion Energy and advanced materials continues at the FY 1997 level, while ITER Engineering Design Activities drop slightly below the FY 1997 level. Shutting down and mothballing the Tokamak Fusion Test Reactor in midyear permits increased scientific productivity at the two remaining major tokamaks, DIII-D and Alcator C-MOD. Activities accelerate to prepare for fabrication, assembly and installation of the National Spherical Tokamak Experiment at the Princeton Plasma Physics Laboratory.

The Computational and Technology Research program, through high performance computing and communications, continues to extend the availability and utility of our laboratories and user facilities. The "Next Generation Internet" interagency initiative is funded. New capabilities will enable scientists nationwide to work together on problems as easily as if they were at the same National Laboratory or facility. Program emphasis in FY 1998 supports these national "collaboratories" and advanced computational testing and simulation. We expect, for example, to conclude several large grand challenge computer modeling projects such as the numerical tokamak and ground water transport.

We continue to strengthen collaborations with the Office of Environmental Management and the Office of Energy Efficiency and Renewable Energy. In partnership with the Office of Environmental Management, for example, we perform fundamental research that addresses problems in environmental management, remediation, and restoration that are intractable without new, fundamental scientific information and technologies.

In partnership with the Office of Energy Efficiency, for example, we perform basic research in support of the Program for a New Generation of Vehicles. This research helps to bridge a gap between the Department's fundamental research and its other programs.

This year, an important emphasis of our global climate research is carbon sequestration. Our work in terrestrial and ocean research, carbon cycle assessments, geological storage, and separation sciences contribute understanding and innovative approaches to sequestration processes. Consistent with growing domestic and international concern surrounding increases in atmospheric levels of carbon dioxide, we will evaluate international research efforts and work closely with applied programs in Fossil Energy and Energy Efficiency and Renewable Energy to prepare DOE-wide programs that will improve the Nation's options and capability for analyzing the carbon cycle and enhancing carbon sequestration.



There continues to be downward pressure on our program direction budgets. Despite strong support of our programs by the Administration and the Congress, ER is planning on further staff reductions roughly equivalent to those of other programs in the department. We have completed a detailed activity-based analysis to identify the most time-consuming and costly functions that we perform and those activities that did not add value to our work products. A survey of our customers, including the scientists who perform research and use our facilities, indicated that 72 percent are satisfied or very satisfied with the services we provide. Discounting respondents who were unsuccessful applicants for funding, the number increases to 76 percent. As a result of the survey and the activity-based analysis, we have begun a number of process improvement and reengineering activities, including a major effort to improve how we collect, process, and disseminate information on our programs. These changes will eliminate any redundancies that may exist in staffing and processes. We currently have one of the best ratios of program dollars managed per Federal Staff member both within the Department and across the federal government. In addition Energy Research processes more grants, contracts and research proposals then any other DOE program. We firmly believe that further reductions would seriously inhibit our ability to respond in a timely and effective way and have serious adverse impacts on our ability to manage the very important research programs entrusted to us.

Performance Measures

ER managers routinely measure their programs' scientific performance within a context of evolving national needs, adjusting program direction and goals as necessary. They use a variety of methods to measure performance in the three critical areas of quality, relevance, and stewardship of national research resources, or more specifically: (1) quality of basic science as determined by expert advisory committees and peer reviews, recognition by the general scientific community that research is high quality and that facilities are world class, and sustained scientific advancement; (2) relevance to DOE science and technology missions and national needs is demonstrated by active partnerships within the

department and with other government agencies, industry, and academia; and (3) stewardship of national research resources that includes effectiveness and efficiency of construction and operation of research facilities as shown by ER's ability to achieve performance specifications, meet schedule and cost milestones, operate facilities reliably, and maintain and improve facilities at reasonable cost.

For management performance, ER will develop, in FY 1997, measures for evaluations in program direction including measures in program, project, procurement, financial, and human resources management. Future assessments of performance will be made in contract management and national laboratory stewardship. ER will evaluate national laboratories performance related to infrastructure management and intellectual core competencies in carrying out its stewardship responsibilities.

Closing

Through multidisciplinary research, our programs advance fundamental understanding of matter and energy and systems leading to efficient, diverse and reliable energy sources. The knowledge gained leads to improved health and environmental quality and to a more productive and competitive economy. Energy Research provides the United States with the finest and most advanced scientific research facilities and infrastructure. To get the most research out of every dollar appropriated, we work to ensure our programs are productive and the highest quality. It is in the interest of the Nation that these programs are sustained for the benefit of future generations.

Martha A. Krebs
Director
Office of Energy Research

OFFICE OF ENERGY RESEARCH
FY 1998 CONGRESSIONAL REQUEST TO CONGRESS
(B/A in thousands of dollars)
Table 1 Funding By Program
PAGE 1 OF 2

	FY 1996 Conf. Approp.	FY 1997 Conf. Approp.	FY 1998 Request W/O Upfront Funding	FY 1998 Request With Upfront Funding
ENERGY SUPPLY R&D - ENERGY RESEARCH				
Basic Energy Sciences	$774,333	$649,675	$661,240	$661,240
Computational and Technology Research	0	153,500	175,907	175,907
Fusion Energy Sciences	238,940	232,500	225,000	225,000
Biological and Environmental Research	410,956	389,075	376,710	376,710
Energy Research Analyses	3,337	2,000	1,500	1,500
Multiprogram Energy Labs-Facilities Support	34,044	21,260	0	0
Technology Transfer	16,672	0	0	0
ER Energy Supply R&D Program Direction	0	30,600	30,600	30,600
Advisory and Oversight	5,936	0	0	0
Policy and Management	2,116	0	0	0
University and Science Education	20,066	0	0	0
SBIR/STTR	66,763	0	0	0
General Reduction for Use of Prior Year Balances	-36,741	-21,053	0	0
Subtotal, Energy Supply R&D - Energy Research	$1,536,422	$1,457,557	$1,470,957	$1,470,957
ENERGY ASSET ACQUISITION - ENERGY RESEARCH				
Basic Energy Sciences	0	0	7,000	11,000
Multiprogram Energy Labs-Facilities Support	0	0	21,260	40,267
Total, Energy Research Fixed Assets	$0	$0	$28,260	$51,267
Total, Energy Supply R&D	$1,536,422	$1,457,557	$1,499,117	$1,522,124
GENERAL SCIENCE AND RESEARCH				
High Energy Physics	656,403	670,075	624,185	624,185
Nuclear Physics	299,946	315,925	256,525	256,525
General Science Program Direction	9,500	10,000	10,200	10,200
Subtotal, General Science and Research	$965,849	$996,000	$890,910	$890,910
SCIENCE ASSET ACQUISITION				
High Energy Physics	0	0	50,850	50,850
Nuclear Physics	0	0	59,400	76,020
Total, General Science Fixed Assets	$0	$0	$110,250	$126,870
Total, General Science	$965,849	$996,000	$1,001,160	$1,017,780
TOTAL, ENERGY RESEARCH	$2,502,271	$2,453,557	$2,500,277	$2,540,004

OFFICE OF ENERGY RESEARCH
FY 1998 CONGRESSIONAL REQUEST TO CONGRESS
(B/A in thousands of dollars)
Table 1 Funding By Program
PAGE 2 OF 2

TOTAL, ENERGY RESEARCH	$2,502,271	$2,453,557	$2,500,277	$2,540,004
Superconducting Super Collider	0	0	-15,000	-15,000
Other	-196	0	0	0
TOTAL, OFFICE OF ENERGY RESEARCH	$2,502,075	$2,453,557	$2,485,277	$2,525,004
OTHER ENERGY PROGRAMS				
Technical Information Program	$11,960	$12,000	$11,987	$11,987
General Reduction for Use of Prior Year Balances	-180	-163	0	0
TOTAL, TECHNICAL INFORMATION PROGRAM	$11,780	$11,837	$11,987	$11,987

OFFICE OF ENERGY RESEARCH
FY 1998 CONGRESSIONAL BUDGET REQUEST
(B/A in thousands of dollars)
Table 2 - Funding By Cross-Cutting Area

	FY 1996 Conf. Approp	FY 1997 Conf. Approp.	FY 1998 Cong. Request
Global Climate Change			
Biological and Environmental Research	112,752	112,333	110,126
Climate Change Action Plan	N/A	N/A	N/A
Partnership for A New Generation of Vehicles			
Basic Energy Sciences	5,000	5,000	5,000
Pollution Prevention			
High Energy Physics	271	582	418
Nuclear Physics	0	150	210
Biological and Environmental Research	822	258	198
Multiprogram Energy Laboratory Facilities Support	606	295	1,034
Indirect	173	115	130
Laboratory Technology Research	16,672	24,130	15,829

OFFICE OF ENERGY RESEARCH
FY 1998 CONGRESSIONAL BUDGET REQUEST
(FTEs)

Federal Staffing Summary

	FY 1996 Conf. Approp.	FY 1997 Conf. Approp.	FY 1998 Cong. Request
Energy Supply R&D Program Direction			
Field	48	42	3
Headquarters	222	202	199
Total, Energy Supply R&D	270	244	202
Fusion Energy Sciences Program Direction			
Field	19	14	12
Headquarters	51	48	37
Total, Fusion Energy Supply Program Direction	70	62	49
General Science Program Direction[1/]			
Field	33	33	33
Headquarters	59	57	57
Total, **General Science Program Direction**	92	90	90
Total Energy Research			
Field	100	89	48
Headquarters	332	307	293
Total, Energy Research	**432**	**396**	**341**
Technical Information Management			
Office of Scientific and Technical Infirmation	134	128	126

[1/] Excludes Superconducting Supercollider FTEs, which are funded from prior year appropriations.

OFFICE OF ENERGY RESEARCH
FY 1998 CONGRESSIONAL BUDGET REQUEST
(B/A in thousands of dollars)
Site Funding

Major Site Funding	FY 1996 Conf. Approp.	FY 1997 Conf. Approp.	FY 1998 Pres. Request
AMES LABORATORY			
Basic Energy Sciences	23,135	17,830	17,843
Biological and Environmental Research	676	569	596
Computational and Technology Research	0	2,034	1,942
University and Science Education	95	0	0
Technology Transfer	20	0	0
Total Laboratory	23,926	20,433	20,381
ARGONNE NATIONAL LABORATORY			
Basic Energy Sciences	159,079	137,098	143,088
Biological and Environmental Research	17,074	9,789	10,029
Computational and Technology Research	0	13,272	14,243
Energy Research Analyses	250	0	0
Fusion Energy	5,307	1,915	2,560
High Energy Physics	8,930	8,669	8,525
Multiprogram Energy Labs-Facilities Support	8,762	4,868	17,321
Nuclear Physics	15,771	16,107	16,720
University and Science Education	2,550	0	0
Technology Transfer	3,016	0	0
Total Laboratory	220,739	191,718	212,486

Major Site Funding	FY 1996 Conf. Approp.	FY 1997 Conf. Approp.	FY 1998 Pres. Request
BROOKHAVEN NATIONAL LABORATORY			
Basic Energy Sciences	83,623	74,229	79,281
Biological and Environmental Research	27,490	23,773	21,249
Computational and Technology Research	0	2,863	3,359
Fusion Energy	97	60	50
High Energy Physics	75,325	72,704	71,765
Multiprogram Energy Labs-Facilities Support	9,907	11,932	568
Nuclear Physics	100,001	104,380	123,155
University and Science Education	745	0	0
Technology Transfer	2,168	0	0
Total Laboratory	299,356	289,941	299,427
THOMAS JEFFERSON NATIONAL ACCELERATOR FACILITY			
Basic Energy Sciences	155	0	0
Computational and Technology Research	0	180	180
Fusion Energy	5	0	0
High Energy Physics	230	0	0
Nuclear Physics	67,375	67,955	67,350
University and Science Education	150	0	0
Total Laboratory	67,915	68,135	67,530

Major Site Funding	FY 1996 Conf. Approp.	FY 1997 Conf. Approp.	FY 1998 Pres. Request
FERMI NATIONAL ACCELERATOR LABORATORY			
Biological and Environmental Research	1,575	2,200	0
High Energy Physics	260,270	260,811	264,341
University and Science Education	355	0	0
Total Laboratory	262,200	263,011	264,341
IDAHO NATIONAL ENGINEERING LABORATORY			
Basic Energy Sciences	3,454	2,758	2,744
Biological and Environmental Research	2,646	2,280	2,091
Fusion Energy	2,494	2,360	2,360
Nuclear Physics	115	120	100
University and Science Education	120	0	0
Total Laboratory	8,829	7,518	7,295
LAWRENCE BERKELEY NATIONAL LABORATORY			
Basic Energy Sciences	112,235	61,564	62,323
Biological and Environmental Research	37,019	19,238	24,167
Computational and Technology Research	0	42,932	49,520
Fusion Energy	5,182	11,650	4,240
High Energy Physics	25,487	22,504	21,100
Multiprogram Energy Labs-Facilities Support	6,243	0	6,500
Nuclear Physics	24,610	23,670	23,590
University and Science Education	1,069	0	0
Energy Research Analyses	45	0	0
Technology Transfer	2,289	0	0
Total Laboratory	214,179	181,558	191,440

Major Site Funding	FY 1996 Conf. Approp.	FY 1997 Conf. Approp.	FY 1998 Pres. Request
LAWRENCE LIVERMORE NATIONAL LABORATORY			
Basic Energy Sciences	2,450	6,094	4,731
Biological and Environmental Research	20,905	14,712	21,793
Computational and Technology Research	0	665	660
Fusion Energy	17,094	9,272	8,910
High Energy Physics	1,836	380	388
Nuclear Physics	690	535	425
University and Science Education	677	0	0
Total Laboratory	43,652	31,658	36,907
LOS ALAMOS NATIONAL LABORATORY			
Basic Energy Sciences	35,005	19,894	23,886
Biological and Environmental Research	20,373	15,011	21,365
Computational and Technology Research	0	15,630	12,648
Fusion Energy	4,610	3,456	3,356
High Energy Physics	916	725	736
Nuclear Physics	12,514	10,713	10,680
Energy Research Analyses	50	0	0
University and Science Education	579	0	0
Total Laboratory	74,047	65,429	72,671

Major Site Funding	FY 1996 Conf. Approp.	FY 1997 Conf. Approp.	FY 1998 Pres. Request
OAK RIDGE NATIONAL LABORATORY			
Basic Energy Sciences	99,693	85,049	105,382
Biological and Environmental Research	22,758	19,549	19,123
Computational and Technology Research	0	12,340	9,069
Energy Research Analyses	525	0	0
Fusion Energy	19,415	16,244	16,740
High Energy Physics	342	335	342
Multiprogram Energy Labs-Facilities Support	4,134	2,500	15,878
Nuclear Physics	14,053	14,565	14,835
University and Science Education	795	0	0
Technology Transfer	2,734	0	0
Total Laboratory	164,449	150,582	181,369
PACIFIC NORTHWEST NATIONAL LABORATORY			
Basic Energy Sciences	13,063	12,304	12,377
Biological and Environmental Research	96,986	83,957	67,121
Computational and Technology Research	0	2,275	2,960
Energy Research Analyses	575	0	0
Fusion Energy	1,472	1,190	1,230
High Energy Physics	45	0	0
Multiprogram Energy Labs-Facilities Support	4,740	4,353	0
University and Science Education	410	0	0
Technology Transfer	3,376	0	0
Total Laboratory	120,667	104,079	83,688

Major Site Funding	FY 1996 Conf. Approp.	FY 1997 Conf. Approp.	FY 1998 Pres. Request
NATIONAL RENEWABLE ENERGY LABORATORY			
Basic Energy Sciences	5,431	4,270	4,301
Computational and Technology Research	0	150	147
University and Science Education	50	0	0
Total Laboratory	5,481	4,420	4,448
PRINCETON PLASMA PHYSICS LABORATORY			
Computational and Technology Research	82	0	0
Fusion Energy	60,057	55,873	47,623
University and Science Education	300	0	0
Total Laboratory	60,439	55,873	47,623
SANDIA NATIONAL LABORATORY			
Basic Energy Sciences	28,265	29,546	31,821
Biological and Environmental Research	1,924	1,850	1,750
Computational and Technology Research	0	4,428	3,569
Fusion Energy	5,675	5,245	5,555
University and Science Education	1,279	0	0
Total Laboratory	37,143	41,069	42,695
STANFORD LINEAR ACCELERATOR CENTER			
Basic Energy Sciences	22,083	20,537	21,007
Biological and Environmental Research	2,515	2,350	2,350
Fusion Energy	50	50	50
High Energy Physics	169,008	170,934	140,994
University and Science Education	80	0	0
Total Laboratory	193,736	193,871	164,401

Major Site Funding	FY 1996 Conf. Approp.	FY 1997 Conf. Approp.	FY 1998 Pres. Request
SAVANNAH RIVER LABORATORY			
Biological and Environmental Research	148	0	0
Fusion Energy	218	270	270
University and Science Education	5	0	0
Total Laboratory	371	270	270

DEPARTMENT OF ENERGY
FY 1998 Congressional Budget Request
Staffing Summary

Energy and Water Develop Actvs	FTEs FY 1996	FY 1997	FY 1998	Percent Change
Energy Supply Research and Development	1,118	2,001	1,928	-3.8%
Uranium Enrichment Program Activities	52	46	0	-7.0%
Isotope Production and Distribution	10	10	10	0.0%
General Science and Research	108	100	92	-8.7%
Atomic Energy Defense Activities				
Weapons Activities	2,069	2,034	1,939	-4.9%
Environmental Restoration & Waste Mgmt	3,214	3,197	3,026	-5.7%
Other Defense Activities	731	785	787	0.3%
Total, Atomic Energy Defense Activities	6,014	6,016	5,752	-4.6%
Departmental Administration	2,655	1,447	1,319	-9.7%
Office of the Inspector General	325	331	290	-14.1%
Power Marketing Administrations	4,741	4,726	4,500	-5.0%
Federal Energy Regulatory Commission	1,374	1,357	1,377	1.5%
Nuclear Waste Fund	248	232	206	-12.6%
Total, Energy & Water Development Activities	**16,645**	**16,266**	**15,474**	-5.1%

Department of Energy
FY 1998 Budget Request to Congress
(discretionary dollars in thousands)

	FY 1996 Current Appropriation	FY 1996 Comparable Appropriation	FY 1997 Current Appropriation	FY 1997 Comparable Appropriation	FY 1998 Request
General Science And Research					
High energy physics	656,403	552,403	670,075	570,075	624,185
Nuclear physics	299,946	234,946	315,925	250,925	256,525
General science program direction	9,500	10,650	10,000	10,000	10,200
Subtotal, General science	965,849	797,999	996,000	831,000	890,910
Transfer of SSC balances to ESR&D	——	——	——	——	-15,000
Total, General Science And Research	965,849	797,999	996,000	831,000	875,910
Science Assets Acquisition					
High energy physics	——	*104,000*	——	*100,000*	*50,850*
Nuclear physics	——	*65,000*	——	*65,000*	*76,020*
Total, Science Assets Acquisition	——	*169,000*	——	*165,000*	*126,870*

DEPARTMENT OF ENERGY
FY 1998 CONGRESSIONAL BUDGET REQUEST
GENERAL SCIENCE AND RESEARCH ACTIVITIES

Proposed Appropriation Language

For expenses of the Department of Energy activities including the purchase [, construction] and acquisition of [plant and] capital equipment and other expenses necessary for general science and research activities in carrying out the purposes of the Department of Energy Organization Act (42 U.S.C. 7101, et seq.), [including the acquisition or condemnation of any real property of facility or for plant or facility acquisition, construction, or expansion, $996,000,000 to remain available until expended.] $890,910,000,including the purchase of five passenger motor vehicles for replacement only, to remain available until expended. Further, for the Large Hadron Collider project, to become available on October 1 of the fiscal year specified and to remain available until expended, as follows: 1999, $65,000,000; 2000, $70,000,000; 2001, $70,000,000; 2002, $70,000,000; 2003, $65,000,000; and 2004, $54,000,000. (Energy and Water Development Appropriations Act, 1997.)

EXPLANATION OF CHANGE

- Changes eliminate references to construction activities that are now included in the new Science Asset Acquisition appropriation.
- Changes include an advanced appropriation to fund the Large Hadron Collider Project.