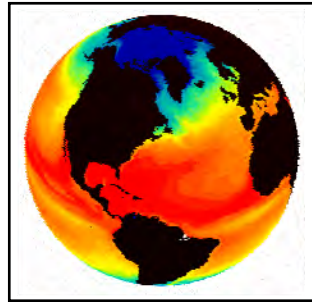
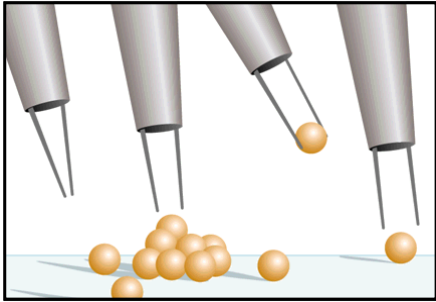
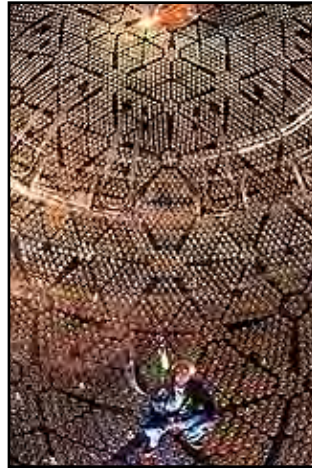
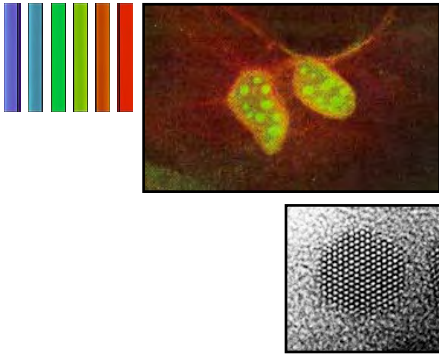




## *Advanced Scientific Computing Advisory Committee*



# Overview of the Office of Science



Dr. James Decker  
Principal Deputy Director  
Office of Science

*October 31, 2000*

# The U.S. Department of Energy is a Science Agency

## Top Five Government Research Organizations for\*:

<b>Total Basic and Applied</b>	<b>Basic Research</b>	<b>Applied Research</b>	<b>Academic Research**</b>	<b>R&amp;D Facilities</b>
1. HHS (16.3)	1. HHS (10.4)	1. HHS (5.9)	1. DOD (33.9)	<b>1. Energy (0.9)</b>
2. NASA (4.7)	2. NSF (3.0)	2. DOD (3.1)	2. NASA (4.9)	2. NASA (0.4)
<b>3. Energy (4.6)</b>	<b>3. Energy (2.4)</b>	3. NASA (2.8)	3. HHS (2.4)	3. DOD (0.4)
4. DOD (4.2)	4. NASA (1.9)	<b>4. Energy (2.2)</b>	<b>4. Energy (2.2)</b>	4. NSF (0.3)
4. NSF (3.0)	5. DOD (1.2)	5. DOC (0.8)	5. DOC (0.2)	5. HHS (0.2)

\* Numbers are the FY 2001 President's Request in Billions - Source: OMB

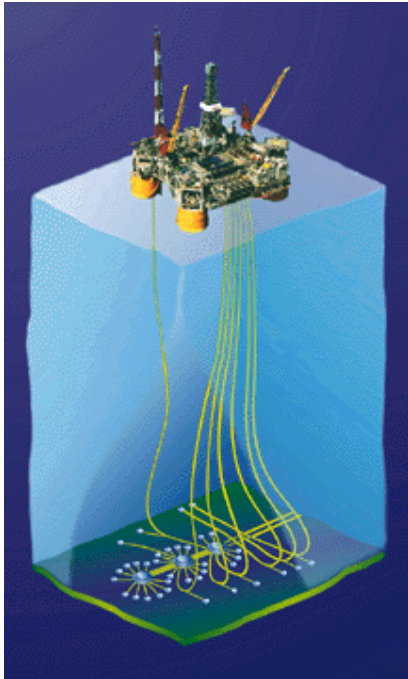
# Department of Energy Science

## Top Five Government Research Organizations for\*:

Physical Sciences	Environmental Sciences	Mathematics & Computing	Engineering	Life Sciences
1. Energy (2,012)	1. NASA (1,051)	1. DOD (657)	1. NASA (1,948)	1. HHS (11,838)
2. NASA (1,019)	2. NSF (481)	2. Energy (623)	2. DOD (1,837)	2. USDA (1,215)
3. NSF (515)	3. DOD (383)	3. NSF (399)	3. Energy (851)	3. DOD (519)
4. DOD (412)	4. INTERIOR (364)	4. HHS (127)	4. NSF (484)	4. NSF (403)
5. HHS (205)	5. Energy (335)	5. COMMERCE (89)	5. TRANS (323)	5. Energy (288)

\* Numbers are FY 1999 Dollars in Millions - Source: NSF -- Preliminary Federal obligations for research, by agency and field of science and engineering: fiscal year 1999

# DOE Mission Areas



**Energy Resources** - *To Foster a Secure and Reliable National Energy Supply*



**National Security** - *To Maintain the Safety and Reliability of the Nuclear Stockpile*

**Science...**



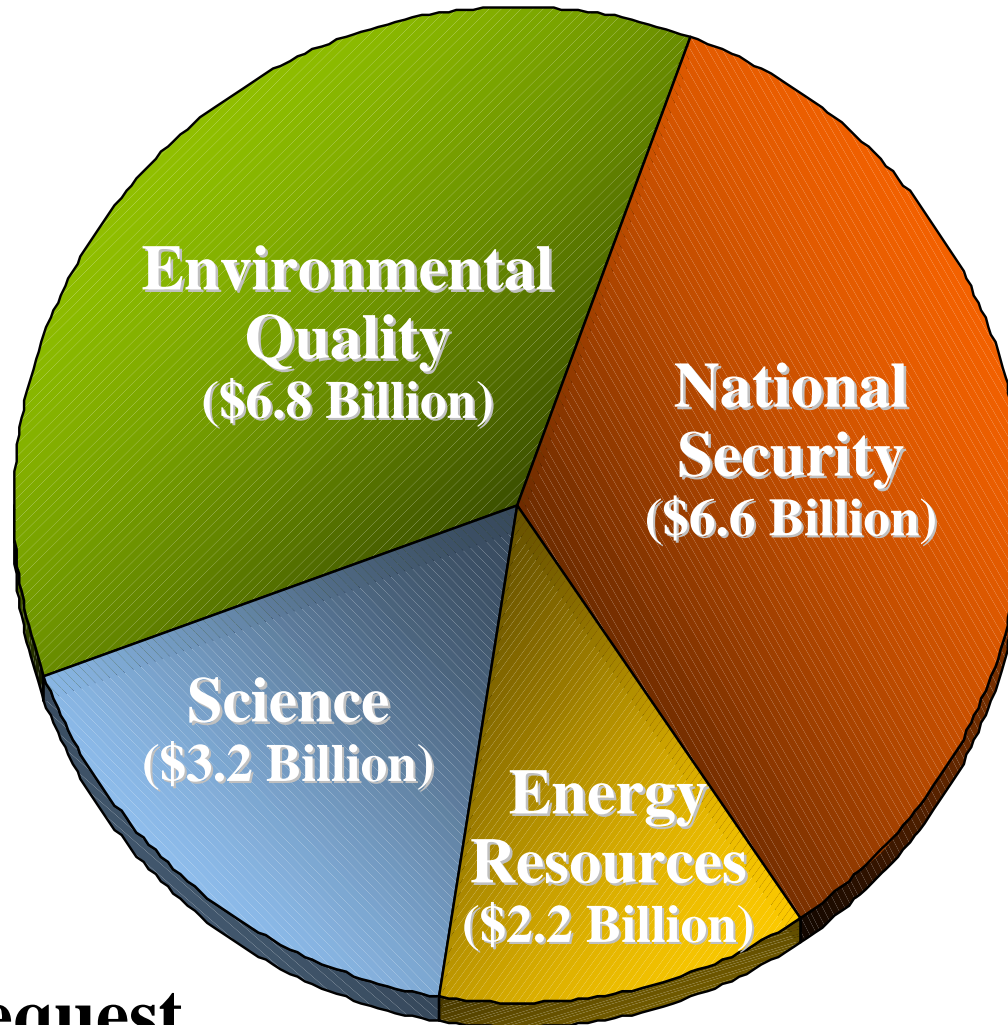
**Environmental Quality**

*- To Repair the Environmental Consequences of the Cold War*



# U.S. Department of Energy Budget by Business Line

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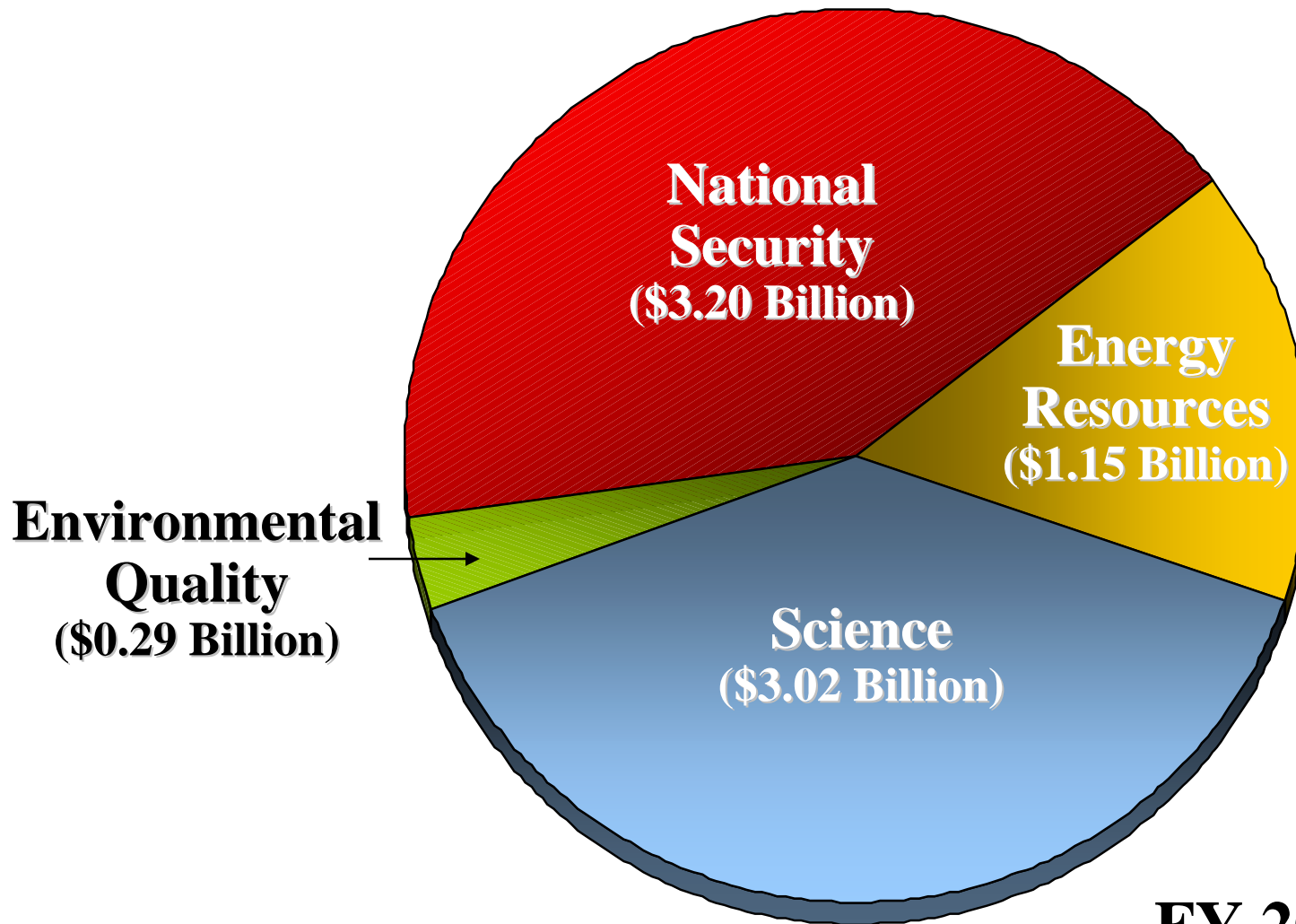


**FY 2001 Request**



# U.S. Department of Energy R&D Budget by Business Line

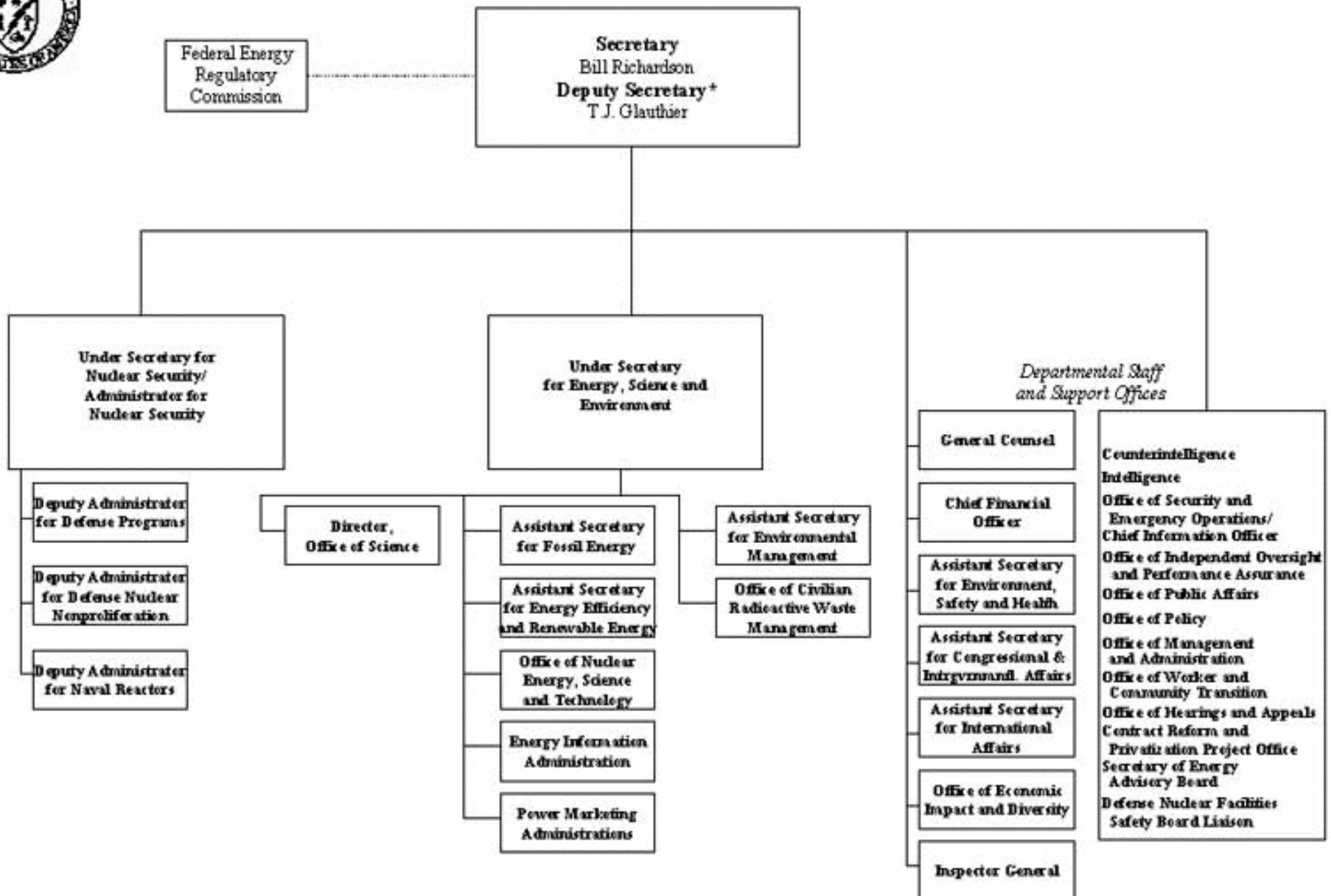
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**FY 2001 Request**

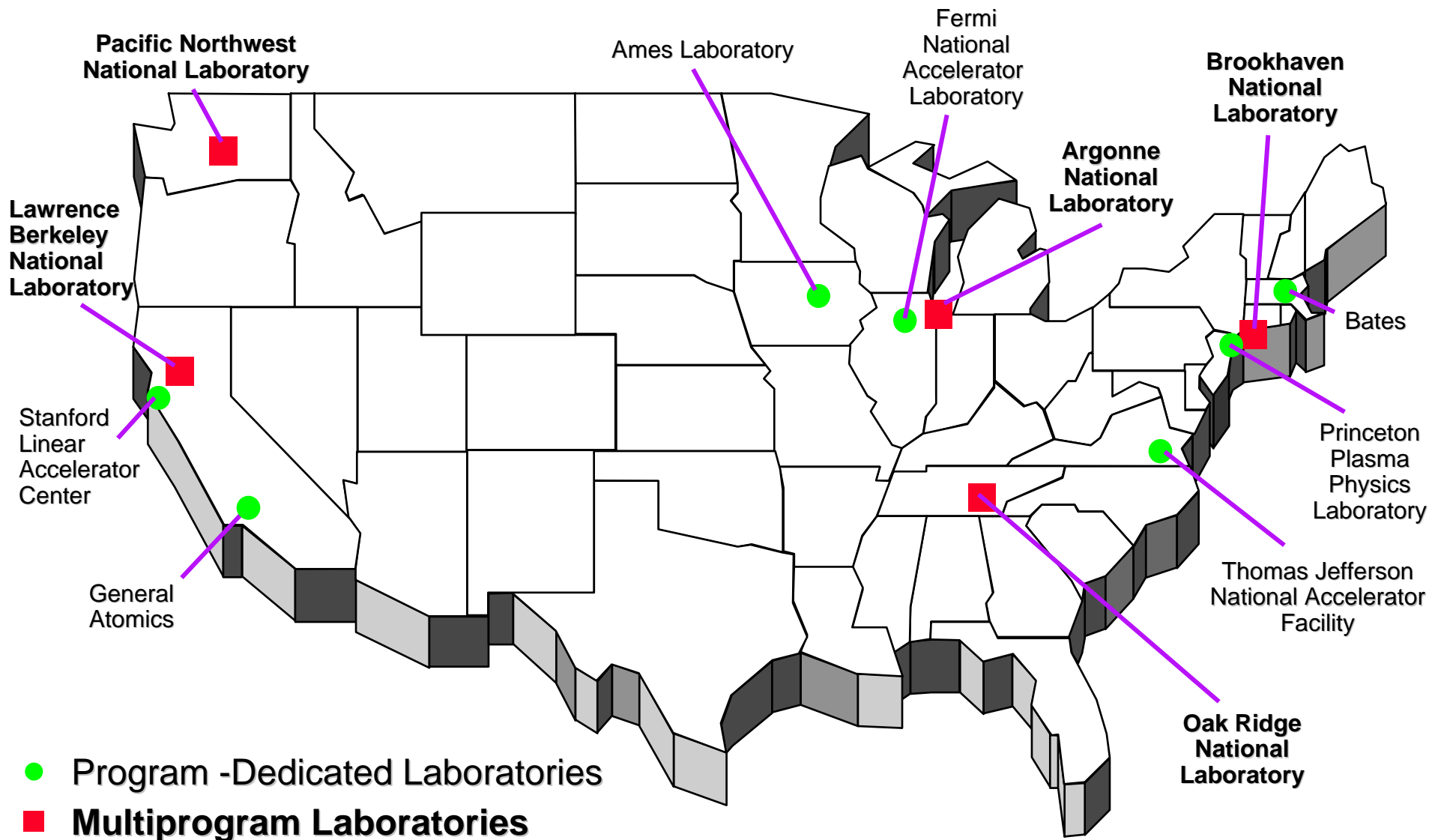


# DEPARTMENT OF ENERGY



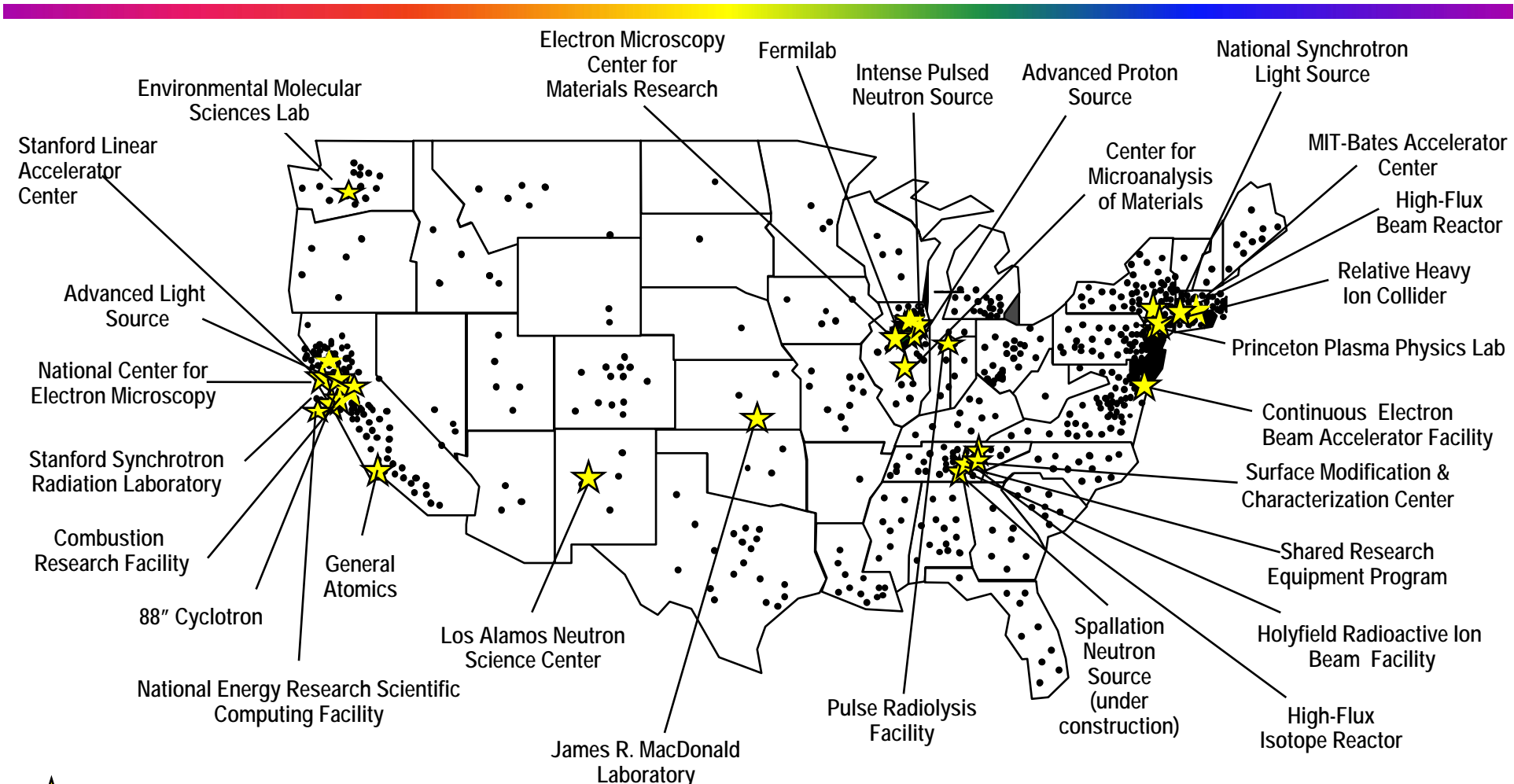
\* The Deputy Secretary also serves as the Chief Operating Officer

# Office of Science Laboratories





# Office of Science Scientific User Facilities and the Universities That Utilize Them

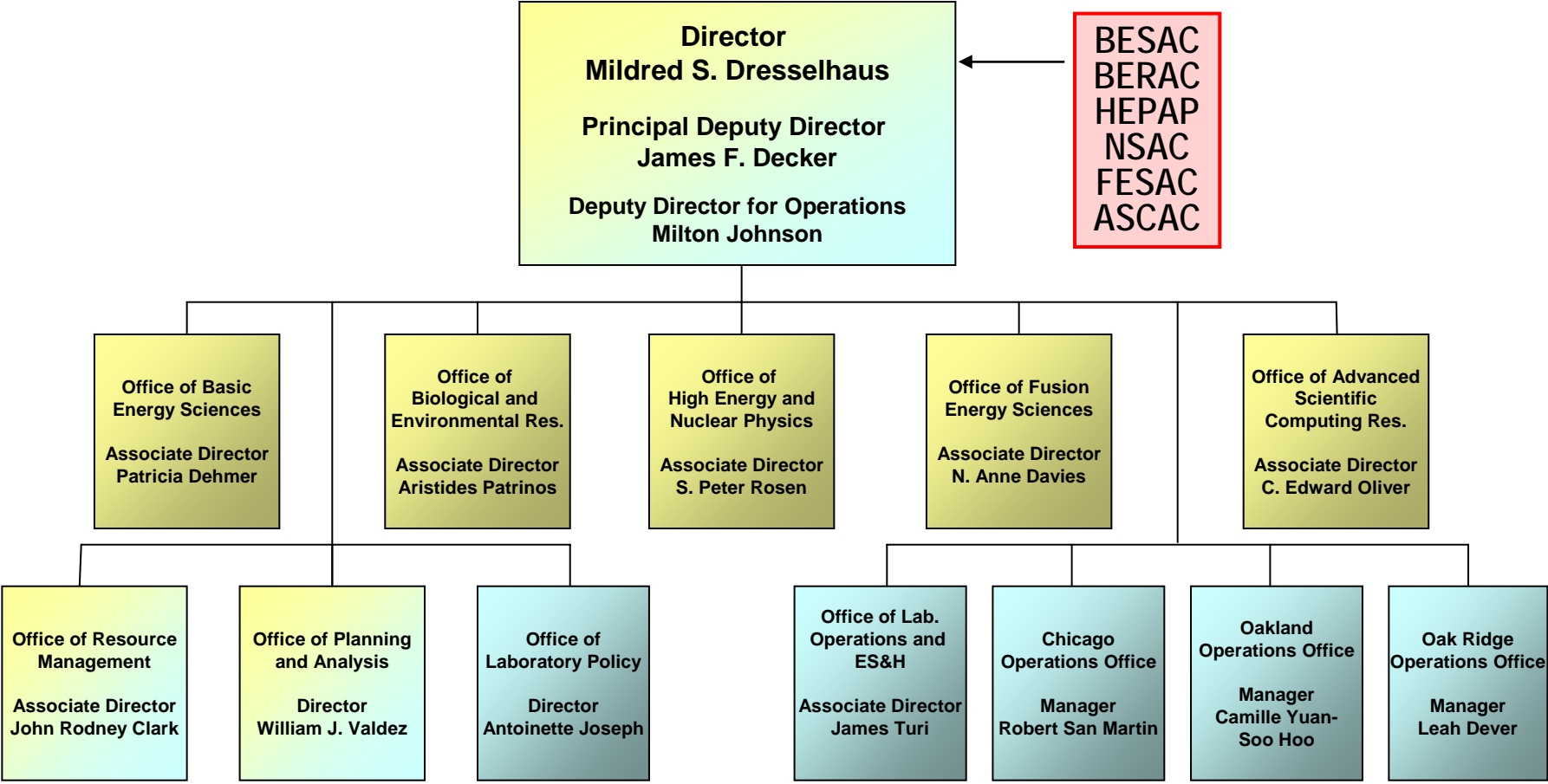


- ★ SC User Facilities
- Universities that Use SC Facilities

**50% of Facility Users are University Researchers**



# Office of Science *Organization*



# Office of Science Advisory Committees

- Who

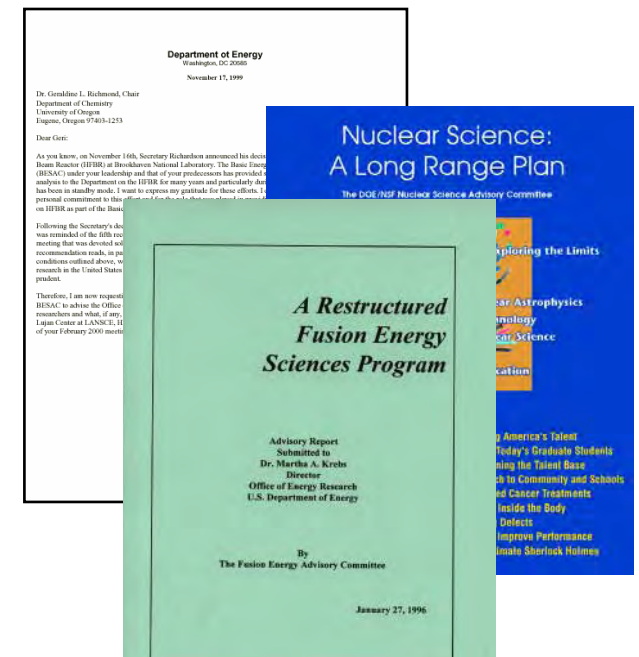
- Basic Energy Sciences Advisory Committee (BESAC)
- High Energy Physics Advisory Panel (HEPAP)\*
- Nuclear Science Advisory Committee (NSAC)\*
- Biological and Environmental Sciences Advisory Committee (BERAC)
- Fusion Energy Sciences Advisory Committee (FESAC)

- What

- Reviews Large Portions of the Program
- Conducts Program Balance Reviews
- Develops Long Range Plans

- How

- Formal Charges -> Formal Reports or Plans
- Public Meetings



\* Joint with the National Science Foundation



# The Federal Advisory Committee Act

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- Congress formally recognized the merits of seeking the advice and assistance of our Nation's citizens.
- Under FACA, advisory committees are created only when they are essential to the performance of a duty or responsibility conveyed upon the Executive Branch by law.
- Through the expertise of the advisory committee members, Federal officials and the Nation have access to information and advice on a broad range of issues affecting Federal policies and programs.
- FACA requires advisory committees to be fairly balanced in terms of the points of view represented and the functions to be performed. This includes sometimes strongly opposing views of members in order to provide a foundation for developing advice and recommendations to DOE that are fair and comprehensive.
- Federal Advisory Committees are the only mechanism by which federal officials may obtain consensus advice.

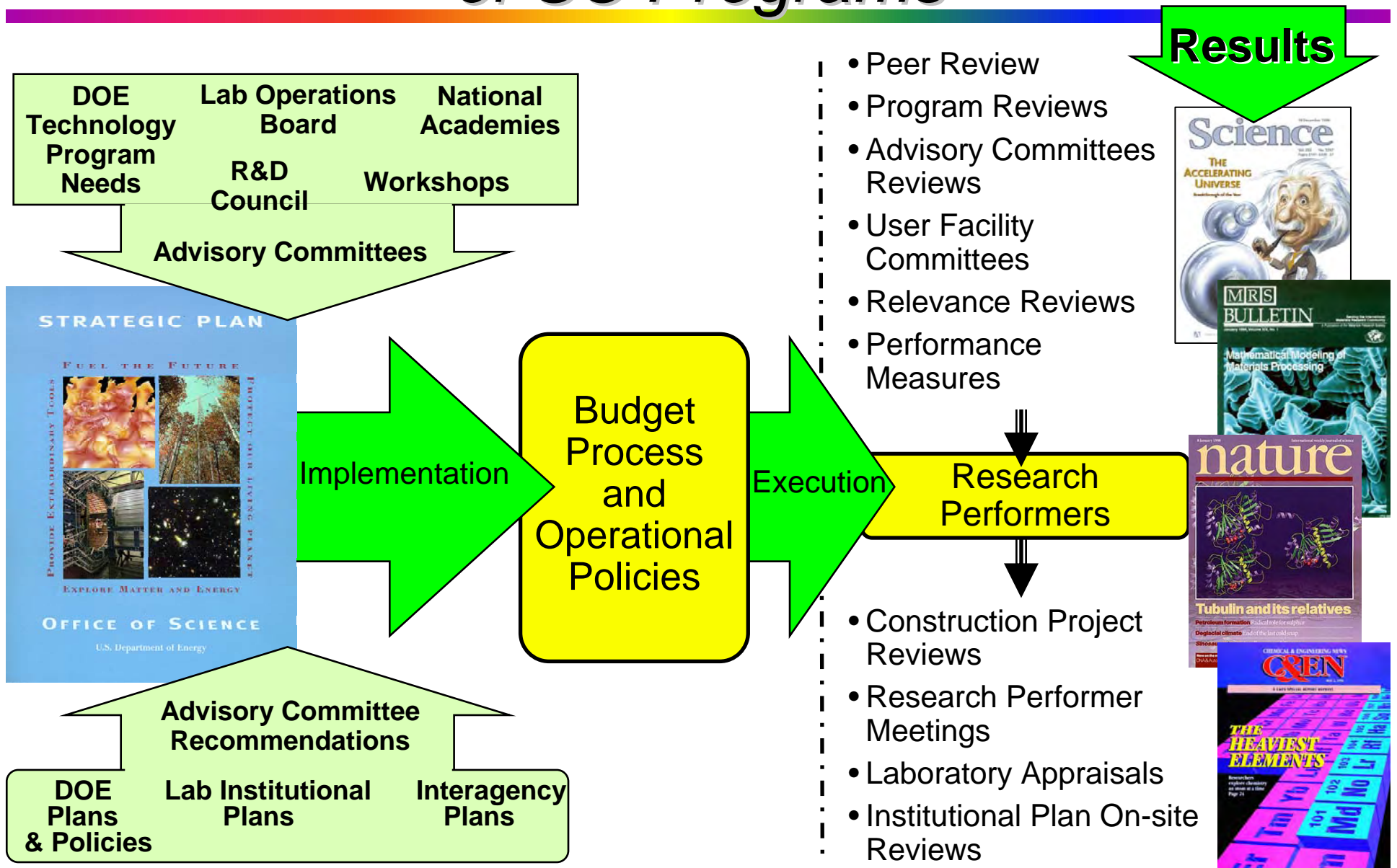
<http://www.fda.gov/opacom/laws/fedadvca.htm>

# Example: *Basic Energy Sciences Advisory Committee (BESAC)*

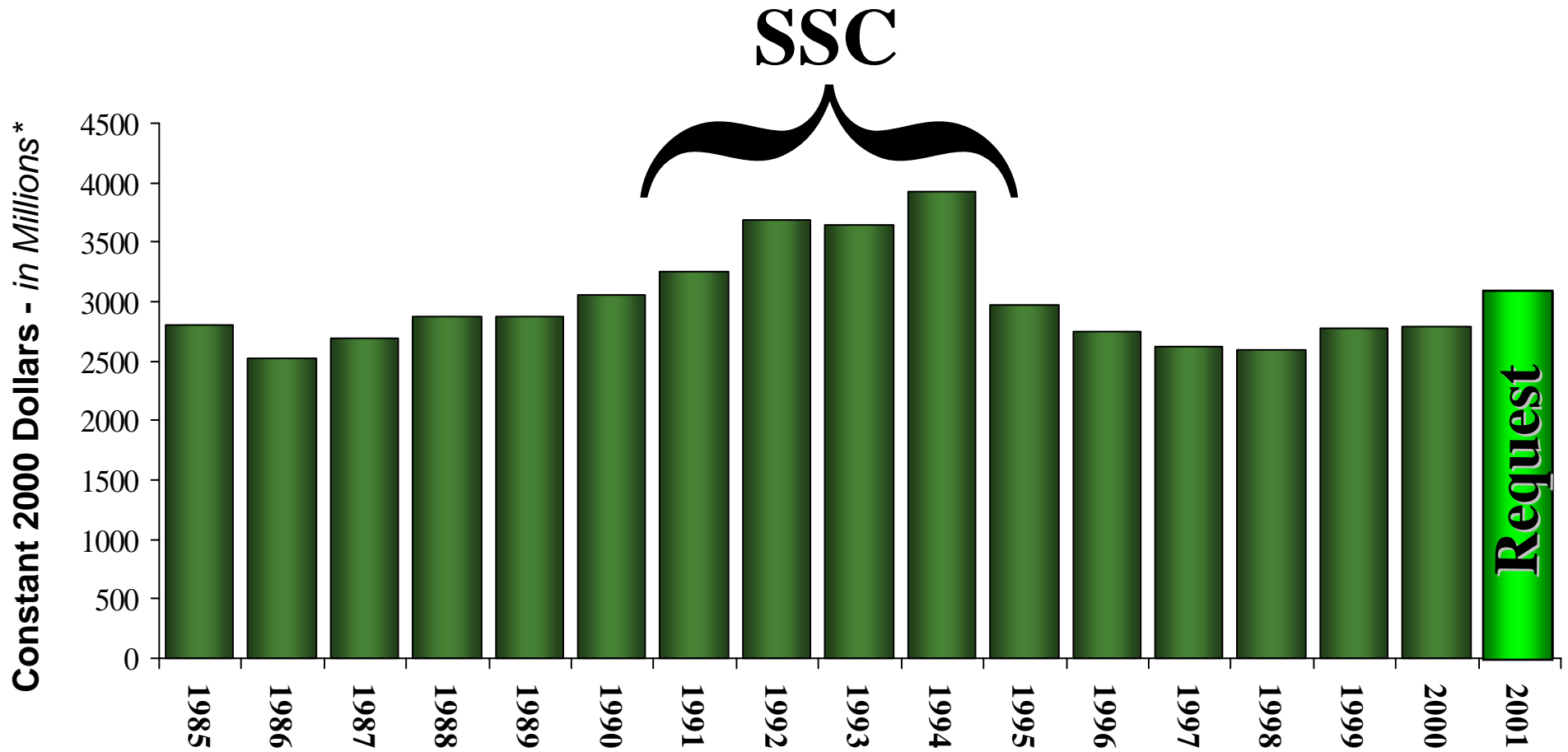
- Operates in accordance with the Federal Advisory Committee Act (FACA, Public Law 92-463; 92nd Congress, H.R. 4383; Oct. 6, 1972) and all applicable FACA Amendments, Federal Regulations, and Executive Orders.
- Reports to the Director of the Office of Science, who provides the charge to the committee annually or as needed. The charter allows BESAC to provide:
  - Periodic reviews of elements of the Basic Energy Sciences (BES) program and recommendations based thereon.
  - Advice on long-range plans, priorities, and strategies to address more effectively the scientific aspects of energy-related BES.
  - Advice on appropriate levels of funding to develop those plans, priorities, and strategies and to help maintain appropriate balance between competing elements of the BES program.
  - Advice on scientific aspects of BES issues of concern to the Department of Energy as requested by the Secretary or the Director of SC.
- Subcommittees are appointed and charged by the Chair of BESAC. They may meet in closed session but must report to BESAC in open session. BESAC considers the recommendations of the subcommittee and acts upon them. BESAC then reports to DOE. **Much of the work of BESAC occurs between meeting by subcommittees.**



# How We Manage Science *Development of SC Programs*

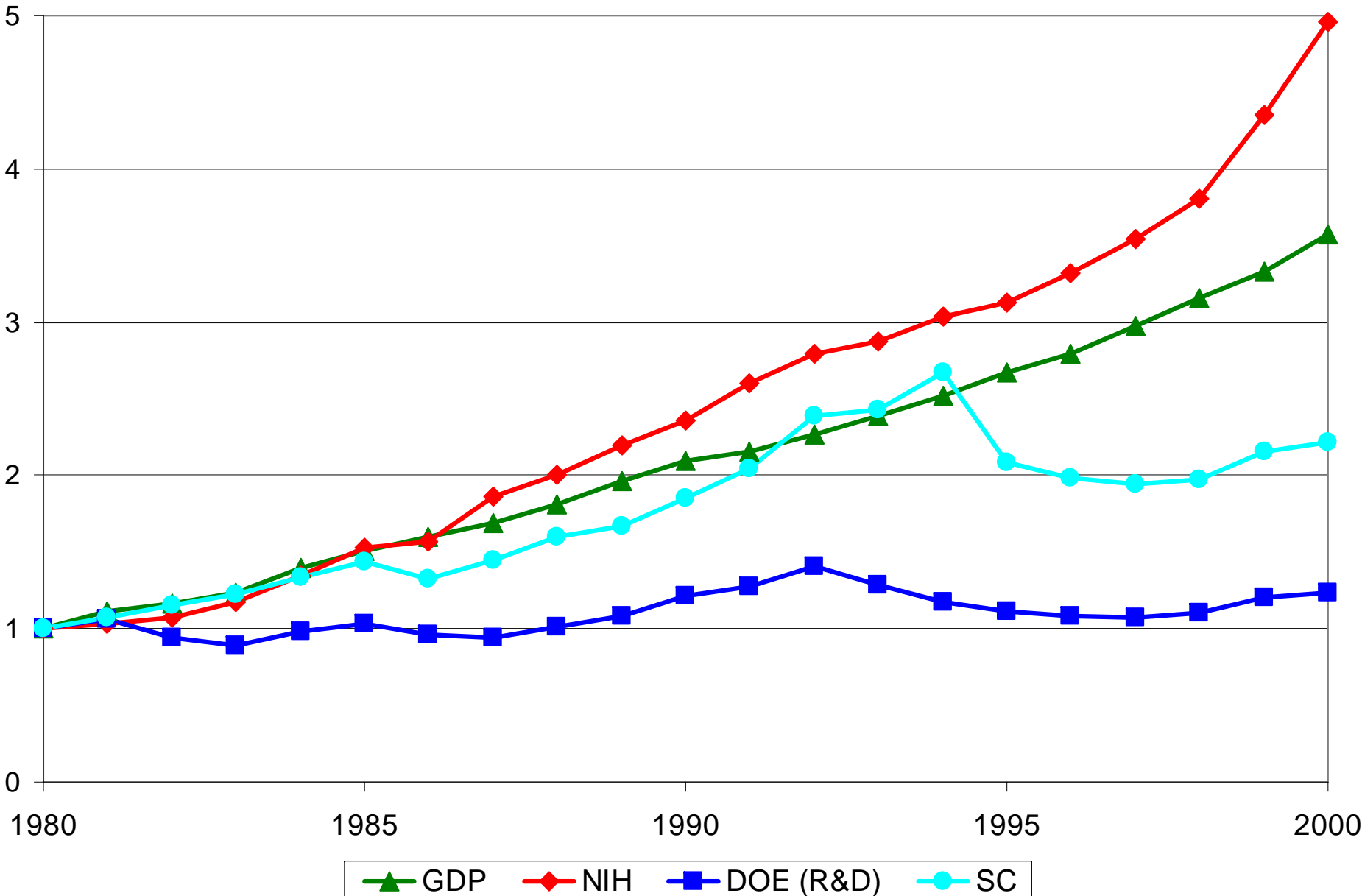


# Office of Science Budget History\*



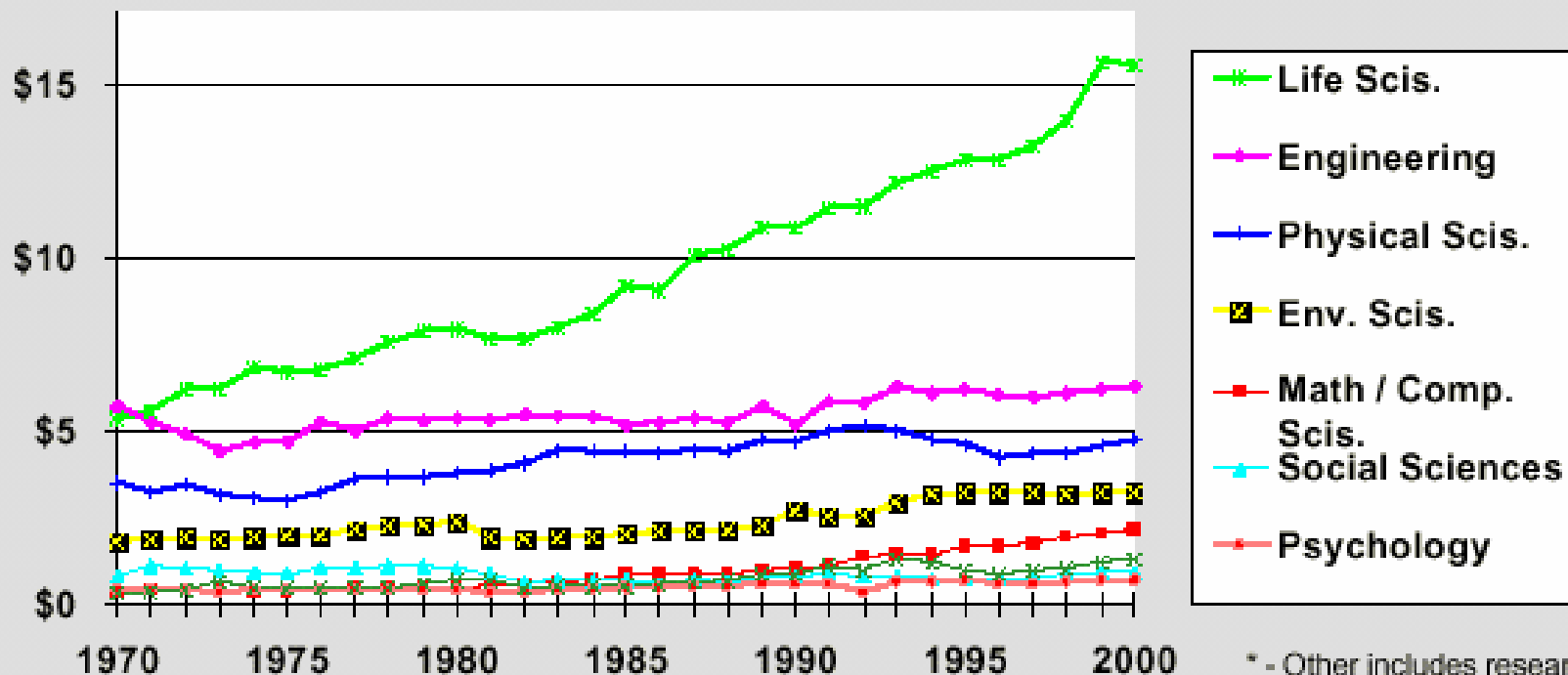
\*Total Science Budget (in Millions of Constant FY 2000 Dollars)

Normalized Growth (1980 = 1 for all)



## Trends in Federal Research by Discipline, FY 1970-2000

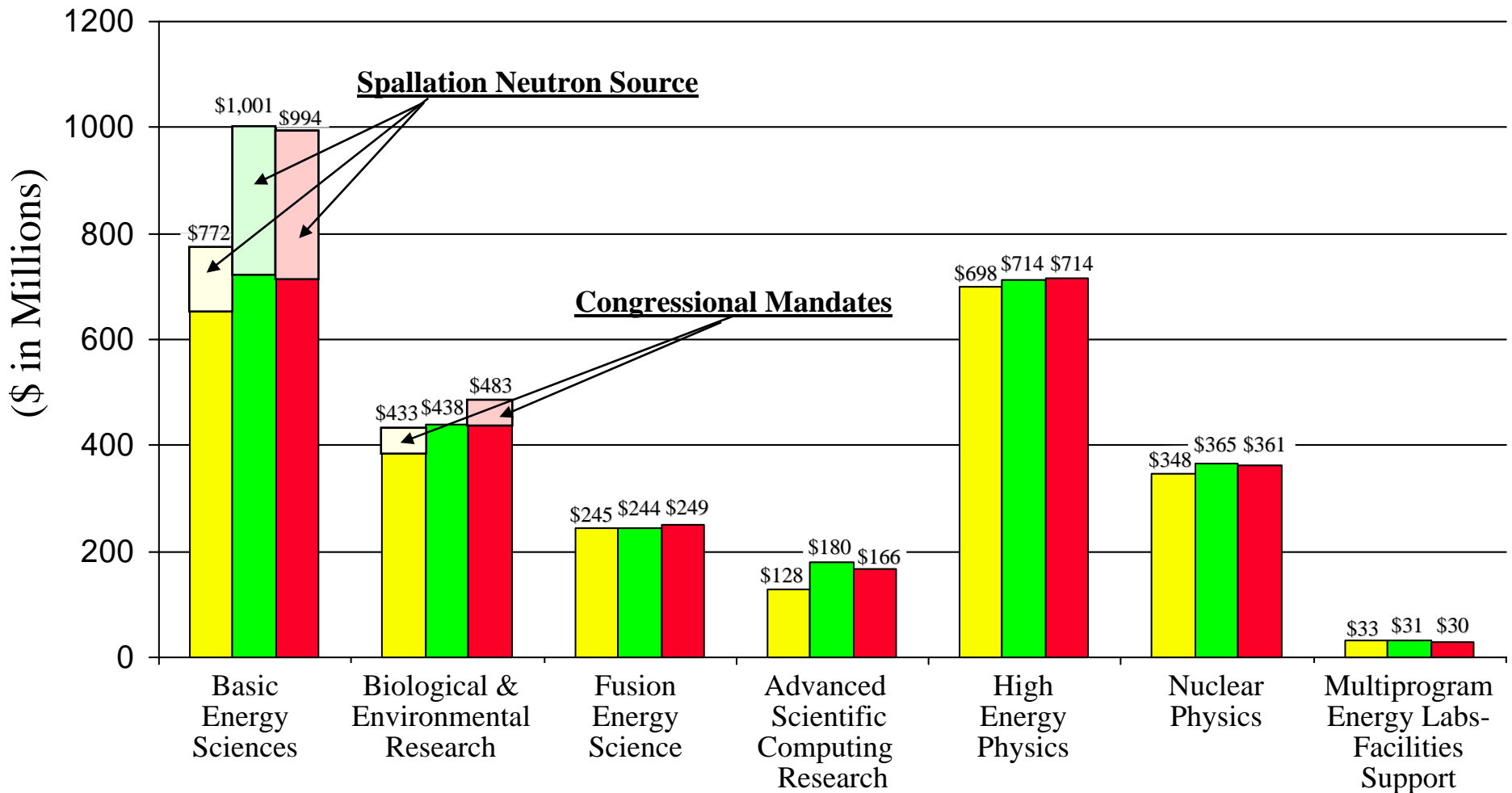
obligations in billions of constant FY 2000 dollars



\* - Other includes research not classified (includes basic research and applied research; excludes development and R&D facilities)

Source: National Science Foundation, *Federal Funds for Research and Development FY 1998, 1999, and 2000*, 1999. FY 1999 and 2000 data are preliminary. Constant-dollar conversions based on OMB's GDP deflators. FY 2000 represents the President's request only, not final FY 2000 appropriations.  
 FEB. '00 © 2000 AAAS

# DOE Office of Science Budget



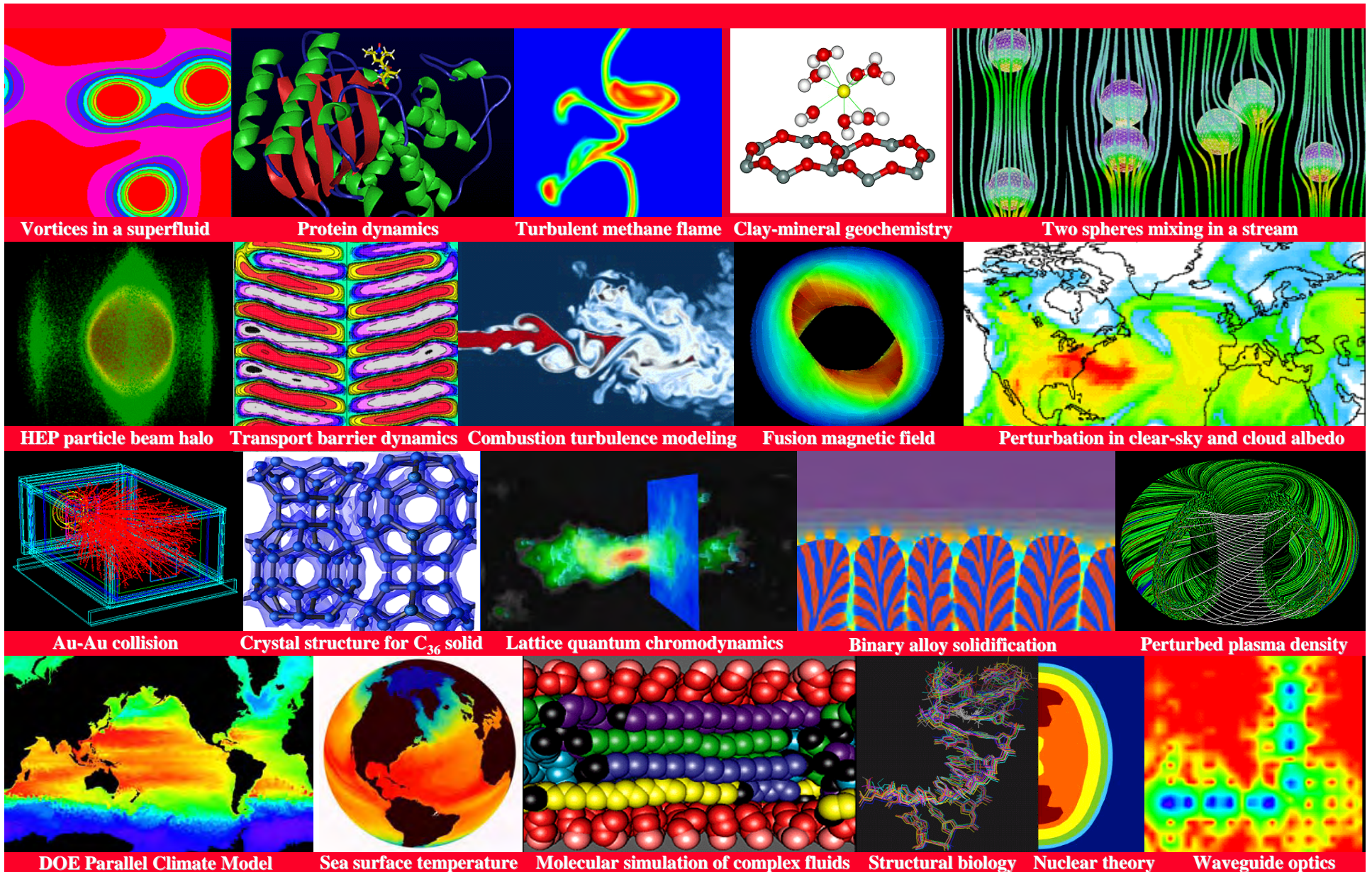
FY 2000

FY 2001 Amended Request

FY 2001 Appropriation with General Reduction allocated; includes \$24 Million for Waste Management activities



# Dramatic Increases in High-Performance Computing Required for 21<sup>st</sup> Century Scientific Leadership

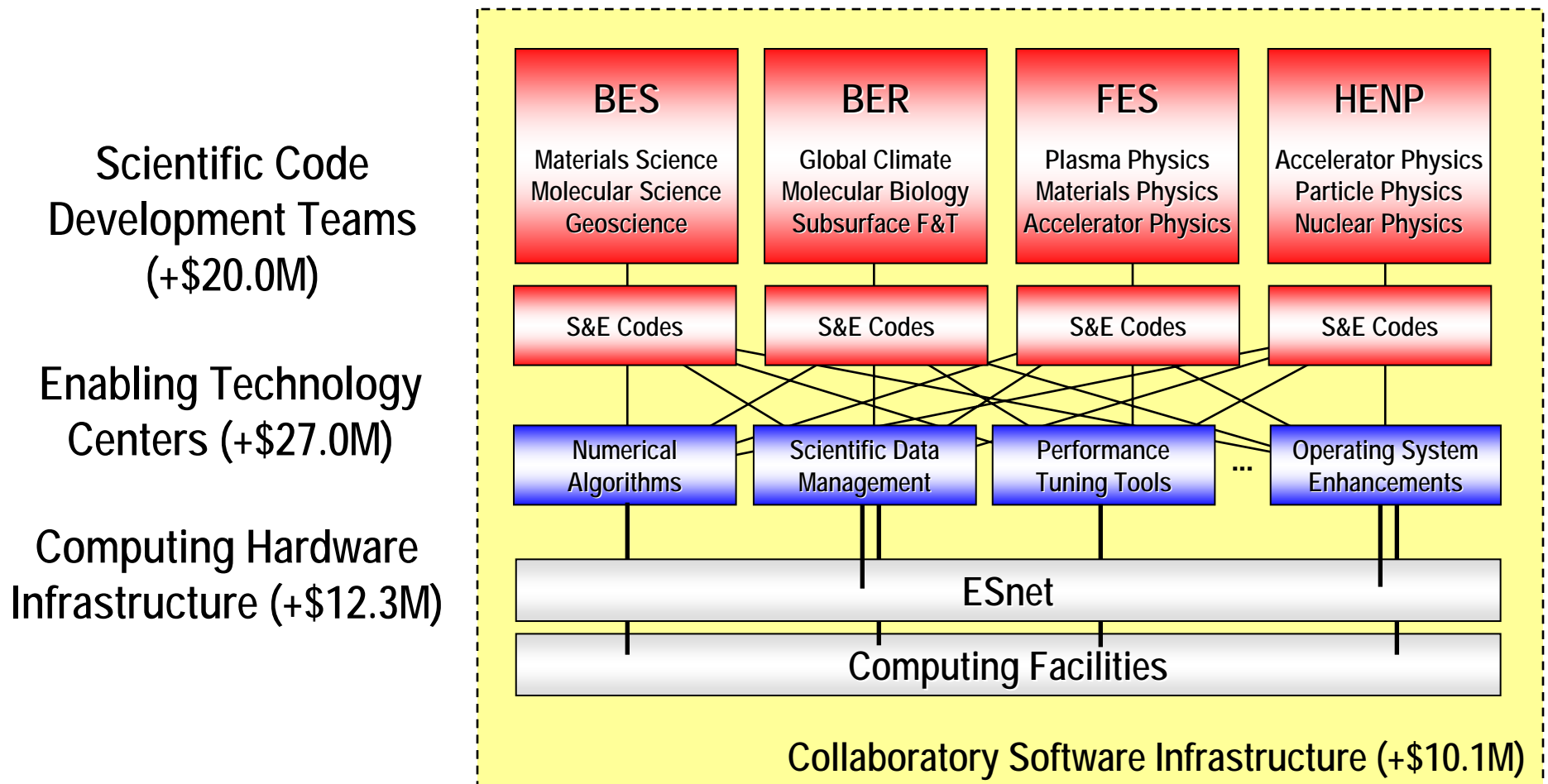




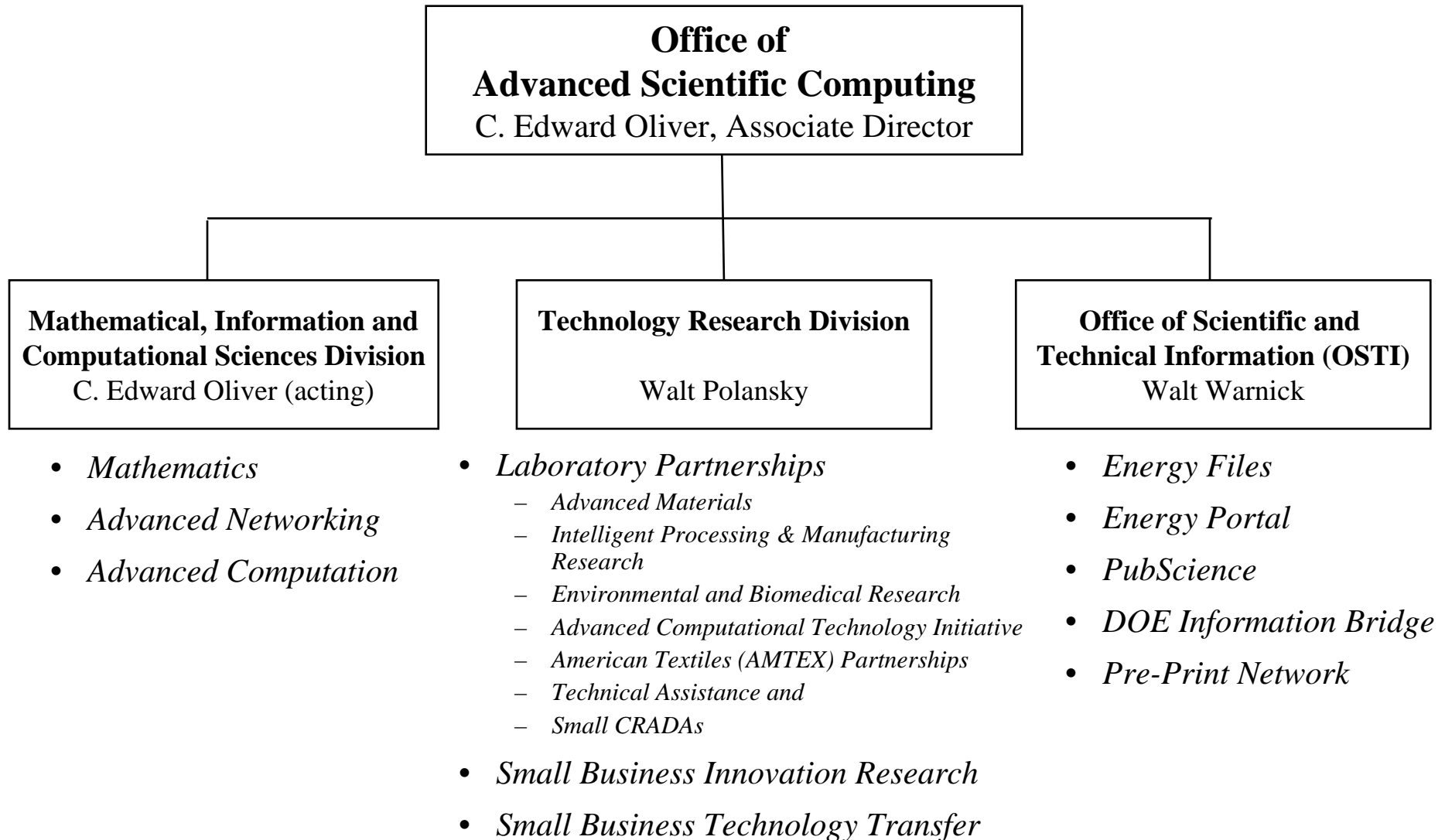
# Proposed FY2001 Investments

## *Scientific Discovery through Advanced Computing*

*Investments in computational modeling and simulation in the Office of Science are driven by scientific problems derived from DOE's missions.*



# Advanced Computation and More





***Backup***

# ASCR Advisory Committee Members

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## Chair

- Dr. Margaret H. Wright, Bell Laboratories/Lucent Technologies

## Co-Chair

- Dr. John W. D. Connolly, Center for Computational Sciences

## Members

- Dr. Jill P. Dahlburg, Tactical Electronic Warfare Division, Naval Research Laboratory
- Dr. Roscoe C. Giles, Electrical & Computer Engineering - Boston University
- Ms. Helene E. Kulsrud, Center for Communications Research
- Dr. William A. Lester, Jr., Chemistry - University of California – Berkeley
- Dr. Gregory J. McRae, Chemical Engineering - MIT
- Dr. Juan C. Meza, Sandia National Laboratories - Dept. of Computational Sciences and Mathematics Research
- Dr. Karen R. Sollins, National Science Foundation
- Dr. Ellen B. Stechel, Ford Motor Company Scientific Research Laboratory
- Dr. Warren Washington, National Center for Atmospheric Research
- Dr. Stephen Wolff, CISCO Systems