U.S. Department of Energy

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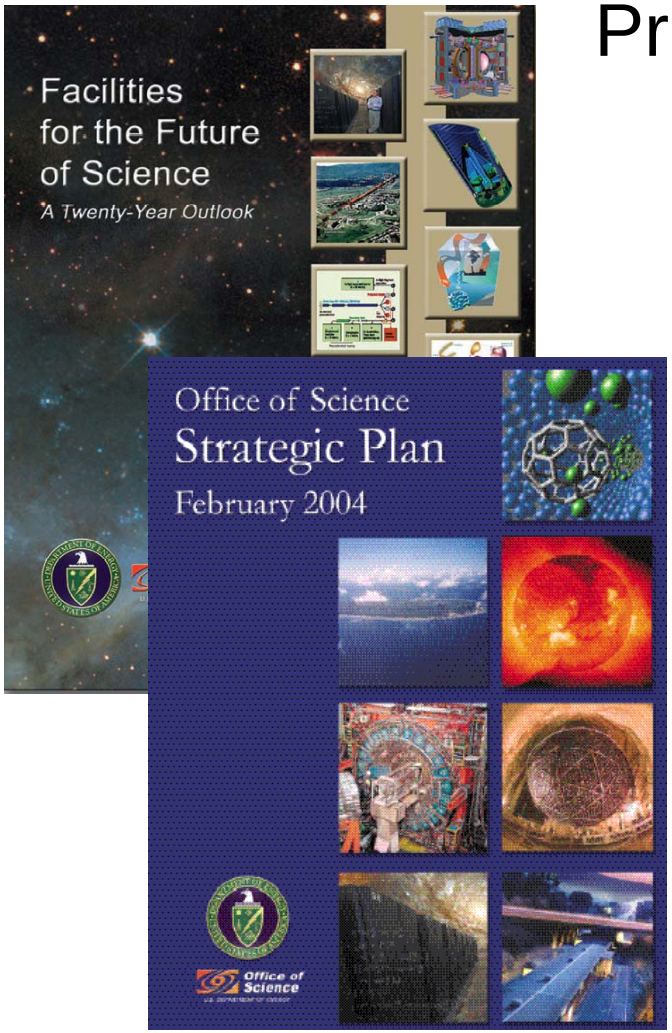

Presentation at the Kavli Institute for Theoretical Physics

A Vision for the Future Of Science

Raymond L. Orbach
Director
Office of Science
U.S. Department of Energy
October 8, 2004

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Office of Science Strategic Plan 20 –Year Goals

- ***ITER for Fusion Energy:*** Provide the enduring solution to our Nation's energy challenge, conducting the burning plasma experiment that will bring fusion energy within reach as a commercial source of clean, abundant energy.
- ***Scientific Discovery through Advanced Scientific Computing:*** Expand the broad frontiers of scientific discovery through the power of advanced computation.
- ***Nanoscale Science for New Materials and Processes:*** Master the ability to construct revolutionary new materials and processes…atom-by-atom and build upon Nature's self-assembling techniques.
- ***Taming the Microbial World—the Next Revolution in Genomics:*** Harness microbial genomes and the molecular machines of life for energy, the environment, and human health.
- ***Dark Energy and the Search for the Genesis:*** Illuminate the basic forces of creation and the origins of matter, energy, space, and time.
- ***Nuclear Matter at the Extremes:*** Explore new forms of nuclear matter at high-energy densities and at the extreme limits of stability.
- ***Facilities for the Future of Science:*** Deliver the high-priority facilities over the next 20 years that support DOE's and the Nation's research.

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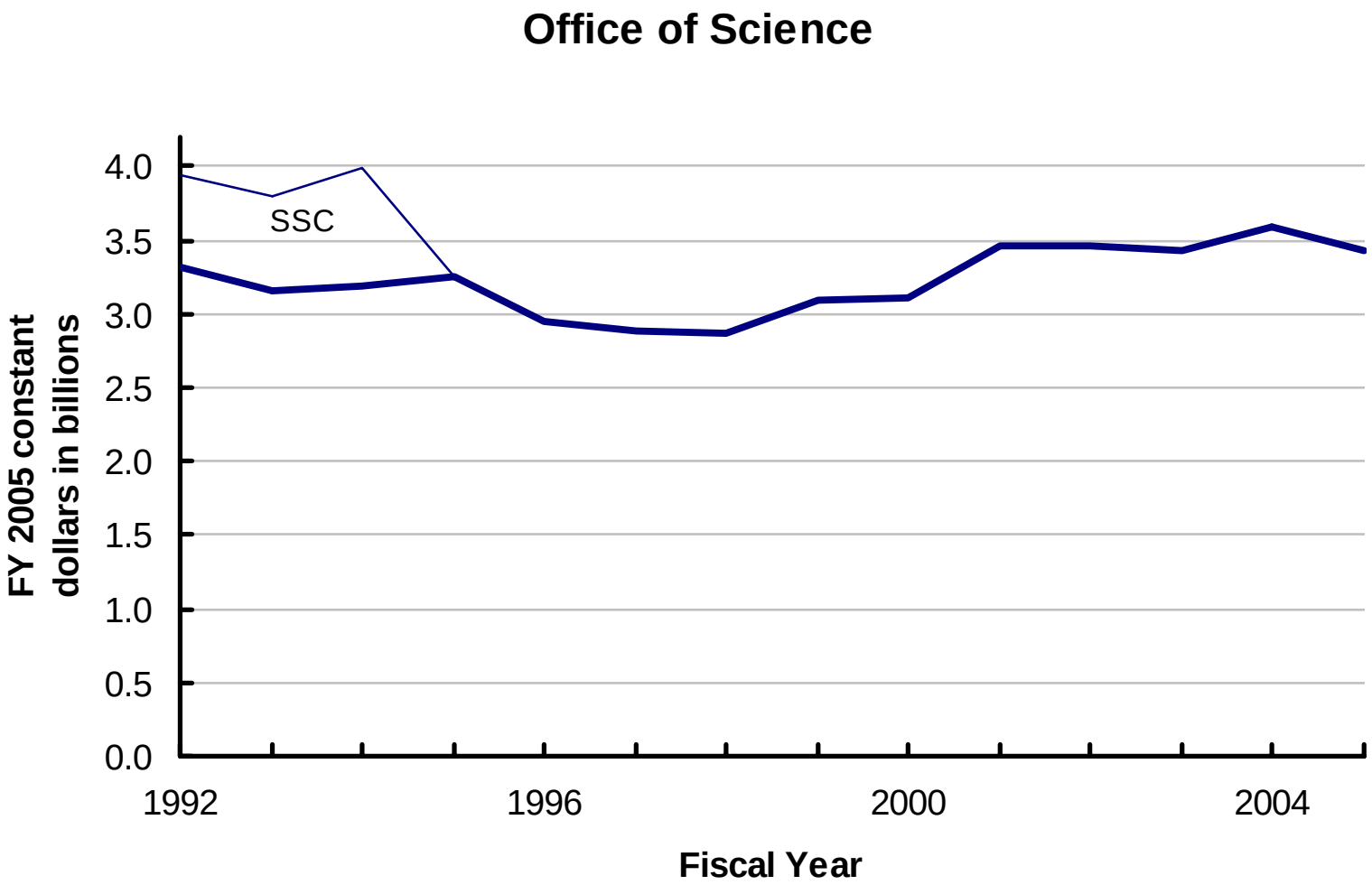
Funding History, FY1992–2005

Appropriations in FY 2005 constant dollars

(FY 2005 amount is the requested level.)



Office of Science 20-Year Facilities Outlook

Throughout its history, the DOE's Office of Science has designed, constructed, and operated many of the Nation's most advanced, large-scale R&D user facilities.

-- Spencer Abraham, Secretary of Energy

- SC facilities used by more than 19,000 users world-wide.
- A list of 28 world-class facilities and upgrades that will ensure U.S. scientific pre-eminence for the next two decades.
- Sets priorities across disciplines and fields of research.
- Complements interests of other U.S. science agencies (e.g., NASA, NSF, NIH.)
- Within Congressional Authorization levels

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Office of Science 20-Year Facilities Outlook

Priority Near-Term

Priority		
1	FES	International Thermonuclear Experimental Reactor
2	ASCR	UltraScale Scientific Computing Capability
Tie for 3	HEP	Joint Dark Energy Mission
	BES	Linac Coherent Light Source
	BER	Protein Production and Tags
	NP	Rare Isotope Accelerator
Tie for 7	BER	Characterization & Imaging
	NP	Continuous Electron Beam Accelerator Facility 12GeV Upgrade
	ASCR	Esnet Upgrade
	ASCR	NERSC Upgrade
	BES	Transmission Electron Achromatic Microscope
12	HEP	BTeV

Priority Mid-Term

Priority		
13	HEP	Linear Collider
Tie for 14	BER	Cellular Systems Analysis & Modeling
	BES	SNS 2-4 MW Upgrade
	BES	SNS Target Station II
	BER	Whole Proteome Analysis
Tie for 18	NP	Double Beta Decay Underground Detector
	FES	Next Step Spherical Tokamak
	NP	RHIC II

Far-Term

Tie for 21	BES	National Synchrotron Light Source Upgrade
	HEP	Super Neutrino Beam
Tie for 23	BES	Advanced Light Source Upgrade
	BES	Advanced Photon Source Upgrade
	NP	eRHIC
	FES	Fusion Energy Contingency
	BES	High Flux Isotope Reactor Guide Hall II
	FES	Integrated Beam Experiment