HIGH ENERGY PHYSICS PROGRAM

High Energy Physics Advisory Panel

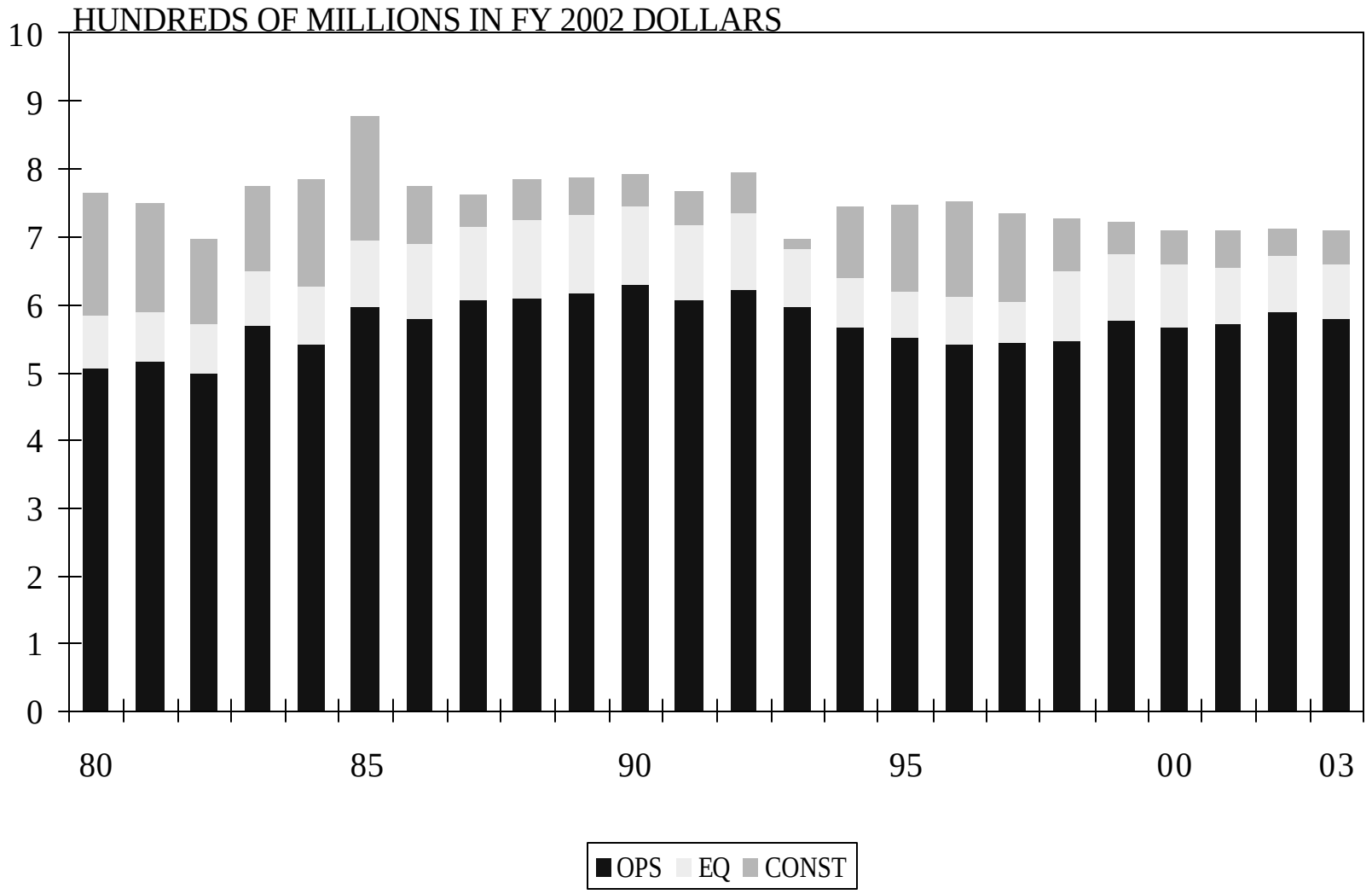
Dr. John R. O'Fallon
Director, Division of High Energy Physics
U.S. Department of Energy
November 7, 2002

Recent Appropriations History (B/A in Millions)

	FY 2001	FY 2002	FY 2003
Congressional Budget Request	$ 714.7	$ 716.1	$ 725.0
House Appropriations Bill	714.7	716.1	725.0
General Reduction (HEP share)	- 3.5	- 0.5	-5.6
Net	$ 711.2	$ 715.6	$ 719.4
Senate Appropriations Bill	$ 677.0	$ 725.1	$ 730.0
General Reduction (HEP Share)	-12.3	--	-3.4*
Net	$ 664.7	$ 725.1	$ 726.6
Conference Committee	726.1	716.1	
General Reduction (HEP Share)	-8.7	-2.9	
Safeguards and Security Transfer	-6.2	--	
	$ 711.2	$ 713.2	
Appropriation after reductions	711.2	713.2	
SBIR & STTR	-15.3	-15.2	
Net Funding Available	$ 695.9	$ 698.0	

*Estimated

High Energy Physics Funding



Budget Restructuring

- Between FY 2002 and FY 2003, the basic structure of the high energy physics budget was significantly revised.

- The FY 2002 numbers shown on the following charts are the result of a recast from the old structure to the new one.
  - Some are estimated FY 2002 allocations.
  - New Budget and Reporting code definitions included some revisions in how work at the laboratories is categorized.
    - Both of these effects may impact year-to-year comparisons at the detail level.

- A recast of the FY 2001 funding was not performed; therefore detailed FY 2001 numbers are not presented.

New Budget Structure

KA11 Proton Accelerator-based Physics Subprogram

KA1101 Research

KA1102 Facilities

KA12 Electron Accelerator-based Physics Subprogram

KA1201 Research

KA1202 Facilities

KA13 Non-Accelerator-Based Physics Subprogram

KA1301 Research

KA14 Theoretical Physics Subprogram

KA1401 Research

KA15 Advanced Technology R&D Subprogram

KA1501 Accelerator Science

KA1502 Accelerator Development

KA1503 Other Technology R&D

39KA Construction

FY 2003 Budget (New Budget and Reporting Structure)

(B/A in Millions)

	FY 2002	FY 2003 IFP
Proton Accelerator-based Physics		
Research	$ 71.9	$ 73.4
Facilities	261.7	247.1
LHC	49.0	60.0
LHC Support	5.8	6.7
Subtotal	***$ 388.4***	***$ 387.2***
Electron Accelerator-based Physics		
Research	$ 30.3	$ 29.9
Facilities	118.1	116.6
Subtotal	***$ 148.4***	***$ 146.5***
Non-Accelerator-based Physics/Research	***$ 39.1***	***$ 37.4***
Theoretical Physics/Research	***$ 43.0***	***$ 41.1***
Advanced Technology R&D/Research	***$ 82.9***	***$ 87.0***
Construction/NuMI	***$ 11.4***	***$ 20.1***
TOTAL HEP Budget	**$ 713.2**	**$ 719.4**
SBIR & STTR	***$ -15.4***	***$ -15.7***
	$ 697.8	**$ 703.7**

FY 2003 Budget - Major Components

(B/A in Thousands)

	FY 2002	Change Amount	FY 2003	Change (%)
HQ Administered Research	120,256	2,948	123,204	2.5%
Physics Research	102,911	2,525	105,436	
Accelerator Science	17,345	423	17,768	
Fermilab	287,066	-686	286,380	-0.2%
base	275,666	-9,379	266,287	
NuMI	11,400	8,693	20,093	
SLAC	163,553	-2,308	161,245	-1.4%
BNL	15,667	-95	15,572	-0.6%
AGS	6,012	-6,012	0	
LBNL	23,570	-157	23,413	-0.7%
ANL	7,898	105	8,003	1.3%
LBNL Landlord	5,239	211	5,450	
Muon Collider R&D	4,836	-1,267	3,569	
NLC R&D (na)	19,200	-170	19,030	
SciDAC	4,919	-549	4,370	
LHC	49,000	11,000	60,000	
LHC Program	5,775	895	6,670	
SBIR/STTR	15,392	358	15,750	2.3%
Other	3,987	1,782	5,769	
Total	**713,170**	**6,225**	**719,395**	**0.9%**

Washington Administered Programs

Physics Research and Technology R&D (Universities and Small Labs)

(B/A in Millions)

	FY 2002	FY 2003 IFP	% Change
Physics Research -- base	**$ 102.9**	**$ 105.4**	**2.4**
Technology R&D*	**$ 17.4**	**$ 17.8**	**2.4**

*Washington administered only. Does not include funds provided directly to the principal HEP Laboratories (ANL, BNL, Fermilab, LBNL, SLAC) for general Technology R&D or R&D in support of operating accelerators.

Does not include LHC project funding.

Fermilab

(B/A in Millions)

	FY 2002	FY 2003 IFP	% Change
Research & Technology			
Physics Research	$ 18.3	$ 18.7	
Technology R&D	15.5	16.4	
Subtotal	***$ 33.8***	***$ 35.1***	***3.9***
Facility Operations			
Operations	$ 195.9	$ 179.8	
Support	39.5	30.9	
R&D	6.5	10.1	
Subtotal	***$ 241.9***	***$ 231.2***	***-4.4***
Construction			
NuMI (TEC $109.2)	$ 11.4	$ 20.1	
TOTAL Fermilab	**$ 287.1**	**$ 286.4**	**-0.2**

Does not include LHC project funding, LHC support, SciDAC, and incremental muon collider funding.

Stanford Linear Accelerator Center

(B/A in Millions)

	FY 2002	FY 2003 IFP	% Change
Research & Technology			
Physics Research	$ 22.9	$ 22.8	
Technology R&D	22.6	21.8	
Subtotal	***$ 45.5***	***$ 44.6***	***-1.7***
Facility Operations			
Operations	$ 97.9	$ 102.3	
Support	19.7	14.3	
Subtotal	***$ 117.6***	***$ 116.6***	***-0.9***
TOTAL SLAC	**$ 163.1**	**$ 161.2**	**-1.1**

Brookhaven National Laboratory

(B/A in Millions)

	FY 2002	FY 2003 IFP	% Change
Research & Technology			
Physics Research	$ 10.7	$ 10.6	
Technology R&D	5.0	4.9	
Subtotal	***$ 15.7***	***$ 15.5***	***-0.6***
AGS Operations			
Operating	$ 5.9	$ --	
Capital Equipment	.1	--	
Subtotal	***$ 6.0***	***$ --***	
TOTAL BNL	**$ 21.7**	**$ 15.5**	

Does not include LHC project funding, LHC support, SciDAC, and incremental muon collider funding.

Lawrence Berkeley National Laboratory

(B/A in Millions)

	FY 2002	FY 2003 IFP	% Change
Physics Division			
Physics Research	$ 14.4	$ 13.5	
Detector R&D	1.1	2.4	
Subtotal	***$ 15.5***	***$ 15.9***	***2.4***
AFR Division	***$ 8.0***	***$ 7.5***	***- 6.7***
Landlord			
GPE	$ 1.9	$ 1.9	
GPP	3.3	3.5	
WM	5.5	--	
Subtotal	***$ 10.7***	***$ 5.4***	
TOTAL LBNL	**$ 34.2**	**$ 28.9**	

Does not include LHC project funding, LHC support, SciDAC, SNAP, or incremental muon collider funding.

Argonne National Laboratory

(B/A in Millions)

	FY 2002	FY 2003 IFP	% Change
Physics Division			
Physics Research	$ 5.9	$ 6.0	1.4
Detector R&D	0.8	0.8	-1.1
Accelerator R&D	1.1	1.2	3.1
TOTAL ANL	**$ 7.9**	**$ 8.0**	**1.3**

Does not include LHC project funding, and incremental muon collider funding.

Large Hadron Collider

(B/A in Millions)

	FY 2002	FY 2003 IFP
Accelerator		
Lab Program	$ 10.1	$ 8.7
Procurement from Industry	11.2	13.4
Subtotal	***$ 21.3***	***$ 22.1***
Detectors		
Atlas	$ 10.5	$ 17.4
CMS	17.2	20.5
Subtotal	***$ 27.7***	***$ 37.9***
TOTAL	**$ 49.0**	**$ 60.0**

Proposed Profile Revision

(B/A in Millions)

	Prior Years	FY2003	FY 2004	FY 2005	FY 2006	FY 2007	Total
Proposed							
LHC Machine	$92,250	$8,700	$6,130	$2,920			$110,000
CERN Direct	$35,663	$13,400	$23,200	$17,737			$90,000
subtotal	$127,913	$22,100	$29,330	$20,657			$200,000
ATLAS	$65,935	$17,416	$8,990	$5,489	$3,240	$1,880	$102,950
CMS	$105,022	$20,484	$10,480	$5,564	$4,200	$1,300	$147,050
subtotal	$170,957	$37,900	$19,470	$11,053	$7,440	$3,180	$250,000
Total	$298,870	$60,000	$48,800	$31,710	$7,440	$3,180	$450,000
Present							
LHC Machine	$92,250	$8,700	$6,130	$2,920			$110,000
CERN Direct	$35,663	$13,400	$23,200	$17,737			$90,000
subtotal	$127,913	$22,100	$29,330	$20,657			$200,000
ATLAS	$65,935	$17,416	$14,690	$4,909			$102,950
CMS	$105,022	$20,484	$15,980	$5,564			$147,050
subtotal	$170,957	$37,900	$30,670	$10,473			$250,000
Total	$298,870	$60,000	$60,000	$31,130			$450,000

NOTES FOR BUDGET TABLES

1. The numbers shown do not reflect:

   A. Transfers of capital equipment from labs to universities for large detector (e.g., CDF, D-Zero, BaBar, ZEUS, etc.) fabrication.

   B. Incremental funding for conferences, detailees to DOE Headquarters, etc.

   C. Special help provided during the year.

   D. Funding for lab service accounts at BNL, Fermilab, and SLAC.

   E. Allocation of LHC funding except as noted.

2. The Physics Research University Program includes funding for universities and certain DOE labs (LANL, LLNL, ORNL, PNNL).

3. The Advanced Technology R&D Program includes funding for universities and specific programs at certain DOE labs (ANL, BNL, LANL, LBNL, LLNL, PPPL).

4. A portion of the Advanced Technology R&D Program is included in the HEP Technology R&D entries for ANL, BNL, and LBNL.