HIGH ENERGY PHYSICS PROGRAM

High Energy Physics Advisory Panel

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March 6, 2003

Recent Appropriations History (B/A in Millions)

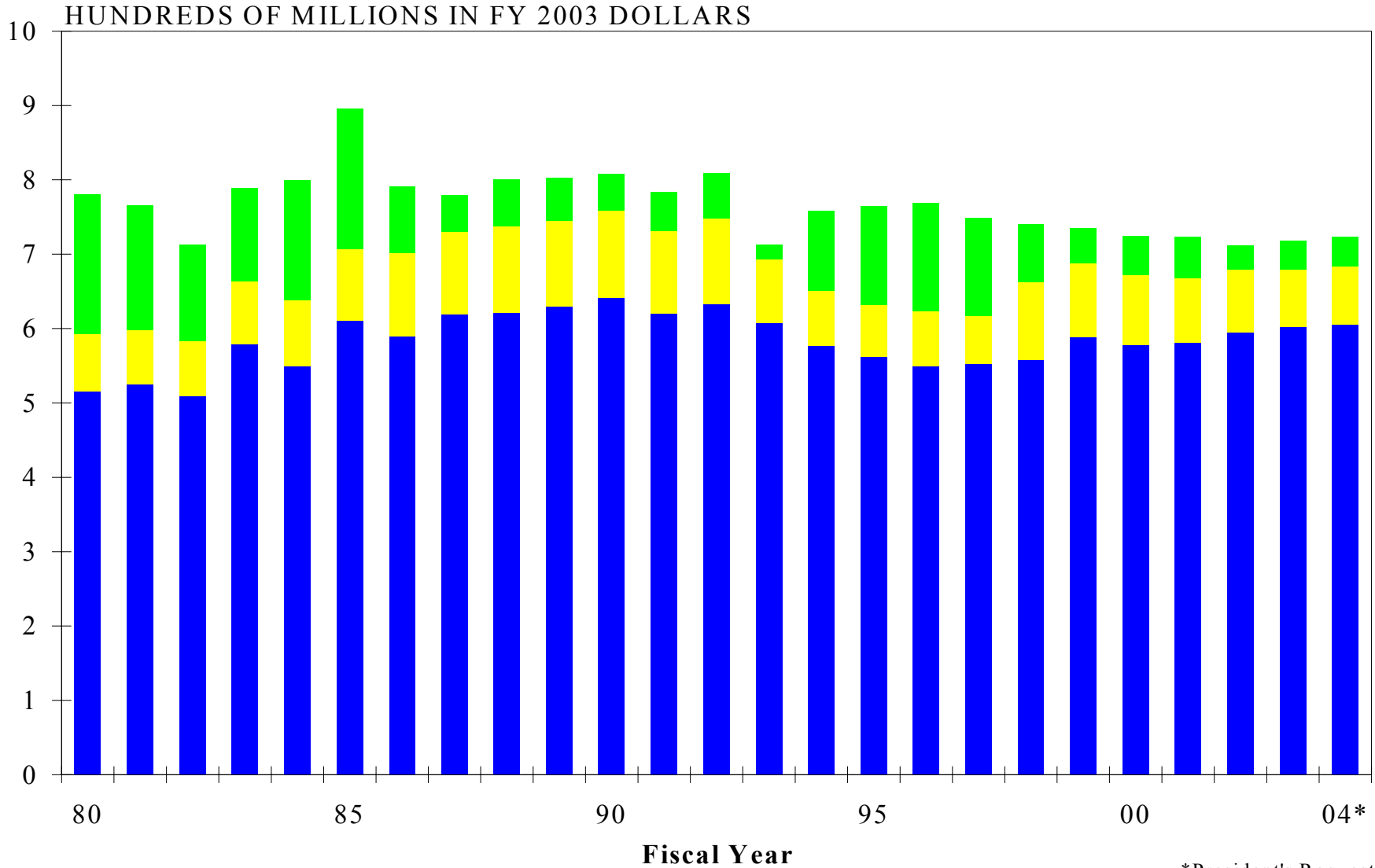
	FY 2002	FY 2003	FY 2004
Congressional Budget Request	$ 716.7	$ 725.0	$ 738.0
House Appropriations Bill	716.1	725.0	
General Reduction (HEP share)	- 0.5	-5.6	
Net	$ 715.6	$ 719.4	
Senate Appropriations Bill	$ 725.1	$ 730.0	
General Reduction (HEP Share)	--	-3.4*	
Net	$ 725.1	$ 726.6	
Conference Committee	$ 716.1	$ 727.0	
General Reduction (HEP Share)	-2.9	-4.4	
Rescission (HEP Share)	--	-4.7	
	$ 713.2	$ 717.9	
Appropriation after reductions	713.2	717.9	
SBIR & STTR	-15.2	-16.0	
Net Funding Available	$ 698.0	$ 701.9	

*Estimated

FY 2003 Budget Update

- After a lengthy Continuing Resolution, Congress passed an Omnibus appropriation for FY 2003 which was signed by the President on Feb 21.
- Final Results:
  - Office of Science $3.31B (up $42M or 1.3% from FY03 Pres. Req.; up 1.2% from FY02)
  - HEP $727M (up $2M or 0.3% from FY03 Pres. Req.; up 2% from FY02)
- But…
  - Less $20M general reduction for Office of Science (~0.6%)
  - Further rescission of -0.64% across-the-board
  - Hence net HEP budget is DOWN ~ 1% from FY03 Pres. Req., DOWN 0.2% from FY03 Initial Plan, or UP 0.6% with respect to FY02.
  - We were instructed that these reductions had to be taken uniformly, *including* construction projects and Major Items of Equipment

High Energy Physics Funding



*President's Request

Budget Restructuring

- Between FY 2002 and FY 2003, the basic structure of the high energy physics budget was significantly revised to better reflect the main thrusts of the physics research.

- This change has met with approval from DOE management, OMB and Congress.

- HEP budgets from FY 2003 on have been developed in the new structure (see following slides for details); therefore, detailed FY 2002 numbers are not presented in what follows.

FY 2004 Budget Priorities and Impacts

- Maintain and exploit the "discovery potential" of Tevatron Run II and the B-Factory:
  - Strong support for operations at both facilities
  - Support upgrades for both accelerators and Run IIb detectors

- Prepare for U.S. participation in LHC physics
  - As LHC construction winds down, significant increases for LHC Pre-operations ("M&O") and Software and Computing activities

- New initiatives in Non-Accelerator Physics
  - Increased R&D for SNAP prototypes and conceptual design

- To help support the activities above, some reductions have to be taken
  - Some small decreases taken in research
  - R&D for accelerator and detector development activities (unrelated to Run II or B-Factory upgrades) are significantly reduced

FY 2003/4 Budget (New Budget and Reporting Structure)

(B/A in Millions)

	FY 2003	FY 2004	% Change
Proton Accelerator-based Physics			
Research	$ 73.1	$ 72.8	
Facilities	243.4	262.5	
LHC	59.2	48.8	
LHC Support	6.6	15.4	
Subtotal	***$ 382.3***	***$ 399.5***	***4.48%***
Electron Accelerator-based Physics			
Research	$ 30.4	$ 33.6	
Facilities	114.2	125.8	
Subtotal	***$ 144.6***	***$ 159.5***	***10.26%***
Non-Accelerator-based Physics/Research	***$ 41.3***	***$ 43.0***	***4.03%***
Theoretical Physics/Research	***$ 41.4***	***$ 42.3***	***2.10%***
Advanced Technology R&D/Research	***$ 88.4***	***$ 81.2***	***-8.07%***
Construction/NuMI	***$ 19.8***	***$ 12.5***	
TOTAL HEP Budget	**$ 717.9**	**$ 738.0**	**2.79%**
SBIR & STTR	***$ -16.0***	***$ -17.3***	
	$ 701.9	**$ 720.7**	

FY2003/4 HEP Budget by Program Activity

	FY 2003	Change	FY 2004	Percent Change
Total Program	**717,920**	**20,058**	**737,978**	**2.79%**
Universities	122,020	4,105	126,125	3.36%
PR-WA	105,010	2,930	107,940	2.79%
HEPT-WA	17,010	1,175	18,185	6.91%
Fermilab	284,884	3,631	288,515	1.27%
base program	265,046	10,969	276,015	4.14%
construction	19,838	-7,338	12,500	-36.99%
SLAC	160,470	9,443	169,913	5.88%
BNL	15,711	-704	15,007	-4.48%
LBNL	26,288	4,611	30,899	17.54%
base program	22,853	-210	22,643	-0.92%
SNAP	3,435	4,821	8,256	140.35%
ANL	8,165	-170	7,995	-2.08%
LHC	59,210	-10,410	48,800	-17.58%
LHC Support	6,645	8,755	15,400	131.75%
Muon Collider (total)	3,569	65	3,634	1.82%
SciDAC	4,355	245	4,600	5.63%
LBNL Landlord	5,380	-256	5,124	-4.76%
SBIR/STTR	15,960	1,319	17,279	8.26%
Other	5,263	-576	4,687	-1.09%
non add items				
NLC R&D	18,940	260	19,200	1.37%
NuMI/MINOS	19,838	-7,338	12,500	-36.99%

Proton-Based Accelerator Subprogram (B/A in Millions)

	FY 2003	FY 2004
Proton Subprogram	**$ 382.3**	**$ 399.5**
Research	**73.1**	**72.8**
Universities	43.8	45.3
User Accounts	1.1	1.4
Labs	28.1	26.1
Other	0.1	0.0
Operations	**309.3**	**326.8**
Tevatron	230.1	248.2
LHC	59.2	48.8
LHC Support	6.7	15.4
Software & Computing	5.4	7.1
Experimental Support	1.0	7.1
Accelerator R&D	0.3	1.3
Other	13.3	14.3

Electron-Based Accelerator Subprogram (B/A in Millions)

	FY 2003	FY 2004
Electron Subprogram	**144.6**	**159.5**
Research	**30.4**	**33.6**
Universities	20.2	23.0
User Accounts	0.2	0.3
Labs	10.0	10.3
Operations	**114.2**	**125.8**
B-factory	114.2	125.8

Non-Accelerator-Based Subprogram (B/A in Millions)

	FY 2003	FY 2004
Non Accelerator Subprogram	**41.4**	**43.0**
Universities	11.2	11.5
Labs	14.0	11.8
Projects	15.8	19.3
AMS	*1.5*	*0.0*
Auger	*1.2*	*1.0*
CDMS	*0.8*	*0.6*
GLAST-LAT	*8.8*	*7.9*
SNAP	*3.5*	*8.3*
VERITAS	*0.0*	*1.6*
Other	0.4	0.4

Theoretical Physics Subprogram (B/A in Millions)

	FY 2003	FY 2004
Theory Subprogram	**41.4**	**42.3**
Universities	23.4	23.8
Labs	13.0	13.8
SciDAC	4.4	4.6
Other	0.6	0.1

Advanced Technology R&D Subprogram (B/A in Millions)

	FY 2003	FY 2004
Advanced Technology Subprogram	**88.4**	**81.2**
Accelerator Science	**22.6**	**20.8**
University	9.2	9.4
Labs	11.3	8.8
Other	2.1	2.6
Accelerator Development	**36.3**	**33.2**
General	13.8	10.4
Linear Collider	18.9	19.2
Muon Accelerator	3.6	3.6
Other Technology	**29.5**	**27.2**
Advanced Detector	0.5	0.5
Detector Development	10.8	9.0
SBIR/STTR	16.0	17.3
Other	2.2	0.4

Backup Slides

FY 2003 Budget - Major Components

(B/A in Thousands)

	FY 2002	Change	FY 2003	Percent Change
Total Program	**713,170**	**4,750**	**717,920**	**0.67%**
Universities	120,256	1,764	122,020	1.47%
PR-WA	102,911	2,099	105,010	2.04%
HEPT-WA	17,345	-335	17,010	-1.93%
Fermilab	287,066	-2,182	284,884	-0.76%
base program	275,666	-10,620	265,046	-3.85%
construction	11,400	8,438	19,838	74.02%
SLAC	163,553	-3,083	160,470	-1.89%
BNL	15,667	44	15,711	0.28%
AGS	6,012	-5,387	625	-89.60%
LBNL	23,570	2,718	26,288	11.53%
base program	23,225	-372	22,853	-1.60%
SNAP	345	3,090	3,435	
ANL	7,898	267	8,165	3.38%
LBNL Landlord	5,239	141	5,380	2.69%
Muon Collider (total)	4,836	-1,267	3,569	-26.20%
NLC R&D (non-add)	19,200	-260	18,940	-1.35%
SciDAC	4,919	-564	4,355	-11.47%
LHC	49,000	10,210	59,210	20.84%
LHC Support	5,775	870	6,645	15.06%
SBIR/STTR	15,392	568	15,960	3.69%
Other	3,987	651	4,638	16.33%

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.

5. Totals in columns may not add due to round-off error.