

NSF Elementary Particle Physics and Particle Astrophysics

Resource Trend & Distributions

Report to HEPAP

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NSF FY 00-06 Budget Summary

	FY 2000	2001	2002	2003	2004	2005	2006	%Diff
	<u>(\$ millions)</u>					(CP)	(Request)	(06-05)
NSF	3,923.4	4,459.9	4,774.1	5,369.3	5,652.0	5,472.8	5,605.0	2.42
(R&RA)	2,979.9	3,372.3	3,616.0	4,054.4	4,293.3	4,220.6	4,333.5	2.68
MPS	755.88	854.08	920.42	1040.70	1091.59	1069.86	1086.23	1.53
PHY	168.30	187.54	195.88	224.50	227.77	224.94	230.14	2.31
EPP BASE	55.48	61.15	62.20	71.93	73.00	72.61	← -0.5%	

“EPP BASE” = Theory + Astro + Accel. Based + Cornell

Funding for Particle Physics in FY02 - FY05:

	<u>FY02</u>	<u>FY03</u>	<u>FY04</u>	<u>FY05</u>
Accel.-based w. Cornell	\$42.31	48.17	51.09	48.62
Part. Astrophys (SPINOFF)	9.05	11.70	12.68	14.68
EP-Astro Theory	10.84	12.07	9.23	9.31
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Total <u>Base</u>	\$62.20	71.93	73.00	72.61 M

<u>Cornell Funding:</u>	<u>FY03</u>	<u>FY04</u>	<u>FY05</u>	<u>FY06</u>
	(actual)	(actual)	(CP)	(request)
CESR CLEO-c \$	19.49	18.00	16.62	14.71 M
ERL \$			5.15	4.95 M
	PLUS			

<u>EPP Allied Funding</u>	<u>FY02</u>	<u>FY03</u>	<u>FY04</u>	<u>FY05</u>	<u>FY06</u>
PFC, etc \$	4.0	4.0	7.0 M		
ITR	6.0	6.6	4.2		
MRI	3.2	1.7	0		
ESIE	0.7	0.7	0.29		

EPP Activities

- Tevatron experiments: D0 (10 groups), CDF (4)
- Neutrino projects: MiniBooNE (3), MINOS (2), K2K/Super-K (2)
- BaBar (2)
- BTeV (R&D) (3 groups)
- RSVP (KOPIO & MECO)
- ATLAS & CMS
- ZEUS, KTeV, FOCUS
- APPI program delayed, but small funding (~\$0.3M) to: University Linear Collider Accelerator and Detector R&D (working closely with DOE in both areas: joint review process) and other accelerator projects

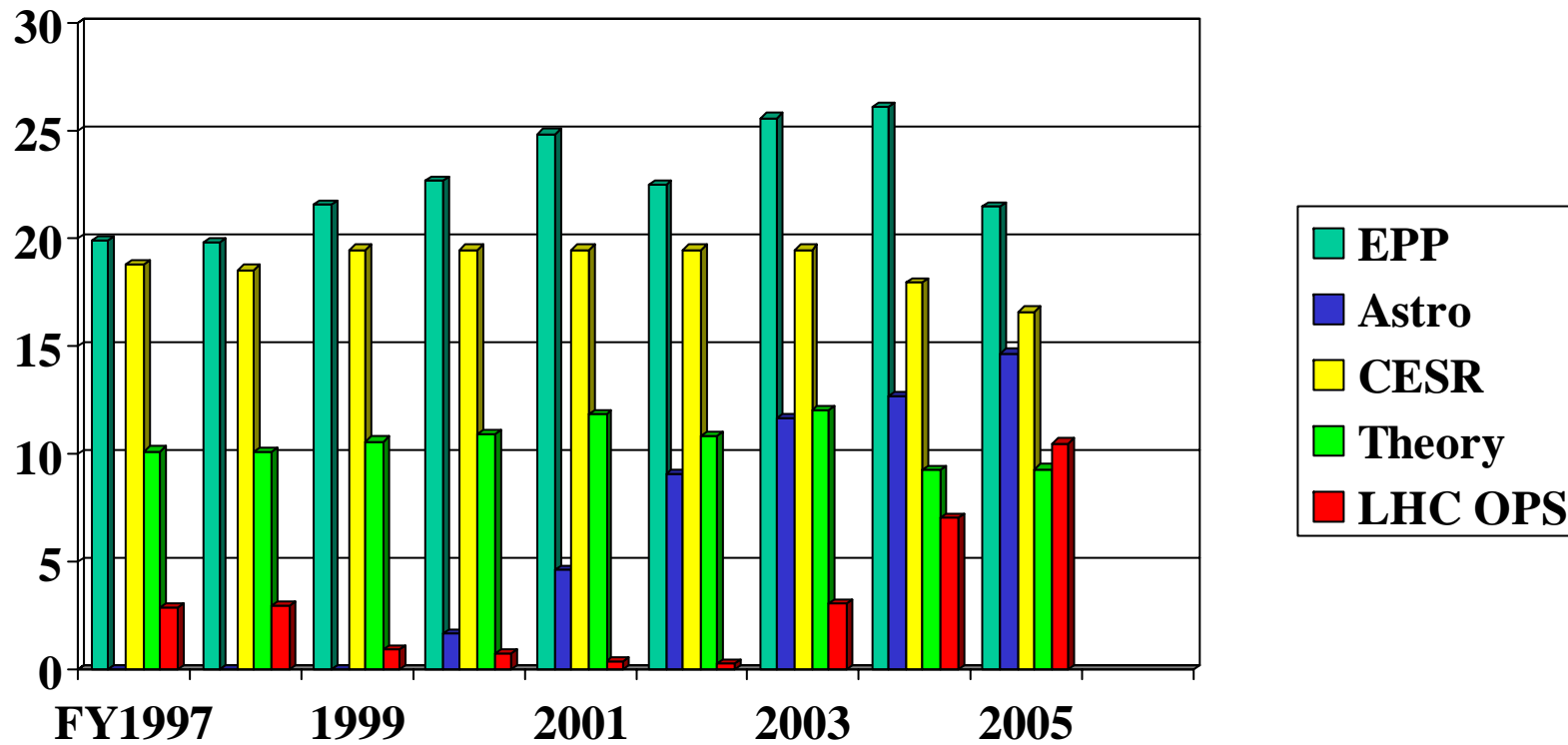
Particle Astrophysics

- In partnership with AST, OMA and DOE-HEP:
- AUGER (construction end in CY2006?)
- HiRes (data-taking until ~March 2006)
- VERITAS (started support in FY04)
- CDMS and other DM projects (XENON, DRIFT)
- MILAGRO and STACEE
- AMANDA, ICECUBE
- DUSEL
- ACT (started supporting in FY05)
- Borexino

	FY 2000	2001	2002	2003	2004	2005	%Diff
	<u>(\$ millions)</u>					(CP)	(05-04)
PA, NA	1.69	4.65	9.05	11.70	12.68	14.68	15.8

EPP/University Funding

(Millions of as spent dollars)



FY2002 Base-funded FTEs

31 Universities
?? Theoretical Phys

18 Accel-based Expts
12 Not-accel Expts

Program	# Faculty	# postdoc + research scientists	# grad students	Total
Theory (2003)	132	63	44	239
Experiment Accel based	98	80	95	273
Experiment Not-acceler	22	31	43	96
Total	252	174	182	608

FY2005 Base-funded FTEs

33 Universities
 ?? Theoretical Phys
 (% change from FY2002)

17 Accel-based Expts
 18 Not-accel Expts

Program	# Faculty	# postdoc + research scientists	# grad students	Total
Theory (2003)	132	63	44	239
Experiment Accel based	94 (-4.1%)	79 (-1.3%)	99 (+4.2%)	272
Experiment Not-acceler	25 (+12.2%)	35 (+12.8%)	41 (-4.5%)	101
Total	251	177	184	612

Experiment distribution

Experiment	Sr Phys	\$	\$\$	DOE%
• Tevatron	40	5,319K	14.2	30
• Neutrino	12	2,128K	5.7	--
• LHC	39	5,697K	15.2	20
• DESY/CERN	8	1,368K	3.7	--
• BNL/TJNAL	9	1,230K	3.3	3
• CESR	10	1,474K	3.9	2
• SLAC	3	504K	1.3	15
• Other	14	1,173K	3.1	3
• Particle AstroPhys	70	6,475K	17.3	10
• Theory	132	12,095K	32.3	20

Backup slides

Summary

- We are working with many partnerships to bring added value to EPP projects
- We are entering a new phase of operations with facilities (some with DOE)

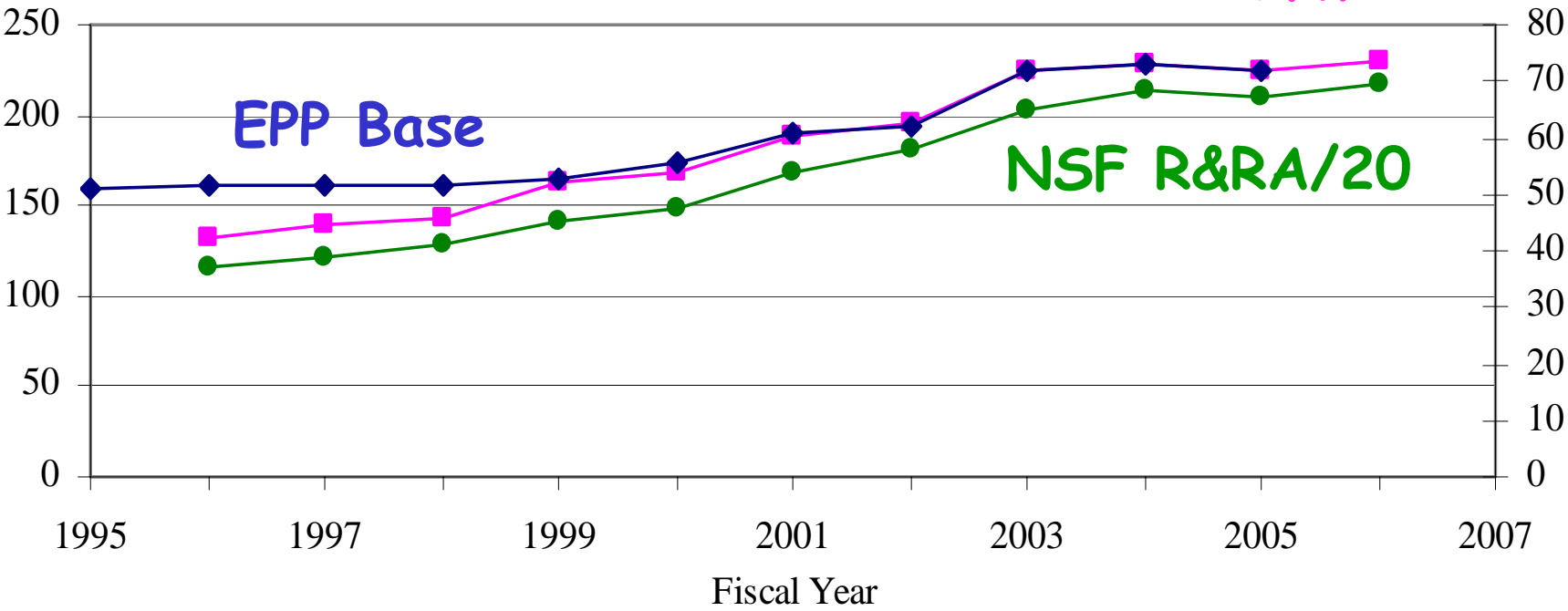
NSF FY 00-06 Budget Summary

NSF/20

PHY
\$M

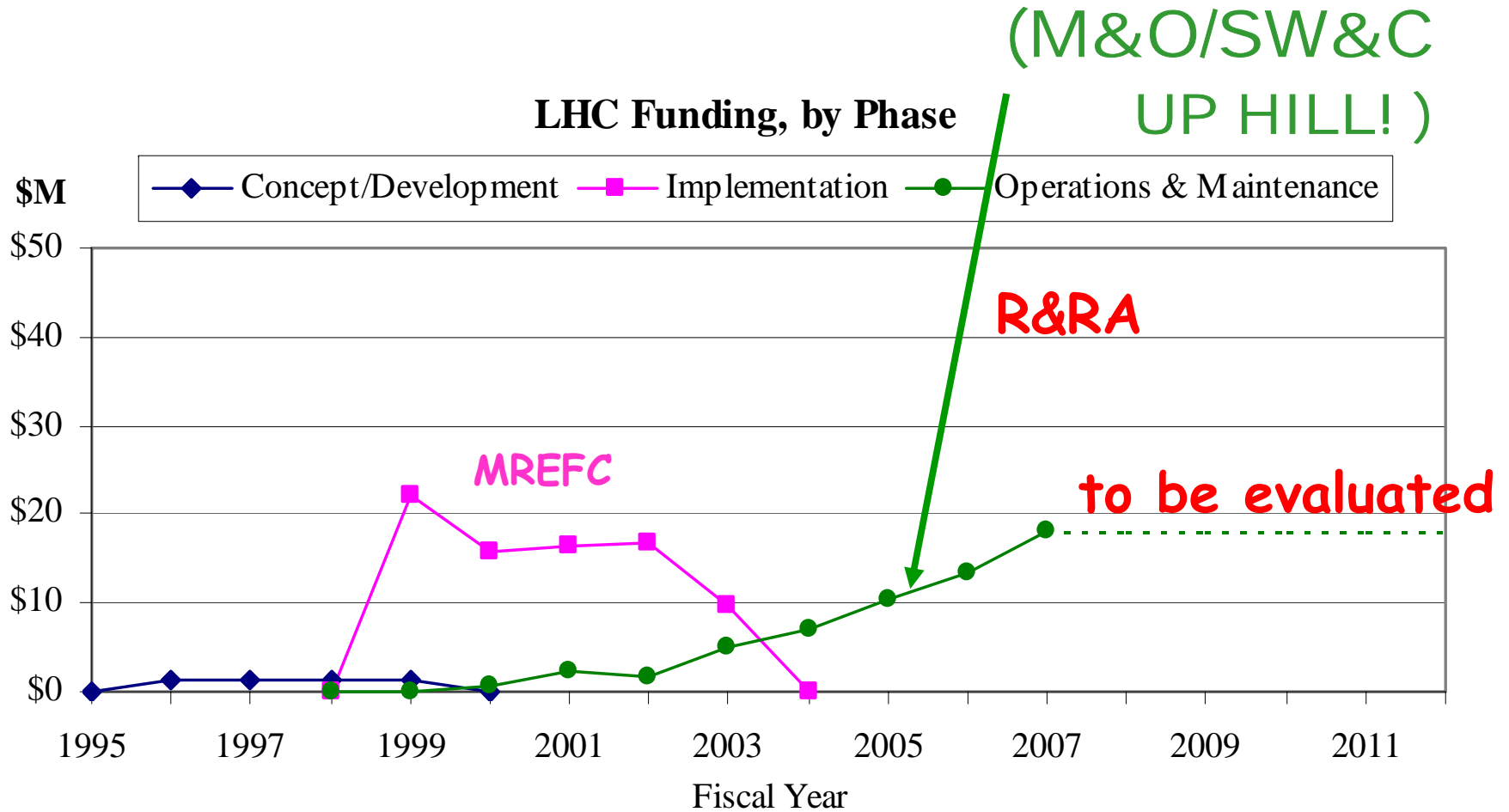
EPP
Base
\$M

EPP Base, PHY and NSF R&RA Funding



**** EPP Base funding tracks with PHY (and R&RA) funding**

NSF US LHC RESEARCH PROGRAM



****DOE/NSF AGENCY AGREEMENT! Now more stable.**

****Possibly more funds through CISE Division: ITR, SCI**

LHC Research Program

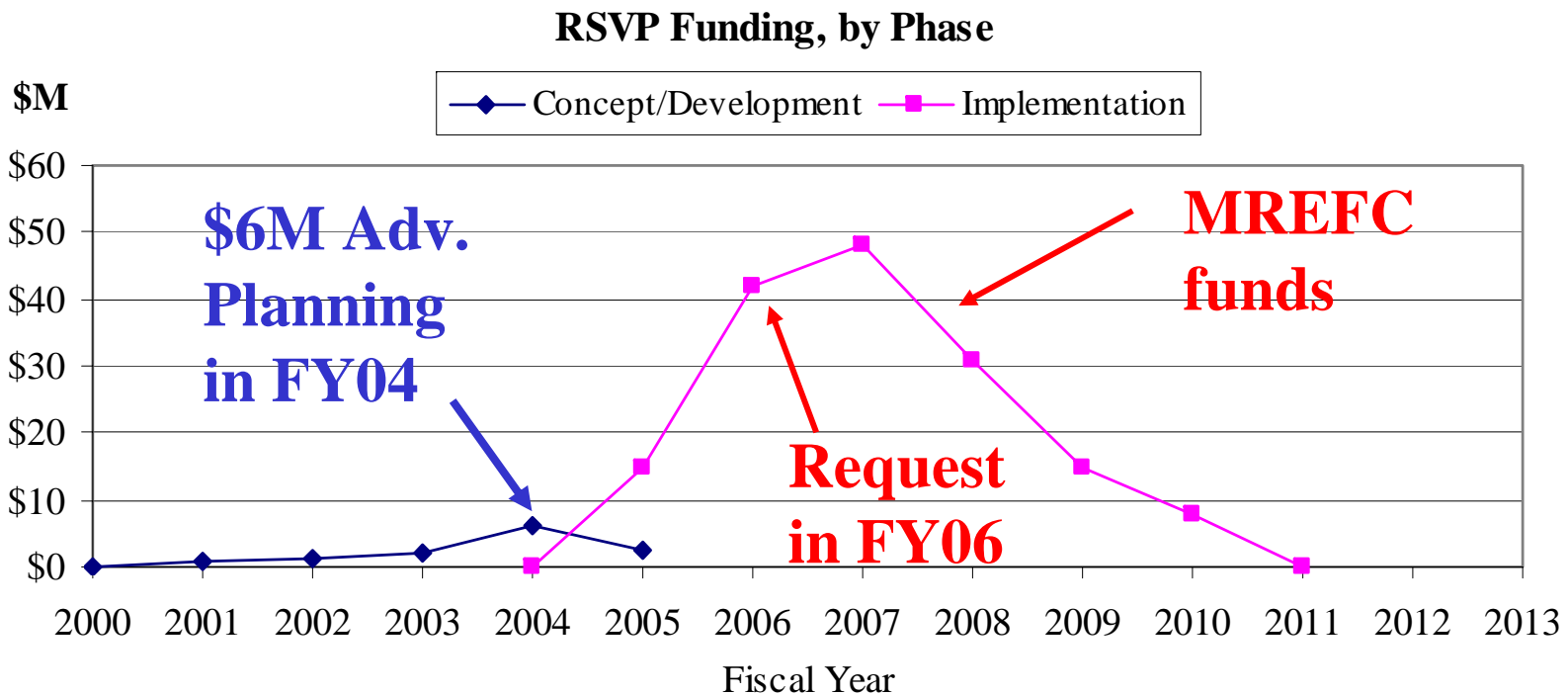
- Stability and more predictable timing
- Ramp-up:

<u>LHC Funding:</u>	<u>FY02</u>	<u>FY03</u>	<u>FY04</u>	<u>FY05</u>	<u>FY06</u>	
<u>MREFC</u>					(request)	
LHC constr. \$	16.90	9.69	M			
<u>R&RA</u>						
Research Pgm	1.60	5.00	7.00	10.50	13.50	M

- Reviews (with DOE-HEP) of FY07-09 guidance are underway this year

RSVP FUNDING

- Oct 2000: Director included RSVP as a future MREFC (2002+)
- 04 Congress appropriated “\$6M for cont’d advanced planning”



FY 2005 start shown, as in FY 2005 President’s budget.

Underground Science Laboratory Update

1. 04-595 (Deadline: September 15, 2004):
This solicitation was to establish the site-independent scientific and engineering benchmarks against which the capabilities of the candidate sites for an UGL will be measured. **(Made 1 award)**
2. 05-506 (Deadline: February 28, 2005):
This solicitation invites proposals to support the development of the conceptual design for the infrastructure, and an initial suite of experiments, for a DUSEL. **(Expect to make 3-5 6-month awards, each of up to \$0.5M, for a total of ~\$1.5M)**
3. (No number yet; Deadline: ??, 200?):
A third solicitation is planned through which detailed technical designs will be developed for the most promising combinations of site and conceptual design resulting from solicitation #2. **(Expect to award ?? in FY06?)**