

CERN-RRB-2006-058



Status of ATLAS Resources

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Introduction to Funding Agency Tables



- To remind, the primary purpose of the Funding Agency (FA) tables is to show received or planned income
- The M&O, C&I and CC tables also show the total payments made by the Project
- Cost to Completion (CtC) = Commissioning & Integration (C&I) + Construction Completion (CC)
 - Category A = Common items
 - Category B = System-specific items
- To read the tables
 - Baseline and CC-A
 - 'Contributions by Funding Agencies' = income received from FAs
 - 'Commitments' by FAs = commitments requested from the FAs, also beyond the budget year
 - M&O, CtC (=C&I+CC)
 - 'Contributions by Funding Agencies' = income received from FAs
 - 'Other income' = contribution advancements for the future; deferral funds; contributions, transfers from baseline
 - 'Total (actual) payments' = payments made by the Project
 - 'Balance' = total contributions + other income – total payments
 - The Table numbering refers to those in Documents CERN-RRB-2006-018 and 029, respectively

2005 Baseline Closing Report (Tables 2, 3), MCHF



budget 2005, for approval in October 2004 (CERN-RRB-2004-122)

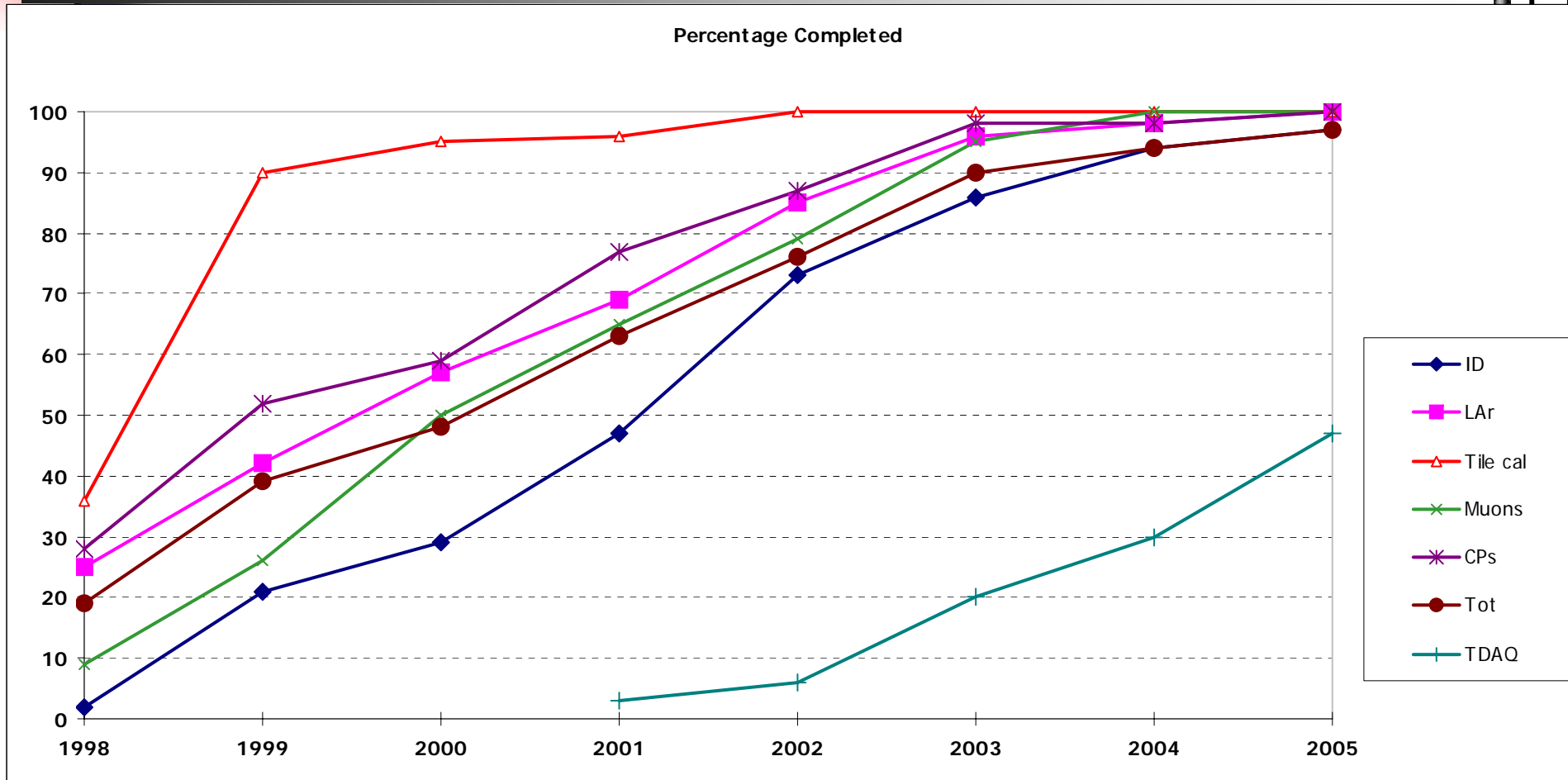
	Inner Det.	LAr Cal.	Tile Cal.	Muon Cham.	TDAQ/DCS	Common Projects	total
commitments	3.3	4.0		1.1	10.8	11.5	30.6
total contributions	7.2	4.0		0.7	10.8	30.5	53.2
total payments	7.2	4.0		0.7	10.8	31.7	54.4
balance						-1.2	-1.2

budget 2005, final April 2006 (CERN-RRB-2006-018)

	Inner Det.	LAr Cal.	Tile Cal.	Muon Cham.	TDAQ/DCS	Common Projects	total
commitments	5.2	3.0		0.1	10.6	10.5	29.4
total contributions	7.8	2.1		0.2	9.3	23.6	43.0

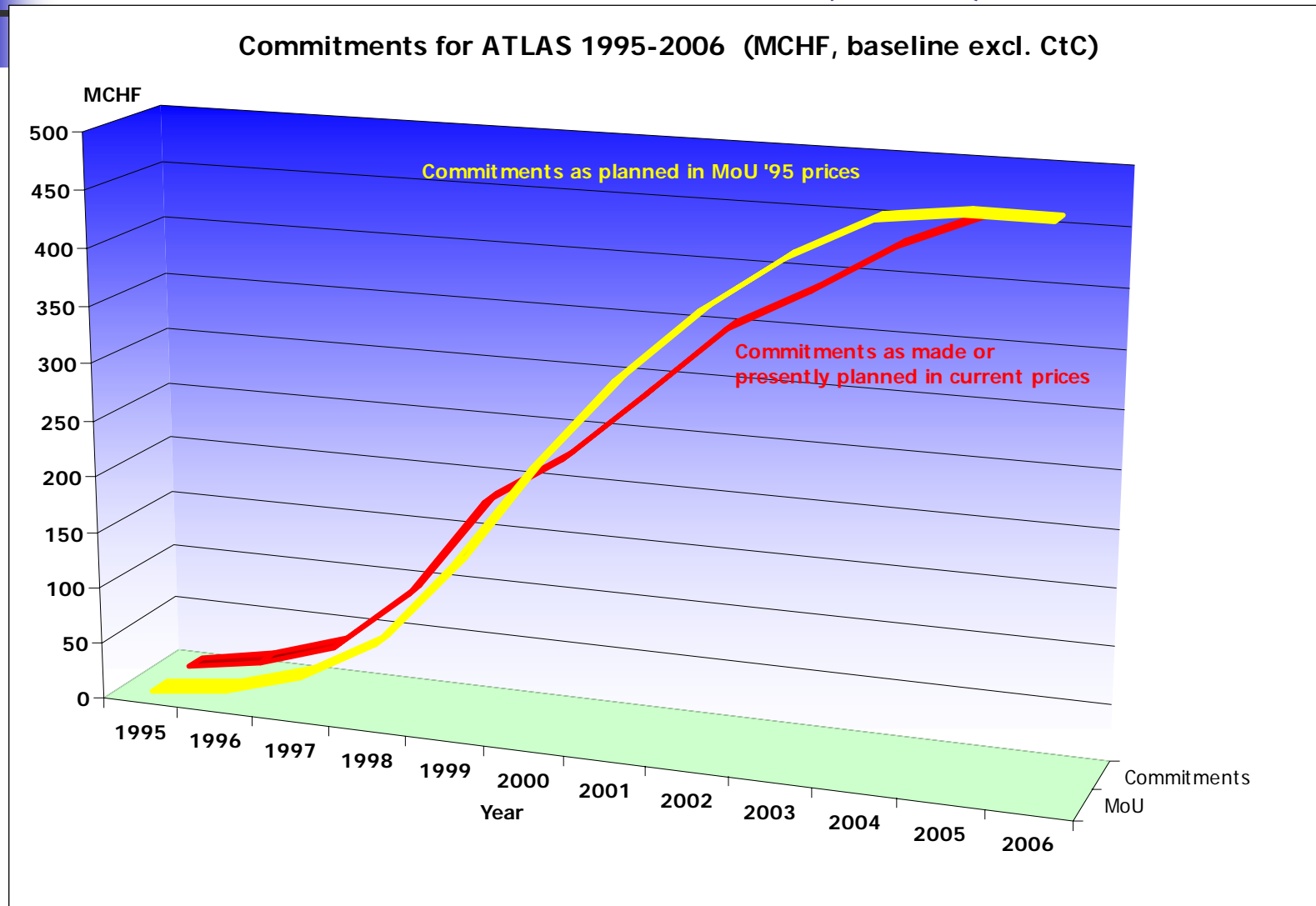
Common Projects include CC-A

Baseline Commitments Evolution (%)

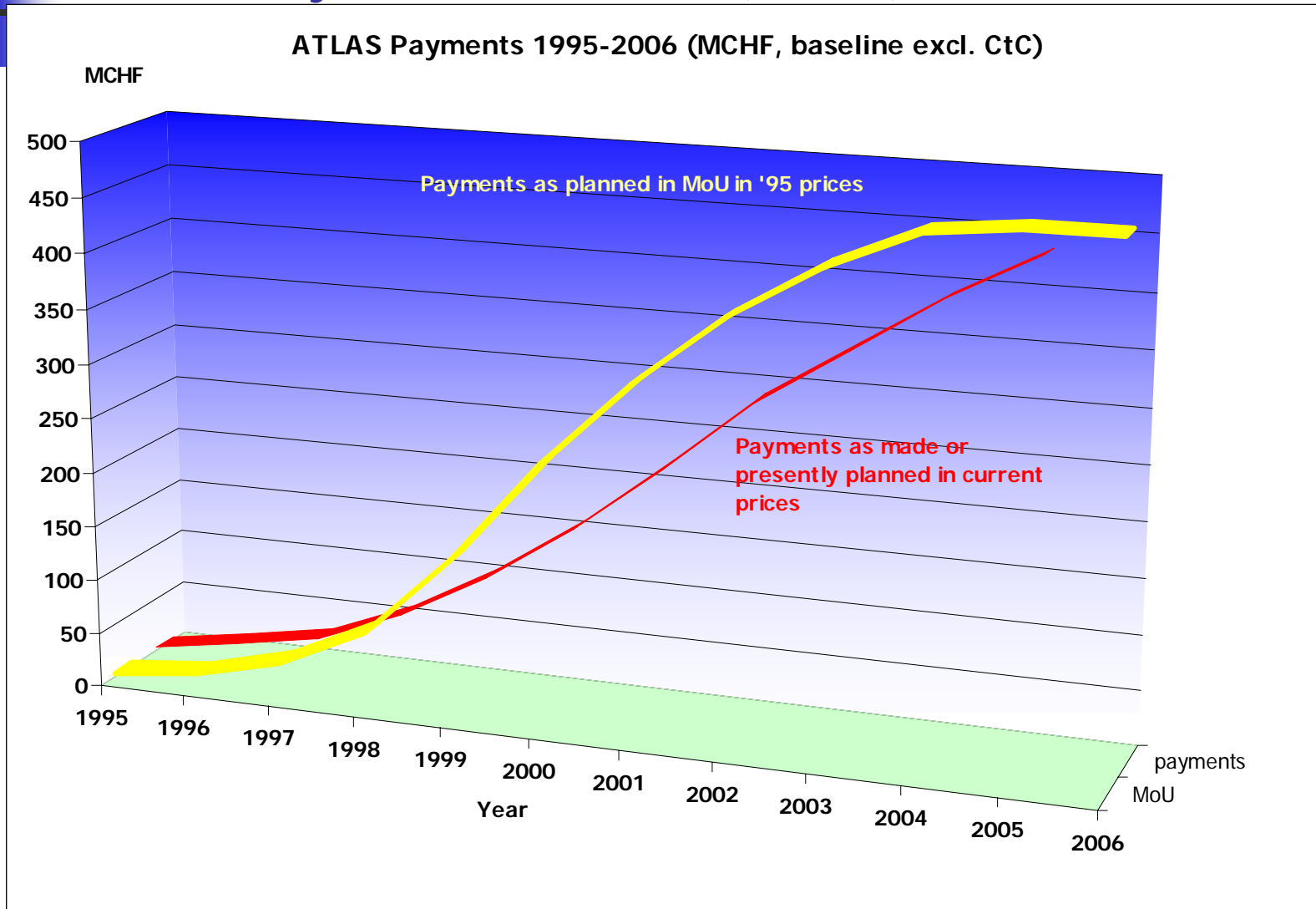


Note: TDAQ re-baselined in accordance with CERN-RRB-2004-017 (initial detector)

Baseline Commitments Evolution (MCHF), EoY 2005



Baseline Payments Evolution (MCHF), EoY 2005



2005 CC and C&I Payments (Tables 7, 9)



Table 7: C&I (A+B)

(kCHF)	Cat. A	Pixel	SCT	TRT	IDGen	LAr	TileC	Muon	Cat. B	A+B
total contributions	3260	0	0	124	507	291	432	461	1815	5075
total payments	6696	0	0	103	620	307	595	741	2366	9062
balance										-3987

Table 9: CC-B

(kCHF)	Pixel	SCT	TRT	IDGen	LAr	TileC	Muon	Cat. B
total contributions	118	73	1	43	169	343	502	1249
total payments	399	225	275	665	502	643	1498	4207
balance								-2958

2006 Baseline Report (Tables 11, 12), MCHF



budget 2006, update April 2006 (CERN-RRB-2006-018)

	Inner Det.	LAr Cal.	Tile Cal.	Muon Cham.	TDAQ/DCS	Common Projects	total
commitments	0.0	1.7		4.0	7.2	11.9	24.8
total contributions	1.9	1.7		4.1	8.6	20.7	37.0
total payments	1.9	1.7		4.1	8.6	28.2	44.5
balance						-7.5	-7.5

Note: For global budget balance, see Table 17

Common Projects include CC-A

2006 C&I Income & Payments (Table 14)



(kCHF)	Cat. A	Pixel	SCT	TRT	IDGen	LAr	TileC	Muon	Cat. B	A+B
total contributions	2064	0	0	37	431	528	359	159	1514	3578
total payments	153	0	0	150	1375	378	455	789	3147	3300
balance										278

Note: Balance achieved by using cash deferrals within global cash-flow management shown in Table 17.

2006 CC-B Income & Payments (Table 15)



(kCHF)	Pixel	SCT	TRT	IDGen	LAr	TileC	Muon	Cat. B
total contributions	247	76	63	133	845	74	312	1750
total payments	445	574	0	159	1787	827	775	4567
balance								-2817

Note: Balance achieved by using cash deferrals within global cash-flow management shown in Table 17.

2007 Baseline (Tables 18, 19, 20), MCHF



budget 2007, as estimated first in April 2006 (CERN-RRB-2006-018)

	Inner Det.	LAr Cal.	Tile Cal.	Muon Cham.	TDAQ/ DCS	Common Projects	total
commitments					4.6	0.4	5.0
total contributions					4.9	0.4	5.3
total project payments					4.9	0.4	5.3
balance						0.0	0.0

Note: This assumes all due contributions from 2006 will be paid. In reality, a funding gap of up to 10 MCHF is projected at this point in time. The global cash-flow situation is summarized in Table 17.

Projected Budget Balance (Table 17)



PAYMENTS	95-01	2002	2003	2004	2005	2006	2007	Total
Baseline + CC(A)	231	71	56	52	43	44	5	504
<i>of which deferrals</i>					-3	-2	-7	-11
C&I (A+B)	0	1	3	4	9	3	0	21
CC (B)		1	1	1	4	5		12
TOTAL	231	73	61	57	54	51	-1	525

INCOME	95-01	2002	2003	2004	2005	2006	2007	Total
Baseline + CC(A)	252	65	55	54	33	27	8	493
C&I (A+B)		1	9	3	4	4		21
CC (B)		2	4	2	1	1		11
TOTAL	252	68	68	59	38	32	8	525

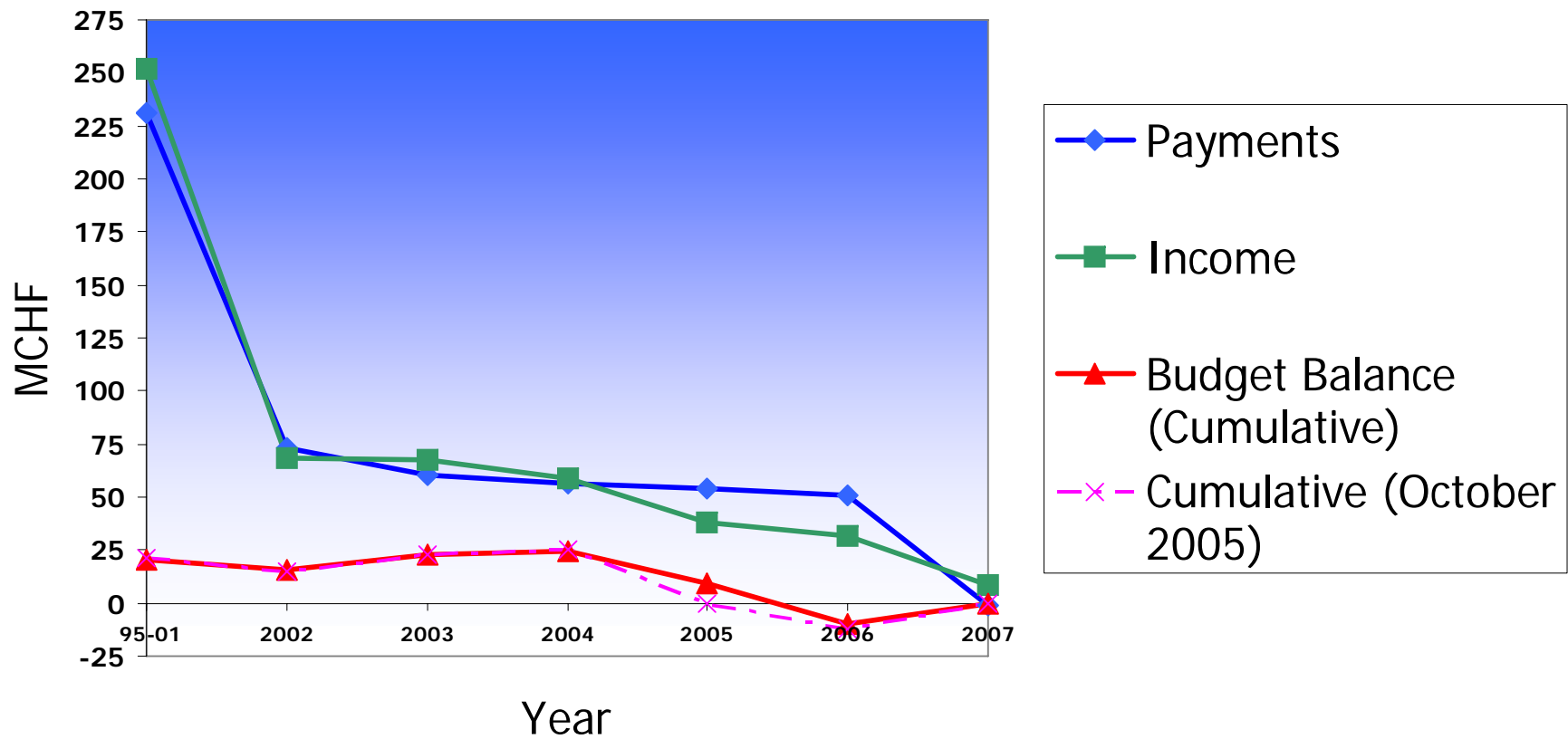
BUDGET BALANCE	21	-5	7	2	-15	-19	10	0
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CUMULATIVE	21	15	23	25	9	-10	0
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Projected Budget Balance (Table 17 as a graph)



Global ATLAS Budget Balance (MCHF)



Why ATLAS (keeps on) facing this cash flow problem?



■ Baseline Common Fund

■ Some requested baseline contributions did not come in 2005

- | | |
|---------------|--------------------------------------|
| ■ Russia+JINR | 5 MCHF |
| ■ Greece | 1.5 MCHF (in progress of being paid) |
| ■ Canada | 1.5 MCHF |
| ■ US | 1.0 MCHF (in progress of being paid) |
| ■ China | 0.3 MCHF |
| ■ Due MS fees | 0.2 MCHF |



Comments on Construction Budgets



- Remarks
 - ATLAS payments lower in 2005 than planned by 20% (shift to 2006)...
 - ... but some 10 MCHF of baseline (CF) contributions are also late
 - ... and the deferral contributions are also coming in slow
 - Therefore, a potential cash-flow problem remains in 2006
 - Have to rely on deferral income for the time being
 - Proposed way to solve/minimize the cash-flow problem
 - Pleading FAs to make their (deferral) contributions available now
 - And asking FAs to make their full (calculated) part of CtC funding available as soon as possible
 - Delaying payments (CERN technical services)
 - ATLAS will return to the matter in October

2005 M&O Income & Payments (Table 2)



budget 2005, final April 2006 (CERN-RRB-2006-029)

(kCHF)	Cat. A	Pixel	SCT	TRT	IDGen	LAr	TileC	Muon	Cat. B	A+B
total contributions	4378	141	52	76	688	519	70	225	1771	6149
total payments	5627	126	105	113	689	620	157	381	2191	7818
balance										-1669

■ Comments

■ Category-A

- all outstanding commitments from previous years have been paid (0.8 MCHF). Therefore, no cash carry-over
- The CERN mgmt accepted exceptionally a temporary overdraft at the very end of the year while waiting for due contributions
- Reorganization of costs for 0.5 MCHF was permitted by RRB and SG Chairs to address urgent need for additional operation of cranes and racks at Point 1
- Value of in-kind contributions: 0.3 MCHF

■ Category-B

- In Inner Detector (SCT), reorganization of work for 50 kCHF
- Outstanding commitments paid (resulting in +5 kCHF cumulative budget balance)
- Value of in-kind contributions: 30 kCHF

Status of core computing (I&S) in-kind in 2006



- The current year M&O status is not reported in the RRB documents but an update on the core computing (infrastructure & services) contributions in Category-A was promised in the October RRB (CERN-RRB-2005-101)

■ Czech Rep:	0.40 FTE x 88 kCHF/FTE = 35 kCHF
■ IN2P3:	1.00 FTE x 88 kCHF/FTE = 88 kCHF
■ BMBF:	0.90 FTE x 88 kCHF/FTE = 79 kCHF
■ MPI:	0.25 FTE x 88 kCHF/FTE = 22 kCHF
■ Israel:	0.20 FTE x 88 kCHF/FTE = 18 kCHF
■ INFN:	1.80 FTE x 88 kCHF/FTE = 158 kCHF
■ Russia:	0.25 FTE x 88 kCHF/FTE = 22 kCHF
■ JINR:	0.40 FTE x 88 kCHF/FTE = 35 kCHF
■ Taipei:	0.10 FTE x 88 kCHF/FTE = 9 kCHF
■ UK:	1.50 FTE x 88 kCHF/FTE = 132 kCHF
■ US:	3.00 FTE x 88 kCHF/FTE = 264 kCHF

TOTAL: 9.80 FTE x 88 kCHF/FTE = 862 kCHF (785 kCHF in October '05)

Preliminary 2007 M&O-A Estimates (Table 3), kCHF



Item & Cost Driver (by RRB SG Headings)	Cat. A M&O
Detector related costs Cryogenics operations Detector operations	5,098
Secretariat 1.5 FTE charged to ATLAS Publications, consumables	245
Communications GSM phones Computer network connections Collaborative tools	70
Core computing (infrastr. & service) Software process service Central production & operation	1,475
On-line computing Detector controls Software licences	1,405
Test beams, facilities Magnet Cryo Op. in B180 On-line computing support TDAQ common electronics	180
Laboratory operations Assembly areas, workshops TDAQ laboratory equipment	75
General services Heavy handling Technical support, storage Survey Outreach Energy	3,019
TOTAL	11,567

■ Notes

■ In Category A

■ Cost drivers

- Technical services (3.2 MCHF)
- Magnet operation (2.1 MCHF)
- Core computing I&S (1.3 MCHF)
- Energy (1.0 MCHF)
- On-line comp. (0.8 MCHF)

Preliminary 2007 M&O-B Estimates (Table 3), kCHF



Pixel	SCT	TRT	IDGen	LAr	TileC	Muon Comp	Cat. B M&O	Item & Cost Driver (by RRB SG Headings)
10	305	285	90	65	530		1,285	Mechanics & Gas & Cooling & Cryogenics Gases (ID, Tiles, Muons)
315	340	180	45	600	160	310	1,950	Standard electronics Crates, electronics pool rentals
10	20	10	5	30	60		135	Detector controls
30	245	50	643	60	65		1,093	Areas SR1-operations (ID), system tests, lab
			5	5	5	5	20	Communications
40	40	30	50	60	25		245	Store items
350	137	270			25		782	Sub-detector spares
745	792	845	1,033	845	405	845	0	5,510 (Excluding hired manpower for Category
100	108	50	622	600	192	330		2,002
				5	10	63		78
845	900	895	1,655	1,445	597	1,175	0	7,512 TOTAL M&O FOR B

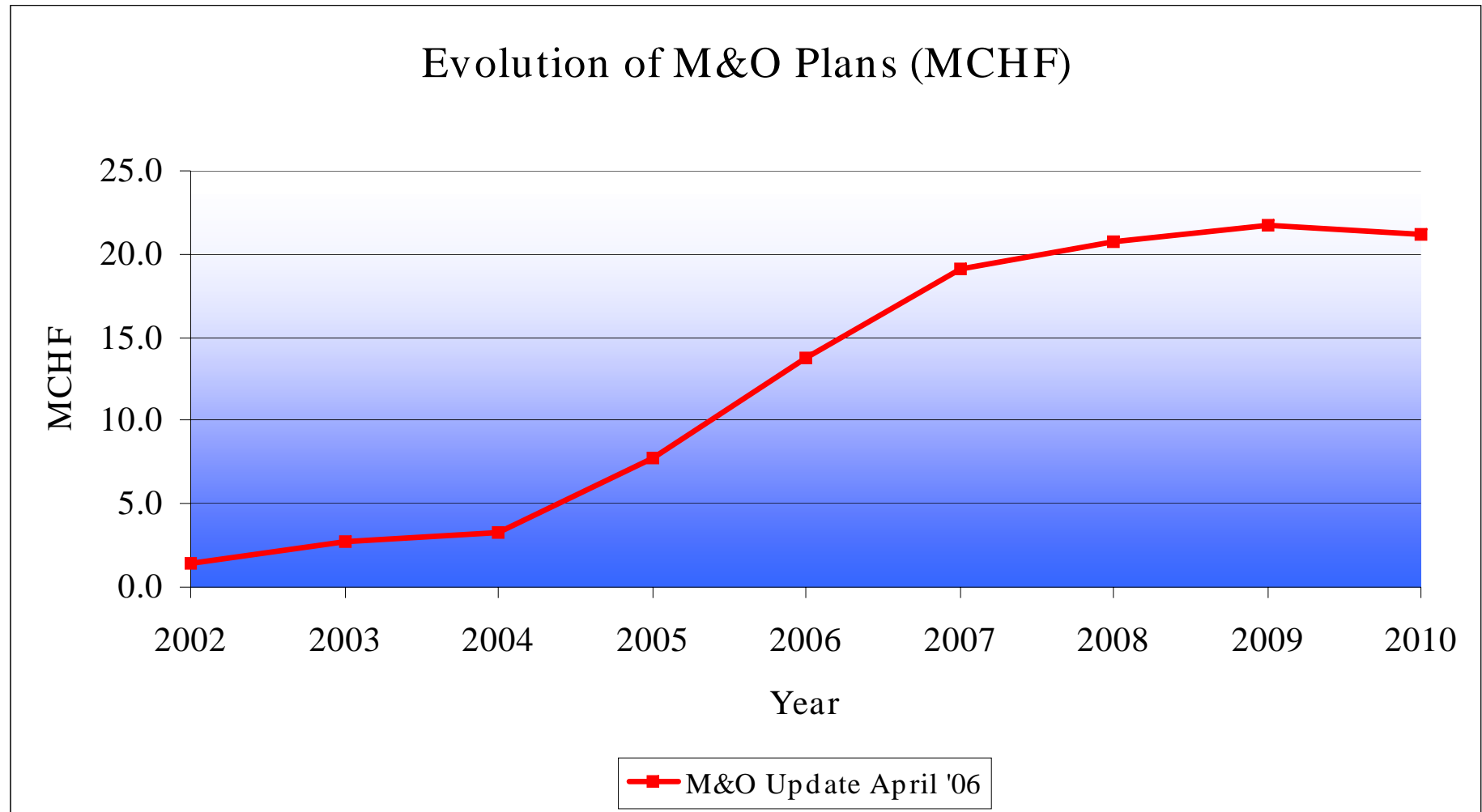
■ Notes

■ In Category B

■ Cost drivers

- Technical services, manpower (1.6 MCHF)
- Operation of SR1 (1.1 MCHF)
- Electronics pool electronics (0.9 MCHF)
- 63 FTE core computing effort as in-kind

Evolution of M&O 2002 – 2010, MCHF



Status of ATLAS M&O MoU Signatures (Table 6)



Funding Agency	Signed Date	Signed by
Armenia	02.09.2002	H. Asatryan
Australia	17.10.2003	A. Williams
Austria	02.10.2002	R. Kneucker
Azerbaijan	20.03.2003	N.A.K. Guliyev
Belarus	25.03.2005	Y. Pleskachevsky
Brazil		
Canada	09.09.2002	I. Blain
China NSFC+MSTC	02.08.2002	Wang Naiyan
Czech Republic	20.01.2003	J. Niederle
Denmark	18.08.2004	J.R. Hansen
France CEA	04.09.2002	F. Gounand
France IN2P3	25.09.2002	J.J. Aubert
Georgia	22.08.2002	A.N. Tavkhelidze
Germany BMBF	12.09.2002	R. Koepke
Germany MPI	28.06.2002	S. Bethke
Greece	20.09.2005	I.Tsoukalas
Israel	23.08.2002	D. Horn
Italy	25.11.2002	E. Iarocci
Japan	31.03.2003	H. Sugawara
Morocco	04.02.2004	S. Belcadi
Netherlands	14.11.2002	J. Engelen
Norway	04.09.2002	O.H. Ellestad
Poland	18.10.2004	JK Frackowiak
Portugal	26.06.2002	A. Trigo de Abreu
Romania	21.04.2004	G. Popa
Russia	26.03.2006	A. Fursenko
JINR	07.08.2002	A.N. Sissakian
Serbia	12.08.2005	A. Popovic
Slovak Republic	26.11.2002	M. Fronc
Slovenia	22.04.2003	Z. Stan ič
Spain	19.02.2003	P. Morenés
Sweden	25.11.2002	K. Bremer
Switzerland		
Taipei	12.07.2002	C.J. Chen
Turkey	12.03.2003	N.K. Pak
United Kingdom	24.09.2002	J.F. Down
US DOE + NSF	18.10.2002	T.B.W. Kirk
CERN	04.12.2002	D. Schlatter

- Status April 24, 2006
 - 36 of 38 Funding Agencies have signed
 - Russia has signed on March 26, 2006
 - Waiting for: Brazil, Switzerland



Conclusions



- The ATLAS (baseline and CtC) construction is nearing completion
- M&O (A+B) activities proceeded as planned in 2005, due payments being received (90% of invoiced)
- ATLAS continues facing a cash-flow problem 2006-2007; deferral funds and remaining due baseline contributions urgently needed from the Funding Agencies