

CERN-RRB-2008-036



Status of ATLAS Resources

Presentation to RRB 15.04.2008

Markus Nordberg

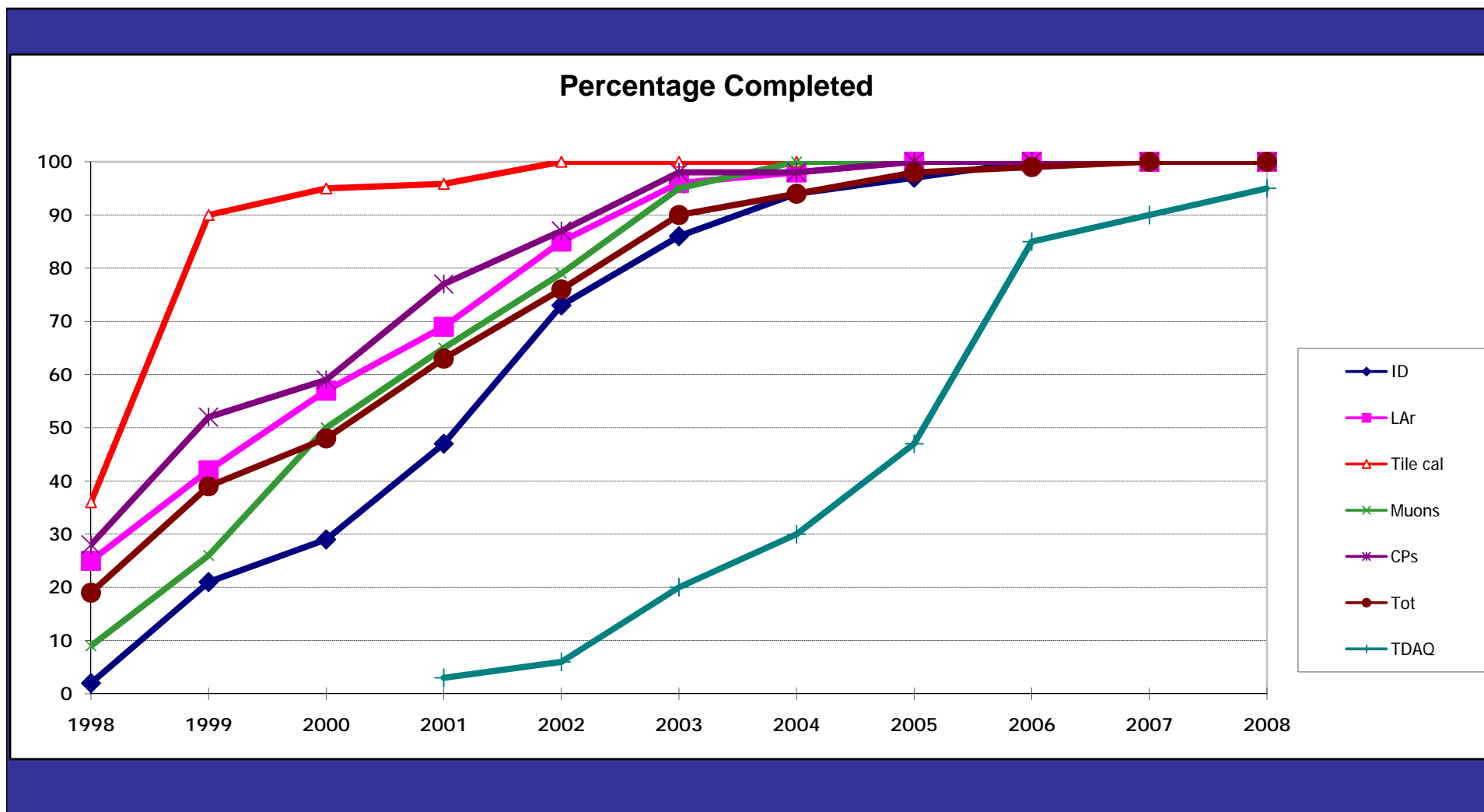
ATLAS Resources Coordination

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 033 and 035, respectively

#033: Baseline Commitments Evolution (%)

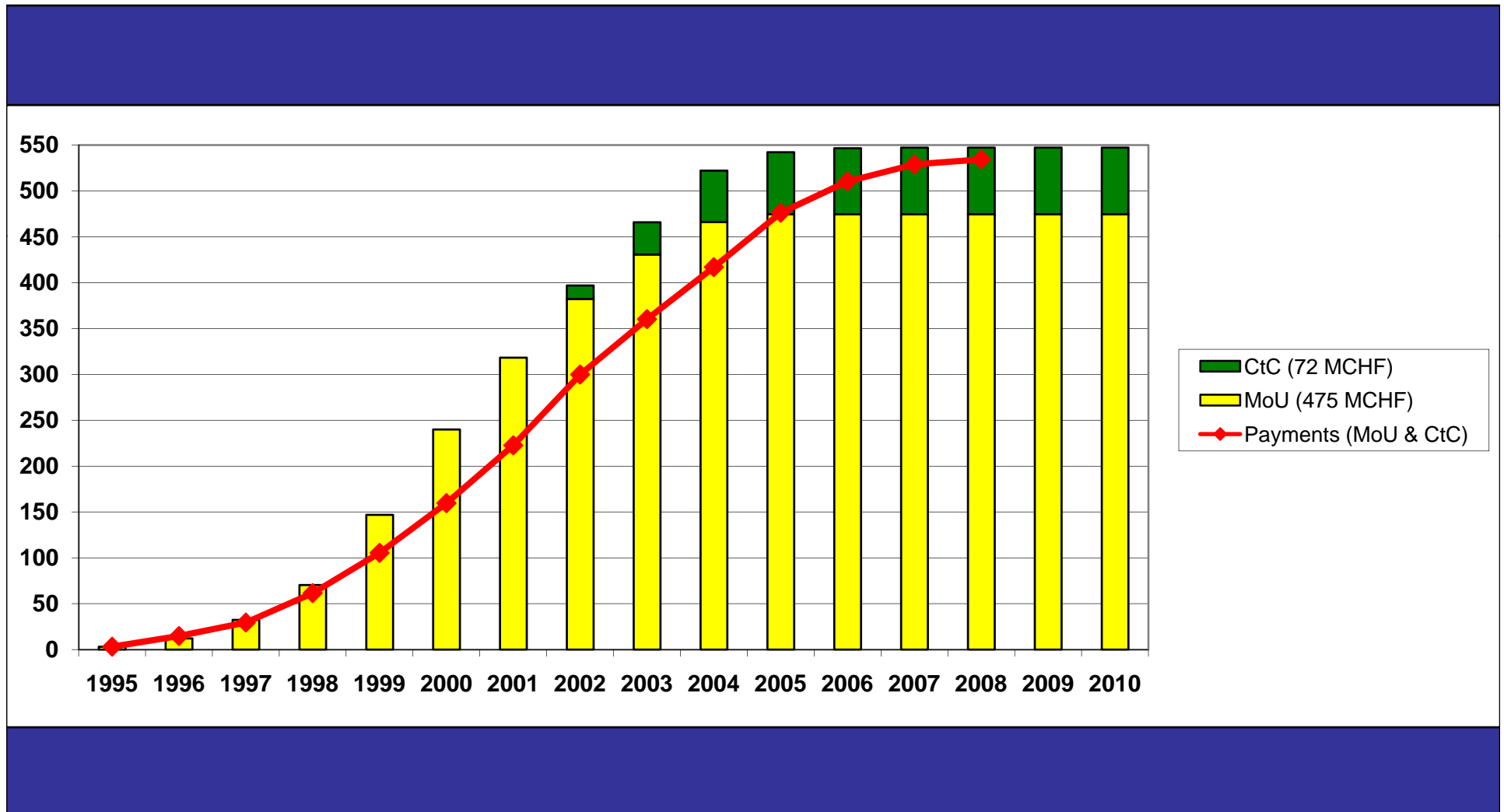


Note: Includes commitments related to deferred funds. TDAQ re-baselined in accordance with CERN-RRB-2004-017 (initial detector)

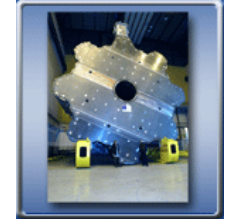


Baseline Payments Evolution (MCHF),

EoY 2007 (Actual)
EoY 2008 (Projected)



2007 Baseline Report (Tables 1 - 3), MCHF



	Inner Det.	LAr Cal.	Tile Cal.	Muon Cham.	TDAQ/ DCS	Common Projects	total
commitments		0.5			8.7	6.2	15.4
total contributions	0.1	0.9			3.0	5.6	9.6
total payments	0.1	0.9			3.0	11.1	15.1
balance						-5.5	-5.5

Note: For global budget balance, see Table 17

Common Projects include CC-A

2007 C&I Income & Payments (Tables 6 - 7), kCHF



(kCHF)	Cat. A	Pixel	SCT	TRT	DGe	LAr	TileC	Muon	Cat. B	A+B
total contributions	1628	0	0	0	29	150	0	167	346	1974
total payments	5	0	0	0	247	26	62	213	548	553
balance										1421

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

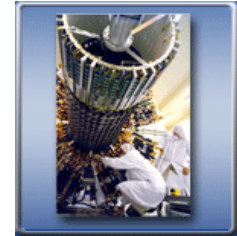
2007 CC-B Income & Payments (Tables 8 - 9), kCHF



(kCHF)	Pixel	SCT	TRT	IDGen	LAr	TileC	Muon	Cat. B
total contributions	191	18	0	120	80	24	107	540
total payments	0	518	0	0	1764	304	672	3258
balance								-2718

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

2008 Baseline (Tables 11 - 12), MCHF

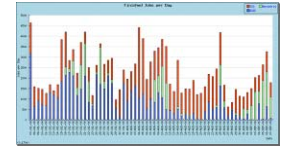


	Inner Det.	LAr Cal.	Tile Cal.	Muon Cham.	TDAQ/ DCS	Common Projects	total
commitments					3.9	0.3	4.2
total contributions					4.1	10.2	14.3
total payments					4.1	0.3	4.4
balance						9.9	9.9

Note: This assumes all due contributions from the past will be paid in 2008. In reality, a funding gap of ca. 5 MCHF is projected at this point in time. The global cash-flow situation is summarized in Table 17.

2008 is the last year of payments for initial ATLAS detector.

Status of Remaining Contributions (Annex 2, February 29, 2008), kCHF



Construction MoU obligations (kCHF)					CC + C&I accepted (kCHF)			Total
	detectors		CF					
total	remaining	remaining	remaining	total	total	remaining	total	
paid	deliverables	deferrals	contrib.	CMoU	paid	contrib.	committed	
453,495	3,540	4,093	7,280	468,412	59,057	3,196	62,253	530,665
	<i>of which for CtC</i>			<i>(5,918)</i>			<i>5,918</i>	
Available for payments Baseline & CtC(1)				462,495			68,170	530,665
Available for payments CtC(2)				-	4,400		4,400	4,400
TOTAL AVAILABLE								535,065

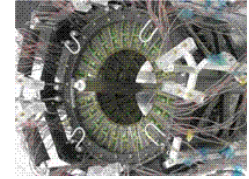
Note: CtC refers to 2002 financial plan and CtC(2) to correction made in 2006

Projected Budget Balance (Table 17), MCHF



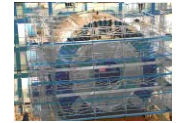
PAYMENTS	95-01	2002	2003	2004	2005	2006	2007	2008	2009	2010	Total
Baseline + CC(A)	231	71	56	52	43	29	19	5	2	2	509
<i>of which deferrals</i>					-3	-2	-4	0			-9
C&I (A+B)		1	3	4	9	2	1				20
CC (B)		1	1	1	4	2	3				12
TOTAL	231	73	61	57	54	30	19	5	2	2	532
INCOME	95-01	2002	2003	2004	2005	2006	2007	2008	2009	2010	Total
Baseline + CC(A)	252	65	55	54	33	15	13	7	2	1	495
C&I (A+B)		1	9	3	4	4	2	0	0	0	23
CC (B)		2	4	2	1	2	0	0	0	0	11
TOTAL	252	68	68	59	38	20	15	8	2	1	529
BUDGET BALANCE	21	-5	7	2	-15	-11	-4	3	0	-1	-3
CUMULATIVE	21	15	23	25	9	-1	-6	-3	-3	-3	

Why These Budget Balance Problems?



- Baseline & Common Fund
 - Some requested baseline & CF contributions did not arrive in 2008
 - Russia + JINR 3.1 MCHF
 - Canada 1.5 MCHF
 - US 1.5 MCHF (but in progress of being paid)
 - Due MS fees 0.2 MCHF
- Note: Cost of ID repairs handled separately
 - Technical problems encountered in the Inner Detector (heaters, electronics) have resulted in over costs which are dealt separately through M&O repairs and additional help from Funding Agencies
- Note: Present financial plan assumed beam-pipe closure by end of August, 2007
 - The cost of keeping the commissioning crews until start of operation is ca. 250 kCHF/month. Too early to estimate a global (net) cost for ATLAS, CERN is helping a lot. Will return to RRB in October
- Advanced contributions from several FAs are gratefully acknowledged!

Item & Cost Driver (by RRB SG Headings)	Cat. A M&O
Detector related costs Cryogenics operations Detector operations	4,203
Secretariat 1.5 FTE charged to ATLAS Publications, consumables	310
Collaborative tools GSM phones Computer network connections Videoconferencing, archiving	115
Core computing (infrastr. & services) Software process service Central production & operation	1,475
On-line computing Detector controls Software licences	1,308
Test beams, facilities Magnet Cryo Op. in B180 On-line computing support TDAQ common electronics	520
Laboratory operations Assembly areas, workshops TDAQ laboratory equipment	113
General services Heavy handling Technical support, storage Survey Outreach Energy	2,478
TOTAL	10,522
Hired manpower at CERN (in kCHF)	incl. above
Institute manpower (in FTE)	0
TOTAL M&O FOR A (kCHF)	10,522



- **#035: Table 1**
- **Final 2007 M&O-A Payments (kCHF)**
 - **Category A (10.5 MCHF)**
 - Cost drivers
 - Technical services (4.6 MCHF)
 - Magnet operation (2.4 MCHF)
 - Core computing I&S (1.5 MCHF)
 - On-line comp. (1.5 MCHF)
 - Energy NMS (0.5 MCHF)



• #035: Table 1

• Final 2007 M&O-B Payments (kCHF)

– Category B (6.7 MCHF)

- Cost drivers

- Technical services, manpower (2.9 MCHF)

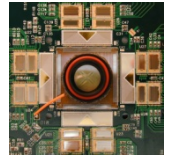
- Electronics replacements, rental (2.8 MCHF)

- Operation of areas, spares, stores (1.1 MCHF)

- 87 FTE core computing effort as in-kind

- Note: gases & coolants moved into Category A

Pixel	SCT	TRT	IDGen	LAr	TileC	Muon	Comp.	Cat. B M&O	Item & Cost Driver (by RRB SG Headings)
-	182	426	840	1	4	420		1,873	Mechanics & Gas & Cooling & Cryogenics Gases (ID, Tiles, Muons)
-	23	11	19	611	117	114		895	Standard electronics Crates, electronics pool rentals
-	5	-	3	-	1	-		9	Detector controls
73	63	22	73	10	32	-		273	Areas SR1-operations (ID), system tests, lab op
1	6	1	10	4	6	5		33	Communications
125	14	20	97	51	24	-		331	Store items
-	67	300	-	-	-	-		367	Sub-detector spares (incl. b-layer replacement)
199	360	780	1,042	677	184	539	-	3,781	(Excluding hired manpower for Category B)
302	225	128	530	406	651	639		2,881	Hired manpower (kCHF) at CERN
16	20	6	2	2	6	4	87	143	Institute manpower (FTE)
501	585	908	1,572	1,083	835	1,178	-	6,662	TOTAL M&O FOR B

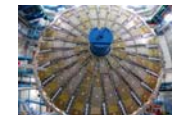


- **#035: Table 4**
- **2009 M&O-A Budget Estimates (kCHF)**

- **Category A (16.3 MCHF)**

- **Cost drivers**
 - Technical services (6.9 MCHF)
 - Magnet operation (2.5 MCHF)
 - Core computing I&S (1.8 MCHF)
 - On-line comp. (4.2 MCHF)
 - Energy NMS (0.9 MCHF)

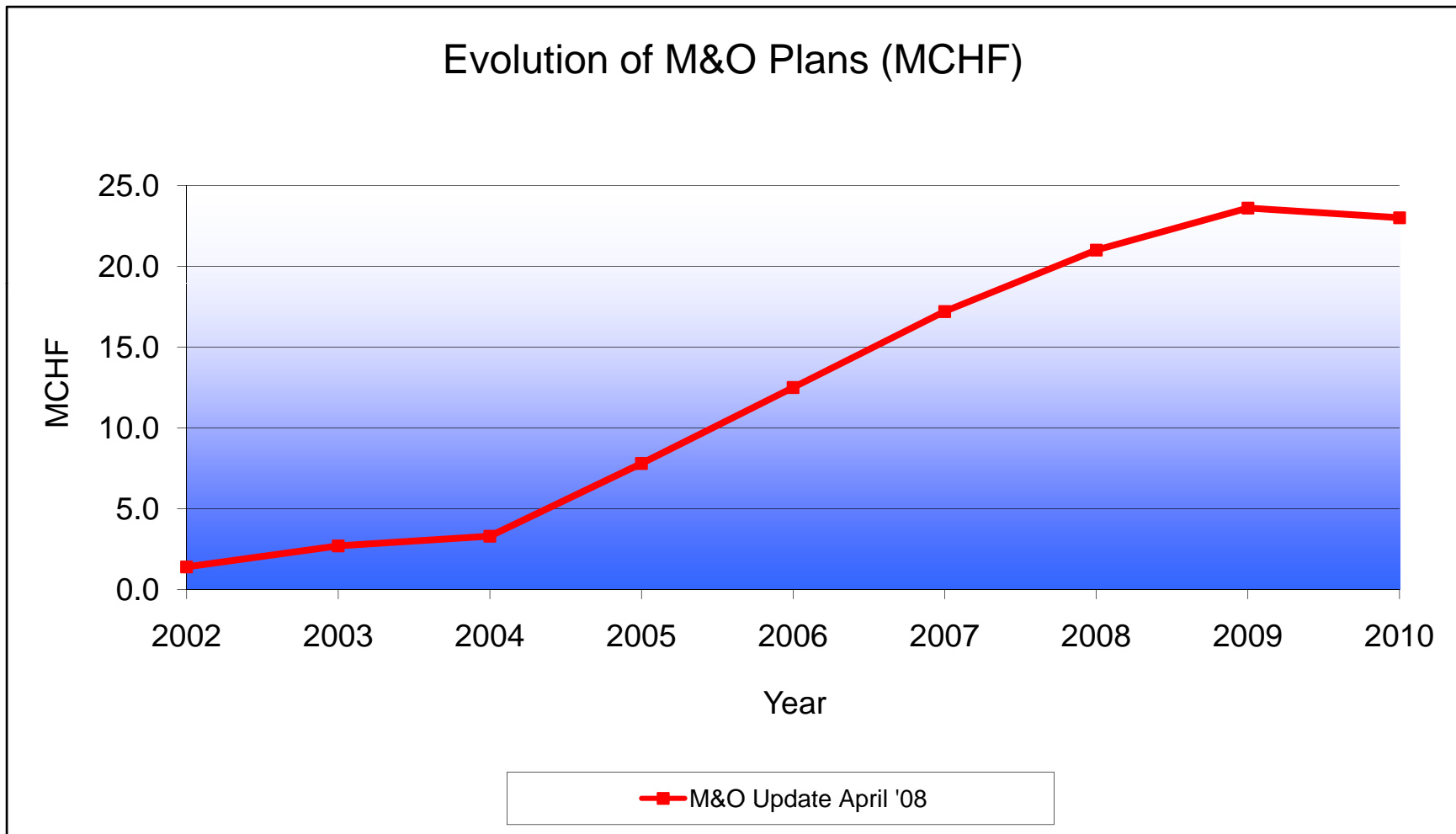
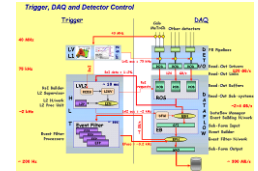
Item & Cost Driver (by RRB SG Headings)	Cat. A M&O
Detector related costs Cryogenics operations Detector operations	5,778
Secretariat 1.5 FTE charged to ATLAS Publications, consumables	300
Communications GSM phones Computer network connections Collaborative tools	120
Core computing (infrastr. & serv Software process service Central production & operation	1,824
On-line computing Detector controls Software licences	4,055
Test beams, facilities Magnet Cryo Op. in B180 On-line computing support TDAQ common electronics	90
Laboratory operations Assembly areas, workshops TDAQ laboratory equipment	75
General services Heavy handling Technical support, storage Survey Outreach Energy	4,052
TOTAL	16,294
Hired manpower at CERN (in kC) <small>incl. above</small>	
Institute manpower (in FTE)	0
TOTAL M&O FOR A	16,294



Pixel	SCT	TRT	ID	Gen	LAr	Tile	C	Muon	?	omp	Cat. B M&O	Item & Cost Driver (by RRB SG Headings)
0	360	364	240	25	24	175					1,188	Mechanics
420	100	100	100	605	155	160					1,640	Standard electronics Crates, electronics pool rentals
0	20	25	0	40	44	30					159	Detector controls
150	100	118	232	15	111	0					726	Areas SR1-operations (ID), system tests, lab
0	0	0	5	5	5	5					20	Communications
50	37	68	0	15	30	0					200	Store items
770	0	0	0	350	76	0					1,196	Sub-detector spares (incl. b-layer replacement)
1,390	617	675	577	1,055	445	370	0				5,129	(Excluding hired manpower for Category B)
300	250	100	630	400	192	330					2,202	
0	0	0	0	2	5	8	98				113	
1,690	867	775	1,207	1,455	637	700	0				7,331	TOTAL M&O FOR B

- #035: Table 4
- 2009 M&O-B Budget Estimates (kCHF)
 - Category B (7.3 MCHF)
 - Cost drivers
 - Technical services, manpower (3.3 MCHF)
 - Electronics replacements, rental (3.1 MCHF)
 - Operation of areas, spares, stores (0.9 MCHF)
 - 98 FTE core computing effort as in-kind
 - Note: Gases & coolants included now in Cat-A

Evolution of M&O 2002 – 2010, MCHF



Status of due M&O-A Contributions EoY07

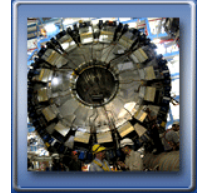
(February 29, 2008)



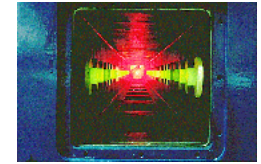
- The following M&O-A contributions are due for 2007 (or earlier)
 - Italy: 71 kCHF
 - Portugal: 103 kCHF
 - Armenia: 30 kCHF
 - Belarus: 75 kCHF
 - China: 110 kCHF (received recently)
 - Morocco: 96 kCHF
 - Romania: 95 kCHF (received recently)
 - JINR: 33 kCHF
 - Russia: 578 kCHF
 - TOTAL: 1.2 MCHF

Status of due M&O-B Contributions EoY07

(February 29, 2008)



- The following M&O-B contributions are due for 2007 (or earlier)
 - Portugal: 70 kCHF
 - Armenia: 11 kCHF
 - China: 11 kCHF (received recently)
 - Morocco: 4 kCHF
 - Romania: 14 kCHF (received recently)
 - JINR: 244 kCHF
 - Russia: 419 kCHF
 - TOTAL: 0.7 MCHF

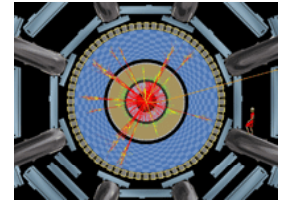


Funding Agency	Signed Date	Signed by
Argentina	30.01.2008	L. Baraňao
Armenia	02.09.2002	H. Asatryan
Australia	17.10.2003	A. Williams
Austria	02.10.2002	R. Kneucker
Azerbaijan	20.03.2003	N.A.K. Guliyev
Belarus	25.03.2005	Y. Pleskachevsky
Brazil		
Canada	09.09.2002	I. Blain
Chile	10.01.2008	V. Heyl
China NSFC+MSTC	02.08.2002	Wang Naiyan
Colombia	24.01.2008	J.F. Miranda
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 DESY	01.11.2006	R.D. Heuer, C. Scherf
Germany MPI	28.06.2002	S. Bethke
Greece	18.10.2005	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	J.K 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. Stančič
Spain	19.02.2003	P. Morenés
Sweden	25.11.2002	K. Bremer
Switzerland	02.04.2007	A. Clark
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 of M&O Signatures (Table 5) March 12, 2008

- 41 of 42 Funding Agencies have signed
- Waiting for: Brazil

RRB Invited to



- Approve the 2007 final construction and M&O budgets
- Take note of the 2008 budget status (baseline & CtC)
- Take note of first M&O budget estimates 2009