

CERN-RRB-2009-106

ATLAS Resources Review Board, October 12, 2009

For RRB to approve




Request for 2010 ATLAS M&O Budget

Introduction

The ATLAS management, supported by the ATLAS Executive and Collaboration Boards, kindly invites the RRB to approve the M&O budget for 2010 as well as the proposed new in-kind contributions in Category-A.

The ATLAS M&O (A and B) budget request for 2010 amounts to 22.2 MCHF in payments. Preliminary M&O budget estimates for 2010 were presented to the RRB in April 2009 (CERN-RRB-2009-024), amounting to 22.7 MCHF at the time. The present budget follows from an internal update of the 2009-2010 work program planning and from interactions with the RRB Scrutiny Group (CERN-RRB-2009-078).

In 2009, Point 1 with its underground caverns and surface halls and buildings is in full operation mode. The cryogenics and supporting technical infrastructure are running in nominal state. The detectors are operational for recording collisions scheduled for December, 2009 and continuing until late 2010.

M & O B U D G E T
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1. M&O Budget Request for 2010

The 2010 M&O payments for Category-A items are planned at 16.7 MCHF (including power) and 5.5 MCHF for Category-B items. The Category-A activities increase slightly in 2010. The main reasons for the increasing payments in Category-A w.r.t. the 2009 budget are as follows:

- Consolidation work needed to reduce risk of failing infrastructure (notably the detector cooling system);
- Charging of use of collaborative tools (EVO) at CERN to the Collaboration.

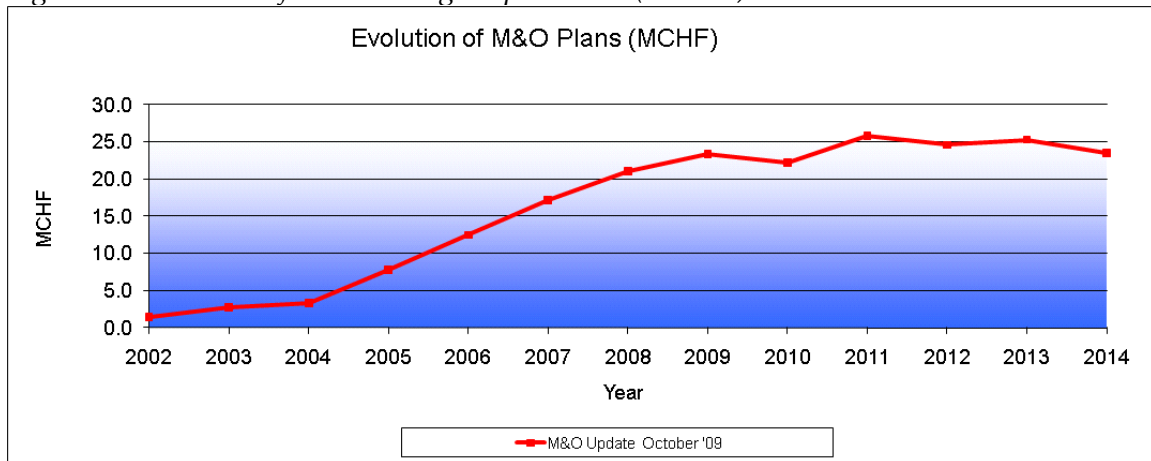
In Category-B, all systems are installed and in operation. The dominant cost drivers are replacement and rentals of electronics modules, amortization of spares as well as the operation of the specially equipped SR1-building and control rooms for the Inner Detector. As a consequence of shifts in payments and moving of ID evaporative cooling budget line into M&O-A, the 2010 M&O-B has reduced by 1.2 MCHF w.r.t the projections made in 2008.

Table 1 gives the breakdown of the M&O (Categories A and B) budget for 2010. The dominant part of the cost in Category-A is associated with the cost of operating the overall cryogenics plants, detector access and gas systems (5.8 MCHF), providing general technical services (4.1 MCHF, including electricity) as well as operating the on-line computing facilities (3.0 MCHF), core computing (2.1 MCHF) and test beams and facilities (0.9 MCHF). In Category-B the cost drivers are technical support (1.9 MCHF), replacement of electronics (1.5 MCHF), payment of sub-detector spares (1.2 MCHF) and mechanics (0.5 MCHF).

Table 2 shows the expected contributions for 2010 for each Funding Agency and system (Categories A and B). The Category-A contributions are split into two columns; the second column “budgeted” shows the cost sharing, including electricity, and the first column “invoiced” shows the amount to be invoiced to the Funding Agencies, taking into account the energy cost adjustments.

Figure 1 provides a summary of actual payments up to 2008 and a forward look to M&O budget estimates up to 2014. It should be noted that Category-A projections include 4.0 MCHF related to the Insertable b-layer (IBL) by 2014 and Category-B 4.4 MCHF, correspondingly. Concerning the latter, Funding Agencies have the option of treating their share of the 4.4 MCHF as separate project money if they so wish. In such cases their M&O-B contribution will reduce accordingly.

Figure 1. Evolution of M&O Budget up to 2014 (MCHF)



Evolution of the M&O budget up to 2014 (MCHF)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Category A	1.0	1.6	2.6	5.6	9.0	10.5	14.3	16.4	16.7	20.0	18.9	20.0	19.0
Category B	0.4	1.1	0.7	2.2	3.5	6.7	6.8	7.0	5.5	5.8	5.7	5.3	4.5
Total (A+B)	1.4	2.7	3.3	7.8	12.5	17.2	21.1	23.4	22.2	25.8	24.6	25.3	23.5

2. New In-Kind Contributions (Category -A)

According to paragraph 9.3 in the ATLAS M&O MoU (CERN-RRB-2002-035), the RRB needs to agree to possible in-kind contributions made to Category-A (Annex 9).

1. Offers being finalized (Action: RRB to approve)

1.1 Core computing tasks (infrastructure and services; 1090 kCHF, from multiple Funding Agencies)

The addendum for core computing Category-A M&O-A (CERN-RRB-2005-008) describes the computing tasks related to infrastructure and services. The following Funding Agencies offer in-kind contributions for these tasks: Czech Republic (0.40 FTE), IN2P3 (1.0 FTE), BMBF (1.3 FTE), DESY (0.3 FTE), Israel (0.2 FTE), Italy (1.7 FTE), Poland (0.2 FTE), Russia (0.7 FTE), Spain (0.4 FTE), UK (1.8 FTE), US (3.9 FTE). The average cost is 91 kCHF/FTE. The invoices sent to the above Funding Agencies will be reduced accordingly; however, the final financial values for each task will be settled once the achieved work packages have been completed and verified. In case any corrections need to be made for the above in-kind contributions for 2010, they will be reported for the April 2010 RRB.

Planned ATLAS M+O (A) and (B) Payments in 2010 (kCHF)

Item & Cost Driver (by RRB SG Headings)	Cat. A									Cat. B	Item & Cost Driver (by RRB SG Headings)	
	M&O	Pixel	SCT	TRT	IDGen	LAr	TileC	Muon	Comp.	M&O		
Detector related costs Cryogenics operations Detector operations	5,783					20	23	125			168	Mechanics, structures, cooling
Secretariat 2 FTE charged to ATLAS Publications, consumables	305	220	305	200	50	344	142	210			1,471	Standard electronics Crates, electronics pool rentals
Collaborative tools GSM phones Computer network connections Videoconferencing, archiving	320					40	15	30			85	Detector controls
Core computing (infrastr. & services) Software process service Central production & operation	2,128											
On-line computing System administration HLT hardware repl., networking	2,960	45	20	30	320	10	65				490	Areas SR1-operations (ID), system tests, lab oper.
Test beams, facilities Magnet Cryo Operations On-line computing support TDAQ common electronics	930	1	5		8	5	7	5			31	Communications
Laboratory operations Assembly areas, workshops TDAQ laboratory equipment	125	24	30	30	80	10	23				197	Store items
General services Heavy handling Technical support, storage Survey Outreach Energy	4,109	450				630	110				1,190	Sub-detector spares (incl. b-layer replacement)
TOTAL	16,660	740	360	260	458	1,059	385	370	0	3,632	(Excluding hired manpower for Category B)	
Hired manpower at CERN (in kCHF)	incl. above	250	275	265	267	261	220	330			1,868	
Institute manpower (in FTE)	0	5	5	5	11	2	9	8	98	143		
TOTAL M&O FOR A	16,660	990	635	525	725	1,320	605	700	0	5,500	TOTAL M&O FOR B	

**Proposed Sharing of M+O Contributions
for ATLAS in 2010 by Funding Agency (kCHF)**

10/1/2009

Funding Agency	Category-A items		Category-B items budgeted						Budget	Core comp. Categ.B (FTE)	Authors M&O-A	
	Invoiced*	Budgeted	Pixel	SCT	TRT	IDGen	LAr	TileC	Muon			Total
Argentina	27	27	0	0	0	0	0	0	1	28	0	3
Armenia	9	9	0	0	0	0	1	0	0	11		1
Australia	73	73	0	17	0	11	0	0	0	101	1	8
Austria	38	45	0	0	6	0	3	6	3	63	1	5
Azerbaijan	27	27	0	0	0	0	1	0	0	28		3
Belarus	54	54	0	0	0	0	0	0	3	57		6
Brazil	64	64	0	0	0	0	0	3	0	67	0	7
Canada	584	599	0	0	0	0	232	0	0	831	3	66
Chile	27	27	0	0	0	0	0	0	2	29		3
China NSFC+MSTC	100	100	0	0	0	0	3	0	2	105	1	11
Colombia	27	27	0	0	0	0	0	0	1	28		3
Czech Republic	226	272	4	1	0	2	0	6	0	286	2	30
Denmark	60	73	0	0	22	6	0	0	0	101	1	8
France IN2P3	837	1008	99	0	0	14	220	56	0	1397	6	111
France CEA	181	218	0	0	0	0	62	0	22	302	2	24
Georgia	45	45	0	0	0	0	1	0	1	47		5
Germany BMBF	1184	1425	312	52	0	78	63	0	46	1976	3	157
Germany DESY	173	209	0	0	0	0	41	0	40	290	1	23
Germany MPI	226	272	0	31	0	20	38	0	17	378	1	30
Greece	181	218	0	0	0	0	0	0	11	229	0	24
Israel	186	191	0	0	0	0	0	0	10	200	0	21
Italy	1260	1516	258	0	0	51	70	52	155	2102	8	167
Japan	621	636	0	88	0	57	0	0	101	881	3	70
Morocco	73	73	0	0	0	0	4	0	0	76		8
Netherlands	226	272	0	24	0	18	0	0	64	378	2	30
Norway	121	145	0	32	0	24	0	0	0	201	2	16
Poland	143	173	0	2	4	2	0	0	0	181	0	19
Portugal	106	127	0	0	0	0	0	6	0	133	0	14
Romania	118	118	0	0	0	0	0	6	0	124	0	13
Russia	463	581	0	0	7	4	8	5	5	610	2	64
JINR	218	218	0	0	1	1	3	3	3	229	0	24
Serbia	54	54	0	0	0	0	3	0	0	57		6
Slovak Republic	75	91	0	0	0	0	5	0	0	95		10
Slovenia	64	64	0	2	0	1	0	0	0	67	1	7
Spain	347	418	0	20	0	13	46	83	0	579	3	46
Sweden	196	236	0	12	31	16	14	18	0	327	0	26
Switzerland	166	200	0	40	0	26	10	0	0	277	0	22
Taipei	82	82	2	0	0	1	1	0	0	86	3	9
Turkey	145	145	0	0	0	0	4	0	3	152		16
United Kingdom	1433	1725	0	313	0	353	0	0	0	2392	10	190
US DOE + NSF	3644	3713	292	0	272	0	390	287	193	5147	30	409
CERN	905	1089	21	1	181	29	99	73	17	1510	15	120
total	14,790	16,660	990	635	525	725	1320	605	700	22,160	98	1,835
									5,500			

Notes:

*Invoiced to FAs; includes energy cost adjustments

List of qualified authors with PhD or equivalent (September 30, 2009) used for Category-A

Category-B is based on authors, modulated by CORE contributions

Core computing in Category B expressed in Full-Time-Equivalents (FTE). Figure 0 refers to an effort smaller than 0.5 FTE