



Report on Maintenance & Operation Budgets

1 -M&O-A Expenses in 2010

Table 1 presents a summary of M&O category A invoices, income and amounts outstanding by Funding Agency as December 31st, 2010. Please note that Greece, Croatia and Russia paid their 2010 outstanding invoices at the beginning of 2011.

The breakdown of the 2010 M&O-A budget and expenditure is given in table 2. Note that in 2010, an amount of 513 kCHF has been paid on commitments from the previous year.

Table 3 gives a summary of income, payments and balance of the M&O-A accounts for the period 2002 – 2010. Please note that in 2010, 490 kCHF of income from the period 2006-2009 have been received, as well as 303 kCHF of advanced payments for 2011. 501 kCHF of open commitments at the end of 2010 are not shown in table 3.

2 - 2012 M&O-A preliminary budget and estimates for the period 2013 - 2015

The ALICE 2012 M&O-A preliminary budget and estimates for the period 2013 – 2015 are summarized in table 4. These numbers are based on the most recent LHC operating model with a schedule consisting of a 2-months Technical Stop (Jan-Feb 2012) followed by a 10-months Running (Mar-Nov 2012) and a 17-months Shutdown (Dec 2012-Apr 2014). These numbers will be refined over summer and presented to the Resources Review Board in October 2011 for approval.

3 - 2012 M&O-A preliminary sharing

Based on presently available estimates and on the sharing as determined in September 2010, a preliminary estimate of the 2012 budget and sharing by funding agencies is presented in Table 5.

4 - Category B Estimates

Table 6 shows detailed estimates of M&O Category B budget for 2012 and Table 7 shows the sharing of the 2012 preliminary budget. The data will be scrutinized during 2011 before being presented to the meeting of the Resources Review Board in October 2011 for final approval. Table 8 shows the 2012 preliminary M&O-B budget and estimates for the period 2013-2015

Year	period 2002						year 2011						period 2002-2011	
	Country	Invoiced	Received	In-kind	Energy rebate from 2008	Due	Invoiced	Received	In-kind	Energy rebate from 2009	Due	Total received including in-kind	Total Outstanding	
MS	CERN	2,839	2,839				400				400	2,839	400	CERN
	Czech Republic	507	507				94				94	507	94	Czech Republic
	Denmark	237	237			0	47				47	237	47	Denmark
	Finland	257	257				47	47				304		Finland
	France CEA	301	301				47				47	301	47	France CEA
	France IN2P3	2,249	2,249				376				376	2,249	376	France IN2P3
	Germany BMBF	1,529	1,530			-1	314				314	1,530	313	Germany BMBF
	Germany GSI	906	906				188				188	906	188	Germany GSI
	Greece	223	179			43	16				16	179	59	Greece
	Hungary	135	135				24				24	135	24	Hungary
	Italy Centro Fermi	26	26				31				31	26	31	Italy Centro Fermi
	Italy INFN	5,150	5,150				823	256			567	5,406	567	Italy INFN
	Netherlands	442	442			0	71				71	442	70	Netherlands
	Norway	660	660				133				133	660	133	Norway
	Poland	735	698			36	141				141	698	177	Poland
	Slovak Republic	596	596				86				86	596	86	Slovak Republic
	Spain/Cuba	236	236				47				47	236	47	Spain/Cuba
	Sweden	218	218				24				24	218	24	Sweden
	United Kingdom	372	372				63				63	372	63	United Kingdom
MS Total		17,618	17,540			78	2,970	303			2,667	17,843	2,746	MS Total
NMS	Armenia	113	110		8	-5	13			4	9	110	4	Armenia
	Brazil	218	179		16	24	76			26	50	179	74	Brazil
	China Wuhan CCNU	213	134	60	20	-1	51			19	32	194	31	China Wuhan CCNU
	China Beijing	107	20	63	12	13	13			7	5	83	18	China Beijing
	Croatia	219	181		16	22	51			15	36	181	58	Croatia
	India	1,746	1,647		98		450			114	336	1,647	336	India
	Japan	386	363		23		150			32	118	363	118	Japan
	JINR	525	68	399	24	34	89			22	67	467	101	JINR
	Mexico	621	573		48		153			49	104	573	104	Mexico
	Republic of Korea NRF	375	351		24		127			30	97	351	97	Republic of Korea NRF
	Peru						13				13		13	Peru
	Romania ISS	203	183		20		51			15	36	183	36	Romania ISS
	Romania NIPNE	373	349		24		89			22	67	349	67	Romania NIPNE
	Russia	2,433	2,271	10	127	25	456			106	350	2,281	375	Russia
	South Africa	276	264		12		76			22	54	264	54	South Africa
	Ukraine	237	156	28	12	41	38			19	20	184	61	Ukraine
	USA DOE	1,100	1,100		77	-77	440			101	339	1,100	262	USA DOE
	USA NSF	232	217		15	0	63			14	48	217	48	USA NSF
NMS Tot		9,377	8,167	560	575	75	2,400			618	1,781	8,727	1,857	NMS Total
Grand Total		26,996	25,707	560	575	154	5,370	303		618	4,449	26,570	4,602	Grand Total

Table 1 - M&O-A Invoices and Income as 31/12/2010 (in kCHF)

	2010 Budget	Paid	Open Commitments	Total	Balance	%
Detector Related Costs	1,886	1,743	160	1,902	-16	101%
Secretariat	238	206	0	206	32	86%
Communications	55	42	0	42	13	76%
Off-line Computing	527	577	0	577	-50	110%
On-line Computing	1,406	1,110	302	1,412	-6	100%
Test Beam and Calibrations Facilities	95	84	0	84	11	89%
Laboratory Operations	230	215	18	233	-3	101%
General Services	451	449	14	463	-12	103%
Consultancy	40	11	0	11	29	27%
Outreach	50	38	6	44	6	88%
TOTAL without power	4,978	4,474	501	4,975	3	100%
Power	641	678	0	678	-37	106%
Grand Total	5,619	5,152	501	5,653	-34	101%
Rebate from 2008 energy	575					
Grand Total	5,044	5,152	501	5,653	-609	112%

Table 2 – 2010 Cat. A M&O Budget and Expenditure
(Payments and Commitments) (kCHF)

Category	Income											
Contributions Income and in-kind	Budget year											
	Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Grand Total
	2002	330	12									342
	2003	68	565									632
	2004	5	73	936	13							1,027
	2005	9	24	68	1,213	64						1,377
	2006	9	15	112	123	2,242	274					2,776
	2007	4	6	13	153	323	3,562	692				4,755
	2008					25	503	4,040	111			4,678
	2009						8	182	4,951	124		5,265
	2010						4	6	85	395	4,936	5,729
	Total Income per year	424	696	1,129	1,503	2,657	4,354	4,999	5,457	5,060	303	26,582
	Expenditure Payments only	Budget year										
Year		2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Grand Total
2002		202										202
2003		46	502									548
2004			75	855								931
2005			20	240	1,134							1,394
2006					274	2,347						2,621
2007						291	3,422					3,714
2008							453	4,053	4			4,510
2009								261	4,134			4,395
2010									513	4,639		5,152
Total Expenditure per budget year		248	598	1,095	1,408	2,639	3,875	4,314	4,651	4,639		23,467
Balance/year		177	98	34	95	18	478	684	806	420	303	3,115
End year balance	177	275	309	404	422	901	1,585	2,391	2,812	3,115	3,115	

Table 3 – Summary of Table 3 - M&O-A incomes and expenditure (only payments)
including in-kind contributions for the period 2002 - 2011 (in kCHF)

Category	2012	2013	2014	2015
Detector related costs	1,402	2,269	1,334	1,298
Secretariat	243	243	243	243
Communications	0	0	0	0
Off-line computing	538	538	538	538
On-line computing	2,162	2,162	2,162	2,162
Test beams & calibration facilities	85	85	85	85
Laboratory operations	270	280	250	250
General services	640	1,010	620	560
Total without power	5,339	6,586	5,231	5,136
Power	2,386	150	1,963	2,386
Grand Total	7,725	6,736	7,194	7,522
OC	2012	2013	2014	2015
Operation (manpower)	2,251	2,885	2,403	2,247
Consumable	3,088	3,701	2,828	2,889
Consumable Power	2,386	150	1,963	2,386
<i>Grand Total</i>	7,725	6,736	7,194	7,522

Table 4 – M&O-A 2012 preliminary budget and estimates for 2013 – 2015 (kCHF)

2012 Preliminary M&O A Budget	5,339,088 CHF	PRELIMINARY	
2012 Preliminary Power	2,386,000 CHF	TOTAL BUDGET	7,725,088
ALICE scientists on 1/9/2010	573 scientists		
PRELIMINARY M&O-A per scientist	9,318 CHF		
PRELIMINARY Power per scientist	4,164 CHF		

	Scientists (as 1/9/2010)	M&O Cat A without energy in CHF	Energy in CHF	Energy billed to FA in CHF	Bill FOR 2012 in CHF
CERN	51	475,207	212,366		475,207
Czech Republic	12	111,813	49,969		111,813
Denmark	6	55,907	24,984		55,907
Finland	6	55,907	24,984		55,907
France CEA	6	55,907	24,984		55,907
France IN2P3	48	447,253	199,874		447,253
Germany BMBF	40	372,711	166,562		372,711
Germany GSI	24	223,627	99,937		223,627
Greece	2	18,636	8,328		18,636
Hungary	3	27,953	12,492		27,953
Italy Cento Fermi	4	37,271	16,656		37,271
Italy INFN	105	978,367	437,225		978,367
Netherlands	9	83,860	37,476		83,860
Norway	17	158,402	70,789		158,402
Poland	18	167,720	74,953		167,720
Slovak Republic	11	102,496	45,805		102,496
Spain/Cuba	6	55,907	24,984		55,907
Sweden	3	27,953	12,492		27,953
United Kingdom	8	74,542	33,312		74,542
Armenia	1	9,318	4,164	4,164	13,482
Brazil	6	55,907	24,984	24,984	80,891
China Wuhan CCNU	4	37,271	16,656	16,656	53,927
China Beijing	1	9,318	4,164	4,164	13,482
Croatia	4	37,271	16,656	16,656	53,927
India	36	335,440	149,906	149,906	485,346
Japan	12	111,813	49,969	49,969	161,782
JINR	7	65,224	29,148	29,148	94,373
Mexico	12	111,813	49,969	49,969	161,782
Republic of Korea NRF	10	93,178	41,640	41,640	134,818
Peru	1	9,318	4,164	4,164	13,482
Romania ISS	4	37,271	16,656	16,656	53,927
Romania NIPNE	7	65,224	29,148	29,148	94,373
Russia	40	372,711	166,562	166,562	539,273
South Africa	6	55,907	24,984	24,984	80,891
Ukraine	3	27,953	12,492	12,492	40,445
USA DOE	35	326,122	145,742	145,742	471,864
USA NSF	5	46,589	20,820	20,820	67,409
Total	573	5,339,088	2,386,000	807,825	6,146,913

Table 5 – Preliminary M&O-A Budget and Sharing for 2012 (in CHF).

Sum of year 2012		Project																		Grand Total in kCHF		
ref	budget description	ITS Common	ITS-SPD	ITS-SDD	ITS-SSD	TPC	TRD	TOF	HMPID	PHOS	ACORDE	FMD	PMD	T0	ZDC	CENTRAL TRIGGER	EMCAL-DCAL	MUONS TRACKING	MUONS TRIGGER		V0 A	V0 C
A01	Mechanics			6		10	5					2		2	1.5				2			28.5
A02	Gas Systems					5	30		25										12			72
A03	Cooling Systems	8	15	44		3	20	2	4	10							2					108
A04	FEE spares			12		10			6	40	1	8		8	4		7		2.5	2		100.5
A05.1	Standard Electronics LV/HV PS		30	111	115	25	43	25	8.5	30	2	6		2	5		10	3	5.5			421
A05.2	Standard Electronics Crates								2		8			2	6.5	5		20	20			63.5
A05.3	Standard Electronics R/O modules		5		23	70	30	12				2		2	2.5	10	6		6		4	172.5
A06	Controls (DCS & DSS)		3	2	1	5	4	3	3				3	1			8					33
A07	Sub-Detector spares				4					30	1	5	10	15	4.5			3		4	5	81.5
A08	Areas		2						50					5								57
A09	Communications		10	2	0.5	5	19.5	10.5	8	8	1	2	6	1	0.5	5	2	6	4.5		1	92.5
A10	Store Items		2		3		12	19.5	8	8	1	10		5	2.5		4	3	1.5	4		83.5
A11.1	Technical Manpower @ CERN: Industrial Support								10		1							1	7	4		23
A11.3	Technical Manpower @ CERN from Collaborating Institutes	120	28	60	36	(32)*	(70)**	48	20	32				5.35	8		60	51	14		1	483.35
Grand Total		128	95	237	182.5	133	163.5	120	144.5	158	15	25	29	48.35	35	20	99	87	75	14	11	1819.85

* subsistence for TPC on-call experts and system run coordinator if budget allows

** subsistence for TRD on-call experts and system run coordinator if budget allows

Sum of year 2012		Project																		Grand Total in man-month		
ref	budget description	ITS Common	ITS-SPD	ITS-SDD	ITS-SSD	TPC	TRD	TOF	HMPID	PHOS	ACORDE	FMD	PMD	T0	ZDC	CENTRAL TRIGGER	EMCAL-DCAL	MUONS TRACKING	MUONS TRIGGER		V0 A	V0 C
A11.2	Technical Manpower @ CERN: in-kind contribution from Collaborating Institutes in man-month				2	12	24			67			15			24	24					168
Grand Total					2	12	24			67			15			24	24					168

Table 6 –M&O-B 2012 Preliminary Budget Estimates by systems (in kCHF and in man-month)

Sharing of the 2012 budget in kCHF	ITS Common	ITS-SPD	ITS-SDD	ITS-SSD	TPC	TRD	TOF	HMPID	PHOS	ACORDE	FMD	PMD	T0	ZDC	CENTRAL TRIGGER	EMCAL- DCAL	MUONS TRACKING	MUONS TRIGGER	V0 A	V0 C	Grand Total in kCHF	
CERN	25.5	42.8		23.6	21.3			43.4														156.4
Czech Republic	2.4		13.5																			15.9
Denmark					4.3						25.0											29.3
Finland													48.4									48.4
France CEA																	10.0					10.0
France IN2P3	9.1			39.5												8.4	32.0	40.0	14.0			142.9
Germany BMBF						153.1																153.1
Germany GSI					76.5																	76.5
Italy INFN	71.0	42.8	206.7	63.0			72.0	101.2						35.0		18.4	27.0	30.0				667.0
Netherlands	9.8			42.4																		52.2
Norway									20.0													20.0
Poland					3.8																	3.8
Slovakia	4.4	9.5			2.6																	16.5
Sweden					23.8																	23.8
United Kingdom															20.0							20.0
China									10.0							5.6						15.6
Croatia					0.7																	0.7
India												29.0					10.0					39.0
Japan									20.0							8.4						28.4
JINR						7.1																7.1
Mexico										15.0											11.0	26.0
Republic of Korea							48.0													5.0		53.0
Romania NIPNE						3.3																3.3
Russia	0.5		2.6	1.8					108.0								4.0					116.9
South Africa																	4.0					4.0
Ukraine	5.2		13.5	12.2																		31.0
United States DOE																58.3						58.3
United States NSF	0.1		0.7																			0.8
Total	128.0	95.0	237.0	182.5	133.0	163.5	120.0	144.5	158.0	15.0	25.0	29.0	48.4	35.0	20.0	99.0	87.0	75.0	14.0	11.0		1819.9

Table 7 -Sharing of M&O B 2012 preliminary budget between Funding Agencies (kCHF)

ref	budget description	2012	2013	2014	2015
A01	Mechanics	28.5	43.5	26.5	27.5
A02	Gas Systems	72	62	62	62
A03	Cooling Systems	108	98	108	108
A04	FEE spares	100.5	92.5	92.5	93.5
A05.1	Standard Electronics LV/HV PS	421	389.5	394.5	394.5
A05.2	Standard Electronics Crates	63.5	62.5	62.5	62.5
A05.3	Standard Electronics R/O modules	172.5	182.5	172.5	172.5
A06	Controls (DCS & DSS)	33	33.5	28.5	28.5
A07	Sub-Detector spares	81.5	46.5	41.5	27.5
A08	Areas	57	42	42	42
A09	Communications	92.5	92.5	92.5	92.5
A10	Store Items	83.5	97.5	80.5	80.5
A11.1	Technical Manpower @ CERN Industrial Support	23	14	14	14
A11.3	Technical Manpower @ CERN from Collaborating Institutes	483.4	474	446	444
Grand Total in kCHF		1,819.9	1,730.5	1,663.5	1,649.5

ref	budget description	2012	2013	2014	2015
A11.2	Technical Manpower @ CERN: in-kind contribution from Collaborating Institutes in man-month	168	194	148	148
Grand Total in man-month		168	194	148	148

Table 8: Category B M&O budget 2012 preliminary budget and estimates for the period 2013 – 2015 (in kCHF and in man-month)