

## **RRB Apr. 2013**

- Situation of Common Funds
- Situation of Core Funds
  
- Projected M&O Cat. A budgets for the coming years
- Total M&O Cat. A budget and detailed expenditure in 2012
- Approved budget for 2013 and projected for 2014
- Conclusions

## Common Funds situation at February 2013

COMMON FUNDS closure, year 2012				
All in kCHF				
Detector	Outflow	Inflow	Committed	Totals
OTR	0	0	0	0
CALO	0	0	0	0
DAQ	0.1	0	0	0.1
INFRASTRUCTURE	2.4	0	0	2.4
MUON	0	0	0	0
RICH	0	0	0	0
TOTAL	2.5	0	0	2.5
RICH HPDs	0	0	0	0
VELO NON CORE	7.4	-99.2	0	-91.8
	9.9	-99.2	0	89.3

A 388 kCHF is uncommitted at present (February 2013).

The inflow seen in the line correspond to the 2012 year contribution for VELO spare and it is not exactly 100 kCHF, due to missing 2012 contributions. These funds are reimbursing a loan of 150 kCHF which was established from Common Funds to “VELO NON CORE” (see also CERN-RRB-2010-115). The VELO spare programme ends in 2013.

## Core

Most of the Core spending came to an end in 2006. Purchasing for DAQ and data storage has continued throughout 2010 with the 3rd “tranche” of the FARM, which has been achieved in December 2010 and which has been funded by Core and non-Core resources.

No institute indicated that it has additional requests for funds to be presented to the RRB.

## M&O A forecast (without VELO and Power) in kCHF:

Year	2008	2009	2010	2011	2012	2013	2014	2015	2016
Detector related costs	986	914	920	920	880	920	920	880	880
Secretariat	192	192	192	185	185	185	185	185	185
Communications	12	12	50	30	50	10	10	10	10
Core Computing	0	100	150	150	150	170	170	170	170
Online Computing	705	850	750	810	900	890	890	890	890
Test beams, cal. facilities	30	20	30	30	30	35	35	25	25
Laboratory operations	60	60	60	60	50	50	50	50	50
General services	360	360	360	360	330	320	320	320	320
Total	2345	2508	2512	2545	2575	2580	2580	2530	2530

Budget kept constant, except for a small difference between running and shutdown years. Detector related and General services lines have been decreased to best fit the present estimates. Communication takes in account 0 CHF for Vidyo (no more EVO from 2013).

Online Computing maintenance part takes in account the decision to complete the farm for the end of 2010, the 2011-12 LHC running conditions, the LS1 plan and the replacement model, specific to LHCb.

## Budget 2012 main lines (without VELO and Power)

2012	Budget	Used	Difference
detector related	880	837.7	42.3
secretariat	185	218.1	-33.1
communication	50	16.2	33.8
core comp	150	180.7	-30.7
on line (see text)	900	931.7 (631.7 + 300)	-31.7
test beams	30	20.0	10.0
laboratory	50	35.8	14.2
general services	330	320.9	9.1
Totals	2575	2561.1	13.9
Online Account		300	

As expected, another full year of operations did not change much our expenditure. To be noted, the 300 kCHF moved in the special online account. This is in line with our “buffering programme” (CERN-RRB-2011-088). The other lines show a well balanced budget.

## Budget 2012 main lines (without VELO and Power)

### ONLINE replacements

- Most of our carry-over funds come from our online replacements policy (replace only when needed in a constant budget). In order to buffer these funds for future FARM needs, we have set-up a special account. The expenditures on this account need to be cross-signed by the Director of Research. Following our replacement model, we have parked:

400 kCHF initial buffer

300 kCHF (for 2011)

300 kCHF (for 2012).

## Budget 2012 main lines (without VELO and Power)

### Long Shutdown 1 (LS1)

- We estimate a ~5% cost increase in M&O cat.A, from a shutdown year with respect to a collision year. However, for LS1 we have assessed in detail the expected M&O expenditures inside a coherent framework:

For the overall system (M&O cat. A)

For each sub-detector (M&O cat. B)

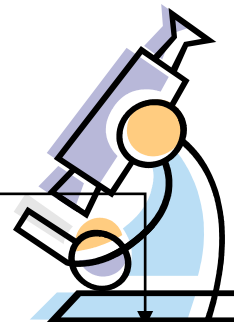
- We have already started some of the important maintenance and consolidation interventions for general infrastructure, beam pipe, cooling, etc. We also expect effects on hardware and resources in general, including our sub-detector systems. (ageing, spares, possible breakdowns, etc.).

Therefore, we propose to keep the surplus from 2012 as buffer for LS1 activities.

We will report back to RRB in October.

# LHCb M&O Category A at Book Closing end 2012 (all in kCHF)

2012	Budget	Used	Difference
detector related	880	837.7	42.3
secretariat	185	218.1	-33.1
communication	50	16.2	33.8
core comp	150	180.7	-30.7
on line (see text)	900	931.7 (631.7 + <b>300</b> )	-31.7
test beams	30	20.0	10.0
laboratory	50	35.8	14.2
general services	330	320.9	9.1
Totals	2575	2561.1	13.9
Online account		<b>300</b>	



## Detector related costs

Magnet	65
Gas	307
Cooling	60
Safety	35
Tech. support	163
Beam pipe	53
Secretariat	
Secretarial aid	212
Communication	
EVO	15
On-line computing	
System Manag.	354
Hardware	277
Test beams, calibration	
Operation	20
Laboratory operations	
Operation	36
General services	
Cool., vent. etc	126
Transport	121
Survey	14

Rather well balanced budget. Due to the 2011-12 winter stop, a few orders hit towards the end of the year and have been charged to year 2012.

Therefore, we propose to keep the surplus from 2012 as buffer for future LS1 activities.

We will report back to RRB in October.



## Approved 2013 M&O Category A Budget :

2013	PhD eq. total/ funding auth.		M&O A	VELO	Power	
			kCHF	kCHF	kCHF	
			2,580	100	970	Total
		%	CHF	CHF	CHF	CHF
BRAZIL	18	4.6	117,868	4,569	44,315	166,751
FRANCE	42	10.7	275,025	10,660	0	285,685
BMBF GERMANY	13	3.3	85,127	3,299	0	88,426
MPI, MPG, GERMANY	5	1.3	32,741	1,269	0	34,010
IRELAND	2	0.5	13,096	508	4,924	18,528
INFN ITALY	58	14.7	379,797	14,721	0	394,518
NETHERLANDS	17	4.3	111,320	4,315	0	115,635
P. R. CHINA	6	1.5	39,289	1,523	14,772	55,584
POLAND	8	2.0	52,386	2,030	0	54,416
HHNIPNE ROMANIA	7	1.8	45,838	1,777	0	47,614
RUSSIA	30	7.6	196,447	7,614	31,294	235,354
SPAIN	16	4.1	104,772	4,061	0	108,832
SWITZERLAND	25	6.3	163,706	6,345	0	170,051
UKRAINE	3	0.8	19,645	761	7,386	27,792
UK	73	18.5	478,020	18,528	0	496,548
USA	16	4.1	104,772	4,061	37,303	146,136
CERN	55	14.0	360,152	13,959	0	374,112
<b>TOTAL</b>	<b>394</b>	<b>100.0</b>	<b>2,580,000</b>	<b>100,000</b>	<b>139,993</b>	<b>2,819,993</b>

# Projected 2014 M&O Category A Budget :

## PRELIMINARY

2014	PhD eq. total/ funding auth.		M&O A	VELO	Power	
			kCHF	kCHF	kCHF	
			2,580	0	600	Total
		%	CHF	CHF	CHF	CHF
BRAZIL	18	4.6	117,868		27,411	145,279
FRANCE	42	10.7	275,025		0	275,025
BMBF GERMANY	13	3.3	85,127		0	85,127
MPI, MPG, GERMANY	5	1.3	32,741		0	32,741
IRELAND	2	0.5	13,096		3,046	16,142
INFN ITALY	58	14.7	379,797		0	379,797
NETHERLANDS	17	4.3	111,320		0	111,320
P. R. CHINA	6	1.5	39,289		9,137	48,426
POLAND	8	2.0	52,386		0	52,386
HHNIPNE ROMANIA	7	1.8	45,838		0	45,838
RUSSIA	30	7.6	196,447		19,357	215,804
SPAIN	16	4.1	104,772		0	104,772
SWITZERLAND	25	6.3	163,706		0	163,706
UKRAINE	3	0.8	19,645		4,569	24,213
UK	73	18.5	478,020		0	478,020
USA	16	4.1	104,772		23,074	127,846
CERN	55	14.0	360,152		0	360,152
<b>TOTAL</b>	<b>394</b>	<b>100.0</b>	<b>2,580,000</b>	<b>0</b>	<b>86,593</b>	<b>2,666,593</b>

## Conclusions

The M&O Cat A budget has again shown to be well balanced over the recent years and after our second year of full operation.

For the near future, we do not expect large fluctuations of the main expenditure lines inside an essentially constant total budget. However, the stress of running at very challenging conditions is visible and is requiring extra attention.

A detailed technical and resources plan for the long shutdown of 2013 – 2014 has been finalized. We expect an increase in Cat.A expenditures around 5%. We will come back to it at the Oct. RRB.

## Category B M&O status

(see CERN-RRB-2012-108 and -109)

Requested Cat. B M&O 2012 budget is given in the Table. The total is ~1066 kCHF, a bit less than half of the M&O Cat.A total. Category B M&O spent funds show to be constant over time inside ~10% .

CALO (CERN, ES, FR, RO, RU)	315
Level_0 (FR, IT)	60
Muons (CERN, IT, RU)	151
On Line (CERN)	80
Outer Tracker (GE, NL, PL, PRC)	120
RICH (CERN, IT, UK)	125
Silicon Trackers (CH, ES, GE, UKR)	80
VELO (CERN, CH, EI, NL, RU, UK, USA)	135

CERN (CA, MU, ON, RI, VE)	220
CH (STs, VE)	81
ES (CA, STs)	35
FR (CA, L0)	140
GE (OT, STs)	93
IT (L0, MU, RI)	130
NL (OT, VE)	90
RU (CA, MU, VE)	115
UK (RI, VE)	135

Cat. B M&O requested budgets for 2012 in kCHF and per FA (>10 kCHF)

# M&O Cat. B REQUESTS 2010 - 2012 and Projected preliminary 2013 - 2016

TABLE 1 M&O Cat. B REQUESTS 2010 - 2012 and PROJECTED PRELIMINARY 2013 - 2016

	2010	2011	2012	2013	2014	2015	2016
Mechanics	111	65	65	110	110	65	65
Gas-system	10	10	10	10	10	10	10
Cryo-system	0	0	0	0	0	0	0
Cooling system	15	15	15	15	15	15	15
FE electronics	124	125	125	125	125	125	125
Standard electronics, PS (LV, HV), Crates, RO Modules	229	224	224	250	250	224	224
Controls, (DCS, DSS)	68	70	71	70	70	60	60
Sub-Detector Spares	200	200	170	200	200	170	170
Maintenance of clean rooms, active and passive storage (including rentals), workshops	45	45	45	45	45	45	45
Communications (Piquet tools (ACB, GSM, etc...))	31	37	36	30	30	30	30
Store Items (Materials (screws, washers, tools, etc...))	25	25	25	25	25	25	25
Hired Manpower @ CERN (in CHF (Industrial Support))	0	0	0	0	0	0	0
Technical Manpower @CERN (in FTE (Technicians from Collaboration Institutes))	290	295	280	300	300	280	280
	0	0	0	0	0	0	0
	0	0	0	0	0	0	0
Totals (CHF)	1148	1111	1066	1180	1180	1049	1049

All numbers in CHF. Actual funds may be managed by each institute (or project) in different currencies.

We shall come back to you in October with the 2013 situation