CERN-RRB-2011-027-029

Status of ATLAS Resources

Presentation to RRB 12.04.2011

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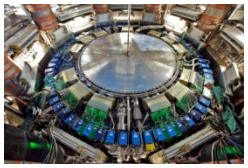
ATLAS Resources Coordination

Full Design Luminosity (FDL) 2010

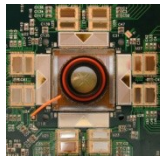
- Document CERN-RRB-2011-026
- 2010 Final payments (Table 1, for approval)
  - TDAQ: contributions 0.9 MCHF
    - Note: As part of the initial TDAQ CORE (2.5 MCHF)
  - Insertable b-layer (IBL) payments 0.9 MCHF
    - Note: Cost envelope 9.7 MCHF, as defined in the I-MoU
    - I-MoU to be finalized in summer, following the selection of the sensor technology
  - Forward luminosity detectors payments 3.1 MCHF
    - (ALFA 1.9 MCHF+LUCID 0.5 MCHF+ZDC 0.7 MCHF), of which 1.1 MCHF funded from deferrals
    - No additional payments foreseen for the time being
  - Pixel SQP repair payments 0.1 MCHF
    - Note: Total approved envelope is 3.2 MCHF (CERN 1.2 MCHF+ Deferrals 1.9 MCHF)

Full Design Luminosity (FDL) 2011



- Document CERN-RRB-2011-026
- 2011 FDL Budget update (Table 2, for information)
  - TDAQ 0.9 MCHF, completes the initial TDAQ
    - Note: Additional contributions are expected later on
  - IBL 2.5 MCHF, of which 1.1 MCHF included in M&O
  - SQP 2.7 MCHF, of which 1.3 MCHF from deferrals

Item & Cost Driver (by RRB SG Headings)	Cat. A M&O
Detector related costs	4,860
Cryogenics operations	
Detector operations	
Secretariat	344
1.5 FTE charged to ATLAS	
Publications, consumables	
Communications	403
GSM phones	
Computer network connections	
Collaborative tools	
Core computing (infrastr. & serv	2,129
Software process service	
Central production & operation	
On-line computing	2,737
TDAQ, network replacements	
System administration	
Test beams, facilities	1,955
Magnet Cryo repairs	
ID cooling repairs	
Laboratory operations	165
Assembly areas, workshops	
TDAQ laboratory equipment	
General services	2,164
Heavy handling	
Technical support, storage	
Survey	
Outreach	
Energy	
TOTAL	14,757
Hired manpower at CERN (in kC	incl. above
Institute manpower (in FTE)	0
TOTAL M&O FOR A	14,757



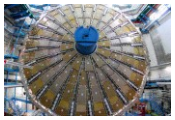
- **#028: Table 1**
- **2010 M&O-A Final Payments (kCHF)**

Category A (14.7 MCHF), including NMS-energy

- Cost drivers by activity
  - Technical services (6.1 MCHF)
  - Magnet operation (2.4 MCHF)
  - Core computing I&S (2.1 MCHF)
  - On-line computing (3.1 MCHF)
  - Energy NMS part (0.9 MCHF)

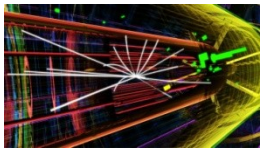
Pixel	SCT	TRT	IDGen	LAr	TileC	Muon	Comp	Cat. B M&O	Item & Cost Driver (by RRB SG Headings)
0	0	279	7	0	20	11		317	Mechanics
431	370	128	98	344	168	152		1,691	Standard electronics Crates, electronics pool rentals
0	0	0	0	2	8	19		29	Detector controls
30	39	30	293	7	5	0		404	Areas SR1-operations (ID), system tests, lab
5	5	2	9	28	4	9		62	Communications
10	32	10	8	8	4	15		87	Store items
878	0	0	0	608	263	0		1,749	Sub-detector spares (incl. IBL)
1,354	446	449	415	997	472	206	0	4,339	(Excluding hired manpower for Cat B)
60 24	249 24	77 26	235 29	334 41	191 28	215 85	 127	1,361 384	
1,414	695	526	650	1,331	663	421	0	5,700	TOTAL M&O FOR B

- **#028: Table 1**



- **2010 M&O-B Final Payments (kCHF)**
  - Category B (5.7 MCHF)
    - Cost drivers by activity
      - Spares (1.7 MCHF)
      - Electronics replacements, rentals (1.7 MCHF)
      - Technical services, manpower (1.4 MCHF)
      - Areas, stores (0.5 MCHF)
      - Mechanics (0.3 MCHF)
      - Operation effort 384 FTE (OTP Class 3), of which 127 FTE core computing effort as in-kind

Item & Cost Driver (by RRB SG Headings)	Cat. A M&O
Detector related costs	6,227
Detector & cryo operations	
IBL support, safety	
Secretariat	305
1.5 FTE charged to ATLAS	
Publications, consumables	
Communications	120
GSM phones	
Computer network connections	
Collaborative tools	
Core computing (infrastr. & serv	2,128
Software process service	
Central production & operation	
On-line computing	5,035
TDAQ, network replacements	
System administration	
Test beams, facilities	2,440
Magnet Cryo repairs	
ID cooling plant repairs	
Laboratory operations	125
Assembly areas, workshops	
TDAQ laboratory equipment	
General services	3,740
Heavy handling	
Technical support, storage	
Survey	
Outreach	
Energy	
TOTAL	20,120
Hired manpower at CERN (in kC	incl. above
Institute manpower (in FTE)	0
TOTAL M&O FOR A	20,120



- **#028: Table 4**
- **2012 M&O-A Preliminary Estimates (kCHF)**

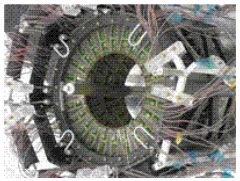
Category A (20.1 MCHF), including energy

- Cost drivers by activity
  - Technical services (9.6 MCHF)
  - Magnet operation (2.3 MCHF)
  - Core computing I&S (2.1 MCHF)
  - On-line computing (5.4 MCHF)
  - Energy NMS part (0.7 MCHF)

Pixel	SCT	TRT	IDGen	LAr	TileC	Muon	Comp	Cat. B M&O	Item & Cost Driver (by RRB SG Headings)
0	0	300	10	25	20	55		410	Mechanics
300	310	150	100	295	310	210		1,675	Standard electronics Crates, electronics pool rentals
0	0	0	0	40	15	100		155	Detector controls
30	40	40	245	10	20	0		385	Areas SR1-operations (ID), system tests, lab
5	5	5	10	5	5	5		40	Communications
10	30	30	10	10	25	0		115	Store items
1,000	0	0	0	350	30	0		1,380	Sub-detector spares (incl. IBL)
1,345	385	525	375	735	425	370	0	4,160	(Excluding hired manpower for Cat B)
185 24	250 24	160 24	300 30	440 67	250 28	350 109	138	1,935 444	
1,530	635	685	675	1,175	675	720	0	6,095	TOTAL M&O FOR B

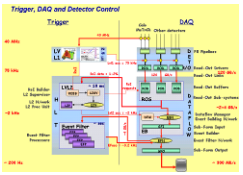
- **#028: Table 4**
- **2012 M&O-B Preliminary Estimates (kCHF)**
  - Category B (6.1 MCHF)
    - Cost drivers by activity
      - Technical services, manpower (1.9 MCHF)
      - Electronics replacements, rentals (1.7 MCHF)
      - Spares (1.4 MCHF)
      - Mechanics, areas, stores (0.9 MCHF)
      - Operation effort 444 FTE (OTP Class 3), of which 138 FTE core computing effort as in-kind

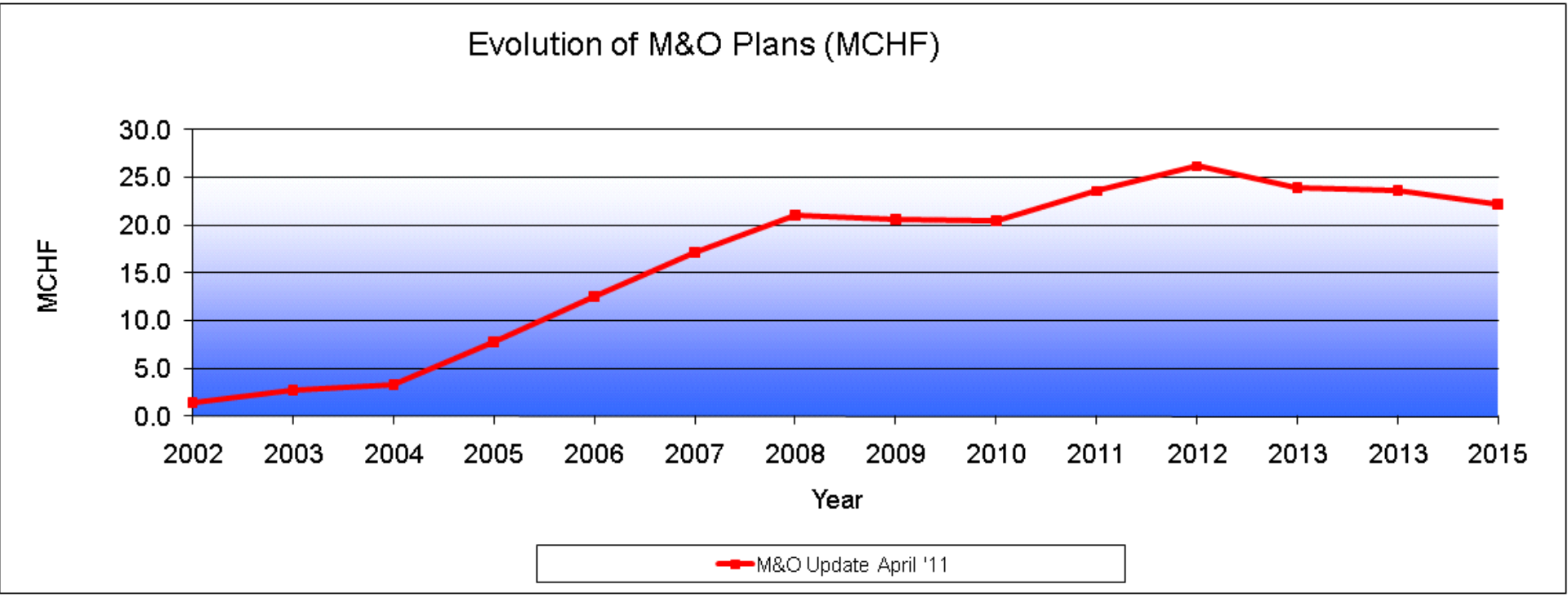
Comments on M&O (A, B) 2012



- M&O-A
  - The preliminary budget estimates include centralized technical support for the IBL, ID evaporative cooling and the detector safety system modifications (2.8 MCHF). *The revised machine schedule has not yet been factored into the related payment profiles*
  - The implementation details of the TDAQ replacement strategy for 2012+ need to be discussed with the Scrutiny Group (machine schedule, payments timing, profile smoothening etc.)
  - As the revised machine schedule has not yet been factored into the related payment profiles, it is likely that the final 2012 budget estimates in October will be ~10% less, assuming stretching & smoothening of budget profiles up to 2016
- M&O-B
  - Minor changes possible (e.g. spares profiles)
  - Includes ID-specific part of IBL (originally, 4.4 MCHF)
    - Original Pixel FAs have the option of having their calculated M&O share accounted for as separate project funding, reducing the 2012 M&O-B budget accordingly

Evolution of M&O 2002 – 2015, MCHF

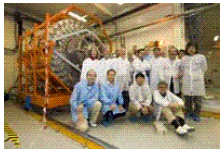




Note: The revised machine schedule has not yet been factored into the related 2012+ payment profiles. Once achieved, the 2012+ forecasts are expected to flatten out

Status of due M&O-A Contributions

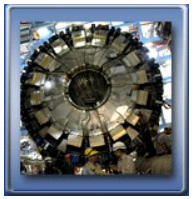
(April 8, 2011)



FUNDING AGENCIES	Outstanding 2002-2009	Outstanding 2010	TOTAL
MEMBER STATES			
PORTUGAL		106 000	106 000
SPAIN		306 000	306 000
1) TOTAL MEMBER STATES		**412 000**	**412 000**
NON-MEMBER STATES			
ARMENIA	4 798	9 000	13 798
BELARUS		49 128	49 128
BRAZIL		34 000	34 000
CHINESE CLUSTER		100 000	100 000
MOROCCO	54 000	73 000	127 000
JINR	227 000	58 000	285 000
2) TOTAL NON-MEMBER STATES	**285 798**	**323 128**	**608 926**
GRAND TOTAL (A+B)	**285 798**	**735 128**	**1 020 926**

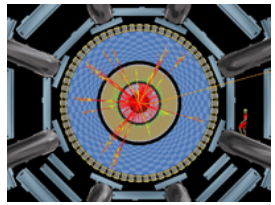
Status of due M&O-B Contributions

(April 8, 2011)



FUNDING AGENCIES	Outstanding 2002-2009	Outstanding 2010	TOTAL
MEMBER STATES			
SPAIN		162 000	162 000
A) TOTAL MEMBER STATES		**162 000**	**162 000**
NON-MEMBER STATES			
ARMENIA	13 000	1 000	14 000
BELARUS	6 000	3 000	9 000
BRAZIL		3 000	3 000
CHINESE CLUSTER		5 000	5 000
MOROCCO	3 000	4 000	7 000
JINR	15 000	11 000	26 000
B) TOTAL NON-MEMBER STATES	**37 000**	**27 000**	**64 000**
GRAND TOTAL (A+B)	**37 000**	**189 000**	**226 000**

RRB Invited to



- Approve 2010 FDL Payments (#026 Table 1)
- Take note of 2011 FDL Status (#026 Table 2)
- Approve M&O 2010 Payments (#028 Tables 1, 2)
- Take note of M&O 2012 Preliminary Budget Estimates (#028 Tables 4, 5)