

CERN-RRB-2012-027



# Status of ATLAS Resources

Presentation to RRB 24.04.2012

Markus Nordberg

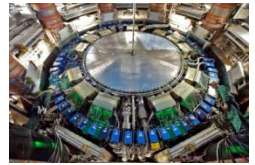
ATLAS Resources Coordination

# Full Design Luminosity (FDL) 2011

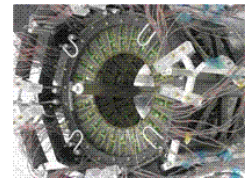


- Document CERN-RRB-2012-028
- 2011 Final payments (Table 1, for approval)
  - TDAQ: contributions 0.9 MCHF
    - Note: As part of the initial TDAQ CORE (2.5 MCHF)
  - Insertable b-layer (IBL) payments 2.4 MCHF, incl. M&O
    - Note: Cost envelope 9.7 MCHF + 0.3 MCHF (DBM), as defined in the IBL-MoU
    - IBL-MoU now in its definite form (CERN-RRB-2012-028 Appendix 1, for endorsement), has been sent to those Funding Agencies involved for signature
  - Pixel SQP repair payments 2.0 MCHF, incl. related M&O support
    - Note: Total approved project envelope is 3.2 MCHF (CERN 1.2 MCHF+ Deferrals 1.9 MCHF)

# Full Design Luminosity (FDL) 2012



- Document CERN-RRB-2012-028
- 2012 FDL Budget update (Table 2, for information)
  - TDAQ 0.1 MCHF, completes the initial CORE TDAQ
  - IBL 3.4 MCHF, of which 1.1 MCHF included in M&O
  - SQP 1.8 MCHF, including deferrals and related M&O support



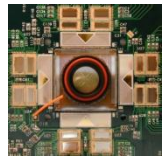
# Full Design Luminosity (FDL) Table 3

Funding Agency	nSW	LA+E	Ti+C	FTK	TDAQ	APP	total	technology options
Argentina							0.1	
Armenia							0.1	
Australia							0.1	
Austria							0.1	
Azerbaijan							0.1	
Belarus							0.1	
Brazil							0.1	
Canada							1.0	
Chile							0.1	
China NSFC+MSTC							0.1	
Colombia							0.1	
Czech Republic							0.1	
Denmark							0.2	
France IN2P3							1.5	
France CEA							3.0	1.2
Georgia							0.1	
Germany BMBF							3.0	
Germany DESY							0.4	
Germany MPI							0.5	
Greece							0.3	0.7
Israel							1.7	
Italy							2.5	
Japan							0.9	0.9
Morocco							0.1	
Netherlands							0.7	
Norway							0.3	
Poland							0.1	
Portugal							0.1	0.1
Romania							0.1	
Russia							1.5	
JINR							0.4	
Serbia							0.1	
Slovak Republic							0.1	
Slovenia							0.1	
South Africa							0.1	
Spain							0.7	
Sweden							0.6	
Switzerland							1.1	0.4
Taipei							0.1	
Turkey							0.1	
United Kingdom							2.5	
US DOE+NSF							7.6	2.3
CERN							3.4	
from deferrals							0.0	
from M&O (A+B)							0	0
total sub-detector	0.0	0.0	0.0	0.0	0.0	0.0	36.0	5.6
target (TDR)	9.3	8.0	0.4	3.6	12.0	2.7	36.0	

- Document CERN-RRB-2012-028 Table 3, for information only
- Current status of expression of interest in Phase-1 sub-projects (marked in yellow)
- Still to be clarified
  - Technology options available
  - Principle of fairness in sharing of costs
  - Available flexibility in allocation of possible contributions across projects
- Note
  - Final CORE cost figures will be fixed in sub-project specific Technical Design Reports (TDRs) and subsequent MoU CORE Addenda
  - Common Fund part planned to be funded by use of deferrals and extra contribution from CERN
- Will return next October with an update of the framework for RRB endorsement

Item & Cost Driver (by RRB SG Headings)	Cat. A M&O
Detector related costs Cryogenics operations Detector operations	5,928
Secretariat 1.5 FTE charged to ATLAS Publications, consumables	378
Communications GSM phones Computer network connections Collaborative tools	366
Core computing (infrastr. & serv Software process service Central production & operation	2,127
On-line computing TDAQ, network replacements System administration	3,940
Test beams, facilities Magnet Cryo repairs ID cooling repairs	1,486
Laboratory operations Assembly areas, workshops TDAQ laboratory equipment	113
General services Heavy handling Technical support, storage Survey Outreach Energy	2,283
<b>TOTAL</b>	<b>16,621</b>
Hired manpower at CERN (in kCHF) Institute manpower (in FTE)	incl. above 0
<b>TOTAL M&amp;O FOR A</b>	<b>16,621</b>

- **#026: Table 1**
- **2011 M&O-A Final Payments (kCHF)**



## Category A (16.6 MCHF), including NMS-energy

- Cost drivers by activity

- Technical services  
(7.6 MCHF)

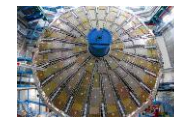
- On-line computing  
(4.2 MCHF)

Note: no use of TDAQ  
Buffer Account so far (0  
CHF)

- Core computing I&S (2.1  
MCHF)

- Magnet operation  
(1.7 MCHF)

- Energy NMS part  
(0.9 MCHF)



- **#026: Table 1**
- **2011 M&O-B Final Payments (kCHF)**

- **Category B (6.4 MCHF)**

- Cost drivers by activity
  - Electronics (3.8 MCHF)
  - Technical support (1.5 MCHF)
  - Areas, stores (0.5 MCHF)
  - Mechanics, gas (0.3 MCHF)
  - Spares (0.1 MCHF)
  - Operation effort 384 FTE (OTP Class 3), of which 138 FTE core computing effort as in-kind

Pixel	SCT	TRT	ID	Gen	LAr	Tile	CMuon	Comp	Cat. B M&O	Item & Cost Driver (by RRB SG Headings)
0	0	0	0	0	0	3	76		79	Mechanics
0	0	224	0	0	0	11	0		235	Gas systems
0	0	0	0	0	0	2	16		18	Cooling systems
0	0	0	0	362	55	135			552	Front-end electronics
607	427	398	272	890	337	94			3,025	Standard electronics Power supplies, crates, RO-modules
9	64	0	62	27	9	39			210	Controls (DCS, DSS)
139	11	0	0	0	190	0			340	Sub-detector spares incl. IBL (139 kCHF)
95	64	30	80	13	15	0			297	Areas SR1-operations (ID), system tests, lab. O
3	3	3	4	16	3	10			42	Communications
8	16	11	3	50	5	12			105	Store items
861	585	666	421	1,358	630	382	0		4,903	(Excluding hired manpower for Cat B)
158	188	135	160	271	177	380			1,469	
31	22	21	23	40	32	77	138		384	Class 3 expert tasks (OTP)
1,019	773	801	581	1,629	807	762	0		6,372	TOTAL M&O FOR B



- **#026: Table 4**
- **2013 M&O-A Preliminary Estimates (kCHF)**

**Category A (17.8 MCHF), including energy**

- Cost drivers by activity
  - Technical services (9.8 MCHF)
  - On-line computing (3.6 MCHF)
  - Core computing I&S (2.1 MCHF)
  - Magnet operation (1.6 MCHF)
  - Energy NMS part (0.7 MCHF)

Item & Cost Driver (by RRB SG Headings)	Cat. A M&O
Detector related costs Cryogenics operations Detector operations	6,568
Secretariat 1.5 FTE charged to ATLAS Publications, consumables	305
Communications GSM phones Computer network connections Collaborative tools	507
Core computing (infrastr. & serv Software process service Central production & operation	2,128
On-line computing TDAQ, network replacements System administration	3,314
Test beams, facilities Magnet Cryo repairs ID cooling repairs	910
Laboratory operations Assembly areas, workshops TDAQ laboratory equipment	105
General services Heavy handling Technical support, storage Survey Outreach Energy	3,963
<b>TOTAL</b>	<b>17,800</b>
Hired manpower at CERN (in kC) <small>incl. above</small>	
Institute manpower (in FTE)	0
<b>TOTAL M&amp;O FOR A</b>	<b>17,800</b>

- #026: Table 4



- 2013 M&O-B Preliminary Estimates (kCHF)

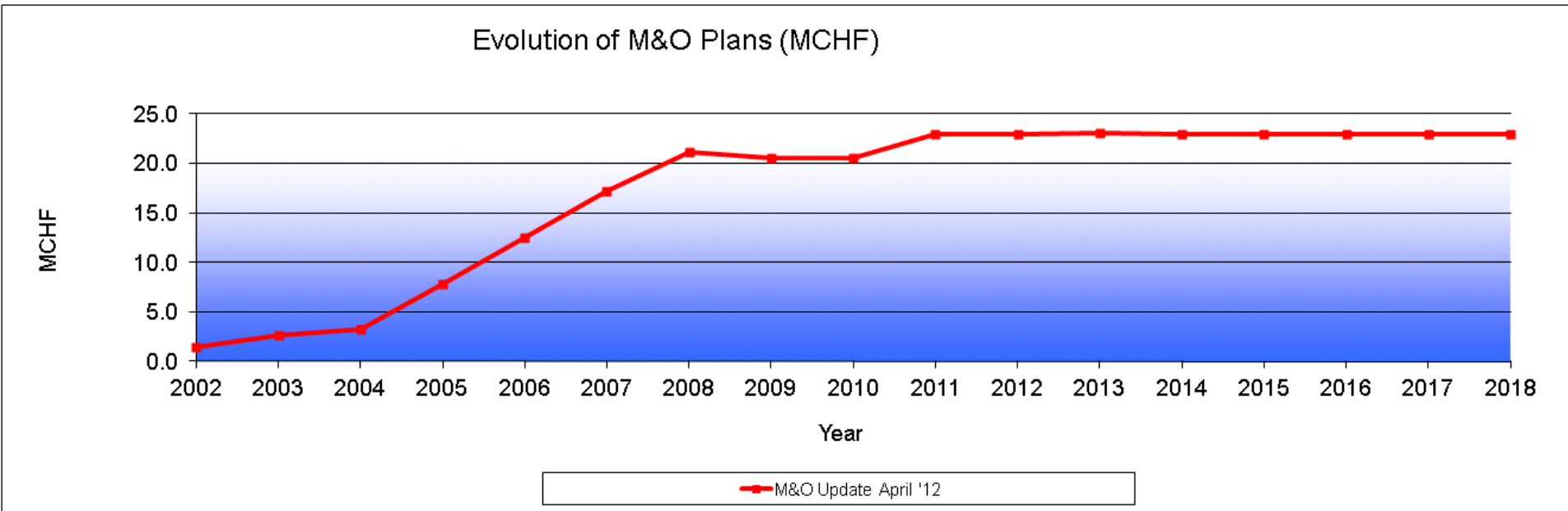
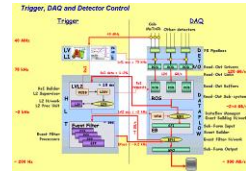
- Category B (5.2 MCHF)

- Cost drivers by activity
  - Technical services, manpower (2.2 MCHF)
  - Electronics replacements, rentals (1.8 MCHF)
  - Spares (0.5 MCHF)
  - Mechanics, areas, stores (0.7 MCHF)
  - Operation effort 462 FTE (OTP Class 3), of which 138 FTE core computing effort as in-kind

Pixel	SCT	TR	ID	Gen	LAr	Tile	CMuon	FD	Comp.	Cat. B M&O	Item & Cost Driver (by RRB SG Headings)
0	0	0	0	0	5	8	40	10		63	Mechanics
0	0	20	0	0	1	8	0	0		29	Gas systems
0	0	0	0	0	5	0	0	0		5	Cryo-systems
0	0	0	0	0	15	3	15	0		33	Cooling system
0	0	0	0	0	0	60	0	7		67	FE electronics
210	240	150	205	295	224	210	210	44		1,578	Standard electronics Power supplies, crates, RO-modules
10	20	10	5	40	16	30	11			142	Controls (DCS, DSS)
0	0	0	0	420	30	0	53			503	Sub-detector spares
65	50	50	95	10	20	0	18			308	Areas SR1-operations (ID), system tests, lab. C
3	3	3	5	5	5	5	3			32	Communications
28	30	72	34	10	23	0	18			215	Store items
316	343	305	344	806	397	300	164	0		2,975	(Excluding hired manpower for Cat B)
294	294	240	329	389	250	350	95			2,242	
31	22	25	23	67	28	100	28	138		462	Class 3 expert tasks (OTP)
610	637	545	673	1,195	647	650	259	0		5,217	TOTAL M&O FOR B



# Evolution of M&O 2002 – 2018, MCHF



Note: M&O (A+B) forecasts are flat, using TDAQ spares as a buffer. So far, not used.

# Status of due M&O-A Contributions

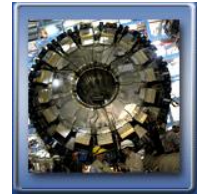
## (April 23, 2012)



FUNDING AGENCIES	Outstanding 2002-2010	Outstanding 2011	Outstanding 2012	TOTAL
<b>MEMBER STATES</b>				
AUSTRIA			17 000	17 000
CZECH REPUBLIC			99 000	99 000
FRANCE IN2P3		- 1 000	784 000	783 000
GREECE			142 000	142 000
ITALY			1 175 000	1 175 000
POLAND			19 200	19 200
PORTUGAL		110 000	108 000	218 000
SPAIN		350 000	317 000	667 000
SWEDEN			258 000	258 000
SWITZERLAND			192 000	192 000
<b>A) TOTAL MEMBER STATES</b>		<b>459 000</b>	<b>3 111 200</b>	<b>3 570 200</b>
<b>NON-MEMBER STATES</b>				
ARMENIA	1 748	10 000	10 000	21 748
AUSTRALIA			119 000	119 000
AZERBAIJAN			20 000	20 000
BELARUS	49 128	61 000	49 000	159 128
BRAZIL	34 000	71 000	99 000	204 000
CANADA			520 000	520 000
CHILE			4 000	4 000
ISRAEL			174 000	174 000
JAPAN			678 000	678 000
MOROCCO	127 000	81 000	89 000	297 000
ROMANIA			119 000	119 000
JINR		- 120 000	137 000	17 000
RUSSIA PROTVINO			491 000	491 000
SERBIA			59 000	59 000
TURKEY			119 000	119 000
U.S.A. DOE & NSF			3 290 000	3 290 000
<b>B) TOTAL NON-MEMBER STATES</b>	<b>211 876</b>	<b>103 000</b>	<b>5977 000</b>	<b>6291 876</b>
<b>GRAND TOTAL (A+B)</b>	<b>211 876</b>	<b>562 000</b>	<b>9 088 200</b>	<b>9 862 076</b>

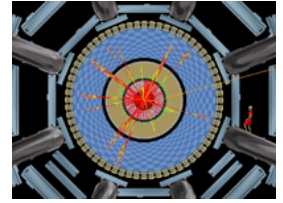
# Status of due M&O-B Contributions

## (April 23, 2012)



FUNDING AGENCIES	Outstanding 2002-2010	Outstanding 2011	Outstanding 2012	TOTAL
<b>MEMBER STATES</b>				
AUSTRIA			7 000	7 000
CZECH REPUBLIC			10 000	10 000
FRANCE IN2P3		70 943	1 000	71 943
GREECE			8 000	8 000
ITALY			532 000	532 000
POLAND			7 200	7 200
PORTUGAL			6 000	6 000
SLOVAK REPUBLIC			4 000	4 000
SPAIN		149 000	144 000	293 000
SWEDEN			105 000	105 000
SWITZERLAND			77 000	77 000
<b>1) TOTAL MEMBER STATES</b>		<b>219 943</b>	<b>901 200</b>	<b>1 121 143</b>
<b>NON-MEMBER STATES</b>				
ARMENIA		2 000	1 000	3 000
AUSTRALIA			41 000	41 000
AZERBAIJAN			1 000	1 000
BELARUS	9 000	3 000	3 000	15 000
BRAZIL	3 000	4 000	5 000	12 000
CANADA			204 000	204 000
ISRAEL			10 000	10 000
JAPAN			235 000	235 000
MOROCCO	7 000	4 000	4 000	15 000
ROMANIA			6 000	6 000
JINR			14 000	14 000
RUSSIA PROTIVINO			34 000	34 000
SERBIA			3 000	3 000
TURKEY			6 000	6 000
U.S.A. DOE & NSF			1 253 000	1 253 000
<b>2) TOTAL NON-MEMBER STATES</b>	<b>19 000</b>	<b>13 000</b>	<b>1820 000</b>	<b>1852 000</b>
<b>GRAND TOTAL (1+2)</b>	<b>19 000</b>	<b>232 943</b>	<b>2 721 200</b>	<b>2 973 143</b>

# RRB Invited to



- Approve 2011 FDL Payments (#028 Table 1)
- Take note of 2012 FDL Status (#028 Table 2)
- Take note of status of Phase-1 financial plan (#028 Table 3)
- Approve M&O 2011 Payments (#026 Tables 1, 2)
- Take note of M&O 2013 Preliminary Budget Estimates (#026 Tables 4, 5)