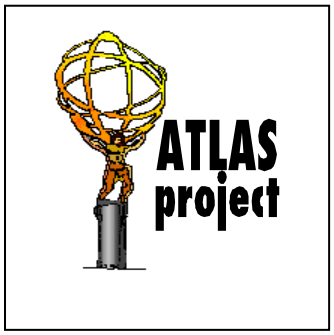

CERN-RRB-2012-078

ATLAS Resources Review Board, October 29, 2012

For RRB information (2012)
For RRB approval (2013)

ATLAS Full Design Luminosity Detector Activities
Status Report 2012 - 2013

Introduction

The ATLAS management, supported by the ATLAS Executive and Collaboration Boards, kindly invites the RRB to take note of the 2012 status report for the Full Design Luminosity activities and approve the 2013 budget.

The initial ATLAS construction period finished in 2008. The initial detector configuration was determined in 2002, following an updated financial plan endorsed by the RRB at that time. As described in the Cost to Completion (CtC) plan (CERN-RRB-2002-114 rev.), original CORE items worth some 30 MCHF were staged to liberate financing to bridge the gap between cost to completion (CtC) and available firm financial pledges. It was understood that once the CtC budget of 72.6 MCHF was fully pledged, the deferred funds would be returned to complete the Full Design Luminosity (FDL) detector, as defined in the Technical Proposal (CERN/LHCC/94-43). As some of the remaining pledges and the deferred funds have become available since then, related project planning and execution has started. The latest progress was reported in the April 2012 RRB (CERN-RRB-2012-028).

FDL TDAQ BUDGET REPORT ELEMENTS

- Initial TDAQ scope
- TDAQ 2012 status
- TDAQ 2013 budget

1. Completion of the TDAQ System

Following the closing of the ATLAS detector for the start-up of LHC in September 2008, some 2.5 MCHF worth of TDAQ equipment remained to be installed at ATLAS, before the liberation of deferred funds to be used to complete the TDAQ system (see CERN-RRB-2009-066). So far, some 1.1 MCHF worth of deferrals have been liberated for improving the TDAQ performance, thus bringing the total planned TDAQ expenditures to 3.6 MCHF.

Table 1 shows the updated budget for 2012 for the initial TDAQ system, taking into account the work plan starting in 2013 for the long shut-down. The planned expenditures in 2012 amount to 0.1 MCHF.

Table 2 provides the TDAQ budget for 2013 of 0.1 MCHF for auxiliary equipment, in line with the current LHC machine schedule. This investment completes the initial TDAQ CORE investments.

OTHER FDL ACTIVITIES REPORT ELEMENTS

- Status of IBL
- Description of other FDL activities
- Next steps

2. Other FDL Detector activities

The status of other FDL-related activities was given to the RRB in April 2012 (CERN-RRB-2012-028).

Proceeding along plans presented in the IBL-MoU, Table 1 shows the status of payments in 2012, amounting to 3.4 MCHF, including related infrastructure support accounted for in M&O-A. This includes modules and stave construction as well as procurement of a new beam-pipe and installation tools. Table 2 shows the budget for 2013, amounting to of 2.0 MCHF in total.

For the time being, there is no active project work on Forward Detectors (CERN/LHCC/2004-010) or on the Zero Degree Calorimeter (CERN/LHCC/2007-001).

The urgent repair work of the Inner Detector Pixel Service Quarter Panels (SQP) is proceeding well, with the active help of CERN. The SQP repair work was last reported in the April 2012 RRB (CERN-RRB-2012-028). Endorsed by the Collaboration Board, 3.2 MCHF of project funding have been provisioned for the repair work extending up to 2013, shared between ATLAS (deferral funds of 1.9 MCHF) and CERN (1.3 MCHF). As seen in Table 1, during 2012, 1.7 MCHF is allocated for related engineering, tooling, construction and testing activities in Point 1, showing also the share of infrastructure support provided in M&O. Table 2 shows the remaining budgeted payments for 2013 to complete the preparations, amounting to 0.3 MCHF, including the support provided in M&O.

An update of ATLAS upgrade plans for Phase 1 (for long shutdown 2018) and Phase 2 (for long shutdown 2022) was presented in the April 2012 RRB (CERN-RRB-2012-028). Phase 1 will progress by submitting a Technical Design Report (TDR) separately project by project, each followed by a separate Addendum to the Construction MoU. In line with the Letter of Intent (LoI) for Phase 1 (CERN-LHCC-2011-012), the related cost is estimated at about 36 MCHF, based on construction CORE-costing and depending on the final technology options chosen.

Table 3 provides the financial framework for Phase 1. It reflects the special technical interests of the community and the principle of sharing the costs in a fair manner. The shaded areas indicate the interest expressed by the ATLAS institutions in the related sub-projects, which currently include: new Small Wheels (nSW), electronics for the Liquid Argon and Tile Calorimeters (LAr-E and TileC, correspondingly), Fast Tracker System (FTK), the Trigger-Data Acquisition System (TDAQ) and the Forward Physics System (AFP). The RRB is kindly invited to endorse the above financial framework and target figures, along with the following guidance: formal financial commitments are expected only once sub-project specific MoU Addenda

are prepared, following LHCC endorsement of the related TDRs; there will be no MoU Addenda for Common Items; all Funding Agencies are expected to contribute their fair share of the upgrade costs .

FDL Contributions to ATLAS Detector during 2012 by Funding Agency

(Payments, in kCHF)

Funding Agency	Forward Detectors			IBL	SQP	Trigger /DAQ	total
	ALFA	LUCID	ZDC				
Argentina							**0**
Armenia							**0**
Australia							**0**
Austria							**0**
Azerbaijan							**0**
Belarus							**0**
Brazil							**0**
Canada				52			**52**
Chile							**0**
China NSFC+MSTC							**0**
Colombia							**0**
Czech Republic							**0**
Denmark							**0**
France IN2P3				140			**140**
France CEA							**0**
Georgia							**0**
Germany BMBF				450			**450**
Germany DESY				50			**50**
Germany MPI							**0**
Greece							**0**
Israel							**0**
Italy				407			**407**
Japan				71			**71**
Morocco							**0**
Netherlands				23			**23**
Norway				57			**57**
Poland							**0**
Portugal							**0**
Romania							**0**
Russia							**0**
JINR							**0**
Serbia							**0**
Slovak Republic							**0**
Slovenia				30		110	**140**
South Africa							**0**
Spain				108			**108**
Sweden							**0**
Switzerland				260			**260**
Taipei							**0**
Turkey							**0**
United Kingdom				93			**93**
US DOE+NSF				320			**320**
CERN				249	456		**705**
from deferrals					650		**650**
total sub-detector	**0**	**0**	**0**	**2310**	**1106**	**110**	**3526**
in addition in M&O-B					**192**		**192**
in addition in M&O-A				**1050**	**432**		**1482**

Notes:
BMBF IBL contribution was provisioned in the Pixel M&O in 2009-2010

FDL Contributions to ATLAS Detector during 2013 by Funding Agency

(Payments, in kCHF)

Funding Agency	Forward Detectors			IBL	SQP	Trigger /DAQ	total
	ALFA	LUCID	ZDC				
Argentina							**0**
Armenia							**0**
Australia							**0**
Austria							**0**
Azerbaijan							**0**
Belarus							**0**
Brazil							**0**
Canada							**0**
Chile							**0**
China NSFC+MSTC							**0**
Colombia							**0**
Czech Republic							**0**
Denmark							**0**
France IN2P3				80			**80**
France CEA							**0**
Georgia							**0**
Germany BMBF				308			**308**
Germany DESY				22			**22**
Germany MPI							**0**
Greece							**0**
Israel							**0**
Italy				130			**130**
Japan				21			**21**
Morocco							**0**
Netherlands				16			**16**
Norway				3			**3**
Poland							**0**
Portugal							**0**
Romania							**0**
Russia							**0**
JINR						100	**100**
Serbia							**0**
Slovak Republic							**0**
Slovenia							**0**
South Africa							**0**
Spain				24			**24**
Sweden							**0**
Switzerland				140			**140**
Taipei				41			**41**
Turkey							**0**
United Kingdom							**0**
US DOE+NSF				135			**135**
CERN				80			**80**
from deferrals					90		**90**
total sub-detector	**0**	**0**	**0**	**1000**	**90**	**100**	**1190**
in addition in M&O-B					**230**		**230**
in addition in M&O-A				**995**			**995**

Notes:
BMBF IBL contribution was provisioned in the Pixel M&O in 2009-2010

Proposed Sharing of Phase 1 by Funding Agency

20/10/2012

(Payments, in MCHF) DRAFT

Funding Agency	nSW	LAr-E	TileC	FTK	TDAQ	AFP	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						■	0.1	0.2
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	■	■	■		■		3.6	
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	5.8
target (TDR)	9.3	8.0	0.4	3.6	12.0	2.7	36.0	

Notes:

1. All figures are target figures, while preparing sub-project specific TDRs and MoU Addenda
2. In some cases, they represent funding requests submitted, or being submitted
3. Sub-projects of expressed interest are highlighted in green
4. Column "technology options" indicate possibility of supplementary contributions, subject to technology choices