

CERN-RRB-2011-068

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ATLAS Resources Review Board, October 17, 2011

For RRB information (2011)  
For RRB approval (2012)




## **ATLAS Full Design Luminosity Detector Activities Status Report 2011 - 2012**

# Introduction

*The ATLAS management, supported by the ATLAS Executive and Collaboration Boards, kindly invites the RRB to take note of the 2011 status report for the Full Design Luminosity activities and approve the 2012 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 2011 RRB (CERN-RRB-2011-026).

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<i>F D L T D A Q B U D G E T</i>
<i>R E P O R T E L E M E N T S</i>
 Initial TDAQ scope
 TDAQ 2011 status
 TDAQ 2012 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 2011 for the initial TDAQ system following the revised LHC machine schedule of a long shut-down in 2013, amounting to 0.5 MCHF. These payments cover the installation of additional HLT boxes and related auxiliaries.

**Table 2** provides the TDAQ budget for 2012 (and for future years) of 0.4 MCHF, in line with the current LHC machine schedule.

## 2. Other FDL Detector activities

The status of other FDL-related activities was given to the RRB in April 2011 (CERN-RRB-2011-026). Since then, the sensor technology has been chosen (a mix of planar and 3D-sensors) and the revised LHC machine schedule of having a long shut-down in 2013-2014 is being factored into the project plans. A final round of discussions is currently taking place with the related institutes and Funding Agencies, before the definite IBL-MoU is distributed for signatures later in the year. Despite some changes in the work plans, related costs and the payment profiles, the IBL project cost will remain within the initial 9.7 MCHF framework.

IBL-related expenditures started in 2010. Table 1 shows the status of payments amounting to 2.5 MCHF in 2011. This includes modules and stave construction as well as procurement of a new beam-pipe and installation tools, as part of the M&O (A+B) budgets and new project money. It should be noted that in 2009, some 0.8 MCHF was originally provisioned in the M&O-B budget for IBL. This is included in the expenditures planning for 2011. The sharing of payments per Funding Agency includes here both pledged new project funds, as well as related transfers done from M&O-Pixels (CERN-RRB-2010-087, Table 1). Table 2 shows the budget for 2012 of 3.5 MCHF in total, it being understood that some details remain subject to signing of the definite IBL-MoU.

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 (n)SQP repair work was reported in the April 2011 RRB (CERN-RRB-2011-026). Subsequently, and 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 2011, 2.7 MCHF is allocated for related engineering, tooling, construction and testing activities in Point 1. Table 2 shows the budgeted payments for 2012, amounting to 445 kCHF.

Planning work is proceeding concerning new projects covered in the Interim-Letter of Intent (I-LoI). Based on the agreed procedures, these will be included in the current reporting through the appropriate MoU Addenda when the technology matures and the financing becomes available.

## FDL Contributions to ATLAS Detector during 2011 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				10			10
Denmark							0
Finland							0
France IN2P3				142			142
France CEA							0
Georgia							0
Germany BMBF				214			214
Germany DESY				72			72
Germany MPI							0
Greece							0
Israel							0
Italy				244			244
Japan				10			10
Morocco							0
Netherlands				40			40
Norway				23			23
Poland							0
Portugal							0
Romania							0
Russia							0
JINR							0
Serbia							0
Slovak Republic							0
Slovenia							0
South Africa							0
Spain				17			17
Sweden							0
Switzerland				291			291
Taipei				12			12
Turkey							0
United Kingdom				31			31
US DOE+NSF				293			293
CERN				154	1330	500	1984
from deferrals					1330		1330
total sub-detector	0	0	0	1553	2660	500	4713
of which from M&O-B				149			149
in addition in M&O-A				940			940

## 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							0
Chile							0
China NSFC+MSTC							0
Colombia							0
Czech Republic				17			17
Denmark							0
Finland							0
France IN2P3				214			214
France CEA							0
Georgia							0
Germany BMBF				612			612
Germany DESY							0
Germany MPI							0
Greece							0
Israel							0
Italy				357			357
Japan				115			115
Morocco							0
Netherlands				88			88
Norway				17			17
Poland							0
Portugal							0
Romania							0
Russia							0
JINR						100	100
Serbia							0
Slovak Republic							0
Slovenia							0
South Africa							0
Spain				84			84
Sweden							0
Switzerland				323			323
Taipei							0
Turkey							0
United Kingdom				50			50
US DOE+NSF				304			304
CERN				219		265	484
from deferrals					445		445
total sub-detector	0	0	0	2400	445	365	3210
of which from M&O-B							0
in addition in M&O-A				1050			1050