



**Minutes of the 23rd Resources Review Board Meeting
Held at CERN on 23rd October 2006**

Present:*Europe*

J. Niederle, (Academy of Sciences, Prague, Czech Republic), V. Vrba
 J.D. Hansen (Niels Bohr Institute, Copenhagen, Denmark)
 C. Cavata (CEA-Saclay, Gif-sur-Yvette, France), J. Ernwein
 F. Le Diberder (IN2P3, Paris, France), D. Fournier
 J. Richter (BMBF, Bonn, Germany), S. Bethke (MPI Munich), H. Oberlack
 E. Gazis (National Technical University, Greece)
 E. Rabinovici (Racah Institute of Physics, Jerusalem, Israel), G. Mikenberg
 U. Dosselli (INFN, Rome, Italy), F. Ferroni, L. Mandelli, F. Ferrini (Permanent Mission of Italy, Geneva)
 A. van Rijn (NIKHEF, Amsterdam, Netherlands),
 B. Jacobsen (Norwegian Research Council, Oslo, Norway), S. Stapnes (University of Oslo)
 J. Królikowski (University of Warsaw, Warsaw, Poland), M. Turala
 G. Barreira, (LIP, Portugal)
 G.M. Chis (National Authority for Scientific Research, Bucuresti, Romania), L. Puscaragiu (Permanent Mission of Romania, Geneva)
 V. Savrin (Russian Federal Agency of Science and Innovation), A. Petrov (Permanent Mission of Russia, Geneva), R. Lednicky (JINR, Dubna, Russia), N. Rusakovich (Skobeltsyn Institute of Nuclear Physics)
 D. Popovic (Institute of Physics, Serbia)
 A. Sitarova (Ministry of Education of the Slovak Republic, Bratislava)
 M. Mikuz (Jozef Stefan Institute, University of Ljubljana, Slovenia)
 D. Espriu (Min. of Education and Science, Spain), F. Barreiro (Universidad Autonoma de Madrid)
 A.C. Lagerkvist (Swedish Research Council, Stockholm, Sweden)
 A. Clark ("CHIPP" Geneva, Switzerland), A. Rubbia (ETH Zurich)
 R. Wade (PPARC, United Kingdom), R. Jones

America

L. Baranao, M-T. Dova (Argentina)
 I. Blain (NSERC, Ottawa, Canada), C. Oram (Triumpf), R. Orr, W. Davidson (Observer, NRC)
 J. O'Fallon (DOE, Washington, USA), S. Gonzalez, T. Ferbel, H. Gordon (BNL)
 M. Pripstein (NSF, Washington, USA), J. Shank, P. Tuts, J. Whitmore

Asia

P. Ji (National Science Funding Agency of China), L. Shen, Y. Zhang, Q. Ouyang (IHEP Beijing)
 H. Iwasaki (KEK, Tsukuba, Japan), K. Saito (Permanent Mission of Japan, Geneva)
 S.C. Lee (ACSS, Taipei)

Australia

S. Tovey (Australian Research Council, Melbourne)

CERN

R. Aymar, J-J. Blaising, J. Engelen (chairman), D. Jacobs, C. Jones (secretary), S. Lettow, A.J. Naudi, C. Saitta, J. Salicio-Diaz, S. Schmeling, E. Tsismelis, P. Geeraert

ATLAS

P. Fassnacht, F. Gianotti, P. Jenni, M. Nessi, M. Nordberg
 M. Morandin (INFN Padova, Scrutiny Group Chairman)

23rd Meeting of the ATLAS Resources Review Board RRB, 23rd October 2006

1. Introduction

J. Engelen, Chief Scientific Officer

J. Engelen welcomed RRB delegates to this 23rd session of the ATLAS Resources Review Board. He introduced S. Lettow, who would replace A. Naudi as CFO when the latter retired at the end of the year.

J. Engelen noted that this was one of the last RRB meetings before the detector had to be ready, and hence there were certain implications, and issues that needed to be faced.

2. Approval of the Minutes of the 22nd Meeting (CERN-RRB-2006-065)

The minutes of the 22nd meeting were approved subject to the addition of G. Barreira as the Portuguese delegate in the attendance list, the replacement of “his” by “he” on the fourth line from bottom of page 8, and the correction of the spelling of TRIUMF on page 3. J. Engelen thanked C. Jones for having taken these minutes. There were no matters arising.

3. Status of the Experiment

P. Jenni, Spokesperson

Paper CERN-RRB-2006-069

Presentation CERN-RRB-2006-109

3.1 Collaboration News and Management

P. Jenni announced that, since the last RRB in April 2006, seven Expressions of Interests to join the ATLAS Collaboration had been concluded with unanimous admission votes at the Collaboration Boards. Discussions and negotiations for these contributions had been constructive and mutually beneficial. This meant, in particular, that in each case suitable and necessary technical service tasks and contributions had been identified, in addition to the involvements in the physics. A number of other groups had been encouraged by ATLAS at this stage to join forces with existing ATLAS Institutions, and some other contacts had not been pursued. There were no pending Expressions of Interest on the time scale of the April 2007 RRB.

The Collaboration took also note of the withdrawal of Naruto University of Education, Tokushima, Japan, which had completed its initially expected contribution to ATLAS (GEANT4 development work).

The new Institutions unanimously admitted by the ATLAS Collaboration were as follows:

- Fachhochschule Wiener Neustadt (FHWN), Wiener Neustadt, Austria - (Technical expertise in system integrations, Grid computing)
- University of Regina, Physics Department, Regina, Canada - (Software tools, LAr calibrations and commissioning)
- DESY (Hamburg and Zeuthen), Germany - (HLT, Grid computing, shower simulations)
- Humboldt University Berlin, Institute of Physics, Berlin, Germany - (HLT, commissioning, computing, working very closely with DESY)
- Nagoya University, Department of Physics, Nagoya, Japan - (TGC trigger and DAQ)
- New York University, Department of Physics, New York, U.S.A. (HLT algorithms for level-2 and EF, commissioning, power systems for upgrades)
- SLAC, Stanford, U.S.A. - (Pixels – hard and software, HLT, simulations, Grid computing)

The RRB was kindly requested to endorse the admission of these seven new Institutions in the ATLAS Collaboration. The RRB duly **endorsed** these admissions.

Currently, the ATLAS Collaboration stood at 35 Countries, 164 Institutions, 1800 Scientific Authors in total, (1470 with a PhD, for M&O share).

Following the standard procedures and schedule, the Collaboration Board had elected a new Deputy Collaboration Board Chairperson, who would then become CB Chair afterwards, namely

Kerstin Jon-And (Stockholm University). She would replace Siegfried Bethke (MPI Munich) whose term of office finished at the end of this year. The Collaboration Board had also endorsed the re-appointments for the term of office March 2007 to February 2009 of Marzio Nessi, Technical Coordinator, and Markus Nordberg, Resources Coordinator. The CERN Management had approved formally these appointments.

3.2 Construction Progress

P. Jenni provided a most detailed report of construction progress of the experiment (CERN-RRB-2006-069) as well as a clear presentation including the latest photographs (CERN-RRB-2006-109). This information is not further summarized in these minutes.

3.3 Cost to Completion, and initial staged detector configuration

P. Jenni reminded the RRB that the Cost to Completion (CtC) was defined as the sum of Commissioning and Integration (C&I) pre-operation costs plus the Construction Completion (CC) cost in addition to the deliverables.

He noted that ATLAS was proceeding within the framework agreed at the October 2002 RRB, namely:

The following framework was accepted at the October 2002 RRB

(ATLAS Completion Plan, CERN-RRB-2002-114rev.):

CtC	68.2 MCHF (sum of CC = 47.3 MCHF and C&I = 20.9 MCHF)
Commitments from Funding Agencies for fresh resources (category 1)	46.5 MCHF
Further prospects, but without commitments at this stage (category 2)	13.6 MCHF

The missing resources, 21.7 MCHF, have to be covered by redirecting resources from staging and deferrals.

The Funding situation will be reviewed regularly at each RRB, and is expected to evolve as soon as further resources commitments will become available.

He noted that the physics impact of the staging and deferrals was discussed in detail with the LHCC previously. It had to be clearly understood that the full potential of the ATLAS detector would need to be restored for the high luminosity running, which was expected to start only very few years after turn-on of the LHC, and to last for at least a decade.

3.4 Updated Cost to Completion estimates

The RRB was informed in the April 2006 meeting that the ATLAS management was re-evaluating the financial situation and evolution since the CtC estimates accepted in October 2002. The current understanding was that there were new over-costs projected at the level of 4.4 MCHF for the completion, over and above the 68 MCHF estimated in 2002.

Any further delays in installation work beyond August 2007 would require additional resources for manpower to be paid (of the order 200 – 400 kCHF per month).

Some corrections to the initial CtC estimates were required in the areas of the magnet system, the LAr cryogenics, and the infrastructure and installation activities (manpower to meet the schedule) – see table on slide 50 for the details.

P. Jenni summarized the main current funding issues as (and shown in detail on slide 52):

- There were outstanding contributions to the baseline & Common Fund at risk and amounting to 9 MCHF.
- Furthermore, not all the calculated 2002 CtC (CC and C&I) shares had been pledged. In fact the situation only looked relatively good because CERN had committed 5 MCHF more than its calculated share of 8.5 MCHF.

P. Jenni proposed to the RRB a “Strategy to cover the remaining funding gap”, including the new CtC:

- Expect all outstanding baseline and Common Fund contributions according to the Construction MoU.
- Urge all FAs to pledge their full CtC share as determined in October 2002. As CERN had committed 5 MCHF above its calculated share, this would cover the new 4.4 MCHF additional CtC costs.
- As a fallback, extend the annual member fee for one or two years more (2007 and 2008). The present budget request for 2007 included this as an option, to be decided by the RRB in its April 2007 meeting, should it become necessary.

Clearly, a strong solidarity from all funding partners was needed to overcome this last financial hurdle!

P. Jenni showed on slide 53, a Financial Overview.

Financial Overview	MCHF
Financial framework:	
Initial Construction MoU 1995	475.0
Updated construction baseline	468.5
Additional Cost to Completion (accepted in RRB October 2002) based on the Completion Plan (CERN-RRB-2002-114)	68.2
Additional CtC identified (mentioned at the last RRB, and now announced in CERN-RRB-2006-069)	4.4
Total costs for the initial detector	541.1
Note that not included are:	
- This assumes beam pipe closure end August 2007, later dates would imply additional manpower costs of 200-400 kCHF per month	
- No provision for future ‘force majeure’ cost over-runs	
- Restoration of the design-luminosity detector, estimated material costs of parts not included in present initial detector (CERN-RRB-2002-114)	20.0
- Forward detectors parts (luminosity) not funded yet	1.0
Missing funding at this stage:	
Baseline Construction MoU, mainly Common Fund	9.0
2002 Cost to Completion (CC and C&I) calculated shares	11.0
Not established funding mechanism yet for the new CtC 2006 (proposed at this RRB to be covered by the + 5 MCHF CERN CtC pledged in 2002, or by extending ATLAS member fee by 2 more years)	4.4

3.5 Conclusion

P. Jenni concluded by noting that:

The ATLAS project was proceeding within the framework of the accepted 2002 Completion Plan, and all the resources requested in that framework were needed now to complete the initial detector.

Many important milestones had been passed in the construction, pre-assembly, integration and installation of the ATLAS detector components.

The most critical construction issue was the delay in the ECT integration which had an impact on the overall installation completion (other issues remained the schedules for the ID and Muon end-cap chamber installations, and the calorimeter power supplies).

Very major software, computing and physics preparation activities were underway as well, using the Worldwide LHC Computing Grid (WLCG) for distributed computing resources.

Commissioning and planning for the early physics phases had started strongly.

ATLAS was highly motivated, and on track, for first collisions in 2007 and finally for LHC physics in 2008.

ATLAS expected to remain at the energy frontier of HEP for the next 10 – 15 years, and the Collaboration had already set in place a coherent organization to evaluate and plan for future upgrades in order to exploit future LHC machine high-luminosity upgrades.

Discussion

J. Engelen thanked P. Jenni for his very clear presentation. He noted the important progress on the experimental floor, and the very clear financial presentation which certainly merited discussion at this board. He invited first questions on the technical progress presented. He proposed that the RRB then listen to the presentation of M. Nessi and present any technical questions. Finally the RRB would come back to a discussion on the slides presented on the financial situation.

E. Gazis asked about the calorimeter in the very forward region. Were there any plans similar to CMS? P. Jenni replied that these calorimeters would be placed into a device called TAN positioned where the two beams went from two beam pipes into one. It was a small device to measure essentially neutral particles which went straight. This would help to define the centrality of collisions in heavy ions, but it was also very useful for steering the beams in the beginning.

4. In-kind Contributions and Common Projects - M. Nessi, Technical Coordinator

Paper	CERN-RRB-2006-070	Presentation	CERN-RRB-2006-110
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4.1 Status of the Common Projects and the Installation

M. Nessi presented an update on the common projects and the installation. See his paper and clear presentation for the details, (which are not re-summarized in these minutes), and for many interesting and spectacular recent photographs of the installation in the cavern. M. Nessi also presented the latest version of the schedule.

4.2 Summary

M. Nessi concluded that the ATLAS installation was proceeding (according to master schedule 8.01), and targeting end August 2007 for the beam pipe closing.

Many technical problems of the last 6-8 months had been solved, and they were now working in parallel on many fronts (much more than expected a few years ago!). The greater part of the services (cables and pipes) had been put in place with a major effort.

The Barrel construction and commissioning was proceeding well. It would be mostly installed by the beginning of 2007. The commissioning of all installed components was proceeding in phase with installation.

Currently the most critical activities related to the forward muon spectrometer: End-Cap Toroids and Forward Muon wheels.

M. Nessi noted that the next 10 months would be impressively intense!

Discussion

J. Engelen thanked M. Nessi for his very clear presentation, which had not shied away from the problems. It had brought home the enormity of the project they were in the process of realizing.

M. Pripstein was very impressed that they were able to recuperate some of the schedule loss when they had problems with the end-cap toroid. They had achieved this by techniques such as doubling up teams. To which extent could this continue in the case of other bottlenecks given the number of people available? M. Nessi replied that in terms of the number of people that they could put to work inside the hall they had reached saturation, and they were working seven days a week. There was still some contingency in that they were stopping work at 20:00 in the evening, and this could with difficulty be extended, albeit with significant human resources. They could also cut down on some of the tests. It was a tremendous challenge, and they were succeeding through the quality of the people. These people were supported in large part by the Funding Agencies and M. Nessi emphasized the excellence of their work and the collaborative spirits of the institutes concerned.

R. Wade wondered if there was any comment on the recent safety incident and whether it affected schedules in any way. M. Nessi replied that on the 12th October 2006 they had a near miss. They were dismantling a large support table which had been in the cavern for two years and no longer used. One beam that was not correctly fixed had fallen into the trench. This modification, made to the table after it was installed, had not been correctly logged when it had been disconnected. The second mistake was that this was a delimited zone, and some people had entered this safety perimeter before this operation took place. During the operation the zone was clearly evacuated and people were there to visually inspect that no-one was in the zone, so there was no-one there when the beam fell. Nonetheless this was reported to the safety commission who were following this up. It was a near miss, and they had learnt from this that they had to be more vigilant. R. Wade wondered if there were any delays as a result. M. Nessi replied that they had not lost time as a result.

4.3 Proposals for In-Kind Contributions

M. Nessi asked the RRB to approve document CERN-RRB-2006-070, Proposals for In-Kind Contributions and Status of the ATLAS Common Projects and Construction Completion. They were putting forward three in-kind contributions detailed in this document, one from Poland for manpower for installation in the counting rooms, one from Portugal for material and people for the safety systems, and one from Dubna which was an adjustment to a previous arrangement. These contributions were acknowledged and the document was **approved** by the RRB.

Discussion of the financial situation

The RRB returned to the financial situation presented by P. Jenni. J. Engelen wished first to emphasise on behalf of this board how impressed they were with the progress, how significant it was that this progress was consistent with this date of end August next year and that he personally would go as far as to congratulate the Collaboration. He did not want the discussion to be dominated by finances.

The Director General added that there had been progress as well in safety. The progress in the safety inspection and in working in conditions of great difficulty with large numbers of people not trained to work together in such a way had been impressive, even if there was always room for improvement. J. Engelen thanked him for this addition.

P. Jenni returned to his slide 53 (as documented above). J. Engelen noted that the finances were a primary function of this board. There was an additional cost to completion, as explained by P. Jenni of 4.4 MCHF. They should have an idea, certainly before the next RRB, how they should view the missing 9 MCHF to the baseline construction for which people had signed. The 11 MCHF cost to completion had not been signed for, and CERN had committed to this 5 MCHF

more than its calculated share so this could also be considered by some as 16 MCHF. He invited delegates to take the floor.

J. O'Fallon commented on the US contribution given on the previous chart (slide 52). The U.S. pro-rata share of the 68 MCHF Cost-to-Complete (CtC) for ATLAS was 12.2 MCHF, of which 6.2 MCHF was currently pledged and had mostly been paid. The remaining 6.0 MCHF could now be realized through the contingency within the capped U.S. ATLAS construction funds of \$163.8 M for Construction Items and additional funds from the Research Program that would be used as a contribution to Commissioning and Integration. As is the case for certain other countries, it should be recognized that, beyond these official contributions, the U.S. had contributed ~6 MCHF for support of personnel assigned to the Technical Coordination of ATLAS and to the resolution of overall problems in ATLAS pixel systems that were not part of the original set of U.S. responsibilities. In addition, through efficient use of their resources and with the approval of international ATLAS at every step, they were able to apply the contingency in their Construction Project to provide more deliverables to ATLAS than were in their original commitment in 1998.

In recognition of the importance of the needs of ATLAS, the U.S. was now planning to provide additional U.S. contributions to the C&I through the Research Program over the next four years. This would be done on a best effort basis. He was pleased to report today that, as the first step in this process, the U.S. pledged a total of 1.5 MCHF of new funds to be available this year for its C&I contribution to ATLAS. They also wished to thank their management team and international ATLAS for their excellent cooperation in this matter. J. Engelen thanked him very much for this positive statement, which was a highly appreciated step.

R. Wade commented that, in previous RRBs, he had consistently explained the situation concerning UK contingency money. He had planned to re-examine the situation and to release some of this money around the April 2007 RRB. With respect to the ATLAS UK figure shown, he felt that he might be able to release this rather sooner than around the next RRB. J. Engelen thanked him for this.

J.D. Hansen was happy to hear this positive news but regretted that Denmark would not be able to find the money requested here, namely 375 kCHF. J. Engelen understood that delegates had to report the agreed position of the Funding Agency. However, by the principle of unitarity, that which was not paid by one agency had to be paid by someone else. They were in this together and ATLAS was doing something incredible. We were talking about the past few percent, and if that did not impress certain authorities then the delegates concerned should try harder. He did not think that refusal to contribute was acceptable as a principle.

S. Tovey noted that 238 kCHF was a large sum for Australia. He was happy to report that one week ago they had received their research grant for the next 4 years, and they did very well. They would do their calculations and see what they could pay. J. Engelen congratulated and thanked him.

C. Cavata reported that CEA-Saclay would like to study with CERN in private how they could contribute to both packages, the 1 MCHF for the CtC and also the "restoration of the design detector" which represents 20 MCHF. They would like to share a good balance between in-kind contributions and cash. J. Engelen thanked him for this positive statement.

E. Gazis reported that Greece was going to give the additional funding of 148 kCHF requested of them and which was not yet committed. J. Engelen thanked him very much for this.

J. Królikowski reported that Poland could also give the amount requested. J. Engelen thanked him for this very good news.

R. Wade returned to the topic of the CtC for the full design luminosity. When would they see such a request and when would these resources be needed? J. Engelen replied that his view was that this was needed in 2008/2009/2010. This would be handled either through an extension of the MoU or

through a targeted addendum. R. Wade wished to understand whether this 20 MCHF had the same level of provenance as a similar situation in CMS. J. Engelen replied that, if you compared like items, both CMS and ATLAS had proposed similar numbers. The composition of the CMS number was not the same as that of ATLAS. CMS was asking for a bigger number but the upgrading was only part of this bigger number. J. Engelen assured R. Wade that the two detectors were not being treated on different footing.

P. Jenni confirmed that these were really all the numbers that ATLAS was considering and that the time scale given by J. Engelen was correct. J. Engelen added that if one added together all the ATLAS numbers one arrived at a number comparable to the CMS number.

There being no more contributions from delegates, J. Engelen noted that, on the basis of what they had learned during this meeting, they would work with the ATLAS management and with the Funding Agencies to make concrete steps forward. They would not wait until the next RRB in April to do this.

The Director General noted that, up to now, there had been no delays in manufacturing ATLAS because of shortage of money. This had been due to juggling by the resources coordinators between different contracts. They no longer had this possibility. It was very important to look at all collaborators to pay their share of the missing money. If not one had to consider what would happen, because CERN had no money whatsoever available. He needed at least a "gentleman's agreement in the form of a letter" before CERN could borrow this money in the short term. Otherwise items would be delayed because there was not enough cash to pay for them. This money was needed by the middle of next year. This was separate from the 20 MCHF which was needed in 2008/2010.

J. Engelen thanked him for these words.

5. LHCC Deliberations (paper only)

E. Tsesmelis, LHCC Scientific Secretary
CERN-RRB-2006-095

J. Engelen noted that the RRB should take into consideration the paper on the LHCC Deliberations provided by the scientific secretary of the LHCC, E. Tsesmelis. The contents were consistent with the previous presentations and confirmed that the LHCC was in agreement with the reports. Delegates had no further comments to make and the RRB **took note** of the report of E. Tsesmelis

6. Financial Matters

Paper CERN-RRB-2006-077

P. Geeraert, Head, Finance Department

Presentation CERN-RRB-2006-082

P. Geeraert presented a financial update on the situation reported in his paper referenced above and correct to the end of August 2006. For the Common Fund they had received new contributions from Turkey and Spain amounting to 50 kCHF which brought this year's income to nearly 15 MCHF. Total payments of 12.760 MCHF had been made, leading to a positive balance of some 2 MCHF, but with outstanding commitments of 13.8 MCHF. This would lead to a negative balance of nearly 12 MCHF at the end of the year.

In terms of membership fees for the common fund, a total of 232.5 kCHF was outstanding from Member States (Greece, Italy, Norway, Portugal and Switzerland), and 657.6 KCHF from non-Member States (Armenia, Azerbaijan, Belarus, Brazil, Georgia, Morocco, Russia, and JINR) for a total of 890.1 KCHF. Greece had made a major payment of almost 1.6 MCHF this year for past outstanding payments.

In terms of cash contributions to the common fund, a total of 3.462 MCHF was outstanding from Member States (Austria, France IN2P3, Greece, Italy, Norway, Portugal, Spain and UK), and 9.6 MCHF from non-Member States (Australia, Canada, China, Israel, Japan, Morocco, Russia, JINR, Slovenia, Taipei, US DoE and NSF) for a total of 13.1 MCHF.

Considering the quite old outstanding membership fees for the common fund for the period up to 2003, there were still outstanding bills from Brazil, Morocco, Belarus and Russia for a total of 183 kCHF.

On the outstanding membership fees as part of construction CC_A, there was a total of 707.5 kCHF still unpaid, of which 294.5 kCHF concerned the period 2002-2005 (Norway, Armenia, Azerbaijan, Belarus, Brazil, Russia, JINR). A total of 413 kCHF was still owed for 2006 (see slide 6). All of these contributions missing for 2006 should be settled soon since it was already October.

For the M&O-A budget they had received new contributions of 0.573 MCHF (Japan, Italy, Turkey and Czech Republic) and made new payments of 145 kCHF, resulting in a balance of 5.9 MCHF with outstanding commitments of 454 kCHF.

The outstanding contributions to M&O-A up to the end of 2005 showed missing contributions from Poland, Armenia, Azerbaijan, Belarus, Brazil, Morocco, Russia (Protvino). The total missing money including 2006 now amounted to 1.75 MCHF.

Discussion

J. Engelen thanked P. Geeraert for this presentation of the financial facts.

J. Królikowski commented that the long and painful decision process for Poland had reached a happy conclusion for M&O-A and they would be able to cover all outstanding contributions this year. J. Engelen thanked him very much for this definitive good news.

U. Dosselli apologized for the delay in payment but the outstanding Italian contributions were being paid right now. G. Barreira commented that the same was true for Portugal. J. Engelen thanked them both.

A. Naudi wished to repeat that CERN was in debt until 2011, and therefore had its own considerable difficulties. We had just seen the magnificent things that ATLAS had been doing and he still saw in table 1.2 a considerable amount of construction money and fees still missing. We were a year away from start-up - commitments had been made and bills had to be paid now. As the Director General had said on a number of occasions, Management could try to help with the cash flow problem but for that one needed a proper payment schedule which showed when this could be reimbursed to CERN. He thought this was now very serious. Things would be blocked if this money was not paid. J. Engelen thanked him for this intervention.

7. Construction Budgets

Paper CERN-RRB-2006-071

M. Nordberg, Resources Co-ordinator

Presentation CERN-RRB-2006-111

M. Nordberg noted that the full tables and detailed explanations were to be found in the paper, whilst the presentation would contain only summaries. His first slide re-stated a number of definitions that he used in the documents.

7.1 Baseline and Cost to Completion Budgets

M. Nordberg showed a snapshot of the development of the commitments in the construction budget. It was clear that essentially everything had been committed except for the trigger DAQ part where 90% of the initial DAQ was committed meaning that there were 4 to 5 MCHF still to be committed. In terms of payments they were approaching the 469 MCHF limit that P. Jenni had shown and having still about 15 MCHF to go.

M. Nordberg showed the status of the baseline CORE budget for 2006 where expected contributions amounted to 33.5 MCHF whereas payments were projected at 41 MCHF, which meant that the balance would be -7.5 MCHF by the end of the year. For the 2006 C&I budget, total contributions amounted to 3.7 MCHF whilst total payments came to 2.55 MCHF for a balance of

1.2 MCHF. For 2006 CC-B budgets total contributions amounted to 1.68 MCHF and payments to 3.0 MCHF leaving a balance of -1.3 MCHF. He emphasized that for a complete picture he would come back to the overall cash flow situation later (table 7).

7.2 Baseline Construction Budget 2007

M. Nordberg moved to the 2007 baseline construction budget, which was for approval by the RRB, and shown in table 8 to 10. Preliminary numbers had been shown in April. Total payments foreseen had changed from 5.3 MCHF to 13.2 MCHF. Firstly some payments had been shifted, notably for the power supplies in the LAr system as described by P. Jenni. In addition it included the new 4.4 MCHF additional costs that P. Jenni had explained and which had to be added into the foreseen budget. Total contribution came to 10.9 MCHF indicating a budget deficit of 2.3 MCHF. The difference between this number and the 4.4 MCHF was 2.1 MCHF, which already took into account the possible option of extended membership fees mentioned by P. Jenni. These extended membership fees were foreseen as a fallback solution in the case that they failed to obtain all calculated contributions to the CtC.

For 2007 C&I the contributions would be zero, having all been paid by the end of 2006. Total payments would amount to 650 kCHF, leaving a deficit. For 2007 CC-B contributions were foreseen as 167 kCHF and payments as 1.58 MCHF leaving a deficit of 1.4 MCHF.

Annex 2 of the document gave a summary of the remaining contributions and pledges.

M. Nordberg then turned to the Projected Budget Balance shown in table 7 of the document, extended this time out to 2010 in consultation with ATLAS and CERN managements. With respect to the preliminary numbers shown in April there was a cumulative deficit of 4 MCHF, corresponding to the new CtC of 4.4 MCHF. M. Nordberg then showed on slide 13 the details of the cash flow problems.

M. Nordberg then asked the RRB to take note of the status of the baseline and CtC numbers for 2006 and to approve the budget for 2007 in the clear understanding the 2.1 MCHF of extended membership fees included in the income was to be treated as an option and that it would be subject to approval only in April 2007 and if necessary.

The RRB **approved** the 2007 ATLAS construction budget.

J. Engelen noted that the Construction MoU had been extended once before and ran up to the end of 2007. For formal reasons the Funding Agencies would be asked to re-confirm their commitment to this MoU up to and including 2010. There was still time to do this and it would be put on the agenda of the April 2007 RRB. This did not address specifically yet the covering of the 20 MCHF discussed earlier.

8. M&O Budgets

Papers CERN-RRB-2006-072

M. Nordberg, Resources Co-ordinator

Presentation CERN-RRB-2006-111

8.1 2007 M&O Budget Estimates

M. Nordberg then moved to document CERN-RRB-2006-072. He showed the 2007 M&O A (11.7 MCHF) and B (7 MCHF) estimates and their major components as well as a graph of the evolution of the M&O budgets up to 2010.

He presented two new in-kind contributions which had been approved by the Collaboration Board last July for which he asked the approval of the RRB, one a contract with JINR and the other concerning multiple institutes in core computing.

M. Nordberg showed the status of the M&O signatures, where 36 out of 38 Funding Agencies had signed. There were two new Funding Agencies, namely Argentina and DESY.

M. Nordberg commented on the due M&O contributions which had come down from 964 kCHF to 508 kCHF. Nonetheless the Collaboration had a plan in place for dealing with such situations and they were discussing in detail with each of the Funding Agencies listed on this slide. He was delighted to hear of the good news from Poland.

9. Report of the LHC RRB Scrutiny Group for 2006

M. Morandin

Papers CERN-RRB-2006-104

M. Morandin reported on the considerations of the Scrutiny Group. He had reported the general findings during the Plenary Session. Here he addressed some comments specific to ATLAS. Clearly there was a significant increase in the Cat. A M&O coming from the need to repair and consolidate the cryogenic system and to provide in the budget money for consumption of nitrogen. This represented an addition of 1.0 MCHF in '06 and '07 and 0.5 MCHF afterwards. After discussion in the Scrutiny Group they had agreed that this increase was appropriate to be in the common fund and they had agreed to the proposal of the experiment. Other changes with respect to previous outlook were the survey that was continuing also next year and some minor items. They were clearly in favour of in-kind contributions to cover core computing so they were happy to see that there was a plan and a significant contribution coming this way.

Regarding Cat. B, they took note that the experiment was discussing the possibility of having MoUs covering the contributions of the Funding Agencies for Cat. B funds and they considered this as a positive direction. The experiment had also indicated the possibility of moving some systems' consumables such as gas and fluids from Cat. B to A. This would bring ATLAS into line with the other experiments. Finally he wished to remind the RRB that the replacement of the pixel layers had been deferred by one year and the decision as to whether this would be charged to Cat. A or B had not yet been taken.

Having examined all the documents and the proposal of the experiment the Scrutiny Group agreed to endorse the budget of 2007 of the ATLAS experiment.

J. Engelen thanked him for this report and asked whether there were any more questions.

There being no questions the RRB **approved** the ATLAS 2007 M&O budget.

10. Scrutiny Group Composition in 2007

J. Engelen used this opportunity to thank M. Morandin for his hard and serious work as retiring Chairman of the Scrutiny Group. INFN had proposed G. Batignani as a new member of the Scrutiny Group and this was agreed.

The normal maximum term in office in the Scrutiny Group was three years. However exceptions could be made if approved by the RRB. V. Luth was proposed by DoE and NSF to continue as their representative for a fourth year and this was agreed. Similarly E. Tsesmelis was proposed to continue as CERN member acting as linkman to the Technical Services for a fifth year in view of his very special position, and this was also agreed. CERN was seeking for another name to replace R. Landau who had served three years.

B. Stugu had represented the smaller Member States for three years and a replacement was needed. J. Engelen invited the RRB to send him suggestions for candidates.

He concluded that the procedure was such that the Scrutiny Group would elect the new Chairman from the members.

11. Summary, Future Activities & A. O. B. J. Engelen

J. Engelen concluded that the progress of ATLAS was very large as was appropriate at this stage. It was commensurate with the goal of having ATLAS on the floor by August next year. He was not going to repeat the financial issues which had been identified and discussed. These would be followed up with a number of Funding Agencies.

In closing this meeting J. Engelen thanked A. Naudi for his rigour, creativity and active support, noting that their lives would have been considerably more difficult without his support.

<p>The next RRB meetings in 2007 will take place at CERN on Monday 23rd, Tuesday 24th and Wednesday 25th April 2007</p>

There being no questions and no further business, the Chairman thanked the participants and closed the meeting.

C. Jones
March 2007