**CMS**

21st October 2005

# Minutes of the 21st Resources Review Board Meeting
## Held at CERN on 18th October 2005

**Present:**

*Europe*
C.-E. Wulz (Bundesministerium für Bildung, Wissenschaft und Kultur, Wien, Austria)
J. Lemonne (FWO, Brussels), D.Bertrand (FNRS, Brussels)
D. Denegri (Ministry of Science and Technology, Zagreb)
D.O. Riska (Helsinki Institute of Physics, Helsinki), J. Tuominiemi
P. Rebourgeard (CEA-Saclay, Gif-sur-Yvette, France), C. Cavata, M. Dejardin
F. Le Diberder (IN2P3, Paris), L. Dobrzynski, P. Royole-Delgieux
J. Richter (BMBF, Bonn), K. Ehret (DESY, Hamburg), S. Schael (RWTH, Aachen)
E. Gazis (National Technical University of Athens)
G. Vesztergombi (NKTH, Budapest)
U. Dosselli (INFN, Rome), F. Ferroni, G. Tonelli
J. Królikowski (Univ. of Warsaw, Warsaw)
G. Barreira (ICCTI, Lisbon), F. Bello
A. Petrov (Research Inst. of Nuclear Physics, Moscow), V. Savrin
A.N. Sissakian (JINR, Dubna), I. Golutvin
D. Espriu (Univ. of Barcelona, Barcelona), M. Cerrada
Q. Ingram (PSI, Villigen), E. Fritschi (ETH, Zürich), K. Baltensperger, F.Pauss
R. Wade, (PPARC, Swindon), R.M. Brown

*North America*
J. O'Fallon (DOE, Washington), T. Ferbel, S. Gonzalez, D. Green
M. Pripstein (NSF, Washington, USA), M. Goldberg

*Asia*
W. Zhao (Institute of High Energy Physics, Beijing)
C.V. Ananda Bose (DAE, Mumbai), A. Gurtu
G.N. Kim (Kyungpook National University, Korea, repr. CHEP), D-W. Kim (Kangnung National University, repr. MOST)
S.C. Lee (Institute of Physics, Academia Sinica, Taipei), Y.B. Hsiung (Nat. Taiwan Univ., Taipei), A. Go

*CERN*
R. Aymar, S. Bergerot, J. Engelen (chairman), C. Jones (secretary), D. Jacobs, A.J. Naudi, E. Tsesmelis, P. Geeraert, D. Schlatter

*CMS*
M. Della Negra, A. Ball, A. Hervé, H-F Hoffmann, A. Petrilli, P. Sharp, T. Virdee

*Scrutiny Group*
M. Morandin

*Apologies*
J. Sacton (FNRS, Brussels), W. Shen (NSFC, Beijing), J. Zinn-Justin (CEA-Saclay, Gif-sur-Yvette), M. Boda (NKTH, Budapest), S. Thompson (Royal Society, New Zealand ), P. Adzic (Vinca Institute of Nuclear Sciences, Belgrade), R. Eichler, (PSI, Villigen), R. Cousins (UCLA)

## 21st Meeting of the CMS Resources Review Board RRB, 18th October 2005

Documents can be found at the URL http://committees.web.cern.ch/Committees/LHCRRB/
and are also listed in Appendix 1 of these minutes

## 1. Introduction J. Engelen, Chief Scientific Officer

J. Engelen welcomed RRB delegates to this 21st session. He invited delegates to participate in the visit to the experiment which was scheduled at the end of this meeting.

## 2. Approval of the Minutes of the 20th Meeting (CERN-RRB-2005-046)

The minutes of the 20th meeting were approved without comment. J. Engelen thanked C. Jones for having taken these minutes. There were no matters arising.

## 3. Status and Financial Plan of the Experiment, M. Della Negra, Spokesperson

Papers CERN-RRB-2005-089 Presentation CERN-RRB-2005-093

### 3.1 Collaboration News

M. Della Negra noted that there were several new groups applying to join CMS. From the USA there were 7 new groups, some of which were already approved by the Collaboration Board and some which would be considered later. He showed a list along with the current status:

| **7 new USA Groups:** | **Presented** | **Approval Status** |
|---|---|---|
| 1. Virginia University, Brad Cox, | Jun05 | Sep05 |
| 2. Colorado University, Boulder, John Cumalat, | Jun05 | Sep05 |
| 3. Lawrence Livermore Nat. Lab (LLNL), Doug Wright, | Sep05 | vote Dec05 |
| 4. SUNY at Buffalo, A. Karchilava, | Sep05 | vote Dec05 |
| 5. Texas A&M University (TAMU), David Toback | Sep05 | vote Dec05 |
| 6. University of Puerto Rico, J. Ramirez | Dec05 | |
| 7. Los Alamos (LANL), Gerd J. Kunde | Dec05 | |

| **4 new non US groups:** | **Presented** | **Approval Status** |
|---|---|---|
| 1. Milano, Luigi Moroni (FPIX, joining CMS Milano) | Jun05 | No vote necessary |
| 2. Krakow, Jacek Turnau | Jun05 | Sep05 |
| 3. Frascati, Stefano Bianco | Sep05 | vote Dec05 |
| 4. Universidad de los Andes Bogota (Colombia), C. Avila | Dec05 | |

M. Della Negra noted that the following numbers were not completely updated to reflect the changes above but that there were now 1877 scientific authors from 37 countries and 163 institutions. CMS had new rules for defining scientific authors which took into account M&O A amongst other things. He noted that there were 506 authors from the USA.

He showed an organisation chart of the CMS Management Board and the Steering Committee which had both been renewed. In particular there was a new Electronics Coordinator J. Nash, and Deputies for P. Sharp had been named for the Tracking, namely G. Hall and G. Tonelli. The second representative of the CPT project (Computing) was L. Bauerdick.

### 3.2 Construction Progress

M. Della Negra presented a summary of the construction progress since the April 2005 RRB. The overall message was that there had been a great deal of progress over the summer months.

**Infrastructure/Installation:** Installation of infrastructure was in progress in all buildings and caverns. Cabling of the YE1 disks was complete. Cabling of the mobile wheels had started.

**Magnet:** The Coil had been inserted in its cryostat. The final assembly of solenoid was in full swing.

**Tracker:** Sensors and Hybrid production were near completion. Module assembly was half done, progressing well. Integration into rods, petals and shells was ongoing. The construction of the new Tracker Integration Facility (TIF) at CERN has been launched.

**ECAL:** Contracts for the remaining crystals had been signed with two vendors and the corresponding delivery had started. Serial integration of electronics into bare SMs had started in the spring. Some non-conformity was detected on the welds of the electronics cooling circuitry, forcing suspension of the serial integration, which would restart in November. It was still expected to meet the milestone for all EB+ in mid-06, but there was no contingency left.

**HCAL:** HB calibration with source and cosmics was ongoing. HE source calibration had started. HF commissioning started.

**Muon system:** installation and commissioning were ongoing. Installation of ME1/1 Dubna chambers was complete.

**Trigger-DAQ:** Trigger components were being integrated in the Electronics Integration Centre (Bld 904), "1/8th DAQ" was at Point 5 ready for the Magnet test and Cosmics Challenge.

**CPT:** The Computing TDR was submitted in Jun05. The Grid middleware integration task force was in place. New software framework (to be used for the cosmics challenge) released in September. Drafts of the Physics TDR (vol 1 and 2) had been distributed.

M. Della Negra then presented in detail the status of the construction of the buildings and the detector components, showing many interesting photographs of detector status. This information can be found both in his presentation and his paper, referenced above and is further summarized here. He invited the RRB to visit the experiment and the cavern that afternoon after the RRB.

### 3.3 Schedule

M.Della Negra noted that, with respect to CMS Schedule v34.2, they currently saw a delay of an average of 6 weeks. They would attempt to regain time during repetitive operations after lowering in the second half of 2006. In detail:

| | **v34.2** | **Estimate** |
|---|---|---|
| • Magnet test on surface start | Nov 05 | Feb 06 |
| • Start Lowering CMS (HF first) | Feb 06 | Apr 06 |
| • ECAL barrel EB+ installation | Mar 06 | May 06 |
| • ECAL: EB- installation & cabling | Oct 06 | Oct 06 |
| • Tracker installation + cabling start | Nov 06 | Nov 06 |
| • Beampipe Installation | Mar-Apr 07 | Mar-Apr 07 |
| • CMS "ready to close" for beam | 15 Jun 07 | 15 Jun 07 |
| • CMS "ready for beam" | 30 Jun 07 | 30 Jun 07 |
| During first shutdown after pilot physics run: | | |
| • Pixel Tracker installation | Dec 07 | Dec 07 |
| • EE/ES installation | Dec07/Feb 08 | Dec07/Feb 08 |

### 3.4 Conclusion

In conclusion M. Della Negra noted that CMS had made good progress since RRB20 in April in all subsystems.

They currently saw a 6-week delay with respect to the master schedule v34.2. Slippage on the critical path could be partly recuperated from the second half of 2006. However it was important that the EB- (Oct 06) and Tracker (Nov 06) were kept on schedule.
It was necessary to watch the Tracker Integration. Construction of the new Tracker Integration Facility (TIF) was proceeding well. They expected to see beneficial occupancy of TIF by the end of Oct 2005.

It was important to carry on watching the ECAL crystals' production.

Nonetheless he was convinced that the initial CMS detector would be ready and closed for beam on 30 June 2007.

M. Della Negra wished to emphasize an extract taken from the report on LHCC Deliberations to this committee, CERN-RRB-2005-081:
"It is realistic to expect CMS to install an initial working detector suitable for LHC operation starting in summer 2007, although the completion of the detector installation can be foreseen beyond this date. The LHCC considers that the CMS schedule to achieve this is challenging…
The LHCC noted that additional resources, both in terms of money and manpower, would aid in accelerating the current CMS schedule, and thereby would ensure a timely completion of the initial detector in 2007."

**Discussion**

J. Engelen noted that considerable technical progress had been made and invited comments at this stage of the presentation on the status of the CMS experiment, including comments on the LHCC Deliberations paper (point 4 on the agenda below).

M. Pripstein asked about the delivery of the crystals under the new contracts. He had understood that the vendors had yet to bring up additional ovens. How much contingency was there on the agreed crystals production schedule? M. Della Negra replied that new ovens had been put into service, and that, two weeks previously, a delegation led by J. Virdee, the CMS Deputy Spokesperson had visited and confirmed that the contractual schedule would be held.

There being no more questions the Chairman invited M. Della Negra to present the CMS Financial Plan.

**3.5 Financial Plan**

M. Della Negra then presented the details of the Financial Plan. He showed the table presented in the April RRB in which column 5 showed the "guidelines for the cost increase" for a total of 32.5 MCHF and gave the sharing between the different funding agencies. The main components were 22 MCHF for the crystals, 5 MCHF for the Tracker, 3.7 MCHF for Common Projects and 2.4 MCHF for the Muons Barrel. Following this RRB J Engelen had sent letters to all funding agencies concerned asking for possible commitments with time profile to be given for this RRB. He showed a table summarizing the replies and their estimation of which money was committed out of the 32.5 MCHF requested, given that some of the money was not finally committed but rather at "best effort" status. The estimate was that 28.7 MCHF were more or less promised and there remained some further requests which might or might not materialize and for which they had good hopes whilst they were still collecting replies.

**Discussion of the Additional Funding**

J. Engelen noted that the "fund raising" had been successful but was not yet at 100%. He wished to provide an opportunity for discussion and comments from the funding agencies at this stage.

F. Le Diberder noted that inside CNRS they were no longer discussing whether or not they would cover their share of the cost increases but they were still discussing the time profile and for this reason there had been no formal reply as yet.

C.-E. Wulz explained that for Austria the situation was exactly the same. The money had been agreed and there would not be much money before the end of 2006, but there would be a formal letter announcing the time profile of the money.
R. Wade noted that PPARC had fully committed to 1.3 MCHF as he had announced previously. He was holding contingency against all LHC detectors and with 2 years to go they clearly wanted to hold on to that contingency as long as they could because he was sure this was not the last request for additional funds. They had been requested to provide 2.3 MCHF and they had agreed to provide 1.3 MCHF. He would prefer not to see that difference of 1 MCHF still in the table as an outstanding request but to receive a new request closer to the end of construction when they could better judge the situation across all detectors and they would then look very seriously at that request.

U. Dosselli noted that CMS had received a letter and, as in the case of the UK, they considered that they did not have a pending request as shown in the table. They had been requested to provide 5 MCHF and they had committed to provide 4 MCHF, divided into the categories as specified in the letter, and they considered that this was the end of the process as far as the construction of CMS was concerned. They would review in the future what other help might be needed, including for computing, but their contribution above contained already the contingency.

Q. Ingram noted that PSI had this money already in their planned internal budget, but this had to go through an internal review, and the result of this would not be available probably until spring next year.

On behalf of Taipei, Y.B. Hsiung noted that he thought the amount of money would be agreed but they had not finished discussions as to the profile.

As an initial conclusion, J. Engelen noted that the will to get CMS to the point they needed was there, but that in practice they were not quite there yet. Further work was necessary including explicit discussions with funding agencies. He thanked all the Agencies for their contributions so far.

### 3.5 Financial Plan [continued]

M. Della Negra also thanked all those who had contributed and presented in more detail the consequences of the present funding. In the case of the ECAL crystals the funding request was essentially to complete the crystal production. An important impact on this was the agreement with the Russian Federation that they would contribute 7000 crystals in kind for a value of 7.8 MCHF. CERN was helping with the cash flow, and importantly had allowed the contract to be placed with the agreement of the Finance Committee, but it was expecting to be reimbursed by the other funding agencies before 2010. France had agreed to provide 1.5 MCHF but this was not yet formally tied down. India had agreed to provide 0.5 MCHF. Italy had agreed to pay 0.2 MCHF immediately and to provide some CMS general contingency money later which M. Della Negra had put into the table for the crystals. UK had agreed to provide 1.3 MCHF as discussed earlier. USA would make a best effort to provide 3.5 MCHF.

In order to complete the Tracker they needed 4.95 MCHF. From Belgium they had a new request of 0.3 MCHF approved, but there was a previous request from October 2002 for 0.395 MCHF from FWO which was still under discussion. It was hoped that, after the visit of the Minister, there could be some chance that this money would be provided. Finland had agreed to pay 0.3 MCHF although this still awaited formal approval. France/IN2P3 would very likely contribute 0.5 MCHF. Germany agreed to pay 0.7 MCHF. Italy would contribute 1 MCHF, possibly requiring some help from CERN with the cash flow. The USA would commit 0.9 MCHF and would very likely

contribute 1.25 MCHF before 2007. Therefore there were still some holes in the funding of the Tracker.

The Tracker Integration Facility (TIF) had been approved after the RRB in April 2005 and was thus not in the Financial Plan CERN-RRB-2005-015. The total cost would be up to 2 MCHF of additional money. CMS had decided, in collaboration with the RRB Chairperson, that this facility was so critically important that they would stage another DAQ slice (and hence release up to 2 MCHF from DAQ). They would start with 3 DAQ slices and not 4 as he had said in April 2005.

There were four other critical items. The Coil Winding had been agreed and paid for by INFN. The Muons Barrel was funded by INFN, Germany and Spain and was not a problem. For the two Common Project items Infrastructure and Master Schedule Consolidation amounting to 2.8 MCHF they were hit by lack of commitments of which only 1.6 MCHF could be considered firm enough. Progress along the CMS critical path had to be considered as to maintain it required extra resources such as overtime, extra teams, duplication of tooling and access equipment. The 1.3 MCHF missing here was a problem that could not be staged and was hence a serious concern.

In conclusion CMS would like to thank the many agencies for the efforts being made to cover the deficit and complete the low-luminosity detector. However, as CMS construction was coming to an end, even small remaining shortfalls had a serious impact for timely completion. In particular the Tracker needed to be completed in 2006 and remained short of about 1MCHF (after currently pledged additional funds). Furthermore the funds foreseen (1.3 MCHF) to recover foreseen delays were also essential for timely completion of the initial detector. Hence CMS requests the funding agencies to make every effort to fulfil all the requests made.

**Further Discussion**

J. Engelen asked if there were any additional questions, including any arising from the paper on LHCC Deliberations, CERN-RRB-2005-081 which had been distributed.

A. Petrov confirmed that the contribution of Russian crystals would indeed be delivered in kind. J. Engelen replied that this contribution was deeply appreciated.

D.O. Riska questioned, given the uncertainly of some of this money, whether all of the equipment for which bills needed to be paid in 2006 and had been agreed would be built. J. Engelen thanked him for his question. The intention was that the current situation should indeed not negatively impact 2006.

J. Engelen summarized the situation as one in which a great deal of progress had been made for which he thanked those around the table. Nevertheless one was not quite there yet and so there were a number of financial worries. The statement that the derivative was positive was not an entirely empty statement, but the end point of the function was very near so that the derivative became less and less meaningful. One needed to continue to work on this carefully and to bring CMS to a successful finish despite the relatively small but nonetheless not negligible sum of money which was missing.

## 4. LHCC Deliberations (paper only) — LHCC Scientific Secretary, E. Tsesmelis

Paper CERN-RRB-2005-081

Delegates had no further comments to make and the RRB **took note** of the report of E. Tsemelis.

## 5. Financial matters — Head, CERN Finance Dept. P. Geeraert

Paper CERN-RRB-2005-073 Presentation CERN-RRB-2005-077

P. Geeraert presented an update to the above document, in which the information was correct to the 15th August 2005.

For the CMS common fund, additional funds amounting to 235 kCHF had been received since the above date from Germany 29 kCHF, Hungary 30 kCHF, Spain 116 kCHF, and India 60 kCHF. Additional payment in the same period amounted to 1.4 MCHF. The current balance of the account was 9.664 MCHF but with outstanding commitments of 7.610 MCHF.

There were outstanding contributions to the Common Fund from three Member States. Belgium and Germany owed 91 kCHF and 86 kCHF respectively for 2005, whilst Greece owed 510 kCHF for 2003, 2004 and 2005, giving an overall total of 687.4 KCHF. He understood that the 2005 payment from Belgium was on its way.

The M&O A budget had received a further 392 kCHF since the 15th August whilst new payments amounted to 567 kCHF leaving a positive balance of nearly 2.6 MCHF. There were open commitments of the order of 300 kCHF.

The new M&O contributions in detail came from:

| Details on Additional Contributions | Paid for | kCHF |
|---|---|---|
| RDMS – DMS | 2002/2004 | 56 |
| CHINA | 2005 | 34 |
| MEXICO | 2005 | 4 |
| PORTUGAL | 2005 | 15 |
| RDMS – Russia | 2005 | 225 |
| CHINA | 2006 | 58 |
| Total M&O-A Additional Contributions | | 392 |

There were outstanding amounts of M&O A for the years 2003 and 2004 from Bulgaria, Greece, Poland, Korea and RDMS-DMS amounting to 326 kCHF. There were payments outstanding for 2005 from Greece, Italy, Poland, Korea, RDMS-DMS and Taipei totalling 827 kCHF. This if one included 2005 the total of outstanding M&O A payments was 1.15 MCHF. Additional M&O A payments had been made for a total of 567 kCHF.

### Discussion

U. Dosselli emphasized that the Italian M&O A contribution for 2005 had now been paid.

E. Gazis announced that 250 kCHF had been settled for CMS from Greece this month and this was a starting point for the full payment of money outstanding to CMS. They hoped to continue in a better way next year. J. Engelen thanked him for the payment and for the good intentions.

J. Królikowski noted that the M&O A payments from Poland were delayed partially because there was no finance line available. The situation had now changed and the Minister had invited experiments to submit requests for this money. This would have to go through the committees but the money would probably be paid at the beginning of 2006. J. Engelen thanked him for this communication.

There being no questions on the status of the accounts the Chairman thanked P. Geerart. The RRB **took note** of the information presented.

## 6. Construction Budgets — Resources Manager, A. Petrilli

Papers CERN-RRB-2005-107 Presentation CERN-RRB-2005-109

### 6.1 Introduction

A. Petrilli noted that the document CERN-RRB-2005-107 summarized the funding requirements for all the payments planned in 2006 to follow the CMS construction schedule and that this draft budget for the year 2006 was based on the overall planning of the CMS experiment as presented at this RRB. This document included requests for all subsystems for funds available under the CMS

MoU and Cost to Completion as well as funds which would become available under the Cost Increase (cf. CMS Financial Plan, CERN-RRB-2005-089). The Draft Budget request listed the Cost Increase funds separately in an addendum. The total funding available to CMS was as detailed in the CMS Financial Plan.

The present estimates for all payments in 2006 totalled 59 MCHF. Together with the payments made by the end of 2004 (343 MCHF), the 2005 budget planned payments (69 MCHF), the total estimated payments by the end of 2006 would total 471 MCHF. This was about 88% of the Financial Plan revised cost and 89% of the funding currently available.

The figures shown as Payments expected in 2006 in the summary tables, Annexes 10, 10.1 and 10.2, were to be considered as best estimates at this stage because the actual expenditure would depend, case by case, on commercial tenders received, contract negotiations and currency fluctuations. This Draft Budget was based on the breakdown of items in the CMS Construction MoU and its All-Silicon Tracker amendment.

### 6.2 Draft Budget for 2006

A. Petrilli then presented a summary of the 2006 Construction Budget (from Annex 10) showing projected payments of 59.4 MCHF and expected income of 57.1 MCHF leaving a negative total of 2.3 MCHF.

He showed a summary of the 2006 Cost Increase Funds with planned payments of 16.3 MCHF and an expected income of 13.2, again leaving a deficit of 3.2 MCHF.

A small cash flow problem was foreseen at the end of 2006 for the Magnet Common Fund. This would be covered by financial guarantees of future payments to the Common Fund and was not a major problem. Nonetheless funding agencies were invited to accelerate the remaining payments to the Common Fund if at all possible.

He then showed in detail the overall budget for 2006 (Annex 10 of the document), the MoU and CtC Funds (Annex 10.1) and the Cost Increase funds (Annex 10.2), all updated with the latest replies from the funding agencies up to 16$^{th}$ October 2005.

He invited the RRB to approve the Draft Budget for CMS Construction in the Year 2006. funding agencies were also invited to pay outstanding invoices and to accelerate payments to the Common Fund.

### Discussion

J. Engelen asked if there were questions at this point.

J. O'Fallon asked which tables exactly they were asked to approve. A. Petrilli replied that the three tables in Annex 10 were to be approved and that it was best to take these from the written document. He noted that, as well as the version which had been available for a few weeks, there was a new version which had been available at the entrance of this meeting giving the latest information received from the funding agencies.

J. Engelen pointed out that it was clear from this presentation that the budget situation was, as they already knew, not completely free of worries, but CMS was nonetheless asking for endorsement of this budget in order to continue the construction in 2006. As the CFO had pointed out, CERN was prepared to help with the cash flow problem but this did not amount to additional CERN funds being made available to CMS.

U. Dosselli asked a question concerning the cost increase funds. Were there not already some parts of this included in 2005? Petrilli confirmed that this was so and indeed INFN had advanced money already in 2005.

In the absence of any further comments J. Engelen proposed that the RRB endorse the budget and encourage CMS to continue along these lines. The RRB **endorsed** the CMS 20006 Budget.

## 7. M&O Budgets

**Resources Manager, A. Petrilli**

Papers CERN-RRB-2005-108
CERN-RRB-2005-083

Presentation CERN-RRB-2005-110

### 7.1 Status of M&O MoU Signatures

A. Petrilli began by showing a table giving the status of the M&O MoU signatures. This had not changed since April 2005 apart from Serbia which had signed the MoU in August 2005.

### 7.2 M&O Budget 2006

A. Petrilli presented the budget request for the year 2006 for both Category A and Category B expenses. The sharing of M&O-B expenses within CMS was now based on responsibility for all subsystems. No Common-Fund-like invoicing for M&O-B was foreseen in the year 2006. The list of PhDs participating in CMS had been updated as required by the M&O MoU (summary in Annex 1).

Both M&O-A and M&O-B expenses had been presented to the RRB Scrutiny Group for M&O and feedback had been taken into account. For readability CMS presented all figures by funding agency. Details were available by Institute. For invoicing purposes, CMS would follow the same arrangements as for the previous year.

He showed a summary of the Annex A.1 giving the M&O Cat. A Budget Requests for 2006. The grand total amounted to almost 7.4 MCHF, of which 700 kCHF was for power. The Core Computing costs were included. He showed the in-kind contributions to M&O A amounting to 5.3 FTE's. They were still discussing some possible further contributions and all but one of these FTE's were for Core Computing. They hoped to fill as many as possible of the Core Computing positions in this way, thus minimising the number of people needed to be hired.

In the M&O B draft budget the total was 6.1 MCHF with a high number for human resources, 111 in total, of which 70 were for Core Computing. These were being personnel within the CMS Institutes.

He showed a summary of Annex 2, the total 2006 budget by funding agency, showing the total which would be invoiced. In-kind contributions had not yet been deducted for these amounts.

With respect to the draft budget presented in the RRB of April 2005, the M&O A budget had been tuned to the latest estimates (7.372 going to 7.391 MCHF) and the M&O B budget contained updated HCAL and Muon figures resulting in an increase of about 100 kCHF (5.915 to 6.083 MCHF.)

With regards to the outstanding contributions to M&O A Petrilli had looked back at the percentage unpaid in time for the October RRB in 2002 (8.3%), 2003 (8.0%) and 2004 (5.5%). Looking at the still outstanding contributions for those same years one arrived at 5.8%, 6.0% and 5,8% respectively. They had received a number of assurances recently and the trend was in the right direction. Nevertheless funding agencies with outstanding contributions were kindly requested to rectify the situation as soon as possible.

In summary the RRB was invited to approve the Draft Budget for M&O Category A for the year 2006. The RRB was further invited to approve the Draft Budget for M&O Category B for the year 2006 and its sharing amongst the CMS funding agencies. It should be noted that the M&O Category B Draft Budget would not be invoiced but that those funds should be made available to the CMS collaborating Institutes

### 7.3 Comments from the Chairman of the M&O Scrutiny Group

J. Engelen invited the Chairman of the M&O Scrutiny Group to make his comments. M. Morandin noted that for the 2005 budget they had received two additional requests from the experiment. One was for an additional scissor lift for accessing the muon chambers and the other was for a decoration in the cavern. The Scrutiny Group was favourable in the first case, but the second case was not considered suitable for inclusion in the M&O.

For 2006 the numbers for the on-line system that they had received at the September meeting of the Scrutiny Group contained a slight increase. There was also some advanced budgeting for the replacement of hardware for on-line computing. There was insufficient time to examine this and they would return to it next year.

### 7.4 M&O Budget Surplus

M. Morandin noted that both CMS and ATLAS were in principle in favour of the N+2 feedback rule for dealing with the budget surplus as proposed in the Scrutiny Group Report. J. Engelen noted, as an associated issue, that CMS was putting in place a procedure for dealing with and eventually sanctioning the non-payment of M&O money. CMS confirmed that the Collaboration had discussed the issue and agreed the rules, but the ultimate request to exclude a funding agency if they really did not pay would come to the RRB.

### Discussion

D.O. Riska noted that the 2006 budget for M&O did not change significantly from 2005 and for his part he was willing to endore the document as presented, but he would like to ask that the Collboration bring to the April RRB an update of the Financial Plan giving the profile of how the M&O costs were going to grow in the coming years. A. Petrilli pointed out that Annex I.A in the budget paper gave the M&O A budget predictions from 2006 to 2010, even if these were estimates.

U. Dosselli was prepared to endorse the budget. He requested, now that Cat. A included Core Computing, and that the Collaboration strongly preferred to have in-kind contributions, that there be provided in future a list of M&O A without these in-kind contributions so that he knew for which part he would receive an invoice. Otherwise he could be tempted to give more people and to reduce the invoice. A. Petrilli replied that there were rules within the Collaboration that tried to give a fair share in case of over-subscription and to rotate the in-kind contributions just to avoid exactly what you are mentioning.

The RRB enodrsed the CMS 2006 budget and in addition the principle of N+2 feedback as proposed by the Scrutiny Group. He thanked A. Pertilli and M. Morandin for their presentations.

## 8. M&O Scrutiny Group in 2006 J. Engelen

The composition of the Scrutiny Group in 2006 foresaw three changes, on external member from Germany to replace H. Gutbrod and for whom a proposal had been made, and two internal CERN members to replace A. Ceccucci and E. Tsesmelis. The proposal from Germany was Professor Mnich from DESY. The final composition would be agreed well before the next meeting.

## 9. Summary, Future Activities & A. O. B. J. Engelen

The Chairman noted that it was indeed gratifying to see the large progress over the last 6 months that the CMS experiment had made both in the technical sense and also in the sense of understanding their schedule and difficulties. The RRB had heard an overall very positive picture, cautioned with realism. He hoped that the good news from CMS would continue. He considered this was a successful meeting. He recommended members to participate in the visit to CMS.

The next RRB meetings in 2006 will take place at CERN on
**Monday 24th, Tuesday 25th and Wednesday 26th April 2006**
and on the
**Monday 23rd, Tuesday 24th and Wednesday 25th October 2006**

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

C. Jones
December 2005