

## Report of budgetary decisions taken at the CMS RRB, 23rd October 2001

### Preamble

The discussions leading to the decisions summarised below and the reservations and provisos expressed by several Funding Agencies FAs will be fully reported in the minutes of the meeting. This summary is intended to serve as an aide-memoire for various agreed actions and timetables.

### Overall situation

The support of the FAs for CMS was fully recognised and appreciated. The meeting accepted that supplementary Construction Costs, C&I costs and M&O costs legitimately exist. However, it is clear that many FAs will have little or no new money before ~ 2004 and so these expenses present some difficulties.

The current in-depth CERN review of the LHC program, machine and experiments, cannot be considered in isolation. CERN will be requesting additional funds to cover extra in-house costs identified for the LHC experiments (for experimental areas and for Technical Sector support) and it is appreciated that some FAs may be affected by the eventual outcome of this review.

### Costs to Completion

The shortfall in funds to construct CMS amounts to 55.4 MCHF. An example funding profile showed that first payments are not needed until 2004. However, indications of funding commitments are needed soon to build a financial plan. For commissioning and integration, an additional 12.4 MCHF are needed, with 1.8MCHF required in 2002. As a guideline, these sums could be generated by an across-the-board increase of MoU funds by 12.5% for the extra construction costs plus 2.5% for C&I costs. However, to construct a final plan it will be important to approach individual FAs that have major responsibilities for items for which shortfalls exist. CMS asked the RRB to **consider both of these options**.

CMS has already started to put together a **financial plan** that allows the detector to be completed on time. Ingredients of the plan are additional funds, additional collaborators and additional staging. The collaboration will develop the plan during the coming months for a variety of scenarios and present an updated version to the RRB in April 2002. This should then allow delegates to approach their FAs with requests for new money. To do this, CMS needs **indications** from the FAs, **before the end of 2001**, of the levels and time profiles for **possible new resources**. It is well understood that these indications are not firm commitments and will provide guidance rather than guarantees. When a final plan has been agreed and approved by the RRB, CMS will have to commit to build-to-cost thereafter.

### CMS 2002 Budget Requests

CMS presented the following 2002 budget requests, in MCHF, to the RRB:

	<i>Reference document</i>	<i>Budget</i>	<i>Expected Payments</i>
1)	CMS RRB D – 2001 109	Baseline Construction (MoU)	90 (includes 0.6 of the additional costs)
2)	CMS RRB D – 2001 110	M&O, Cat A	1.03
3)	CMS RRB D – 2001 110	C&I, Cat A	1.83

It was noted that Category B costs are not in these 2002 CMS budget requests as most sub-detectors are still in the Institutes.

Decisions taken were:

1) Baseline Construction (MoU) budget

**Approved** as presented (the query concerning the INFN contribution to the tracker being satisfactorily settled 'off-line').

2) Maintenance & Operation – Category A only

The budget was **approved to 30% of the level presented**. The remainder will be considered in April 2002 in the context of the M&O MoU.

The Scrutiny Group is satisfied that the 2002 M&O Cat A cost estimates are sound, based on a thorough examination of 8 key items, and is prepared to scrutinise the remaining items (as well as Cat C costs). It was noted that M&O Cat A cost sharing is based on the number of PhD scientists (or equivalent), for which CMS lists have to be updated before the end of the year and the final sharing adjusted accordingly.

It was agreed that an M&O Cat A Common Fund budget will be set up (as described in the draft M&O) and that rebated invoices will be issued to the FAs to an upper limit of 30% of the presented budget.

3) Commissioning & Integration Costs – Category A only

The Scrutiny Group SG had separated out C&I costs from those initially presented as M&O costs, and as such had scrutinised these items, paying close attention to Cat A. The SG considers 2002 C&I costs to be urgent to keep CMS on track.

New money to cover C&I costs is not immediately available and it will be necessary to move resources around, maybe even between deliverables and the Common Fund, to match requirement and priority profiles. A more favourable outcome would be to identify new funds but until this can be done, flexibility, though far from ideal, is the only way to prevent delays.

The meeting agreed that **critical C&I items** could be **temporarily covered** using funds presently earmarked for baseline construction items, either in the Common Fund or as deliverables. Each item thus put at risk must be **clearly identified** and well documented and a **strategy** must be prepared for the case in which new money is not found to pay for it within current timetables. To safeguard the interests of the FAs, Roger Cashmore will vet such borrowing in consultation with all concerned and the situation will be reviewed at the April 2002 RRB.

It was noted that C&I Cat A cost sharing in the distributed document was based on the number of PhD (or equivalent) scientists. However, at the meeting CMS proposed that C&I cost sharing should be by costbook. The result of this sharing guideline was not tabled at the meeting and so the corresponding list is attached to this report.

# ANNEX 2-Revised

## PROPOSED COST SHARING FOR 2002

	M&O				C&I			M&O + C&I
	Registered Users	Physicists with PhD	Share of Costs	M&O for 2002	Investment by MoU	Share of Costs	C&I for 2002	
	Number		%	kCHF	kCHF	%	kCHF	
Austria	23	12	1.0	10.7	3,900	0.9	15.6	26.3
Belgium	45	21	1.8	18.7	5,000	1.1	20.0	38.8
Bulgaria	26	7	0.6	6.2	600	0.1	2.4	8.6
CERN	159	59	5.1	52.7	85,200	18.6	341.0	393.6
China-NSFC+MST	48	41	3.6	36.6	4,765	1.0	19.1	55.7
Croatia	8	7	0.6	6.2	280	0.1	1.1	7.4
Cyprus	2	1	0.1	0.9	600	0.1	2.4	3.3
Estonia	5	4	0.3	3.6	90	0.0	0.4	3.9
Finland	43	11	1.0	9.8	5,000	1.1	20.0	29.8
France-CEA	32	13	1.1	11.6	5,600	1.2	22.4	34.0
France-IN2P3	99	43	3.7	38.4	19,700	4.3	78.8	117.2
Germany	92	38	3.3	33.9	17,000	3.7	68.0	102.0
Greece	28	15	1.3	13.4	5,000	1.1	20.0	33.4
Hungary	43	27	2.3	24.1	1,000	0.2	4.0	28.1
India	39	24	2.1	21.4	4,400	1.0	17.6	39.0
Italy	281	154	13.3	137.5	55,000	12.0	220.1	357.6
Korea	60	31	2.7	27.7	2,600	0.6	10.4	38.1
Pakistan	20	12	1.0	10.7	2,445	0.5	9.8	20.5
Poland	21	9	0.8	8.0	3,000	0.7	12.0	20.0
Portugal	19	3	0.3	2.7	2,000	0.4	8.0	10.7
RDMS-Russia	239	136	11.8	121.4	19,450	4.3	77.8	199.2
RDMS-DMS	83	67	5.8	59.8	6,400	1.4	25.6	85.4
Spain	40	25	2.2	22.3	6,000	1.3	24.0	46.3
Switzerland-ETHZ	50	17	1.5	15.2	75,500	16.5	302.2	317.3
Switzerland-PSI	15	9	0.8	8.0	8,500	1.9	34.0	42.1
Switzerland-Universities	16	9	0.8	8.0	2,000	0.4	8.0	16.0
Taipei-NSC	10	8	0.7	7.1	2,330	0.5	9.3	16.5
Turkey	20	18	1.6	16.1	1,000	0.2	4.0	20.1
UK	79	30	2.6	26.8	9,100	2.0	36.4	63.2
USA-DoE + USA-NSF	466	303	26.3	270.4	103,810	22.7	415.4	685.9
<b>TOTALS</b>	<b>2,111</b>	<b>1,154</b>	<b>100.0</b>	<b>1,030</b>	<b>457,270</b>	<b>100.0</b>	<b>1,830</b>	<b>2,860</b>