

# CMS

## Draft Budget for Construction 2006

**CERN-RRB-2005-109**

Cf. CERN-RRB-2005-107

Compact Muon Solenoid

A. Petrilli, RRB-21, 18 October 2005



# Introduction

- This document summarizes the funding requirements for all the payments planned in 2006 to follow the CMS construction schedule
- This draft budget for the year 2006 is based on the overall planning of the CMS experiment as presented at this RRB



# Introduction

- This document covers requests for all subsystems for funds available under the CMS MoU and Cost to Completion as well as funds which will be available under the Cost Increase (cf. CMS Financial Plan, CERN-RRB-2005-089)
- The Draft Budget request lists the Cost Increase funds separately. The total funding available to CMS is as detailed on the CMS Financial Plan



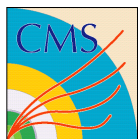
## Comments

- The present estimates for all payments in 2006, add up to 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 will total 471 MCHF
- This is about 88% of the Financial Plan revised cost and 89% of the funding currently available



## Comments

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



# Overview of 2006 Construction Budget (MCHF)

All figures in MCHF

Income Expected - Planned Payments	Planned payments									
	Income expected in 2006 plus funds from 2005									
	Funds expected to be carried forward from 2005									
	Magnet	Tracker	Electromagnetic Calorimeter	Hadron Calorimeter	Muon Detector	Trigger and Data Acquisition	Offline Computing	Infrastructure	Commissioning & Integration	TOTALS
	1.4						0.8		4.7	6.8
	1.7	14.8	19.7	0.5	2.6	4.1	0.9	7.5	5.4	57.1
	2.1	16.2	21.5	0.5	2.6	4.1	0.4	7.5	4.5	59.4
	-0.5	-1.4	-1.9				0.6		0.8	-2.3



# Overview of 2006 Cost Increase Funds (MCHF)

All figures in MCHF

Income Expected - Planned Payments	Planned payments	Income expected in 2006 plus funds from 2005								TOTALS	
		Funds expected to be carried forward from 2005									
		Magnet	Tracker	Electromagnetic Calorimeter	Hadron Calorimeter	Muon Detector	Trigger and Data Acquisition	Offline Computing	Infrastructure	Commissioning & Integration	
			3.6	6.8		1.9			0.3	0.7	13.2
			5.0	8.7		1.9			0.3	0.6	16.3
			-1.4	-1.9						0.1	-3.2



## Cash flow

- A small cash flow problem is foreseen at the end of 2006 for the Magnet Common Fund. This will be covered by financial guarantees of future payments to the Common Fund
- Funding Agencies are invited to accelerate the remaining payments to the Common Fund





# Annex 10, Budget 2006

Updated with latest replies from Funding Agencies (up to Oct. 16)

Funding Agencies	COMMON PROJECTS					SUB-DETECTORS					Infrastructure	Commissioning & Integration	TOTALS		
	Common Fund	Payments to Contracts	In-kind Contributions	Subtotals for Magnet	Offline Computing	Totals Common Projects	Tracker	Electromagnetic Calorimeter	Hadron Calorimeter	Muon Detector				Trigger and Data Acquisition	Totals Sub-detectors
	MAGNET			OFFL	Σ						Σ			Σ	
Austria	78			78		78					23	23			101
Belgium	36			36		36	373					373			409
Bulgaria															
CERN							2,948	6,590		100	750	10,388	7,220		17,608
China															
Croatia	33			33		33									33
Cyprus								60				60			60
Estonia															
Finland							520					520			520
France - CEA								363				363	300	145	808
France - IN2P3				40	40	40	42	1,087				1,129			1,169
Germany							700			523		1,223			1,223
Greece								150				150			150
Hungary	40			40	40	40			9			9			49
India	20			20	20	20		500	148			648			668
Iran															
Ireland															
Italy							6,428	296		1,248		7,972			7,972
Korea											500	500		147	647
Mexico															
New Zealand															
Pakistan [A]										285		285		149	434
Poland											1,211	1,211			1,211
Portugal	20			20	20	20		300				300		140	460
RDMS - Russia [A]								582	56	139		777			777
RDMS - DMS															
Serbia															
Spain										255		255			255
Switzerland - ETHZ				125	125	125		4,425				4,425			4,550
Switzerland - PSI							753					753			753
Switzerland - Universities							280					280		100	380
Taipei	36			36	36	36		150				150			186
Turkey	25			25	25	25									25
United Kingdom							892	2,779			450	4,121			4,121
USA - DOE							1,912	2,369	253		1,200	5,734			5,734
USA - NSF															
Funds expected to be carried forward from 2005	1,371			1,371	783	2,155								4,682	6,837
Income expected in 2006 plus funds from 2005	1,660			1,660	948	2,608	14,848	19,651	466	2,550	4,134	41,649	7,520	5,363	57,140
Planned payments	2,130			2,130	360	2,490	16,248	21,503	466	2,550	4,134	44,901	7,520	4,529	59,440
Funds expected to be carried forward to 2007	-470			-470	588	118	-1,400	-1,852				-3,252		834	-2,300



# Annex 10.1, MoU+CtC Funds

Updated with latest replies from Funding Agencies (up to Oct. 16)

Funding Agencies	COMMON PROJECTS					SUB-DETECTORS					Infrastructure	Commissioning & Integration	TOTALS		
	Common Fund	Payments to Contracts	In-kind Contributions	Subtotals for Magnet	Offline Computing	Totals Common Projects	Tracker	Electromagnetic Calorimeter	Hadron Calorimeter	Muon Detector				Trigger and Data Acquisition	Totals Sub-detectors
	MAGNET			OFFL	Σ						Σ		Σ		
Austria	78			78		78					23	23			101
Belgium	36			36		36	73					73			109
Bulgaria															
CERN							2,948	1,790		100	750	5,588	7,220		12,808
China															
Croatia	33			33		33									33
Cyprus								60				60			60
Estonia															
Finland							220					220			220
France - CEA								363				363			363
France - IN2P3				40	40	42	1,087					1,129			1,169
Germany										73		73			73
Greece							150					150			150
Hungary	40			40	40	40			9			9			49
India	20			20	20	20			148			148			168
Iran															
Ireland															
Italy							5,428	96				5,524			5,524
Korea											500	500			500
Mexico															
New Zealand															
Pakistan [A]										285		285			285
Poland											1,211	1,211			1,211
Portugal	20			20	20	20	300					300			320
RDMS - Russia [A]							582	56	139			777			777
RDMS - DMS															
Serbia															
Spain										100		100			100
Switzerland - ETHZ				125	125	125		4,425				4,425			4,550
Switzerland - PSI							753					753			753
Switzerland - Universities							280					280			280
Taipei	36			36	36	36		150				150			186
Turkey	25			25	25	25									25
United Kingdom							892	1,479			450	2,821			2,821
USA - DOE							662	2,369	253		1,200	4,484			4,484
USA - NSF															
Funds expected to be carried forward from 2005	1,371			1,371	783	2,155							4,682		6,837
Income expected in 2006 plus funds from 2005	1,660			1,660	948	2,608	11,298	12,851	466	697	4,134	29,446	7,220	4,682	43,956
Planned payments	2,130			2,130	360	2,490	11,298	12,851	466	697	4,134	29,446	7,220	3,948	43,104
Funds expected to be carried forward to 2007	-470			-470	588	118								734	852



# Annex 10.2, Cost Increase Funds

Updated with latest replies from Funding Agencies (up to Oct. 16)

Funding Agencies	COMMON PROJECTS					SUB-DETECTORS					Infrastructure	Commissioning & Integration	TOTALS			
	Common Fund	Payments to Contracts	In-kind Contributions	Subtotals for Magnet	Offline Computing	Totals Common Projects	Tracker	Electromagnetic Calorimeter	Hadron Calorimeter	Muon Detector				Trigger and Data Acquisition	Totals Sub-detectors	
	MAGNET				OFFL	Σ						Σ			Σ	
Austria																
Belgium							300					300				300
Bulgaria																
CERN								4,800				4,800				4,800
China																
Croatia																
Cyprus																
Estonia																
Finland							300					300				300
France - CEA													300	145		445
France - IN2P3																
Germany							700			450		1,150				1,150
Greece																
Hungary																
India								500				500				500
Iran																
Ireland																
Italy							1,000	200		1,248		2,448				2,448
Korea														147		147
Mexico																
New Zealand																
Pakistan [A]														149		149
Poland																
Portugal														140		140
RDMS - Russia [A]																
RDMS - DMS																
Serbia																
Spain										155		155				155
Switzerland - ETHZ																
Switzerland - PSI																
Switzerland - Universities														100		100
Taipei																
Turkey																
United Kingdom										1,300		1,300				1,300
USA - DOE							1,250					1,250				1,250
USA - NSF																
Funds expected to be carried forward from 2005																
Income expected in 2006 plus funds from 2005							3,550	6,800		1,853		12,203	300	681		13,184
Planned payments							4,950	8,652		1,853		15,455	300	581		16,336
Funds expected to be carried forward to 2007							-1,400	-1,852				-3,252		100		-3,152



## Summary

# **The RRB is invited to approve the Draft Budget for CMS Construction in the Year 2006**

Funding Agencies are invited to pay outstanding invoices  
and to accelerate payments to the Common Fund