

1. Introduction

The following report summarises

- Current signature status of the Worldwide LHC Computing Grid (WLCG) Memorandum of Understanding (MoU) and Tier definition
- Funding and expenditure status for WLCG at CERN
- Resource accounting for Tier-0,1 and 2 sites
- Resource pledges for 2011 and 2012

Complementary information can be found on the WLCG website <http://lcg.web.cern.ch/LCG/>

2. WLCG Memorandum of Understanding Signature Status

Since the October 2009 C-RRB meeting, no further signatures have been obtained however some countries have expressed an interest to join WLCG and are currently working on funding scenarios and administrative details. The current signature status including date of signature as presented at the last meeting therefore remains unchanged.

In several cases the MoU documents were signed some time ago in the early years of the project. In the current continuous data-taking mode, certain countries are reviewing the definition of their Federations or adding new sites. A new French Tier-2 site, CPPM in Marseille has very recently joined. Any such change must be reflected in the MoU annex 1 or 2 as should changes to the collaboration representatives following retirement or restructuring or changes to Funding Agency organisation or their acronyms.

Table 1 shows the current definition of the Tier-1 sites, and Table 2 the Tier-2 sites as reflected in the MoU annex 1 & 2. Any currently incorrect information or future changes should be signalled to lcg.office@cern.ch to ensure that the MoU information available at <http://lcg.web.cern.ch/LCG/mou.htm> is constantly maintained up to date and accurate.

<i>Centre</i>	<i>Experiments served with priority</i>				<i>Representative to WLCG Collaboration</i>	<i>Funding Agencies</i>
	<i>ALICE</i>	<i>ATLAS</i>	<i>CMS</i>	<i>LHCb</i>		
Canada, TRIUMF		X			M. Vetterli	CFI
France, CC-IN2P3	X	X	X	X	F. Malek (deputy: F. Chollet)	CNRS/IN2P3 and CEA/DSM/IRFU
Germany, KIT	X	X	X	X	K.-P. Mickel	BMBF/KIT
Italy, CNAF	X	X	X	X	M. Mazzucato (deputy: L. Dell'Agnello)	INFN
Netherlands LHC/Tier1	X	X		X	J. Templon	NIKHEF
Nordic Data Grid Facility (NDGF)	X	X	¹		L. Fischer	NSRC/HIP/RCN/SRC
Spain, PIC		X	X	X	M. Delfino (deputy: G. Merino)	MEC
Taipei, ASGC		X	X		S. Lin	Academia Sinica
UK, RAL	X	X	X	X	N. Geddes	STFC
USA, BNL		X			M. Ernst (alt.: R. Popescu)	DOE
USA, FNAL			X		V. White	DOE

¹ NDGF serves as a CMS Tier-2 resource

Table 1: Tier-1 sites as defined in Annex 1 of the WLCG MoU

<i>Institution</i>	<i>Experiments served with priority</i>				<i>Representative to WLCG Collaboration</i>	<i>Funding Agencies</i>
	<i>ALICE</i>	<i>ATLAS</i>	<i>CMS</i>	<i>LHCb</i>		
Austria, Austrian Tier-2 Federation - Institute for High Energy Physics, Vienna - University of Innsbruck		X	X		Alternates: C. E. Wulz D. Kuhn	BMWF
Australia, University of Melbourne		X			G. Taylor, T. Dyce	AusHEP
Brazil, SPRACE, São Paulo			X		S. F. Novaes, Unesp (alt: E. de M. Gregores)	FAPESP
Belgium, Belgian Tier-2 Federation - UA, Antwerpen - UCL, Louvain-la-Neuve - ULB, Brussels - UMH, Mons - VUB, Brussels			X		Alternates: G. Bruno, UCL P. Vanlaer, ULB O. Devroede, VUB	FNRS (UCL, ULB, UMH) and FWO (UA, VUB)
Canada, Canada-East Federation - University of Toronto		X			P. Savard (alt.: S. Robertson)	CFI
Canada, Canada-West Federation - University of Alberta - Simon Fraser University - University of Victoria		X			M. Vetterli (alt.: R. Sobie)	CFI
China, IHEP, Beijing		X	X		Gang Chen	MoST NSFC
Czech Rep., FZU AS, Prague	X	X			M. Lokajicek	MSMT CR
Estonia, NICPB			X		M. Kadastik	Estonian Ministry of Education and Research
Finland, NDGF/HIP Tier2			X		D.O. Riska	HIP
France, CC-IN2P3 AF	X	X	X	X	F. Malek (deputy: F. Chollet)	CNRS/IN2P3 and CEA/DSM/IRFU
France, CPPM, Marseille		X		X	F. Touchard	CNRS/IN2P3

<i>Institution</i>	<i>Experiments served with priority</i>				<i>Representative to WLCG Collaboration</i>	<i>Funding Agencies</i>
	<i>ALICE</i>	<i>ATLAS</i>	<i>CMS</i>	<i>LHCb</i>		
France, GRIF, Paris - IRFU, Saclay - IPN, Orsay - LAL, Orsay - LLR, Plaiseau - LPNHE, Paris	X	X	X	X	J.P. Meyer	CNRS/IN2P3 and CEA/DSM/IRFU
France, IPHC, Strasbourg	X		X		D. Bloch	CNRS/IN2P3
France, LAPP, Annecy		X		X	S. Jézéquel	CNRS/IN2P3
France, LPC, Clermont-Ferrand	X	X		X	D. Pallin	CNRS/IN2P3
France, SUBATECH, Nantes	X				L. Aphecetche	CNRS/IN2P3
Germany, GSI, Darmstadt	X				P. Malzacher	BMBF/GSI
Germany, ATLAS Federation FR/W - Albert-Ludwigs-Universität, Freiburg - Bergische Universität, Wuppertal		X			Alternates: J. E. Sundermann T. Harenberg	ALU/BUW/DESY
Germany, ATLAS Federation, Munich - MPI für Physik - Ludwig Maximilian Universität - Leibniz Rechenzentrum - Rechenzentrum Garching der MPG		X			S. Bethke	LMU/LRZ/MPG
Germany, ATLAS Federation, HH/Goe - DESY - University of Goettingen		X			V. Gülzow (alternate: A. Quadt - Univ.Goettingen)	BMBF/DESY/UGOE
Germany, CMS Federation - DESY - RWTH, Aachen			X		V. Gülzow (alternate: T. Kress - RWTH Aachen)	BMBF/DESY/RWTH
Germany, LHCb Federation, DESY				X	V. Gülzow	BMBF/DESY
Hungary, HGCC Federation - KFKI-RMKI, Budapest - SzTAKI, Budapest - ELUB, Budapest - DU, Debrecen	X		X		Alternates: G. Vesztergombi D. Horvath C. Hajdu	NKTH
India, TIFR, Mumbai			X		A. Gurtu	DAE
India, VECC/SINP, Kolkata	X				Y.P. Vijoyi	DAE
Israel, HEP-IL Tier-2 Federation		X			L. Levinson	ICHEP
Italy, INFN ALICE Federation	X				M. Masera	INFN
Italy, INFN ATLAS Federation		X			G. Carlino (deputy: L. Perini)	INFN
Italy, INFN CMS Federation			X		M. Paganoni	INFN
Italy, INFN LHCb Federation				X	U. Marconi	INFN
Japan, ICEPP, Tokyo		X			H. Sakamoto	University of Tokyo
Republic of Korea, KISTI, Daejeon	X				S. Hwang	KICOS
Republic of Korea, CHEP of KNU, Daegu			X		D. Son G. N. Kim	KICOS
Norway, UNINETT SIGMA Tier-2		X			J. Koster	RCN
Pakistan, Pakistan Tier-2 Federation - NCP - PAEC			X		H. Hoorani	PAEC/NCP
Poland, Polish Tier-2 Federation - Krakow - Poznan - Warszawa	X	X	X	X	R. Gokieli, Warszawa	The Minister of Science & Higher Education

<i>Institution</i>	<i>Experiments served with priority</i>				<i>Representative to WLCG Collaboration</i>	<i>Funding Agencies</i>
	<i>ALICE</i>	<i>ATLAS</i>	<i>CMS</i>	<i>LHCb</i>		
Portugal, LIP Tier-2 Federation - LIP, Lisbon - LIP, Coimbra		X	X		J. Gomes, Lisboa (deputy: M. David)	GRICES/FCT/UMIC
Romania, Romanian Tier-2 Federation - NIPNE - PUB - ISS - UAIC - ITIM	X	X		X	M. Dulea, NIPNE	National Authority for Scientific Research
Russian Fed., Russian Data-Intensive GRID (RDIG) ²	X	X	X	X	V. Ilyin (alt.: V. Korenkov)	Federal Agency for Science and Innovation/JINR
Slovenia, SiGNET, Jozef Stefan Institute		X			B. Kersevan	Ministry of Higher Education, Science and Technology
Spain, ATLAS Federation - IFAE, Barcelona - IFIC, Valencia - UAM, Madrid		X			J. Salt (alt: A. Pacheco Pages, J. del Peso)	MEC
Spain, CMS Federation - CIEMAT, Madrid - IFCA, Santander			X		F. Matorras (alt.: N. Colino)	MEC
Spain, LHCb Federation - UB, Barcelona - USC, Santiago				X	R. Graziani Diaz (alt.: J.J. Saborido Silva)	MEC
Sweden, SNIC Tier-2	X	X			S. Holmgren	VR
Switzerland, CHIPP		X	X	X	C. Grab	SER/SNF/ETH/CSCS
Taipei, Taiwan Analysis Facility Federation - Academia Sinica - National Taiwan University - National Central University		X	X		S. Lin	Academia Sinica
Turkey, Turkish Tier-2 Federation - TAEK - ULAKBIM		X	X		Alternates: I. Turk Cakir (TAEK) L. Baskus (TAEK) B. Ortakaya (ULAKBIM)	Turkish Atomic Energy Authority (TAEK)
UK, London Tier 2 - Brunel - ICL - QMUL - RHUL - UCL		X	X	X	D. Colling, ICL	STFC
UK, NorthGrid - Daresbury Lab. - Lancaster - Liverpool - Manchester - Sheffield		X		X	R. Jones, Lancaster	STFC
UK, ScotGrid - Durham - Edinburgh - Glasgow		X		X	P. Clark (Edinburgh)	STFC

² The Russian (distributed/advanced) Tier2 Cluster

<i>Institution</i>	<i>Experiments served with priority</i>				<i>Representative to WLCG Collaboration</i>	<i>Funding Agencies</i>
	<i>ALICE</i>	<i>ATLAS</i>	<i>CMS</i>	<i>LHCb</i>		
UK, SouthGrid - Birmingham - Bristol - Cambridge - Oxford - RAL - Sussex - Swansea - Warwick	X	X	X	X	P. Watkins, Birmingham	STFC
Ukraine, Ukrainian Tier-2 Federation - Kiev - BITP, IPS, IMBG, MAO, ICB, KNU - Kharkov - KhIPT, ISM, IRA, KhNU - Lvov - ICMP, LNU	X		X		G. Zinovjev, Kiev	National Academy of Sciences
USA, Great Lakes ATLAS T2 -University of Michigan -Michigan State University		X			S. McKee (alt.: B. Ball)	NSF
USA, Northeast ATLAS T2 - Boston Univ. - Harvard Univ.		X			J. Shank, BU (alt.: S. Youssef)	NSF
USA, Midwest ATLAS T2 - University of Chicago - Indiana University		X			R. Gardner, U. Chicago (alt.: F. Luehring)	NSF
USA, Southwest ATLAS T2 - Langston University - Univ. of New Mexico - Oklahoma University - University of Texas, Arlington		X			K. De, UTA (alt.: H. Severini)	NSF
USA, SLAC ATLAS T2		X			W. Yang (alt.: R. Mount)	NSF
USA, Caltech CMS T2			X		H. Newman, Caltech (alt.: J. Bunn)	NSF
USA, Florida CMS T2			X		P. Avery, U. Florida (atl.: R. Cavanaugh)	NSF
USA, MIT CMS T2			X		C. Paus, MIT	NSF
USA, Nebraska CMS T2			X		K. Bloom, U. Nebraska (alt.: D. Swanson)	NSF
USA, Purdue CMS T2			X		N. Neumeister, U. Purdue	NSF
USA, UC San Diego CMS T2			X		F. Wuerthwein, UCSD (alt.: J. Branson)	NSF
USA, U. Wisconsin CMS T2			X		S. Dasu, U. Wisconsin (alt.: W. Smith)	NSF

Table 2: Tier-2 sites as defined in Annex 2 of the WLCG MoU

3. Funding and Expenditure for WLCG at CERN

Exceptionally, and with the agreement of the C-RRB Chair, the usual funding and expenditure table will not be presented at the meeting. Discussions are still ongoing to finalise cost planning with respect to the recent CERN material budget cuts, the accelerator run schedule, requirements from the experiments, the upgrade of the existing CERN Computer Centre, latest technology changes and the future Computer Centre strategy for which the deadline for expression of interest was extended.

For personnel costs, nominative details continue to be entered in CERN's planning tool APT including current personnel commitments, planned replacements and the impact of EU projects EGI and EMI on CERN's personnel budget.

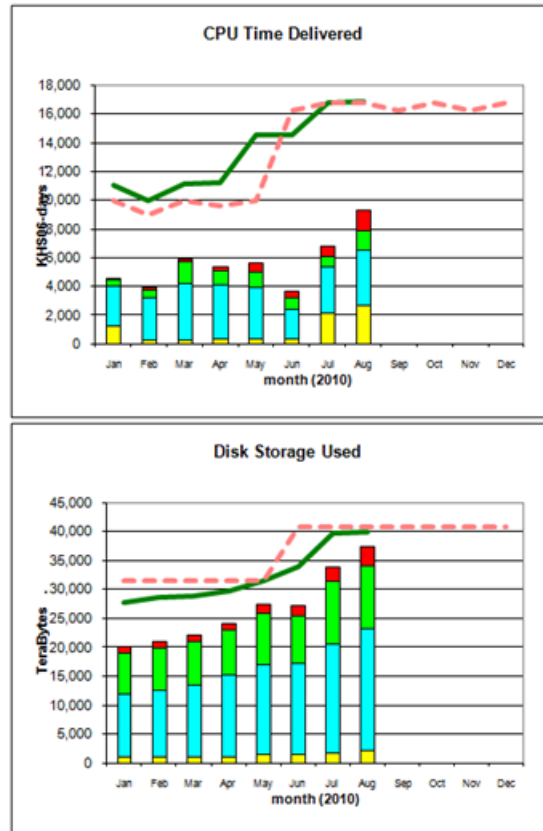
More details including the tables normally presented will be included in the next report.

4. Resource Accounting

4.1 CERN and External Tier-1 Accounting

Accounting data for CERN and External Tier-1 sites has continued to be reported to the C-RRB meetings, and full accounting reports from 2006 are available on the LCG website Accounting page <http://lcg.web.cern.ch/LCG/accounts.htm>.

Figure 1 shows the CPU delivered, Disk and Tape used at CERN and the external Tier-1s for the period January to August 2010 inclusive.



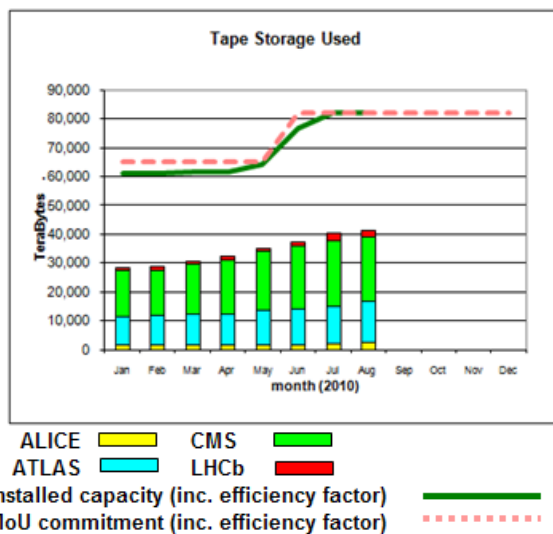


Figure 1: Accounting for CERN and External Tier-1s January - August 2010

The monthly reports including detailed information and graphs per site are distributed to the Overview Board Members and are available from the accounting page on the WLCG web as referenced above. To be noted exceptionally in 2010, deployment of resources was accepted up to June 2010. The usual resource deployment by April schedule will be resumed for 2011.

4.2 Tier-2 Accounting

Tier-2 accounting began in September 2007 and as for Tier-1 accounting, past reports can be found on the above referenced LCG website Accounting page.

Figure 2 shows the Federations with MoU pledge values above 7000 HS06 and Figure 3 all those with pledge values below 7000 HS06, in both cases ordered by pledge and showing CPU used by site in July and August 2010.

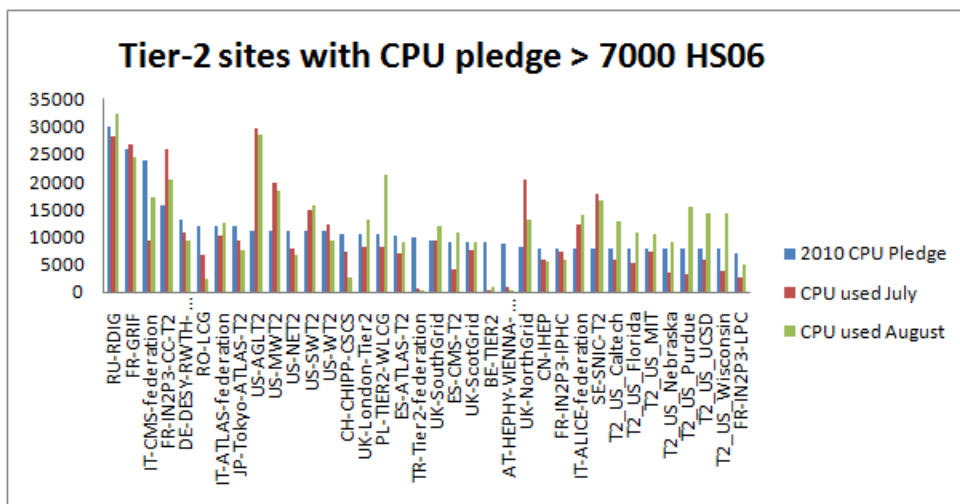


Figure 2: Accounting for Federations with CPU pledge > 7000 HS06 in July & August 2010

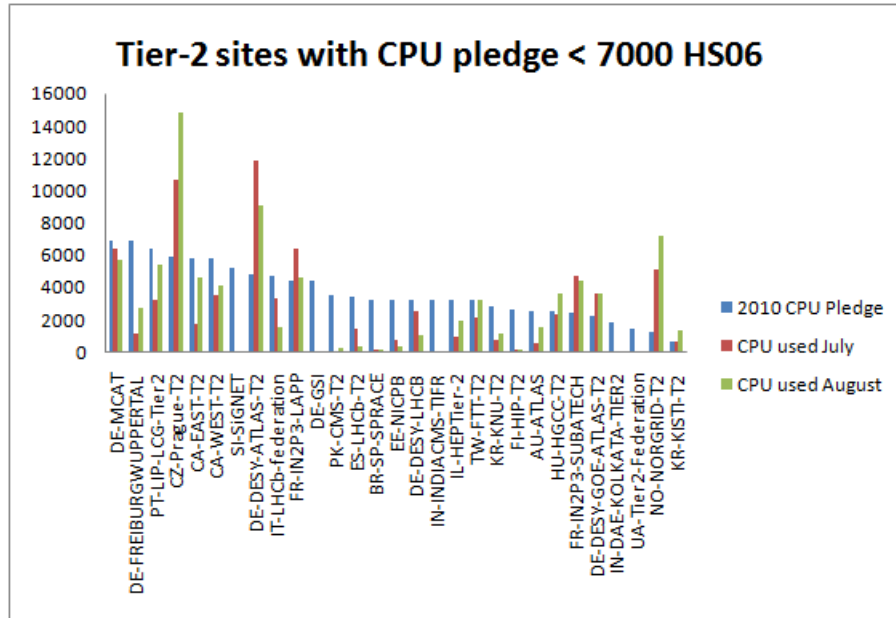


Figure 3: Accounting for Federations with CPU pledge < 7000 HS06 in July & August 2010

These figures show that many of the T2 sites are showing very encouraging results, however not all. Follow-up is on-going notably with Germany-GSI, India-TIFR and VECC, and Ukraine to understand their reporting problems and ensure they are included in the accounting reporting as soon as possible.

5. Resource Pledges for 2011 and 2012

At the last C-RRB meeting delegates were requested to ensure that pledge input for 2011 and 2012 was provided by 30th September 2010 at the latest for approval at the Autumn C-RRB meeting. The request was repeated by email on 4th May 2010 including the agreed experiment requirements for 2011 and preliminary requirements for 2012 as a basis for input following the scrutiny process.

As specified in the MoU, the Autumn session of the C-RRB should approve the Resource Pledge tables of particular importance for the following year. Up to the LHC start-up and the start of physics data some flexibility could be tolerated, however this is no longer the case and the deadline for input needs to be respected in order to present resource tables, used for planning purposes, which are as complete and accurate as possible.

It was encouraging to note by the 30th September deadline all but one Tier-1 and all but two Tier-2 sites had submitted input. The missing information was provided on 1st and 2nd October respectively therefore the tables presented to this Autumn session of the C-RRB are in a reasonably final state waiting for funding grants or proposals to be formally accepted in certain indicated countries.

Table 3 shows the summary result for the Tier-1 sites and Table 4 for the Tier-2 sites of the confirmed resource pledges in 2011 with detail by experiment according to their requirements, and the planned 2012 pledges.

Summary Ext. Tier1s	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	402416	524284	540807	Offered	71471	250208	132173	70432	524284
				Required	117000	226000	150700	65000	558700
				Balance	-39%	11%	-12%	8%	-6%
Disk (Tbytes)	43577	52467	59646	Offered	5527	26869	16254	3817	52467
				Required	7900	24800	19500	3500	55700
				Balance	-30%	8%	-17%	9%	-6%
Tape (Tbytes)	50570	88297	115501	Offered	8013	31959	44392	3933	88297
				Required	13000	30100	52400	3470	98970
				Balance	-38%	6%	-15%	13%	-11%

Table 3: 2011 and 2012 requirements and resources pledged for Tier-1 sites status (04/10/10)

Summary Tier2s with Split in 2011	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	Sum 2011
CPU (HEP-SPEC06)	502367	1356127	1406353	Offered	81574	281228	315363	47962	726127
				Required	121000	278000	319500	36000	754500
				Balance	-33%	1%	-1%	33%	-4%
Disk (Tbytes)	39255	98568	114312	Offered	5878	34203	20393	295	60768
				Required	6600	37600	19900	20	64120
				Balance	-11%	-9%	2%	1377%	-5%

Table 4: 2011 and 2012 requirements and resources pledged for Tier-2 sites (status 04/10/10)

Annex 1 of this report contains full details per site including notes with comments for certain sites and colour coding where the pledge information is waiting for final confirmation or where the pledge has decreased with respect to the 2010 confirmed pledge.

Attention is drawn to the 5 Tier-2 sites whose CPU and/or Disk pledge for 2011 is lower, or sometimes significantly lower than the 2010 confirmed pledge. This could imply that the 2010 confirmed pledges were not deployed although there could be other reasons. The agreed deployment delay in 2010 from April to June was perhaps a contributing factor in that it may not have been foreseeable at the time of the last meeting that these resources would not be deployed by June.

All pledge information is also now available via the gstat tool which will be the future tool used for all pledge data. Table 5 shows a screen-shot of the summary tab on 4th October indicating the result for 2011 for pledge data.

Year: 2011

All Tiers Tier 0 Tier 1 Tier 2

Search:

Tier	Pledge Type	ALICE	Required	Balance	ATLAS	Required	Balance	CMS	Required	Balance	LHCb	Required	Balance	SUM	Required	Balance
Tier 0	CPU (HEP-SPEC06)	62,000	62,000	0%	75,000	75,000	0%	106,100	106,100	0%	21,000	21,000	0%	264,100	264,100	0%
Tier 0	Disk (Tbytes)	6,100	6,100	0%	7,000	7,000	0%	4,500	4,500	0%	1,500	1,500	0%	19,100	19,100	0%
Tier 0	Tape (Tbytes)	6,800	6,800	0%	12,200	12,200	0%	21,600	21,600	0%	2,500	2,500	0%	43,100	43,100	0%
Tier 1	CPU (HEP-SPEC06)	71,471	117,000	-39%	250,208	226,000	11%	132,173	150,700	-12%	70,432	65,000	8%	524,284	558,700	-6%
Tier 1	Disk (Tbytes)	5,527	7,900	-30%	26,869	24,800	8%	16,254	19,500	-17%	3,817	3,500	9%	52,467	55,700	-6%
Tier 1	Tape (Tbytes)	8,013	13,000	-38%	31,959	30,100	6%	44,392	52,400	-15%	3,933	3,470	13%	88,297	98,970	-11%
Tier 2	CPU (HEP-SPEC06)	81,574	121,000	-33%	281,228	278,000	1%	315,363	319,500	-1%	47,962	36,000	33%	726,127	754,500	-4%
Tier 2	Disk (Tbytes)	5,878	6,600	-11%	34,202	37,600	-9%	20,392	19,900	2%	295	20	1375%	60,767	64,120	-5%

Table 5: gstat screen-shot showing the pledge summary data for 2011 (status 04/10/10)

Globally in 2011 according to the experiment requirements indicated, there is resource shortfall at the Tier-1's particularly for the ALICE and CMS experiments and at the Tier-2's particularly for ALICE and ATLAS for disk.

6. Conclusion

No new MoU signatures have been added since the last report to the C-RRB however some countries have expressed interest in becoming future collaborators. A new French Tier-2 site, CPPM in Marseille has recently joined WLCG. Delegates are reminded to check their Tier definition and associated information as defined in the MoU annex 1&2 and signal corrections and changes as they occur.

The LCG Personnel budget continues to be closely monitored. Internal discussions are still ongoing to terminate the strategy and cost planning of the LCG materials budget following the CERN budget cuts. More details will be given at the next C-RRB meeting.

Tier-1 and Tier-2 accounting will continue to be monitored on a monthly basis particularly follow-up with the Tier-2 sites still not reporting.

Following communication of the experiment requirements for 2011 and 2012 pledge input was received leading to the publication of the pledge tables in annex 1. The result shows resource shortfall at the Tier-1 and Tier-2 sites in 2011 in particular for ALICE.

2011 pledged resources must be deployed by April 2011 at the latest. Any 2011 pledges not fully deployed must be signalled and explained at the April 2011 C-RRB meeting.



CERN Tier0 / CAF	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	233400	264100	220800	Offered	62000	75000	106100	21000	264100
				Required	62000	75000	106100	21000	264100
				% of Req.	100%	100%	100%	100%	100%
Disk (Tbytes)	14790	19100	22800	Offered	6100	7000	4500	1500	19100
				Required	6100	7000	4500	1500	19100
				% of Req.	100%	100%	100%	100%	100%
Tape (Tbytes)	31600	43100	49700	Offered	6800	12200	21600	2500	43100
				Required	6800	12200	21600	2500	43100
				% of Req.	100%	100%	100%	100%	100%

Canada Tier1	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	10800	11300	11150	Offered		11300			11300
				% of Total		5%			5%
Disk (Tbytes)	1095	1240	1350	Offered		1240			1240
				% of Total		5%			5%
Tape (Tbytes)	710	1505	1950	Offered		1505			1505
				% of Total		5%			5%

FZK-GridKa	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	58730	83550	90425	Offered	29250	28250	15000	11050	83550
				% of Total	25%	13%	10%	17%	15%
Disk (Tbytes)	6924	7805	9780	Offered	2130	3125	1950	600	7805
				% of Total	27%	13%	10%	17%	14%
Tape (Tbytes)	8932	13290	18485	Offered	3250	3750	5700	590	13290
				% of Total	25%	12%	11%	17%	13%

IN2P3 Lyon	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	44186	72331	74361	Offered	8190	33222	11146	19773	72331
				% of Total	7%	15%	7%	30%	13%
Disk (Tbytes)	5109	6761	7761	Offered	708	3646	1342	1065	6761
				% of Total	9%	15%	7%	30%	12%
Tape (Tbytes)	5300	10426	13515	Offered	1069	4425	3876	1056	10426
				% of Total	8%	15%	7%	30%	11%

INFN CNAF	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	44000	59500	61000	Offered	18000	18500	15000	8000	59500
				% of Total	15%	8%	10%	12%	11%
Disk (Tbytes)	5300	6250	7700	Offered	1350	2250	2200	450	6250
				% of Total	17%	9%	11%	13%	11%
Tape (Tbytes)	5450	9900	15850	Offered	1900	2400	5200	400	9900
				% of Total	15%	8%	10%	12%	10%

Netherlands LHC/Tier1 (Note 1)	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	47296	61296	63296	Offered	6808	39496		14992	61296
				% of Total	6%	17%		23%	15%
Disk (Tbytes)	4186	4736	5286	Offered	478	3451		807	4736
				% of Total	6%	14%		23%	13%
Tape (Tbytes)	3629	5593	7193	Offered	492	4101		1000	5593
				% of Total	4%	14%		29%	12%

NDGF Tier1	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	13710	18319	18561	Offered	6883	11436			18319
				% of Total	6%	5%			5%
Disk (Tbytes)	1720	1964	2080	Offered	703	1261			1964
				% of Total	9%	5%			6%
Tape (Tbytes)	1770	2566	2960	Offered	1042	1524			2566
				% of Total	8%	5%			6%

Spain PIC	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	17238	23272	23778	Offered		11774	6971	4527	23272
				% of Total		5%	5%	7%	5%
Disk (Tbytes)	1968	2438	2846	Offered		1292	902	244	2438
				% of Total		5%	5%	7%	5%
Tape (Tbytes)	2136	4234	5233	Offered		1568	2424	242	4234
				% of Total		5%	5%	7%	5%



Taipei ASGC	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	28000	32000	36000	Offered		16000	16000		32000
				% of Total		7%	11%		8%
Disk (Tbytes)	3500	3600	3800	Offered		1800	1800		3600
				% of Total		7%	9%		8%
Tape (Tbytes)	3500	4000	4000	Offered		2000	2000		4000
				% of Total		7%	4%		5%

UK Tier1 (Note 2)	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	44376	54736	54946	Offered	2340	28250	12056	12090	54736
				% of Total	2%	13%	8%	19%	10%
Disk (Tbytes)	4638	5469	6333	Offered	158	3100	1560	651	5469
				% of Total	2%	13%	8%	19%	10%
Tape (Tbytes)	4877	8860	11345	Offered	260	3763	4192	645	8860
				% of Total	2%	13%	8%	19%	9%

US-ATLAS Tier1	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	49680	51980	51290	Offered		51980			51980
				% of Total		23%			23%
Disk (Tbytes)	5037	5704	6210	Offered		5704			5704
				% of Total		23%			23%
Tape (Tbytes)	3266	6923	8970	Offered		6923			6923
				% of Total		23%			23%

US-CMS Tier1	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	44400	56000	56000	Offered			56000		56000
				% of Total			37%		37%
Disk (Tbytes)	4100	6500	6500	Offered			6500		6500
				% of Total			33%		33%
Tape (Tbytes)	11000	21000	26000	Offered			21000		21000
				% of Total			40%		40%

Summary Ext. Tier1s	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	402416	524284	540807	Offered	71471	250208	132173	70432	524284
				Required	117000	226000	150700	65000	558700
				Balance	-39%	11%	-12%	8%	-6%
Disk (Tbytes)	43577	52467	59646	Offered	5527	26869	16254	3817	52467
				Required	7900	24800	19500	3500	55700
				Balance	-30%	8%	-17%	9%	-6%
Tape (Tbytes)	50570	88297	115501	Offered	8013	31959	44392	3933	88297
				Required	13000	30100	52400	3470	98970
				Balance	-38%	6%	-15%	13%	-11%

Ext. Tier1 Requ. 2011	ALICE	ATLAS	CMS	LHCb	SUM
CPU (HEP-SPEC06)	117000	226000	150700	65000	558700
Disk (Tbytes)	7900	24800	19500	3500	55700
Tape (Tbytes)	13000	30100	52400	3470	98970

TIER 1 Notes

Note 1: Netherlands These pledges are unconfirmed due to incomplete negotiations with the Funding Agency. The current assumption is that they will be accepted before end 2010 enabling procurement to commence however the compute and disk resource deployment will be delayed, available by summer 2011.

Note 2: UK Tape is provisioned on demand. The full pledge will not be deployed until required.

See also the online WLCG Resources Pledges database at: <http://gstat-wlcg.cern.ch/apps/pledges/>

	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
Austria, Austrian Tier-2 Federation									
CPU (HEP-SPEC06)	8850	5057	5057	Offered		1857	3200		5057
				% of Total		1%	1%		1%
Disk (Tbytes)	594	420	420	Offered		120	300		420
				% of Total		0%	2%		1%
Australia, University of Melbourne (Note 1)									
CPU (HEP-SPEC06)	2500	4000	6500	Offered		4000			4000
				% of Total		1%			1%
Disk (Tbytes)	250	400	700	Offered		400			400
				% of Total		1%			1%
Belgium, Belgian Tier-2 Fed. FNRS/FWO (Note 2)									
CPU (HEP-SPEC06)	9000	9600	9600	Offered			9600		9600
				% of Total			3%		3%
Disk (Tbytes)	670	1190	1370	Offered			1190		1190
				% of Total			6%		6%
Brazil, SPRACE, Sao Paulo									
CPU (HEP-SPEC06)	3200	2630	4030	Offered			2630		2630
				% of Total			1%		1%
Disk (Tbytes)	120	120	270	Offered			120		120
				% of Total			1%		1%
Canada, Canada-East Federation (Note 3)									
CPU (HEP-SPEC06)	5760	6672	7080	Offered		6672			6672
				% of Total		2%			2%
Disk (Tbytes)	595	902	1056	Offered		902			902
				% of Total		2%			2%
Canada, Canada-West Federation (Note 3)									
CPU (HEP-SPEC06)	5760	6672	7080	Offered		6672			6672
				% of Total		2%			2%
Disk (Tbytes)	595	902	1056	Offered		902			902
				% of Total		2%			2%
China, IHEP, Beijing									
CPU (HEP-SPEC06)	8000	8000	9600	Offered		4000	4000		8000
				% of Total		1%	1%		1%
Disk (Tbytes)	600	600	640	Offered		300	300		600
				% of Total		1%	2%		1%
Czech Rep., FZU, Prague									
CPU (HEP-SPEC06)	5900	8500	11000	Offered	5000	3500			8500
				% of Total	4%	1%			2%
Disk (Tbytes)	201	525	900	Offered	125	400			525
				% of Total	2%	1%			1%
Estonia, NICPB, Tallinn									
CPU (HEP-SPEC06)	3200	16000	16000	Offered			16000		16000
				% of Total			5%		5%
Disk (Tbytes)	120	280	280	Offered			280		280
				% of Total			1%		1%
Finland, NDGF/HIP Tier-2									
CPU (HEP-SPEC06)	2680	2680	2680	Offered			2680		2680
				% of Total			1%		1%
Disk (Tbytes)	210	346	346	Offered			346		346
				% of Total			2%		2%
France, CC-IN2P3, Lyon									
CPU (HEP-SPEC06)	15654	26087	27130	Offered	2412	10859	7347	5469	26087
				% of Total	2%	4%	2%	15%	3%
Disk (Tbytes)	1001	2314	2671	Offered	207	1469	558	80	2314
				% of Total	3%	4%	3%	400%	4%
France, GRIF, Paris									
CPU (HEP-SPEC06)	25808	36856	39064	Offered	5952	10564	9296	11044	36856
				% of Total	5%	4%	3%	31%	5%
Disk (Tbytes)	1570	2338	2833	Offered	324	1429	579	6	2338
				% of Total	5%	4%	3%	30%	4%

France, IPHC, Strasbourg	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	8000	9100	9100	Offered	2700		6400		9100
				% of Total	2%		2%		2%
Disk (Tbytes)	420	550	680	Offered	150		400		550
				% of Total	2%		2%		2%
France, LAPP, Annecy	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	4400	4720	5200	Offered		3520		1200	4720
				% of Total		1%		3%	2%
Disk (Tbytes)	272	452	602	Offered		450		2	452
				% of Total		1%		10%	1%
France, LPC, Clermont	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	7080	6527	7620	Offered	2078	3146		1303	6527
				% of Total	2%	1%		4%	2%
Disk (Tbytes)	610	609	771	Offered	164	443		2	609
				% of Total	2%	1%		10%	1%
France, Subatech, Nantes	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	2400	3000	3000	Offered	3000				3000
				% of Total	2%				2%
Disk (Tbytes)	200	270	270	Offered	270				270
				% of Total	4%				4%
France, IN2P3-CPPM	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	3350	3350	4500	Offered		1850		1500	3350
				% of Total		1%		4%	1%
Disk (Tbytes)	152	254	404	Offered		250		4	254
				% of Total		1%		20%	1%
Germany, ATLAS Federation, DESY	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	4800	6200	6600	Offered		6200			6200
				% of Total		2%			2%
Disk (Tbytes)	740	1050	1350	Offered		1050			1050
				% of Total		3%			3%
Germany, ATLAS Federation, U. Goettingen	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	2280	3800	4000	Offered		3800			3800
				% of Total		1%			1%
Disk (Tbytes)	250	400	590	Offered		400			400
				% of Total		1%			1%
Germany, CMS Federation DESY	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	8000	11800	12900	Offered			11800		11800
				% of Total			4%		4%
Disk (Tbytes)	400	640	900	Offered			640		640
				% of Total			3%		3%
Germany, CMS Federation RWTH Aachen	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	5000	6600	8700	Offered			6600		6600
				% of Total			2%		2%
Disk (Tbytes)	250	330	435	Offered			330		330
				% of Total			2%		2%
Germany, DESY-LHCb	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	3200	3200	3200	Offered				3200	3200
				% of Total				9%	9%
Disk (Tbytes)	2	2	2	Offered				2	2
				% of Total				10%	10%
Germany, GSI, Darmstadt	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	4400	5700	7400	Offered	5700				5700
				% of Total	5%				5%
Disk (Tbytes)	340	440	570	Offered	440				440
				% of Total	7%				7%
Germany, ATLAS Federation Munich	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	3440	9220	11560	Offered		9220			9220
				% of Total		3%			3%
Disk (Tbytes)	370	1040	1340	Offered		1040			1040
				% of Total		3%			3%

Germany, ATLAS Fed. FR/W Wuppertal	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	3436	4633	4917	Offered		4633			4633
				% of Total		2%			2%
Disk (Tbytes)	369	633	733	Offered		633			633
				% of Total		2%			2%

Germany, ATLAS Fed. FR/W Freiburg	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	3436	4610	5780	Offered		4610			4610
				% of Total		2%			2%
Disk (Tbytes)	369	518	668	Offered		518			518
				% of Total		1%			1%

Hungary, HGCC Federation	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	2500	3340	3340	Offered	840		2500		3340
				% of Total	1%		1%		1%
Disk (Tbytes)	140	146	171	Offered	36		110		146
				% of Total	1%		1%		1%

India, VECC/SINP, Kolkata	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	1800	4700	6000	Offered	4700				4700
				% of Total	4%				4%
Disk (Tbytes)	150	150	240	Offered	150				150
				% of Total	2%				2%

India, TIFR, Mumbai	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	3200	10400	10400	Offered			10400		10400
				% of Total			3%		3%
Disk (Tbytes)	600	750	750	Offered			750		750
				% of Total			4%		4%

Israel, IL-HEP Tier-2 Federation	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	3200	4000	5000	Offered		4000			4000
				% of Total		1%			1%
Disk (Tbytes)	375	560	660	Offered		560			560
				% of Total		1%			1%

Italy, INFN ALICE Federation	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	8000	20000	22000	Offered	20000				20000
				% of Total	17%				17%
Disk (Tbytes)	500	1000	1200	Offered	1000				1000
				% of Total	15%				15%

Italy, INFN ATLAS Federation	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	12000	18000	22000	Offered		18000			18000
				% of Total		6%			6%
Disk (Tbytes)	1000	2400	2700	Offered		2400			2400
				% of Total		6%			6%

Italy, INFN CMS Federation	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	24000	40000	40000	Offered			40000		40000
				% of Total			13%		13%
Disk (Tbytes)	1300	2500	2500	Offered			2500		2500
				% of Total			13%		13%

Italy, INFN LHCb Federation	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	4750	6000	6000	Offered				6000	6000
				% of Total				17%	17%
Disk (Tbytes)	0	0	0	Offered				0	0
				% of Total				0%	0%

Japan, ICEPP, Tokyo	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	12000	12000	12000	Offered		12000			12000
				% of Total		4%			4%
Disk (Tbytes)	1000	1000	1000	Offered		1000			1000
				% of Total		3%			3%

Republic of Korea, KISTI, Daejeon	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	600	600	600	Offered	600				600
				% of Total	0%				0%
Disk (Tbytes)	50	30	50	Offered	30				30
				% of Total	0%				0%

Country/Region	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
Republic of Korea, CHEP of KNU, Daegu	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	2840	3200	3600	Offered			3200		3200
				% of Total			1%		1%
Disk (Tbytes)	205	230	250	Offered			230		230
				% of Total			1%		1%
Norway, UNINETT SIGMA Tier2	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	1280	2905	3224	Offered		2905			2905
				% of Total		1%			1%
Disk (Tbytes)	90	273	365	Offered		273			273
				% of Total		1%			1%
Pakistan, Pakistan Tier-2 Federation	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	3480	4352	5440	Offered			4352		4352
				% of Total			1%		1%
Disk (Tbytes)	200	300	300	Offered			300		300
				% of Total			2%		2%
Poland, Polish Tier-2 Federation	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	10540	13050	15800	Offered	3500	4000	3350	2200	13050
				% of Total	3%	1%	1%	6%	2%
Disk (Tbytes)	599	810	1020	Offered	240	385	185	0	810
				% of Total	4%	1%	1%		1%
Portugal, LIP Tier-2 Federation	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	6400	6400	6400	Offered		3200	3200		6400
				% of Total		1%	1%		1%
Disk (Tbytes)	400	420	420	Offered		220	200		420
				% of Total		1%	1%		1%
Romania, Romanian Tier-2 Federation	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	12092	19000	20240	Offered	10600	6800		1600	19000
				% of Total	9%	2%		4%	4%
Disk (Tbytes)	816	1705	1756	Offered	1200	500		5	1705
				% of Total	18%	1%		25%	4%
Russian Federation, RDIG (Note 4)	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	30000	30000	30000	Offered	8100	9600	9600	2700	30000
				% of Total	7%	3%	3%	8%	4%
Disk (Tbytes)	2800	2800	5000	Offered	790	930	930	150	2800
				% of Total	12%	2%	5%	750%	4%
Slovenia, SIGNET, Jozef Stefan Inst.	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	5200	8000	12000	Offered		8000			8000
				% of Total		3%			3%
Disk (Tbytes)	350	600	900	Offered		600			600
				% of Total		2%			2%
Spain, ATLAS Federation	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	10308	13900	14750	Offered		13900			13900
				% of Total		5%			5%
Disk (Tbytes)	1107	1880	2200	Offered		1880			1880
				% of Total		5%			5%
Spain, CMS Federation	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	9040	16000	16000	Offered			16000		16000
				% of Total			5%		5%
Disk (Tbytes)	670	1000	1200	Offered			1000		1000
				% of Total			5%		5%
Spain, LHCb Federation	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	3420	2340	2340	Offered				2340	2340
				% of Total				7%	7%
Disk (Tbytes)	1	1	1	Offered				1	1
				% of Total				7%	7%
Sweden, SNIC Tier2 (note 5)	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	7870	7870	7870	Offered	2820	5050			7870
				% of Total	2%	2%			2%
Disk (Tbytes)	920	920	920	Offered	400	520			920
				% of Total	6%	1%			2%

Switzerland, CHIPP, Manno	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	10560	13550	17400	Offered		5420	5420	2710	13550
				% of Total		2%	2%	8%	2%
Disk (Tbytes)	910	976	1090	Offered		469	469	39	976
				% of Total		1%	2%	195%	2%

Taipei, Taiwan Analysis Facility Federation	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	3200	4480	6080	Offered		2240	2240		4480
				% of Total		1%	1%		1%
Disk (Tbytes)	350	480	600	Offered		240	240		480
				% of Total		1%	1%		1%

Turkey, Turkish Tier-2 Federation	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	9800	9800	9800	Offered		5100	4700		9800
				% of Total		2%	1%		2%
Disk (Tbytes)	900	900	900	Offered		550	350		900
				% of Total		1%	2%		2%

UK, London	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	10551	28186	28662	Offered		7794	18407	1985	28186
				% of Total		3%	6%	6%	4%
Disk (Tbytes)	781	2440	2839	Offered		1342	1097	1	2440
				% of Total		4%	6%	5%	4%

UK, NorthGrid	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	8309	11185	11805	Offered		10135		1050	11185
				% of Total		4%		3%	4%
Disk (Tbytes)	845	1540	1802	Offered		1539		1	1540
				% of Total		4%			4%

UK, ScotGrid	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	9025	14630	15409	Offered		12724		1906	14630
				% of Total		5%		5%	5%
Disk (Tbytes)	606	1238	1449	Offered		1237		1	1238
				% of Total		3%		5%	3%

UK, SouthGrid	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	9258	15425	16055	Offered	2420	4097	7153	1755	15425
				% of Total	2%	1%	2%	5%	2%
Disk (Tbytes)	669	1210	1482	Offered	132	582	495	1	1210
				% of Total	2%	2%	2%	5%	2%

Ukraine, Ukrainian Tier-2 Federation (Note 6)	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	1440	1440	1440	Offered	1152		288		1440
				% of Total	1%		0%		0%
Disk (Tbytes)	108	414	414	Offered	220		194		414
				% of Total	3%		1%		2%

USA, Northeast ATLAS T2	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	11040	12232	12980	Offered		12232			12232
				% of Total		4%			4%
Disk (Tbytes)	1141	1654	1936	Offered		1654			1654
				% of Total		4%			4%

USA, Southwest ATLAS T2	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	11040	12232	12980	Offered		12232			12232
				% of Total		4%			4%
Disk (Tbytes)	1141	1654	1936	Offered		1654			1654
				% of Total		4%			4%

USA, Midwest ATLAS T2	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	11040	12232	12980	Offered		12232			12232
				% of Total		4%			4%
Disk (Tbytes)	1141	1654	1936	Offered		1654			1654
				% of Total		4%			4%

USA, Great Lakes ATLAS T2	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	11040	12232	12980	Offered		12232			12232
				% of Total		4%			4%
Disk (Tbytes)	1141	1654	1936	Offered		1654			1654
				% of Total		4%			4%

USA, SLAC ATLAS T2	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	11040	12232	12980	Offered		12232			12232
				% of Total		4%			4%
Disk (Tbytes)	1141	1654	1936	Offered		1654			1654
				% of Total		4%			4%

USA, Caltech CMS T2	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	7760	105000	105000	Offered			15000		15000
				% of Total			5%		5%
Disk (Tbytes)	570	6300	7000	Offered			900		900
				% of Total			5%		5%

USA, Florida CMS T2	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	7760	105000	105000	Offered			15000		15000
				% of Total			5%		5%
Disk (Tbytes)	570	6300	7000	Offered			900		900
				% of Total			5%		5%

USA, MIT CMS T2	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	7760	105000	105000	Offered			15000		15000
				% of Total			5%		5%
Disk (Tbytes)	570	6300	7000	Offered			900		900
				% of Total			5%		5%

USA, Nebraska CMS T2	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	7760	105000	105000	Offered			15000		15000
				% of Total			5%		5%
Disk (Tbytes)	570	6300	7000	Offered			900		900
				% of Total			5%		5%

USA, Purdue CMS T2	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	7760	105000	105000	Offered			15000		15000
				% of Total			5%		5%
Disk (Tbytes)	570	6300	7000	Offered			900		900
				% of Total			5%		5%

USA, UC San Diego CMS T2	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	7760	105000	105000	Offered			15000		15000
				% of Total			5%		5%
Disk (Tbytes)	570	6300	7000	Offered			900		900
				% of Total			5%		5%

USA, U. Wisconsin CMS T2	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	SUM 2011
CPU (HEP-SPEC06)	7760	105000	105000	Offered			15000		15000
				% of Total			5%		5%
Disk (Tbytes)	570	6300	7000	Offered			900		900
				% of Total			5%		5%

Summary Tier2s with Split in 2011	2010	2011	2012	Split 2011	ALICE	ATLAS	CMS	LHCb	Sum 2011
CPU (HEP-SPEC06)	502367	1356127	1406353	Offered	81574	281228	315363	47962	726127
				Required	121000	278000	319500	36000	754500
				Balance	-33%	1%	-1%	33%	-4%
Disk (Tbytes)	39255	98568	114312	Offered	5878	34203	20393	295	60768
				Required	6600	37600	19900	20	64120
				Balance	-11%	-9%	2%	1377%	-5%

Requirements 2011	ALICE	ATLAS	CMS	LHCb	SUM
CPU (HEP-SPEC06)	121000	278000	319500	36000	754500
Disk (Tbytes)	6600	37600	19900	20	64120
Number of T2s	17	39	33	16	

TIER 2 Notes

Note 1: Australia: numbers are currently constrained by data centre power and cooling limitations. New DC is due for completion early mid-2011. Numbers may be increased.

Note 2: Belgium the FNRS pledges for 2011 are subject to approval of the funding request for 2011 by the FNRS funding agency

Note 3: Canada : These pledges are unconfirmed due to the timing of the Call for Proposals process in Canada. The current assumption is that the proposal will be accepted and all new resources will be available by 1 April 2011.

Note 4: Russia - possibility that resources will increase.

Note 5: The Swedish Research Council will take a decision concerning 2011 Tier2 pledges on 4th November 2010.

Note 6: Ukraine: Awaiting confirmation of CPU in HS06 (core numbers already provided). Figures are given in a reserved manner due to recent budget crisis and as such may be reconsidered.

Colour codes

	Preliminary information delivered, awaiting final confirmation
	Pledge decreased from 2010 pledge

See also the online WLCG Resources Pledges database at: <http://gstat-wlcg.cern.ch/apps/pledges/>