

GridPP
UK Computing for Particle Physics

GridPP Project Management Board

GridPP Financial Status

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Overview

This is an updated financial report for the GridPP4 project, covering the first three years of the project (FY11, FY12 and FY13). Projections are provided for FY14 to the end of GridPP4 and the commencement of GridPP4+.

GridPP4 Financial Status

Table-1 below shows the GridPP4 financial situation at the end FY13 in terms of hardware, staff costs in each of the areas of the project and miscellaneous expenditure, which includes items such as travel. Spend in bold has been finalised, while non-bold text is estimated expenditure. Note: WP G contains Travel, OPN costs and minor miscellaneous costs.

WP		FY11	FY12	FY13	FY14	Total
A	Tier-1 Staff	£1,213,352	£1,363,603	£1,354,366	£1,372,000	£5,303,321
	Tier-1 Hardware (inc PPD)	£1,714,683	£1,069,292	£1,755,474	£1,855,000	£6,394,449
B	Tier-2 Staff	£1,462,272	£1,523,895	£1,595,731	£1,723,879	£6,305,776
	Tier-2 Hardware	£892,000	£0	£1,120,500	£684,500	£2,697,000
C	Dep/Ops/Support	£600,118	£598,425	£540,957	£580,841	£2,320,341
D	Experiment Support	£388,590	£447,581	£433,789	£362,630	£1,632,590
E	Management	£344,234	£328,281	£276,230	£292,950	£1,241,695
F	KE/EI and admin	£34,416	£35,277	£33,244	£34,158	£137,094
G	Travel and Other Costs	£289,732	£298,498	£347,572	£320,000	£1,255,802
TOTAL		£6,939,397	£5,664,852	£7,457,863	£7,225,957	£27,288,069

Table-1: GridPP4 at the end of January 2015 with end of FY13 shown in bold

Total Project Spend	£27,288,069
Total funds available for GridPP4	£27,363,163
Project Balance (under-spend)	£75,094

Table-2: Provisional GridPP4 Project Balance.

	FY11	FY12	FY13	FY14	Total
University Grants	£2,980,161	£2,192,903	£3,296,146	£2,888,957	£11,358,167
SLA Capital	£1,452,440	£1,187,292	£1,272,486	£1,422,000	£5,334,218
SLA Resource	£2,506,796	£2,284,657	£2,889,231	£2,915,000	£10,595,684

Table-3 Showing the University grants and the Capital/Resource SLA split.

Notes:

- a) The current overall project budget shows a 0.3% underspend. The underspend shown is much smaller than that shown at the last Oversight Committee meeting. This change is mainly due to no longer carrying forward resource allocations over financial year boundaries.
- b) The SLA pay cost per FTE in FY14 is expected to be £82,205. Projects have been charged average pay per band, rather than the actual pay for each individual. RAL pay costs have been significantly lower than estimated due to a combination of this effect, the pay freezes that have been in place and some under booking.
- c) The University grants in the first half of the project were somewhat higher than our initial estimates but this was partially compensated in the second half, where the total of the grants was somewhat lower. The remaining deficit is more than covered by the reduced spend at RAL.
- d) The 1st tranche of the Tier 2 hardware grants were issued in 2011 totalling £892K. The remaining £1.8M was split across FY13 and FY14 in a way that meets the constraints on available capital in FY14. £1.12M was issued in FY13 and the remaining £684.5K will be spent in FY14.
- e) Travel costs now arrive in quantized steps due to the new University travel claim system sending quarterly bills and it is difficult to tell, at any particular moment, what accrued costs are still outstanding and will result in later invoices.
- f) The University Grants in Table-3 includes both Staff costs and Tier-2 Hardware.
- g) The OPN cost was higher than originally planned mainly due to the addition of VAT. This cost is shown in WP G along with the travel budget.

GridPP4 Staff effort

GridPP quarterly reports have now been submitted for Q4 2014, so staff effort can be tracked for the first three and three quarter years of the project.

- The position at the Tier-1 improved to close to fully staffed position by Q214 (19FTE) but dipped again after that to 15.7FTE in Q314. This resulted in further under-booking at the Tier-1 due to more staff losses and difficulty in recruitment.
- There was a significant shortage at the Tier-1 at the start of GridPP4, with five vacancies; the recruitment process was delayed by restrictions on hiring within STFC. Some posts have been filled but there has been a continuous ebb and flow of staff at the Tier-1. At times the Grid team has been stretched and although good availability was maintained, development and preparation work suffered.
- As an example of the recruitment/retention problem: The Security Officer resigned and left in June 2012, he was replaced in October 2012. Unfortunately the new Officer left in June 2013 and has only now just been replaced in time for GridPP4+. The vital operational security work has been shared by a team made up of several members of the GridPP operations team and two RAL/GridPP/EGI security staff during the periods when no one was in post, though this impacted other operational work. This UK security team, now it exists, is seen to provide essential support to the GridPP security

officer, even when the post is occupied and so will be maintained. During the times with no security officer, major site security challenges, training courses and other similarly important work could not be carried out.

- Despite the staffing issues, the Tier-1 has been able to run successfully. This was achieved by cover from the Tier-2s in some areas; by delaying some areas of work; and by reduced effort requirements in the CASTOR and Database teams. Although CASTOR has proved much more stable than anticipated during the first two years of GridPP4 and has required significantly less effort than planned, a replacement for the CASTOR disk service must be identified, deployed and tested at scale as performance issues are starting to show with CASTOR during high throughput. This work is being pursued currently, though we are now reasonably confident that CASTOR will meet the requirements during Run-2. The load on the database team has also been significantly reduced as the LHC experiments have reduced the number of critical databases that need to be maintained such as the LFCs and the move to FTS3.
- There has been some more effort booked at the Tier-2s this financial year following some under booking in FY13.

The effort delivered in FY14 is shown below in Table-4. The FTE equivalent funded by GridPP and the percentage delivered is shown. GridPP has benefitted from additional effort funded from external non GridPP sources including EGI and University funds with the resultant total sometimes being greater than the 75% expected at this stage.

Work Area	GridPP funded effort (FTE)	Fraction of GridPP funded effort delivered	Expected Effort	Additional effort delivered (FTE)	Total effort delivered
Management	2.5	75.0%	75%	0.5	95%
Miscellaneous	1.0	75.0%	75%	0.0	75%
Operations + experiment	11.7	73.9%	75%	2.4	94%
Tier-1	19.5	65.1%	75%	1.4	72%
Tier-2	20.5	80.0%	75%	4.6	103%
Total	55.2	73.2%	75%	8.9	89%

Table-4: Effort delivered in the first three quarters of FY14 against the expected level of 75%

Table-5 shows the effort delivered to GridPP4 over the first three years and three quarters of FY14. These figures are produced as part of the quarterly reports and it is recognized that there may be some inaccuracies due to personnel changing posts, but the table will give a general overview of the position. The additional effort comes from a mix of EGI, RAL and university internal funding. Overall, 92% of the funded effort was delivered with the shortfall arising primarily in the “Tier-1” area due to delays in recruitment at the start of the project partially due to constraints on recruitment introduced by STFC and under booking later in the project. However, in this area GridPP has benefitted from additional effort funded from other sources. So including the unfunded effort 111% of the planned effort has been delivered.

Work Area	GridPP funded effort (Cumulative FTE)	Unfunded effort (Cumulative FTE)	% of GridPP expected to date 3 rd Q Y4	Percentage of expected to date including unfunded
Management	9.9	1.1	96%	106%
Miscellaneous	3.8	0.0	100%	100%
Operations + experiment	42.7	10.7	94%	117%
Tier-1	61.9	8.7	84%	96%
Tier-2	72.8	20.0	97%	124%
Total	191.0	40.5	92%	111%

Table-5: Cumulative effort delivered to GridPP4 to the end of Q3 FY14

GridPP Travel

The travel spend in FY14 is shown in dark blue in Figure-1 below, and follows the trend of previous years. The figures are gathered from the UK SBS system and are provisional at this stage as not all expense claims will have been processed.

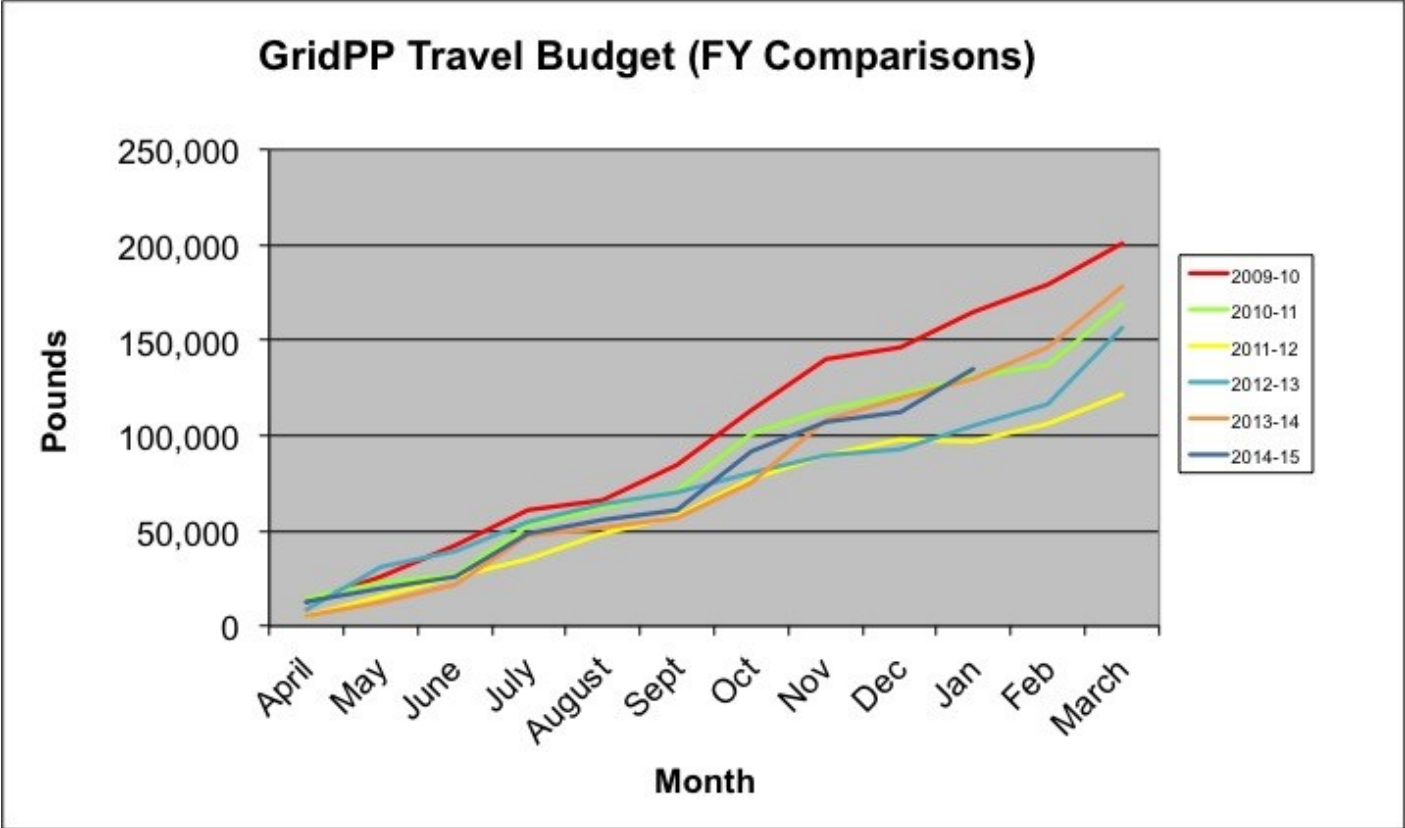


Figure-1: GridPP travel budget

The travel spend for FY2014/15 is very similar to last year and we are on track to spend the full allocation. The spend pattern is lumpy the main contributing factor to this is the quarterly invoices which arrive in July, October, January and March.

This is more noticeable in October 2014 which is mainly caused by the GridPP33 collaboration meeting in Ambleside. In the previous year the collaboration meeting in London followed by the CHEP conference caused the jump in October / November. CHEP is the most important conference or GridPP to expose our work especially as the conference proceedings are peer-reviewed and published. Overall the travel budget is closely controlled; the larger meetings where many people could attend are looked at carefully eg CHEP, HEPiX, WLCG Collaboration meetings etc. Generally only people actively contributing are funded to attend.

GridPP4 Financial Planning

The original GridPP4 award as awarded is shown below. The Tier-2 hardware funding was spent over three years in FY11, 13 & 14, as shown in Table-1 above. The balance across FY13 & FY14 being dictated by the capital limit in FY14. Most sites were funded in FY13, this was not the most optimal use of funds, but the risk that it will compromise our ability to deliver on the 2015 MOU is mitigated by the leverage that this sort of investment triggers from the Tier-2 institutes. All sites are on target to have the equipment delivered before the end of the financial year.

The award as originally approved is reproduced in Table-7:

WP	Description		FY11	FY12	FY13	FY14	Total
A	Tier-1	Staff	1,607	1,623	1,639	1,656	6,526
		Hardware	1,452	1,417	1,664	1,277	5,810
B	Tier-2	Staff	1,515	1,530	1,545	1,560	6,150
		Hardware	1,394	0	1,303	0	2,697
C	Deployment, operations and support		597	603	609	615	2,423
D	Experiment support		465	470	383	387	1,705
E	Management		296	279	244	246	1,065
F	KE/EI and admin		49	50	51	51	201
G	Travel and other costs		316	311	315	321	1,263
Total			7,690	6,282	7,754	6,114	27,840

In summary, the full award, including the interim award already announced, commences on April 2011 and now runs for a period of 4 years, i.e. from 1/04/11 to 31/03/15, and comprises the PPAN recommended levels of support for Tier 1 Hardware, university-based and RAL-based staff posts, consumables, travel and other specified costs. This should allow the collaboration to now go ahead with planned staff appointments for the full period of the award. However, **please note** that the funding approval for Tier 2 Hardware costs included above, which is affected by STFC's capital funding position, has still to be given, but I hope to be able to confirm this shortly.

Table-7: GridPP4 award from STFC.

The numbers above are based on the GridPP4 proposal written 18 months before the start of the project. As previously reported many changes occurred in the intervening time period.

All the staff grants have now been issued to the Universities and overall were within 1.5% of that expected.

The expected project underspend is ~0.3% of the current allocation. In the current plan £100K of the FY14 RAL staff underspend has been reallocated to resource spend on Tier-1 hardware mainly for the purchase of tape media. In this period, the new generation of drives will reuse currently available media at a higher-density. Media price is relatively stable and does not demonstrate a Moore's Law like reduction over time.

GridPP4+ will start on 1st April 2015 planned costs are shown below in Table-8 including the £1.2M extra h/w capital allocation.

WP		FY15
A	Tier-1 Staff	£1,600,000
	Tier-1 Hardware	£2,273,000
B	Tier-2 Staff	£1,697,864
	Tier-2 Hardware	£1,246,000
C	Dep/Ops/Support	£618,049
D	Experiment Support	£390,666
E	Management	£285,038
F	KE/EI and admin	£67,367
G	Travel and Other Costs	£323,000
TOTAL		£8,500,984

Table-8: GridPP4+ project costs

Summary

The projected financial status at the end of FY14 for the GridPP4 project has been presented. Current planning for the project shows an expected underspend of £75,094 compared to the funds actually made available. This is about 0.3% under budget.

Staffing costs on the university grants came in approximately 1.5% higher than estimated but was compensated by the under spend at the Tier-1.

The under booking of effort at the Tier-1 also allowed some transfer of resource across to the Tier-1 hardware budget to purchase non-capital items such as tape-media.

The project has received 92% of the effort funded at this point (3 years and three quarters of the FY14) and the deficit was more than made up by additional effort funded from other sources bringing the total delivered effort to the present date to 111% of that expected.

The financial plan for the remaining period of GridPP4 presented. The remaining second tranche of Tier-2 hardware funds has been issued to the University sites to keep within the STFC capital profile and are on track to be spent by the end of the financial year.

The one year extension to the project, GridPP4+ will start on 1st April and a summary of the planned costs are shown.