2014-15 FEDERAL BUDGET

ANALYSIS OF MEASURES RELATING TO SCIENCE, RESEARCH AND INNOVATION

FROM THE AUSTRALIAN ACADEMY OF SCIENCE / 2014

2014-15 federal Budget - Initial analysis of measures relating to science, research and innovation

The Academy secretariat has undertaken an initial analysis of the main areas of interest for science, research and innovation in this year's Budget, and has provided comparisons with the funding announcements made in the previous Budget.

Please send through any feedback, corrections or requests for analysis of any other areas of science expenditure not covered in this analysis through to Dr Peter Thomas.

Overview

The 2014-15 federal Budget was the first significant occasion on which the new Coalition Government set out its intentions for science, research and innovation in Australia.

The announcement that caught most attention was the establishment of a $20 billion Medical Research Future Fund, which, if established, could double the Government's investment in medical research within a decade.

The Academy has been strongly advocating for a continuation of ARC Future Fellowships and an ongoing replacement scheme for NCRIS, and there were positive announcements on both fronts. The Future Fellowship scheme will now continue, albeit a smaller program offering 100 Fellowships per year, and a further round of NCRIS funding has been announced for 2015-16.

Most science agencies and programs, with the exception of the NHMRC and AIMS, will see a decrease in their budgets over the forward estimates. Some of the most significant cuts are being incurred by CSIRO, DSTO, ARC (particularly the Linkage program), the CRC program, and the discontinuation of funding for NICTA beyond 2016.

Following the release of the Budget the Academy put out a media release welcoming the vision for medical research, but stating that cuts will weaken Australia's science future: http://www.science.org.au/node/320334#.U3Re-ijts40

The following analysis is broken up into two parts.

Part one – highlights notable new or closing programs relating to science, research and innovation

Part two – provides an analysis of the forecast budgets for key science agencies or large science programs

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Part one – announcements relating to specific schemes

Medical Research Future Fund

The Government intends to establish a Medical Research Future Fund (MRFF) on 1 January 2015 to provide additional funding for medical research, including through payments to the NHMRC.

The MRFF is to receive $1 billion from uncommitted funds in the Health and Hospitals Fund. Amounts equal to the estimated value of health savings measures published in the 2014-15 Budget will be reinvested in the Fund until it reaches a target capital level of $20 billion from 2014-15 to 2019-20. This will include investing $5 from the proposed $7 Medicare co-contribution initiative, which will be charged to access medical services.

It is expected that the MRFF will reach the $20 billion level by 2020. The net interest earnings on the MRFF capital will be available for drawdown in the following financial year, with the capital being preserved in perpetuity. It is planned to start dividend payments to medical research, including through the NHMRC, in 2015-16. The estimated payments would be $19.9 million in 2015-16, $77 million in 2016-17, and $179.3 million in 2017-18. By 2023-24 the MRFF is anticipated to provide an additional $1 billion per annum for medical research, doubling the Government's investment in medical research within a decade.

The MRFF is to be protected in perpetuity and managed by the Future Fund Board of Guardians. However the establishment of the Fund is subject to the passage of other health savings legislation, which is expected to face stiff opposition. Since the Budget was presented, Labor, the Australian Greens, and the Palmer United Party have announced their opposition to the health savings measures, particularly the new $7 Medicare co-contribution. Should there be no change in position it will not be possible for the necessary health savings measures legislation to pass the Senate, and therefore the establishment of the MRFF could be delayed or suspended.

Research infrastructure

In its pre-Budget submission to Treasury the Academy called for urgent action to deal with the expiring NCRIS program, which was due to lapse at the end of 2014-15. The Government has responded to this by announcing a further year of NCRIS funding, providing $150 million in 2015-16. This is $50 million more than the previous year. A review is being undertaken with regards to long-term research infrastructure planning and funding.

Mid-career fellowships

The Academy's pre-Budget submission to Treasury called for a continuation of the successful ARC Future Fellowship program, and the Government has responded by announcing that the program will be continued for a further four years. The program will provide up to 100 four-year Fellowships per year, and will now be restricted to Australians. Previously the Future Fellowship program provided 200 four-year Fellowships per year, and was also open to non-Australian citizens.

Academy science education programs

The Government has announced that it will maintain funding for the Academy's science education programs, *Primary Connections* and *Science by Doing*, providing $5 million over the forward estimates.

Industry innovation programs

The Government will achieve fiscal savings of $845.6 million over five years by ceasing the following programs from 1 January 2015:

- Australian Industry Participation
- Commercialisation Australia
- Enterprise Solutions
- Innovation Investment Fund
- Enterprise Connect
- Industry Innovation Precincts
- Textile, Clothing and Footwear Small Business and Building Innovative Capability.

Other industry programs that will close include:

- Clean Technology Innovation Program
- Green Car Innovation Fund
- Establishment of an ICT-enabled research laboratory
- Low Emissions Technology Demonstration Fund
- National Low Emission Coal Initiative.

Research Training Scheme (doctoral student fees)

The Research Training Scheme is one of the schemes that make up the higher education research block grants (discussed in further detail in Part two). The scheme provides block grants on a calendar basis to eligible Higher Education providers to support research training for students undertaking Research Doctorate and Research Masters degrees. The Government has announced that it will reduce funding for the scheme from 1 January 2016, saving $137.7 million over three years from 2015-16.

The Government will allow universities to recoup these funds by allowing them to charge student contributions up to a maximum of $3 900 per equivalent full-time student for high cost courses and $1 700 for low cost courses. Eligible students will be allowed to pay these fees using loans under the Higher Education Loan Programme.

National ICT Australia

The government has announced it will keep existing commitments of $84.9 million in existing commitments to 2016 for NICTA, but will cease public support after this period.

Cooperative Research Centres

This year's annual round of funding for new applicants has been cancelled, and subsequent rounds on hold pending a review of the scheme. Existing CRCs will be able to bid for funding extensions. The impact of this measure will remove about $80 million over the forward estimates from the CRC program. See the section on CRCs in Part Two for further details.

Research and Development Tax Incentive

Consistent with the cut to the company tax rate from 1 July 2015, the Government will preserve the relative value of the R&D Tax Incentive by reducing the rates of the refundable and non-refundable offsets by 1.5%. This measure will provide a $620.0 million in fiscal balance terms over the forward estimates period.

International science collaboration

Whilst Australia is set to continue to be without a dedicated international science collaboration fund, the Government did announce that the Australia-China Science and Research Fund would be provided with $10 million over four years. The fund supports collaboration between Australian and Chinese researchers and includes the following measures:

- $7 million over four years for five new Joint Research Centres focussed on application and commercialisation of research outcomes in oil and gas, mining, and mining services, medical research and advanced manufacturing
- $0.6 million over two years for the Australia-China Science Academies Symposium series
- $0.8 million over four years for the Australia-China Young Researchers Exchange Programme.

Prime Minister's Science Prize, National Science Week and Questacon Smart Skills

A total of $28 million over four years will be provided for these initiatives, including:

- $5.5 million for the Prime Minister's Science Prize
- $13.4 million for National Science Week and Strategic Science and Communication Programme
- $9.1 million for Questacon Smart Skills.

National Climate Change Adaptation Research Facility

The National Climate Change Adaptation Research Facility will be re-established with $9 million provided over three years. The previous funding for this facility ended in 2013.

Office of Water Science research program

This program will now be terminated on 30 June 2016, resulting in financial saving of $10 million over five years.

National Environmental Science Programme

The National Environmental Research Programme and the Australian Climate Change Science program will be amalgamated, resulting in savings of $21.7 million over four years.

Rural Research and Development Corporations

At this stage it is difficult to make comparisons between the 2014-15 Budget and the 2013-14 Budget with regards to Rural Research and Development Corporations. This is because some Corporations have closed whilst others have merged (there are now just four Rural R&D Corporations compared to seven in the previous Budget). However there were some specific measures taken within the Budget affecting agricultural research in this area. These measures include:

- Providing an additional $100 million over four years to fund research in partnership with Rural Research and Development Corporations (RDCs)
- Making savings of $7 million by no longer paying membership fees to international commodity organisations, and instead requiring Rural Research and Development Corporations to pay these fees
- Reducing funding to the Rural Industries Research and Development Corporation by $11 million over four years from 2014-15.

Part two – analysis of major science agencies and funding programs

Part two analyses the impact of the federal Budget on the large science agencies, and the most significant science funding programs. This section makes direct comparisons between the science expenditure plans as set out in the 2014-15 Budget with those of the previous 2013-14 Budget.

Where the term 'forward estimate period' or 'forward estimates' is used, this refers to the four years from 2014-15 to 2017-18.

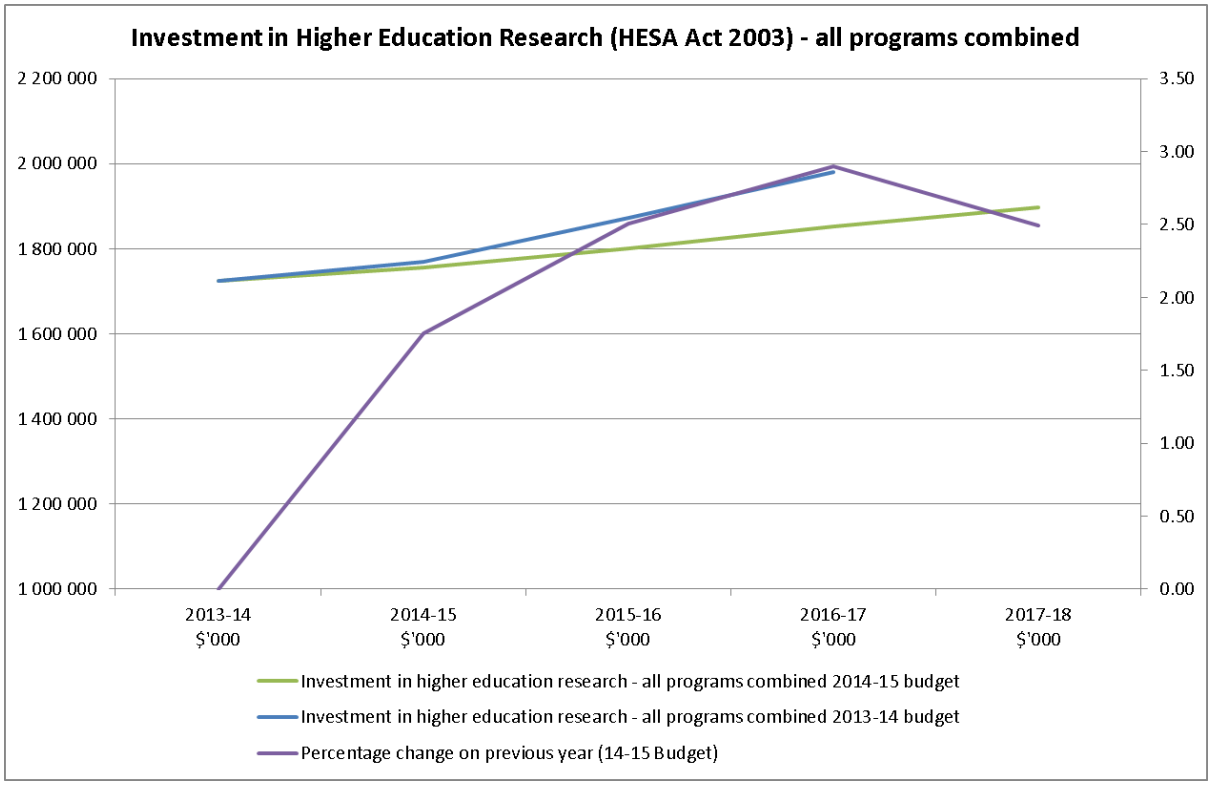
Higher education funding (block research grants)

This program covers the main investments in research for Higher Education providers, and is delivered through the *Higher Education Support Act* (2003). The program includes:

- Research Training Scheme
- Joint Research Engagement Program
- Research Infrastructure Block Grants
- Sustainable Research Excellence in Universities
- International Postgraduate Research Scholarship Scheme
- The Australian Postgraduate Awards
- Collaborative Research Infrastructure Scheme

In the previous Budget the former government announced a number of significant funding cuts to all grants made through the *Higher Education Support Act*, with the exception of Australian Postgraduate Awards, affecting both university research and teaching grants. Expenditure on higher education research block grants is set to be lower than previously forecast, particularly in the outward years 2015-16 to 2016-17.

	2013-14 $'000	**2014-15 $'000**	**2015-16 $'000**	**2016-17 $'000**	**2017-18 $'000**
Investment in higher education research - all HESA programs combined 2014-15 Budget	1 725 662	1 755 928	1 799 915	1 852 086	1 898 223
Investment in higher education research - all HESA programs combined 2013-14 Budget	1 725 501	1 769 301	1 872 142	1 979 587	
Difference between budget forecasts	161	-13 373	-72 227	-127 501	
Percentage change on previous year (14-15 Budget)		1.75	2.51	2.90	2.49
Percentage change in research support between 13-14 and 14-15 federal Budget	0.01	-0.76	-3.86	-6.44	


Investment in Higher Education Research (HESA Act 2003) - all programs combined
2 200 000
2 000 000
1 800 000
1 600 000
1 400 000
1 200 000
1 000 000
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
2013-14 $'000
2014-15 $'000
2015-16 $'000
2016-17 $'000
2017-18 $'000
Investment in higher education research - all programs combined 2014-15 budget
Investment in higher education research - all programs combined 2013-14 budget
Percentage change on previous year (14-15 Budget)

Australian Research Council

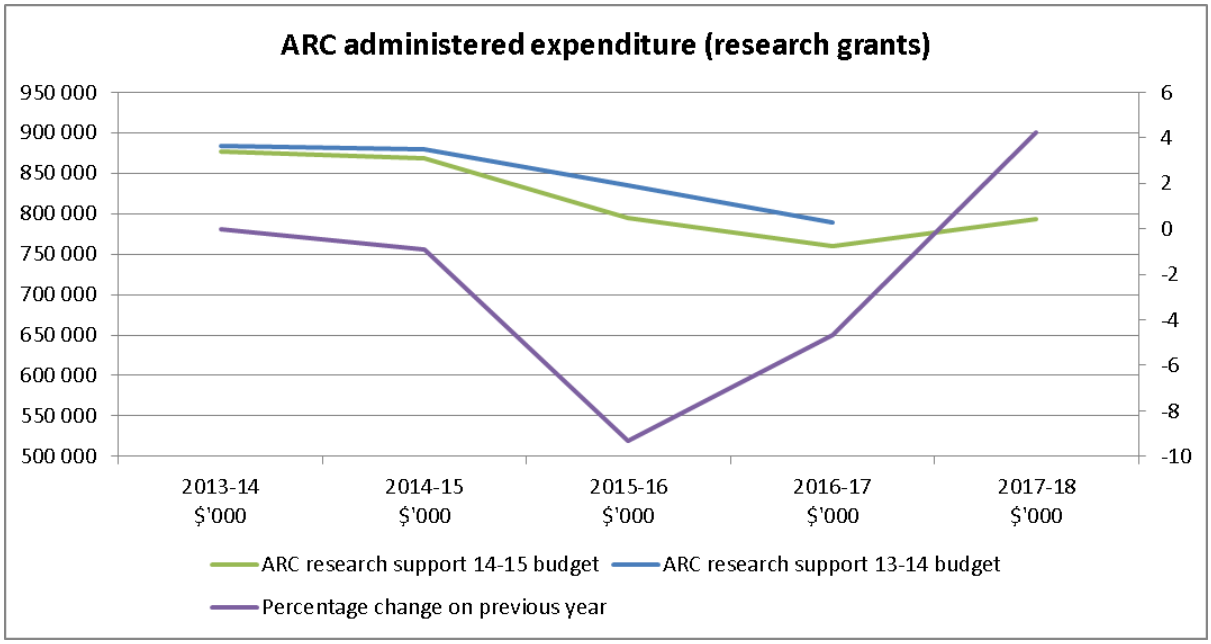
A number of measures and initiatives affecting the ARC were announced in the Budget including:

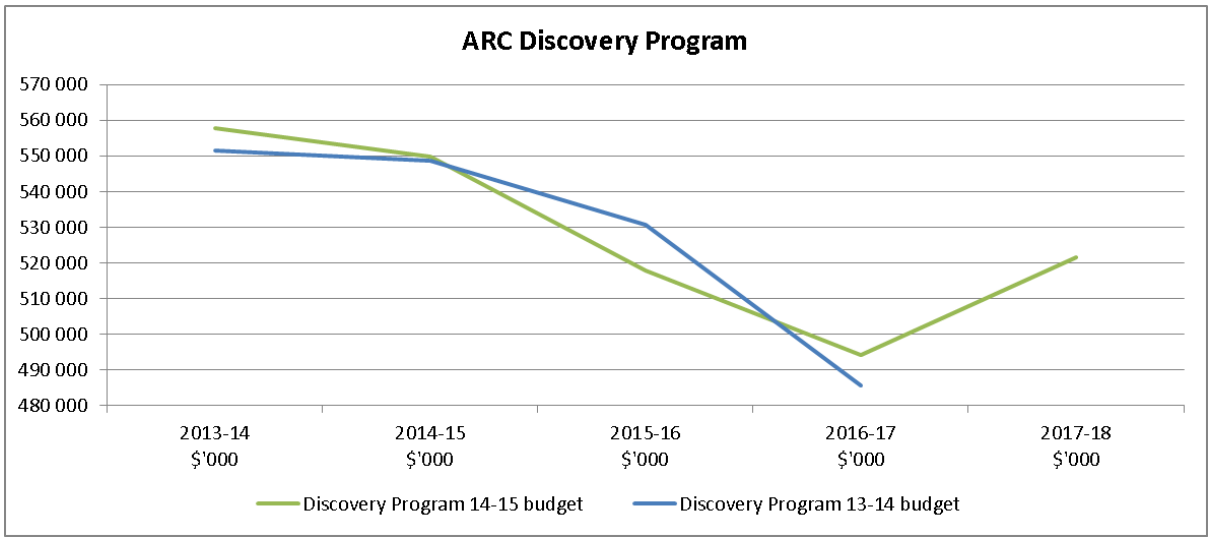
- Cutting ARC administered funds (grant funds) by 3.25% in 2015-16, resulting in $74.9 million being cut to research grant funds
- Providing $42.0 million through the ARC Linkage Programme to support the expansion of the Australian Institute of Tropical Health and Medicine at James Cook University
- Taking $24.0 million from the ARC's existing funding to fund an Antarctic Gateway Partnership between UTas, CSIRO and the Australian Antarctic Division
- Providing $139.5 million over four years to continue the Future Fellowships scheme on an ongoing basis, funding up to 100 four-year fellowships per year
- Providing $200 million ($160 million over the forward estimates) for dementia research, of this funding $26 million will come from the ARC, and the remainder from the NHMRC.

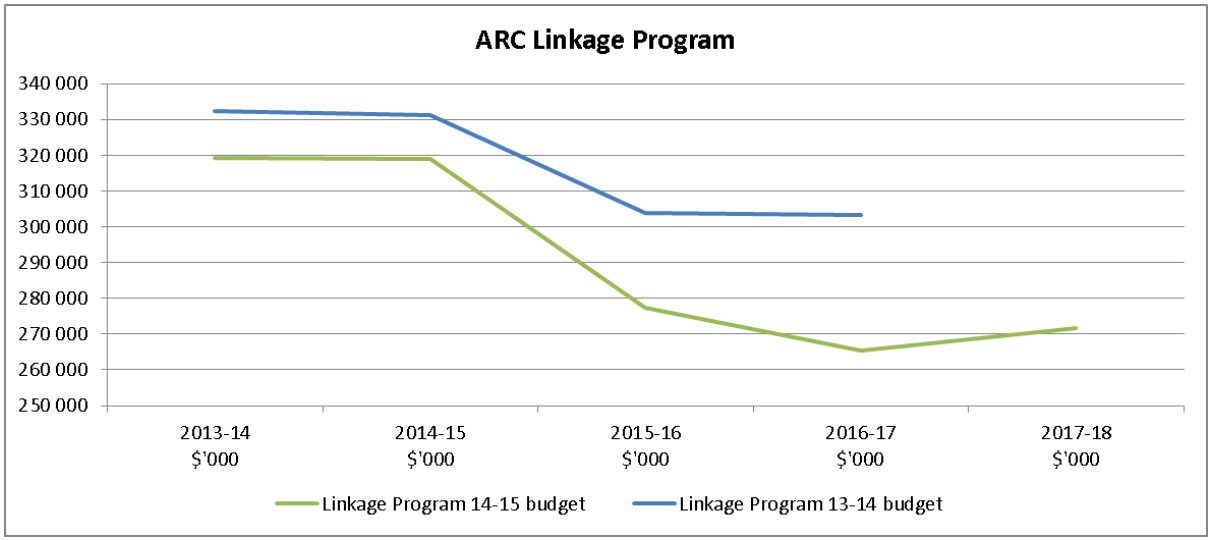
The impact of a smaller Future Fellowship scheme, reprioritisation of ARC research support funds to other schemes, and the additional 3.25% cut to the ARC research support funds in 2015-16 will lead to a severe fall in research support through the ARC. In 2015-16 it is forecast that there will be a fall of 9.3% in research support. The greatest impact of the funding cuts to the ARC's budget appear to be on the Linkage Program, which when combined with the funding pause for the CRC scheme, presents further challenges for industry-research collaboration.

Total difference in forecast spending on the ARC's grant programs between 2013-14 and 2016-17 is now $86.6 million lower than forecast in the previous Budget.

	2013-14 $'000	**2014-15 $'000**	**2015-16 $'000**	**2016-17 $'000**	**2017-18 $'000**
Discovery Program 14-15 budget	557 688	549 879	517 807	494 325	521 580
Discovery Program 13-14 budget	551 488	548 652	530 766	485 555	
Linkage Program 14-15 budget	319 174	319 096	277 285	265 402	271 671
Linkage Program 13-14 budget	332 471	331 331	303 821	303 155	
ARC research support 14-15 budget	876 862	868 975	795 092	759 727	793 251
ARC research support 13-14 budget	883 959	879 983	834 587	788 710	
Difference in research support between budget forecasts	-7 097	-11 008	-39 495	-28 983	
Percentage forecast annual growth in ARC research support 14-15 Budget		-0.91	-9.29	-4.65	4.23
Percentage change in research support between 13-14 and 14-15 Federal Budget	-0.80	-1.25	-4.73	-3.67	


ARC administered expenditure (research grants)
950 000
900 000
850 000
800 000
750 000
700 000
650 000
600 000
550 000
500 000
6
4
2
0
-2
-4
-6
-8
-10
2013-14 $'000
2014-15 $'000
2015-16 $'000
2016-17 $'000
2017-18 $'000
ARC research support 14-15 budget
ARC research support 13-14 budget
Percentage change on previous year


ARC Discovery Program
570 000
560 000
550 000
540 000
530 000
520 000
510 000
500 000
490 000
480 000
2013-14 $'000
2014-15 $'000
2015-16 $'000
2016-17 $'000
2017-18 $'000
Discovery Program 14-15 budget
Discovery Program 13-14 budget


ARC Linkage Program
340 000
330 000
320 000
310 000
300 000
290 000
280 000
270 000
260 000
250 000
2013-14 $'000
2014-15 $'000
2015-16 $'000
2016-17 $'000
2017-18 $'000
Linkage Program 14-15 budget
Linkage Program 13-14 budget

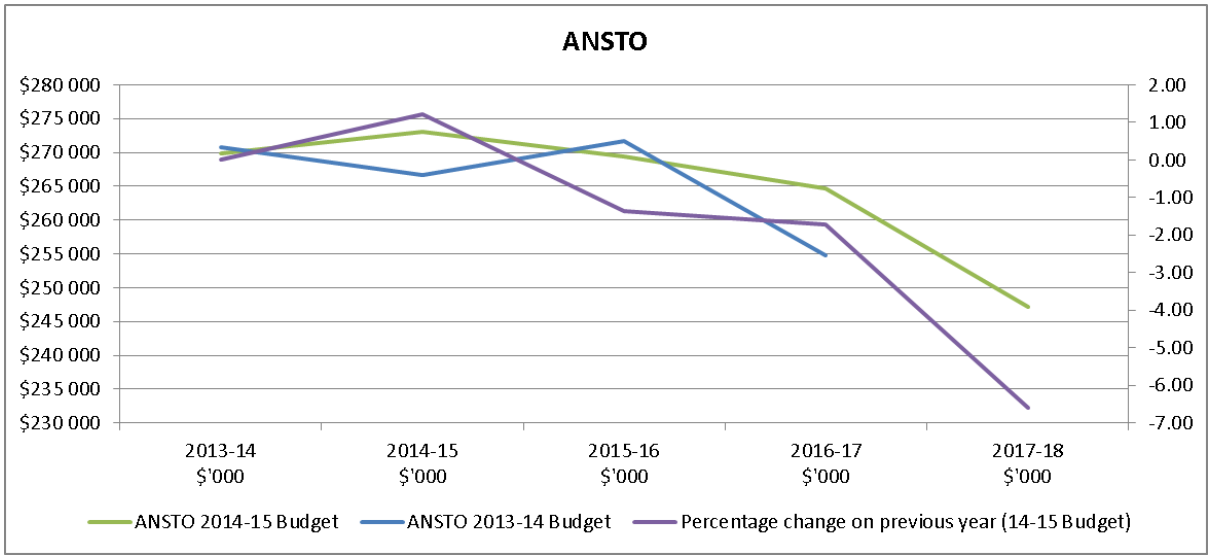
Australian Nuclear Science and Technology Organisation

Measures affecting ANSTO in the Budget include

- Providing an additional $31.6 million over four years to help with the costs of operating the Open Pool Australian Lightwater (OPAL) nuclear reactor
- Providing $45.0 million over five years ($25.8 million over the forward estimates) to cover the costs of the permanent disposal of used nuclear fuel
- Reducing research funding by $27.6 million.

Government support for ANSTO between 2013-14 and 2017-18 will be higher than the previous government's Budget forecasts by $13.1 million. Whilst overall spending on ANSTO is set to be higher than forecast in the previous Budget, there will be fewer funds available for research, and negative growth in ANSTO's overall budget from 2015 onwards, with the ANSTO budget declining by 6.6% in 2017-18

	2013-14 $'000	**2014-15 $'000**	**2015-16 $'000**	**2016-17 $'000**	**2017-18 $'000**
ANSTO 2014-15 Budget	$269 811	$273 113	$269 375	$264 712	$247 219
ANSTO 2013-14 Budget	$270 751	$266 706	$271 664	$254 752	
Difference between budget forecasts	-$940	$6 407	$2 289	$9 960	
Anticipated annual percentage growth in ANSTO expenditure in 14-15 Budget		1.22	-1.37	-1.73	-6.61
Percentage change in research support between 13-14 and 14-15 Federal Budget	0.35	-2.35	0.85	-3.76	



Commonwealth Scientific and Industrial Research Organisation

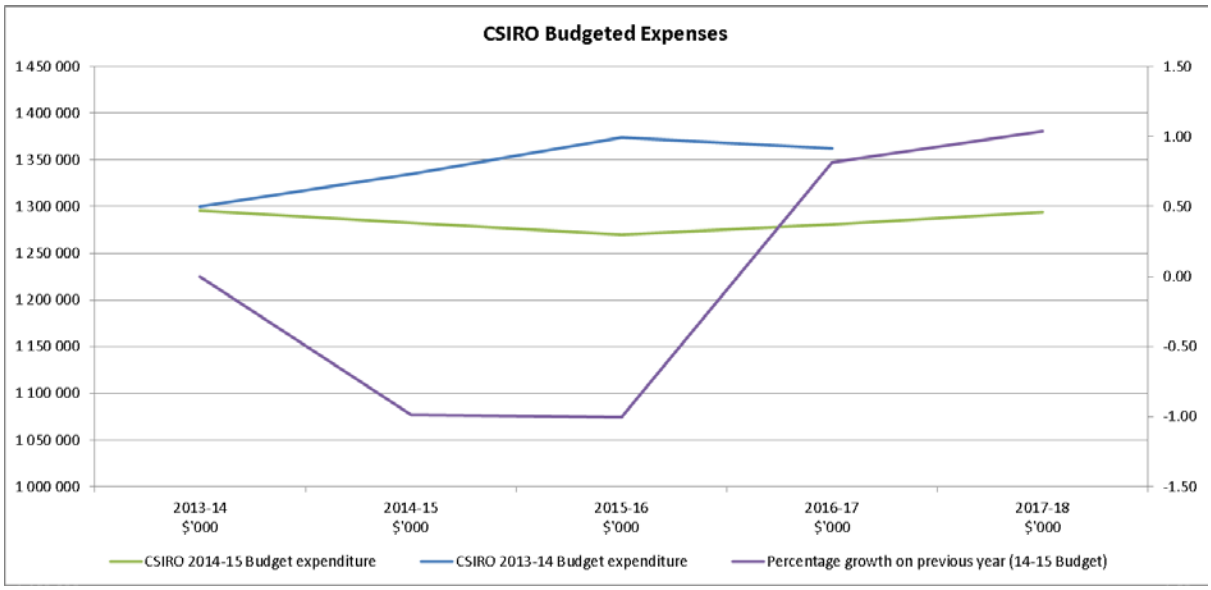
There were a number of measures introduced in the Budget affecting CSIRO:

- The Government will cut research funding for CSIRO by $111.4 million
- CSIRO will be a partner in the $24 million Antarctic gateway partnerships along with UTas and the AAD, with the cost of this measure met by reprioritising ARC funding
- CSIRO will provide $21.1 million of the $65.7 million announced for the Marine National Facility to operate the new research vessel RV investigator.

CSIRO's budgeted expenditure is forecast to fall by $242.3 million between 2013-14 and 2016-17.

It is important to note that approximately 60% of CSIRO's revenue comes through government support and the remainder from the sale of goods and services.

	2013-14 $'000	**2014-15 $'000**	**2015-16 $'000**	**2016-17 $'000**	**2017-18 $'000**
CSIRO 2014-15 Budget expenditure	1 295 665	1 282 862	1 270 019	1 280 405	1 293 709
CSIRO 2013-14 Budget expenditure	1 300 010	1 334 761	1 373 846	1 362 668	
Difference between budget forecasts	-4 345	-51 899	-103 827	-82 263	
Percentage change on previous year		-0.99	-1.00	0.82	1.04
Percentage change in research support between 13-14 and 14-15 Federal Budget	-0.33	-3.89	-7.56	-6.04	

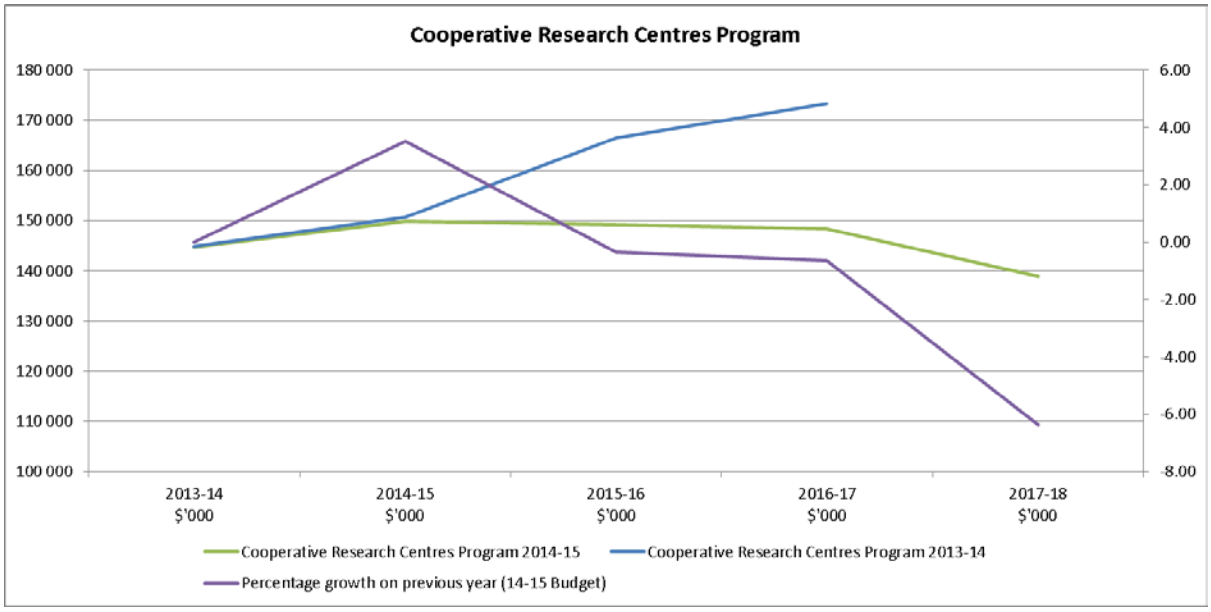


Cooperative Research Centres

The Cooperative Research Centres were a big loser in the 2014-15 Budget, with this year's annual round of funding for new applicants cancelled, and subsequent rounds on hold pending a review of the scheme. Existing CRCs will be able to bid for funding extensions in this year's funding round. The impact of this measure will remove about $80 million over the forward estimates from the CRC program. Since the Budget the Government has announced that following the review and implementation of changes, an 18th round of the CRC program will take place in 2015.

Expenditure on the CRC program between 2013-14 and 2017-18 is now anticipated to be $43.2 million lower than forecast in the previous Budget.

	2013-14 $'000	2014-15 $'000	2015-16 $'000	2016-17 $'000	2017-18 $'000
Cooperative Research Centres Program 2014-15	144 729	149 828	149 291	148 353	138 900
Cooperative Research Centres Program 2013-14	144 813	150 779	166 454	173 353	
Difference between budget forecasts	-84	-951	-17 163	-25 000	
Percentage growth on previous year (14-15 Budget)	0.00	3.52	-0.36	-0.63	-6.37
Percentage change in research support between 13-14 and 14-15 Federal Budget	-0.06	-0.63	-10.31	-14.42	



National Health and Medical Research Council

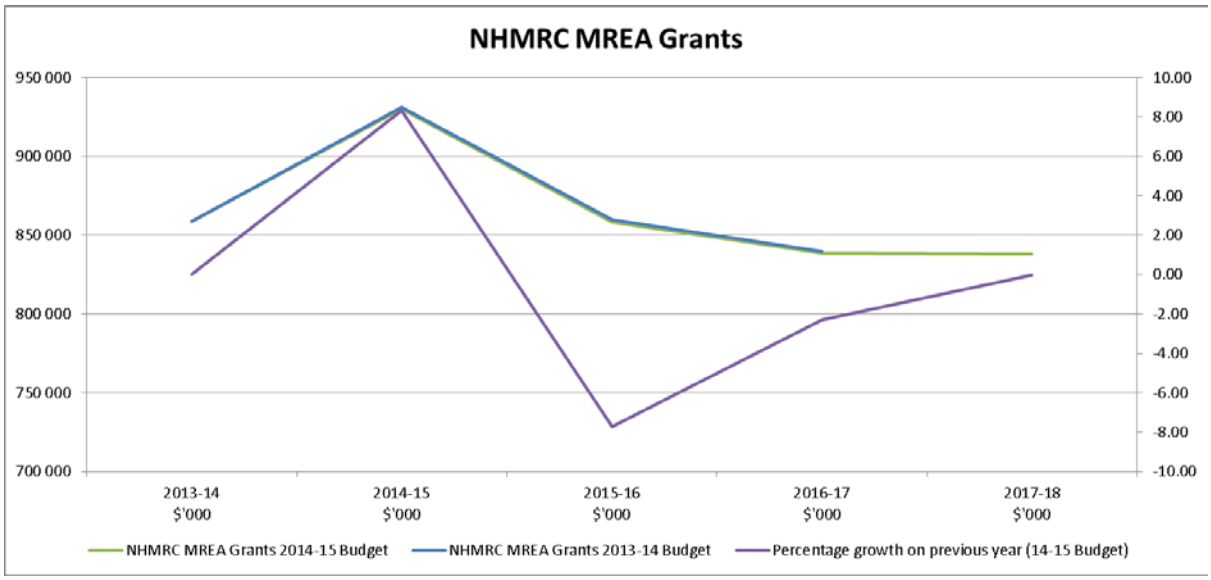
The NHMRC's expenditure on research grants was largely protected in the Budget, and remains in line with the forecasts in the previous Budget. There were a few specific measures within the Budget that are of relevance to the NHMRC:

- The establishment of a new Medical Research Endowment Fund (discussed in further detail in Part one)
- Providing $200 million ($160 million over the forward estimates) for dementia research. Of this funding $134 million will be provided through the NHMRC with the remainder from the ARC.

Whilst there appears to be a notable increase in expenditure on NHMRC grants in 2014-15 this increase actually represents the planned return of funds removed through an accountancy measure in the previous Budget (moving from paying NHMRC grants from quarterly in advance, to monthly in arrears).

Expenditure through the NHMRC Medical Research Endowment Account on research grants between 2013-14 and 2017-18 is now anticipated to be $3.8 million lower than forecast in the previous Budget, which as a proportion of spending on NHMRC grants over this period is very low.

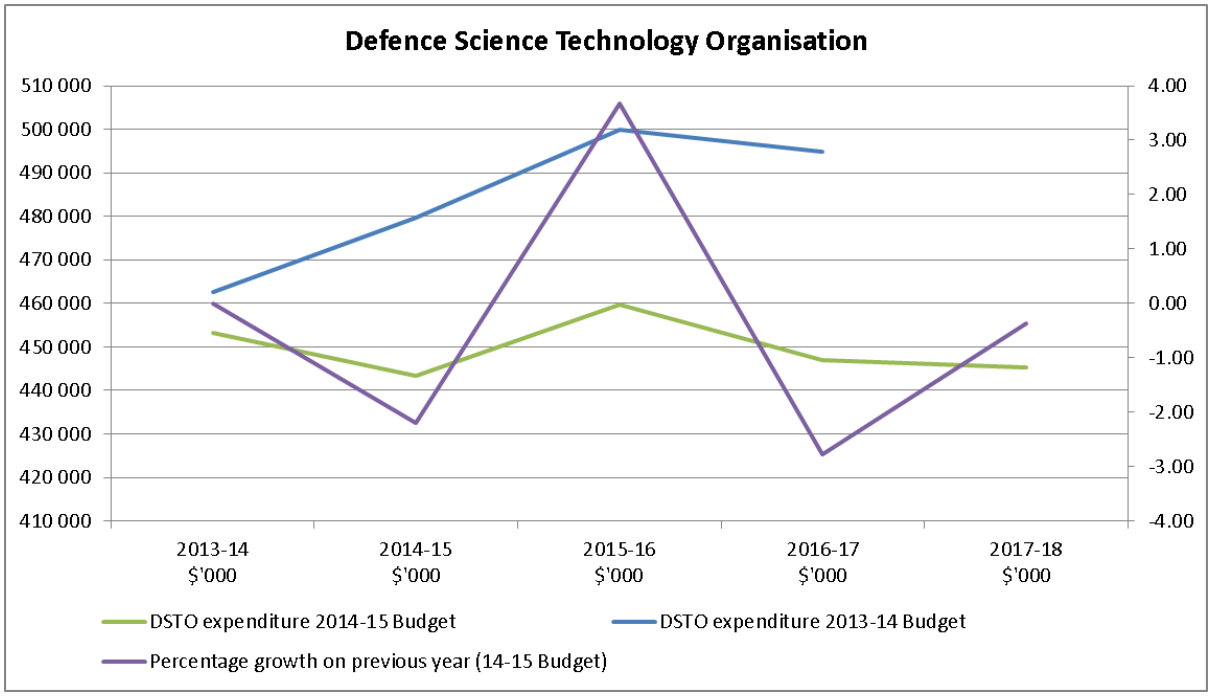
	2013-14 $'000	**2014-15 $'000**	**2015-16 $'000**	**2016-17 $'000**	**2017-18 $'000**
NHMRC MREA Grants 2014-15 Budget	858 576	930 058	858 167	838 391	838 062
NHMRC MREA Grants 2013-14 Budget	858 576	930 902	859 737	839 792	
Difference between budget forecasts	0	-844	-1,570	-1,401	
Percentage growth on previous year (14-15 Budget)		8.33	-7.73	-2.30	-0.04
Percentage change in NHMRC MREA Grants between 13-14 and 14-15 Federal Budget	0.00	-0.09	-0.18	-0.17	


NHMRC MREA Grants
950 000
900 000
850 000
800 000
750 000
700 000
10.00
8.00
6.00
4.00
2.00
0.00
-2.00
-4.00
-6.00
-8.00
-10.00
2013-14 $'000
2014-15 $'000
2015-16 $'000
2016-17 $'000
2017-18 $'000
NHMRC MREA Grants 2014-15 Budget
NHMRC MREA Grants 2013-14 Budget
Percentage growth on previous year (14-15 Budget)

Defence Science Technology Organisation

Expenditure on DSTO over the forward estimates is expected to fall significantly when compared to the previous Budget. In 2014-15 DSTO's budget will be 7.67% lower than forecast in the previous Budget. Over the period 2013-14 to 2016-17 there will be a total reduction in DSTO expenditure of $133.7 million.

	2013-14 $'000	2014-15 $'000	2015-16 $'000	2016-17 $'000	2017-18 $'000
DSTO expenditure 2014-15 Budget	453 329	443 350	459 648	446 874	445 240
DSTO expenditure 2013-14 Budget	462 517	479 657	499 858	494 847	
Difference between budget forecasts	-9 188	-36 307	-40 210	-47 973	
Percentage growth on previous year		-2.20	3.68	-2.78	-0.37
Percentage change DSTO expenditure between 13-14 and 14-15 Federal Budget	-1.99	-7.57	-8.04	-9.69	

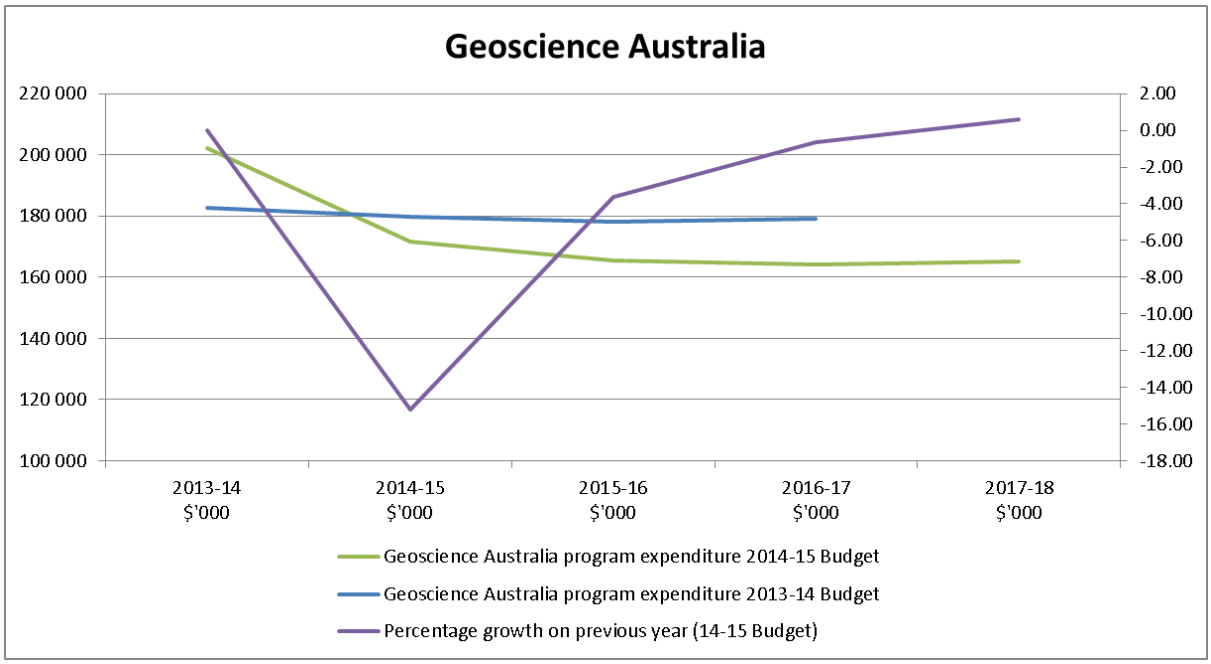


Geoscience Australia

Whilst no specific measures were announced regarding Geoscience Australia there will be a significant reduction in Geoscience Australia's expenditure over the forward estimates. Part of this reduction had been forecast in the previous Budget, but is now being further reduced. In 2014-15 Geoscience Australia's budget is forecast to be 15.3% lower than in 2013-14, and there will be a further cut of 3.6% in 2015-16.

Of note, the Geoscience Australia budget increased by 10% in 2013-14 compared to forecasts in the previous Budget. Over the period 2014-15 to 2016-17 Geoscience Australia expenditure will be $36.3 million lower than forecast in the previous Budget.

	2013-14 $'000	2014-15 $'000	2015-16 $'000	2016-17 $'000	2017-18 $'000
Geoscience Australia program expenditure 2014-15 Budget	202 302	171 479	165 301	164 216	165 244
Geoscience Australia program expenditure 2013-14 Budget	182 617	179 811	178 256	179 236	
Difference between budget forecasts	19 685	-8 332	-12 955	-15 020	
Percentage growth on previous year (14-15 Budget)		-15.24	-3.60	-0.66	0.63
Percentage change Geoscience Australia expenditure between 13-14 and 14-15 Federal Budget	10.78	-4.63	-7.27	-8.38	



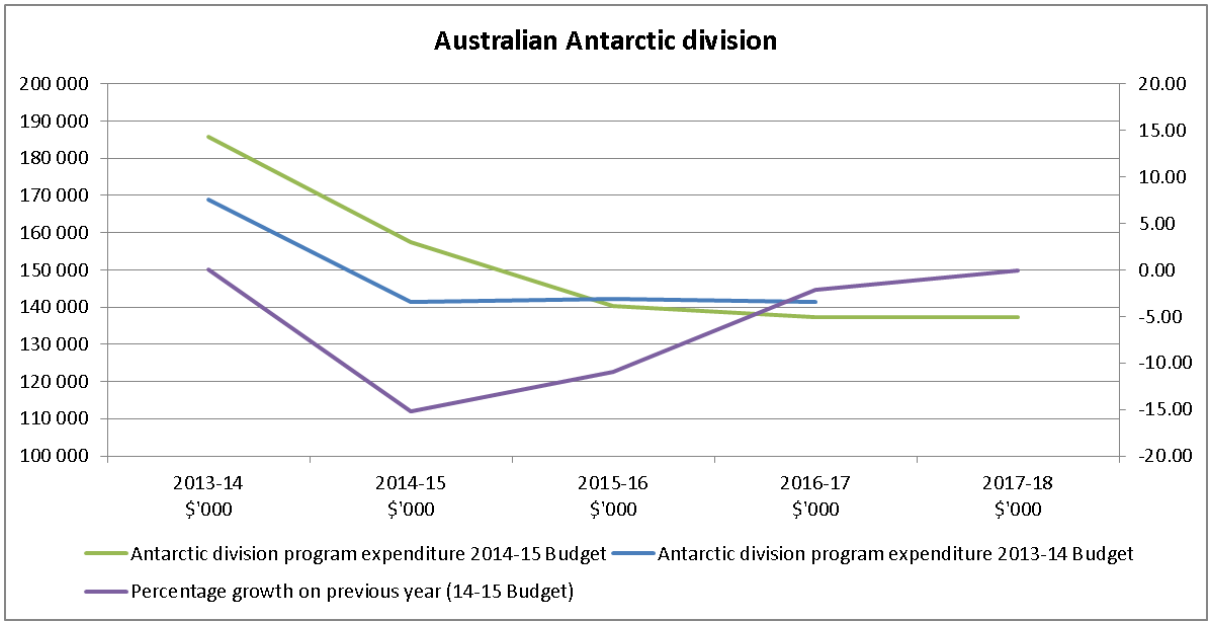
Australian Antarctic Division

The Australian Antarctic Division program was already facing tough expenditure reductions over the forward estimates, and following the 2014-15 Budget these are now set to be even more severe. Expenditure on the program will fall 15.2% in 2014-15, and a further 10.2% in 2015-16. Annual expenditure on the Australian Antarctic Division was $185.7 million in 2013-14, but is now forecast to fall to just $137.2 million in 2017-18.

Expenditure was higher than previously forecast in 2013-14, and with specific new measures in the Budget, it is expected to be higher again in 2014-15 than forecast in the previous Budget. However, there will be further cuts to program expenditure in the outward years of the forward estimates. New budget measures include:

- Additional funding of $68 million over four years to contribute to the maintenance of station operations and Antarctic science projects (however only $9.4 million has actually been committed within the papers)
- Spending of $24 million will be provided for the Antarctic gateway partnerships (see item in CSIRO).

	2013-14 $'000	2014-15 $'000	2015-16 $'000	2016-17 $'000	2017-18 $'000
Antarctic division program expenditure 2014-15 Budget	185 717	157 563	140 295	137 338	137 191
Antarctic division program expenditure 2013-14 Budget	168 900	141 450	142 293	141 350	
Difference between budget forecasts	16 817	16 113	-1 998	-4 012	
Percentage change on previous year		-15.16	-10.96	-2.11	-0.11
Percentage change in Antarctic division expenditure between 13-14 and 14-15 Federal Budget	9.96	11.39	-1.40	-2.84	



Australian Institute of Marine Science

The Australian Institute of Marine Science is one of the few science agencies to see it its funding increase both over the forward estimate period, and compared to the estimates in the previous Budget. However there will be of $7.8 million made to the AIMS research budget.

	2013-14 $'000	2014-15 $'000	2015-16 $'000	2016-17 $'000	2017-18 $'000
AIMS 2014-15 Programme support	53 649	62 419	63 586	64 762	66 297
AIMS 2013-14 Programme support	50 635	57 767	59 873	61 551	
Difference between budget forecasts	3 014	4 652	3 713	3 211	
Percentage growth on previous year		16.35	1.87	1.85	2.37
Percentage change in research support between 13-14 and 14-15 Federal Budget	5.95	8.05	6.20	5.22