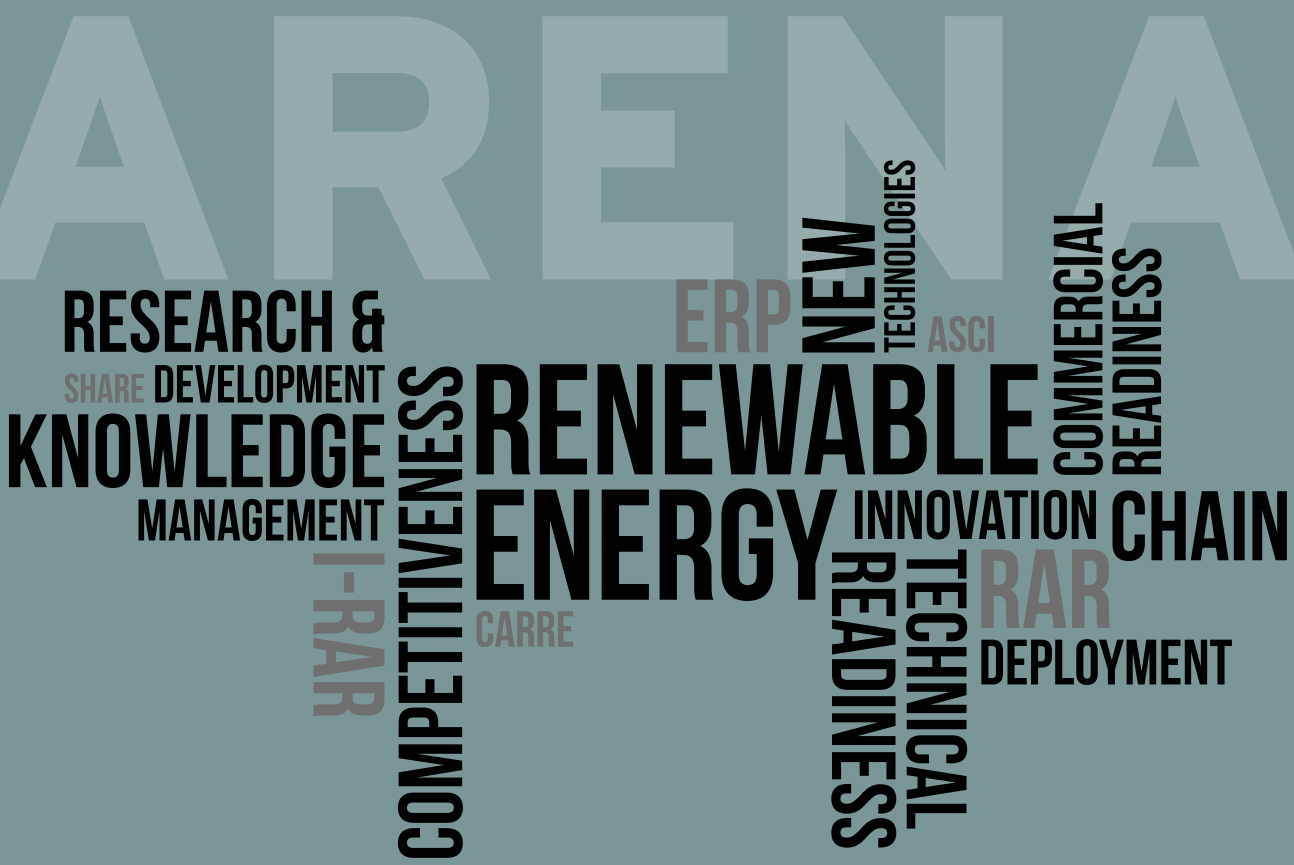
Australian Government

Australian Renewable Energy Agency



ANNUAL REPORT 2012-13

Australian Renewable Energy Agency

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Coordination, editing and indexing: WordsWorth Writing
Design: www.giraffe.com.au
Printing: CanPrint Communications

LETTER OF TRANSMITTAL

Australian Government
Australian Renewable Energy Agency

ARENA

OFFICE OF THE CHAIR

25 September 2013

The Hon Ian Macfarlane MP
Minister for Industry
PO Box 6022
Parliament House
CANBERRA ACT 2600

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Dear Minister

I am pleased to present to you the annual report of the Australian Renewable Energy Agency (ARENA) for the financial year 2012–13, in accordance with the requirements of the *Australian Renewable Energy Agency Act 2011* and the *Commonwealth Authorities and Companies Act 1997*.

ARENA's first annual report describes how we have established the capability to achieve our objectives and effectively supported the development and implementation of renewable energy technology in Australia.

Section 9 of the *Commonwealth Authorities and Companies Act 1997* requires the agency's directors to prepare the annual report of operations in accordance with the Commonwealth Authorities (Annual Reporting) Orders 2011 (Finance Minister's Orders).

This report was prepared in accordance with the Finance Minister's Orders and approved by a resolution of ARENA's Board of Directors on 25 September 2013.

Yours sincerely,

Greg Bourne

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REPORTS FROM THE CHAIR AND CHIEF EXECUTIVE OFFICER

REPORT FROM THE CHAIR

I am pleased to present ARENA's inaugural Annual Report, covering the 2012–13 financial year.

This year, we established ARENA and brought together many earlier renewable energy programs, including the Australian Solar Institute. It was a year of implementing robust governance processes that will ensure we are able to discharge our duties with rigour, balance and wisdom. It was a year in which tough decisions were made, exciting new programs were launched, stakeholder engagement was continuously on our mind, and our strategy and work program for the future were established.

Much more is yet to come.

ARENA's legislated objectives are to improve the competitiveness of renewable energy technologies and to increase the supply of renewable energy in Australia. To achieve these objectives, ARENA's mission is to help catalyse the development and deployment of renewable energy in Australia. By ourselves we cannot create all the change that is needed to take Australia towards a sustainable energy future, but I believe that we can help create the necessary conditions to cause a cascade of change.

Being able to support projects from the laboratory workbench through to commercial deployment, and being able to take a long view, ARENA is ideally placed to slowly but surely build confidence in the market and, eventually, the bankability of the programs it offers and the projects it supports. We have taken a thematic view of what we should be funding, with the Board deliberating at the system level on what is most likely to accelerate change. The Board carries deep technological, business and financial competencies and all members are focused on delivering outstanding outcomes for the public funds that have been entrusted to ARENA.

I would like to take this opportunity to thank my fellow board members, our Chief Executive Officer and all the ARENA staff, for their diligence and dedication in establishing the agency and positioning it for the years ahead. We look forward to building on the relationships we have developed this year, continually reaching out to those who have the shared goal of accelerating the nation towards an economy increasingly powered by renewable energy.

Greg Bourne
Chair

REPORT FROM THE CHIEF EXECUTIVE OFFICER

Catalysing change in Australia's energy mix.

In our first year of operation, ARENA put in place the foundations for Australia to be increasingly powered by renewable energy.

The Australian Government established ARENA to provide long-term, stable leadership to make strategic investments that will drive renewable energy cost reductions and increase supply into Australia's energy market. ARENA is an important complement to the Renewable Energy Target (RET) because it invests to reduce the cost of not-yet-competitive renewable energy solutions. Ultimately, this will deliver greater diversity of viable energy supply options.

The relentless cost reduction in renewable energy will, over time, facilitate more renewable content in our energy systems. This combination of lower cost and greater system resiliency, due to the diversity of options, will benefit the Australian economy and improve Australia's emissions profile. ARENA will help Australians to realise these benefits a lot sooner by investing to capitalise on our nation's competitive advantages.

Australia is rich in renewable energy technology and resources, but to date deployment has lagged behind its potential. ARENA's activities will hasten commercialisation. We are helping leading Australian researchers, who are world-renowned in certain renewable technology segments, to extend their leadership, while bringing a renewed focus to demonstration and commercialisation of renewable energy solutions. By focusing on achieving commercial outcomes in Australia—using both local and foreign technology—ARENA will help to ensure that the Australian economy benefits fully from its renewable energy investments. In 2012, the sector employed 24,000 people, created export opportunities and delivered benefits to many regional communities.

ARENA's foremost priority since commencing on 1 July 2012 has been to create a commercially-oriented organisation with a high-performing and flexible team. The ARENA Board and staff have deep and relevant commercial experience to ensure that the investments we make—primarily in the form of grants—deliver maximum returns to our shareholders, the Australian public. Our returns are measured in the form of progress towards commercially viable solutions that do not require any subsidy.

Our Board, in consultation with industry, has developed a strategy and investment plan that capitalise on Australia's leadership in parts of the global renewable energy industry, and the country's vast natural resources and pockets of untapped potential, particularly in regional areas. This strategy culminated in the launch of several exciting, outcomes-oriented renewable energy support programs in June 2013. We are now working closely with industry to turn the best project ideas into reality.

With continued investment and focus, ARENA is confident that the RET will lead to a reliable energy system increasingly underpinned by renewable energy solutions. As we look at near-commercial projects through the lens of delivering megawatt hours of cost-competitive renewable energy by 2020, we pursue broader goals for the Australian renewable energy sector: to set the technical and commercial foundations for Australia to develop its renewable energy resources well beyond 2020. Our journey is challenging but rich in reward for the industry and the nation, and it has only just begun.

Ivor Frischknecht
Chief Executive Officer

ARENA OVERVIEW

1 ARENA OVERVIEW

SNAPSHOT—ARENA'S ACHIEVEMENTS IN 2012–13

In our first year, the Australian Renewable Energy Agency (ARENA) delivered key achievements across a broad spectrum of areas.

We:

- commissioned four major initiatives totalling $560 million
- oversaw more than 150 projects totalling commitments of $1.1 billion, including 76 solar skills scholarships and fellowships, and 92 projects
- established a governance framework and set our strategic approach
- increased operational capacity, including key staff and funds for additional staff
- widely consulted with stakeholders.

GENESIS OF ARENA

Around the world, there is increasing deployment of clean energy sources. To put this in context, the *Global Trends in Renewable Energy Investment 2013* report to the United Nations Environment Programme showed that global investment in renewable power and fuels (including small hydro-electric projects) was $244 billion in 2012—the second highest annual total for such investment, and 8 per cent higher than the total for 2010. All indicators point towards continued long-term growth in renewable energy.

ARENA was born out of that global drive, combined with the need for a stable and predictable investment environment to optimise energy supply and cost-competitiveness in the medium term for Australia.

Establishing ARENA as the key agency to oversee and make investments in renewable energy centralised the administration of over $3 billion of funds to foster renewable energy technologies. This is one of the key steps being taken towards facilitating and catalysing the transition to a renewable energy economy.

Investment in a single technology will not produce a 'silver bullet', so the Australian Government has made a commitment to stimulating investment across the spectrum of different and complementary renewable energy measures.

ARENA will help to ensure that Australia is a world leader in transforming the energy sector, by:

- overcoming barriers to the commercialisation of renewable energy
- expanding research and development activities beyond solar technologies
- developing a world-leading Commercial Readiness Index to help identify how government can best assist each renewable energy technology to progress towards commercialisation
- reducing the cost and increasing the availability of renewable energy, while reducing emissions.

THE RENEWABLE ENERGY INDUSTRY SECTOR

According to the *Clean Energy Australia Report 2012*:

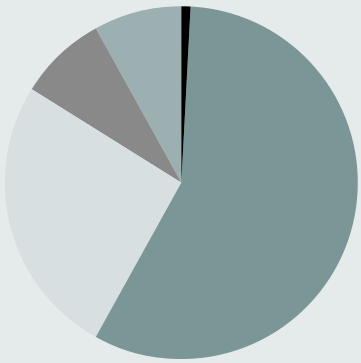
Renewable energy such as solar, wind, hydro and bioenergy provided 13 per cent of our electricity in 2012—a record for this century. There are now more than a million Australian homes that have installed a solar power system, along with more than 800,000 that have a solar hot water system.

The report also states that in 2012, while hydro-electricity still produced most renewable energy, wind power 'provided enough electricity for the equivalent of more than a million homes for the first time'. The chart below shows the contribution of the main sources of renewable energy, as measured in the report.

Importantly, the report states that 'the number of employees in the renewable energy industry has grown significantly in the past decade. More than 24,300 people are now employed by the sector'.

Renewable energy is essential to Australia's future economic growth and prosperity, providing for future jobs and helping to lower Australia's greenhouse gas emissions.

Australia's future energy supply will need to have lower greenhouse gas emissions in order to meet the challenges posed by climate change.



Sources of renewable energy in Australia in 2012

- Hydro **57.8%**
- Wind **26%**
- Bioenergy **8.1%**
- Household solar **8%**
- Geothermal, marine and large-scale solar **0.1%**

ROLE OF ARENA

Long-term funding and policy certainty for industry are necessary preconditions for transforming Australia's energy sector and transitioning Australia to a clean energy economy.

With over $3 billion in funds set out in a standing appropriation in legislation, ARENA can provide the renewable energy sector with sustained support for the next decade. As well as boosting private investor confidence, the scale of that support allows ARENA to put in place long-term strategies to increase the competitiveness and supply of renewable energy solutions and expand their share of Australia's energy mix.

ARENA's investments drive the development of renewable energy at all stages of the innovation chain through to commercialisation. Independently administering the funds in its stewardship, ARENA invests in research, development, demonstration, deployment and commercialisation of renewable energy and related technologies. Sharing knowledge and information about renewable energy technologies is also a strategic priority.

Each investment that ARENA makes is subjected to a rigorous selection process. Every investment program commenced must demonstrate potential to make renewable energy more available or more affordable. The investment strategy is commercially focused and based on market opportunity, demand and commercial readiness.

ARENA's role complements other Australian renewable energy programs and initiatives. ARENA works with other government agencies to overcome price and non-price barriers to help Australia to develop a robust, technologically diverse portfolio of renewable energy assets.

GOVERNANCE AND OPERATIONAL PERFORMANCE

2 GOVERNANCE AND OPERATIONAL PERFORMANCE

LEGISLATION

The *Australian Renewable Energy Agency Act 2011* (ARENA Act) took effect on 1 July 2012. It established the Australian Renewable Energy Agency (ARENA) as a *Commonwealth Authorities and Companies Act 1997* (CAC Act) authority, with a Board and a Chief Executive Officer (CEO).

ARENA is an independent statutory authority established with the objectives of improving the competitiveness of renewable energy technologies and increasing the supply of renewable energy in Australia.

From its commencement, ARENA became responsible for the administration of committed projects and measures from initiatives formerly administered by the Australian Centre for Renewable Energy and the Department of Resources, Energy and Tourism. ARENA became responsible for the activities of the Australian Solar Institute on 1 January 2013. Precursor programs which were also effectively continued by ARENA were the Emerging Renewables Program, the Advanced Biofuels Investment Readiness Program and the Renewable Energy Venture Capital Fund Program.

ARENA has over $3 billion to invest in renewable energy projects and has significant independence and flexibility in how it chooses to provide financial support to the renewable energy sector.

ARENA's functions and powers include providing financial assistance for:

- research, development, demonstration, deployment and commercialisation of renewable energy and related technologies
- storage and sharing of knowledge and information about renewable energy technologies.

ARENA also collects, analyses and shares information and knowledge, and provides advice to the Minister for Resources and Energy, regarding renewable energy and related technologies.

RESPONSIBLE MINISTERS

During 2012–13, the position of Minister for Resources and Energy was held initially by the Hon Martin Ferguson MP and from 25 March 2013 by the Hon Gary Gray MP.

BOARD

The ARENA Board was appointed by the Minister for Resources and Energy in 2012. At 30 June 2013, the Board comprised Mr Greg Bourne (Chair), Ms Betsy Donaghey, Dr Jane Sargison, Ms Judith Smith, Dr Brian Spalding, Mr Mark Twidell and Mr Blair Comley. Mr Comley is an ex-officio member as the Secretary of the Department and replaced Mr Drew Clarke in that position in March 2013.

The Board met 10 times in 2012–13. The Board's meetings and operations were conducted in accordance with the requirements of legislation. Further information is provided in Appendix A.

CHIEF EXECUTIVE OFFICER

Section 50 of the ARENA Act provides that there is to be a CEO of ARENA. Under Part 4, Division 1, of the ARENA Act, the CEO is appointed on a full-time basis by the Minister for Resources and Energy (on the recommendation of the Board) for a period of up to three years.

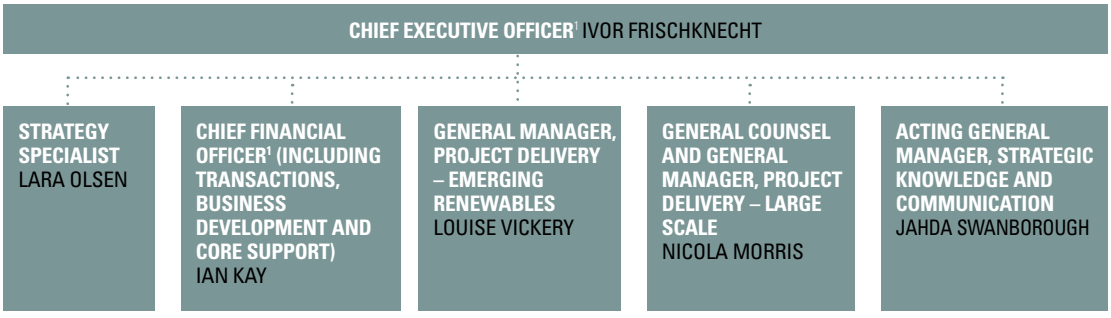
Mr Ivor Frischknecht was appointed as the inaugural CEO of ARENA on 6 August 2012. Further information is provided in Appendix A.

ARENA Board and CEO (left to right): Judith Smith, Betsy Donaghey, Ivor Frischknecht, Brian Spalding, Greg Bourne, Jane Sargison, Blair Comley and Mark Twidell.

EXECUTIVE

The ARENA Act establishes that Departmental staff are to undertake ARENA operations and administrative support. Figure 1 shows ARENA's executive and organisational structure at 30 June 2013.

Figure 1 Organisational structure, 30 June 2013



[1] Appointments under the ARENA legislation.

STAFF AND THEIR LOCATIONS

The executive team leads the Departmental staff who have been made available to provide ARENA with operational and administrative support.

At 30 June 2013, ARENA had 53 Departmental staff, including staff in non-ongoing positions and staff on temporary transfers. In order to better support activities, ARENA is in the process of recruiting approximately 30 additional staff; new staff are expected to commence early in the new financial year.

During 2012–13, most staff were based in Canberra. Five staff members worked in other locations, in Albury and Newcastle (New South Wales).

CULTURE

ARENA is building an independent and dynamic organisation made up of highly qualified and experienced people overseen by a Board that is commercially and technically astute.

ARENA's culture emphasises commercially oriented and flexible attitudes in dealing with stakeholders. ARENA aspires to be an agile agency that responds quickly to changes in the environment.

OPERATING ENVIRONMENT

ARENA's operating environment encompasses:

- Departmental resources provided to ARENA covered by the *Public Service Act 1999* and the *Financial Management and Accountability Act 1997*
- the Board, CEO, Chief Financial Officer (CFO) and financial assistance programs being administered under the ARENA Act and the CAC Act.

To guide staff, the Board has established a governance framework and policies, setting out the application of the differing requirements.

SERVICE LEVEL AGREEMENT

The Department provides corporate support to ARENA's day-to-day operations. This relationship is managed by a service level agreement, which sets out the arrangements for the provision of services to the CEO and CFO and the arrangements relating to ARENA as a division of the Department. The ARENA Core Support Team acts as the conduit to the Department's Corporate Division, ensuring that ARENA's legislative requirements are met.

PLANNING AND REPORTING FRAMEWORK

To streamline planning and reporting and ensure that key planning documents align, ARENA uses the following framework.

Table 1 Planning and reporting framework, 2012–13

AUDIENCE	PLANNING	REPORTING
External	■ Portfolio budget statements (including additional estimates statements)	■ Annual Report ■ Senate estimates committee hearings
Minister and ARENA Board	■ Letter of Expectations and Statement of Intent ■ Work Plan ■ General Funding Strategy ■ Investment Plan	■ Reports to the Minister (including quarterly reports) ■ ARENA Board meetings
Internal	■ Business Plan ■ Risk Management Plan ■ Fraud Control Plan	■ ARENA Board and Risk and Audit Committee meetings

OPERATIONAL PRIORITIES

The General Funding Strategy for 2012–13 to 2014–15 sets out ARENA's highest priorities as building the capability required to perform its role, and effectively managing existing programs while creating new opportunities to support innovation and expansion in Australia's renewable energy technology sector.

Table 2 shows ARENA's results against the priorities for operational performance set out for 2012–13 in the General Funding Strategy.

Table 2 Results against operational priorities, 2012–13

PRIORITY	RESULT
Organisational capability ARENA will develop its human, technological, information and learning capabilities, as well as engaging external experts.	Achieved
Knowledge management ARENA will identify, collect and disseminate information and knowledge produced by ARENA-funded projects while encouraging the creation of intellectual property.	Initiated
Collaboration ARENA will work with states and territories, industry, investors, researchers and other key domestic and international agencies to ensure it achieves value for money. In particular, it will: ■ establish and maintain formal international engagement arrangements ■ actively seek to leverage funds from other investors.	Initiated

FINANCIAL PERFORMANCE

ARENA reported a net operating surplus of $2.3 million for 2012–13. This was the result of accounting requirements to report a number of items funded through revenue on the balance sheet. The government provided ARENA with $59.6 million in revenue for its operations.

ARENA received an unqualified audit opinion from the Auditor-General with respect to the 2012–13 financial statements. The following tables present ARENA's financial position.

Agency resource statement

Agency resource statements provide information about the various funding sources that the agency may draw upon during the year.

The agency resource statement reconciles the final usage of all resources in cash terms, by declaring the actual available appropriation for 2012–13 (including carried forward cash balances and further adjustments) and comparing this to the actual payments made.

The agency resource statement in Table 3 is consistent with Table 1.1 in the 2012–13 Portfolio Budget Statements.

Table 3 Agency resource statement, 2012–13

	ACTUAL AVAILABLE APPROPRIATION FOR 2012–13 $'000 (a)	PAYMENTS MADE 2012–13 $'000 (b)	BALANCE REMAINING 2012–13 $'000 (a) – (b)
Opening balance/Reserves at bank	–	–	–
REVENUE FROM GOVERNMENT			
Payments from related entities[1]			
Amounts from portfolio department	609,639	56,194	553,445
Total funds from government	**609,639**	**56,194**	**553,445**
Total net resourcing and payments for ARENA	**609,639**	**56,194**	**553,445**

1 Amount received from the Department of Resources, Energy and Tourism, which receives a special appropriation for the purposes of funding ARENA.

The difference between the payments made by the portfolio department of $56.2 million shown above and the actual expenses of $65.8 million disclosed in Table 4 below are accruals plus Resources Received Free of Charge from the portfolio department.

The balance remaining of $553.5 million is largely a result of the expenditure profile of ARENA differing from ARENA's standing appropriation.

Expenses by outcome

Table 4 shows total expenses for ARENA's outcome and corresponds to the Budget Expenses and Resources for Outcome table (Table 2.1) in the 2012–13 Portfolio Budget Statements.

Table 4 Expenses by outcomes, 2012–13

Outcome 1: Support improvements in the competitiveness of renewable energy and related technologies and the supply of renewable energy by administering financial assistance, developing analysis and advice about and sharing information and knowledge with regard to, renewable energy and related technologies.	**BUDGET[1] 2012–13** **$'000** (a)	**ACTUAL EXPENSES 2012–13** **$'000** (b)	**VARIATION 2012–13** **$'000** (a) – (b)
Program 1: Supporting Outcome 1			
Revenue from government			
Payments from related entities	128,600	65,840	62,760
Total for Program 1	**128,600**	**65,840**	**62,760**
Outcome 1 Totals by appropriation type			
Revenue from government			
Payments from related entities	128,600	65,840	62,760
Total expenses for Outcome 1	**128,600**	**65,840**	**62,760**

	2011–12	**2012–13**	**VARIATION**
Average Staffing Level (number)	NA	2	NA

NA = not applicable

1 Full-year budget, including any subsequent adjustment made to the 2012–13 Budget.

The variation of $62.8 million arose from a number of project milestones being delayed. These project milestone delays meant payments associated with the milestones were also delayed.

Where applicable, funding agreements were varied to reflect changed circumstances.

ARENA

PROGRAM PERFORMANCE

3 PROGRAM PERFORMANCE

OUTCOME AND PROGRAMS

ARENA's Outcome 1 in the 2012–13 Portfolio Budget Statements was to:

> Support improvements in the competitiveness of renewable energy and related technologies and the supply of renewable energy by administering financial assistance, developing analysis and advice about and sharing information and knowledge with regard to, renewable energy and related technologies.

The Australian Government allocated approximately $3.2 billion to ARENA to deliver this outcome. Of that:

- $200 million was allocated by the Education Investment Fund (EIF) to large-scale solar projects (this was reduced to $40.9 million in May 2013 as part of the 2013–14 Budget)
- $824 million has been committed to existing projects transferred to ARENA from the Department of Resources, Energy and Tourism, including projects from the Australian Centre for Renewable Energy and the Australian Solar Institute
- $170 million (of which $40.7 million is part of the EIF) is committed to AGL for a large-scale solar project.

Making decisions that will have the greatest impact on the renewable energy market by making technologies more affordable and increasing local supply is ARENA's key focus. The way in which these decisions are made is critical to ensuring that initiatives are focused on renewable energy outcomes and do not exclude any technology solutions.

Programs and initiatives advancing ARENA's objectives in 2012–13 were:

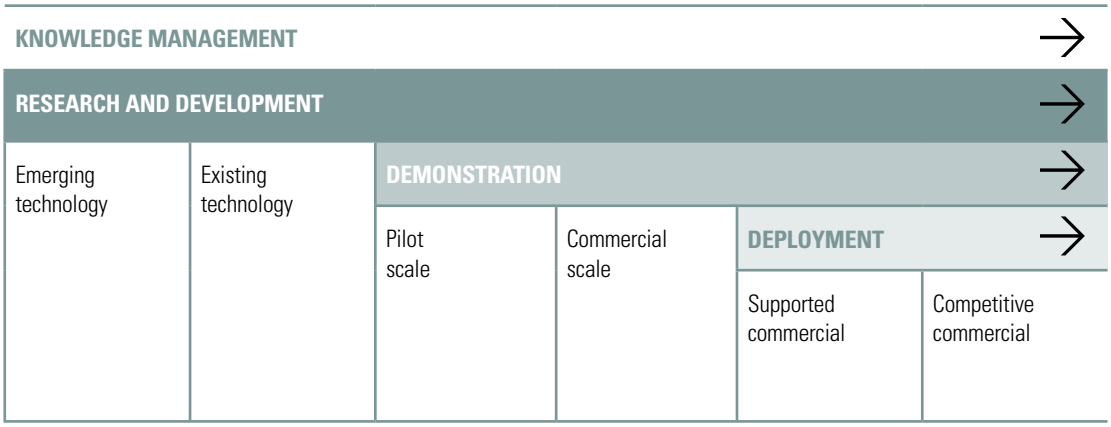
- Accelerated Step Change Initiative (ASCI)
- Advanced Biofuels Investment Readiness Program
- Deploying Utility Scale Renewable Energy (Big Solar), including utility scale solar projects referred by the Minister for Resources and Energy
- Building Australia's Next Generation Solar, including former Australian Solar Institute projects, fellowships and scholarships
- Emerging Renewables Program (ERP), including
  - Removing Roadblocks for Regional and Remote Renewable Energy
  - Supporting High-value Australian Renewable Energy Knowledge (SHARE)
- Regional Australia's Renewables program, including
  - Regional Australia's Renewables Industry Program (I-RAR)
  - Regional Australia's Renewables Community and Regional Program (CARRE)
- Renewable Energy Venture Capital Fund Program (Southern Cross Renewable Energy Fund)
- SHARE Initiative.

THE INNOVATION CHAIN

In order to achieve its outcome, ARENA makes investment and funding decisions that are based on knowledge of how and where each project contributes across the renewable energy innovation chain.

The four key components of the innovation chain are research and development, demonstration, deployment, and knowledge management.

Figure 2 Innovation chain



ARENA seeks to build investor confidence and knowledge of renewable energy by funding studies and projects which have the potential to overcome barriers to the development of renewable energy technology. The majority of ARENA's funding is invested in demonstration and early deployment projects, which help de-risk and build confidence in renewable technologies. These types of projects require high volumes of capital.

An essential part of making renewable energy technologies more affordable is sharing information, data and lessons learnt to help overcome barriers to deployment and increase awareness and understanding of renewable energy technologies.

In return for investing public funds, ARENA expects its portfolio of projects to produce spill-over effects, in the form of data and learning, that will help others to develop projects that are more cost-effective and face fewer challenges.

ARENA also recognises that knowledge gaps within the industry can be reduced by targeted knowledge-sharing projects—including modelling, better reporting, and data collection and sharing—such as the work by the Bureau of Resources and Energy Economics to produce an inaugural Australian liquid fuels technology assessment, funded under the SHARE program.

Building renewables that are lower in cost and more efficient requires a detailed understanding of the commercialisation pathways to unlocking investment capital. Therefore, a key focus of stakeholder meetings in 2012–13 was identifying the gaps on the innovation chain and considering how ARENA could best assist in bridging those gaps, with a view to accelerating the commercial deployment of renewable energy.

Valuable understanding is gained through seeking feedback from stakeholders and learning from all projects, whether they succeed or fail. ARENA supports emerging and next-generation technologies through the research, development and demonstration stages.

Across the innovation chain, the ultimate end of investment is to progress renewable energy solutions towards commercialisation.

STAKEHOLDER ENGAGEMENT

A strategic approach to collaboration and cooperation with industry and other key stakeholders has been central to ARENA's success. Active engagement has enabled ARENA to:

- contribute to knowledge-sharing activities, in particular lessons learnt
- better design new programs and enhance existing ones
- develop partnerships across the spectrum of ARENA activities
- communicate ARENA activities and the initiatives on offer.

ARENA values the contribution of subject matter experts. The ARENA Advisory Panel, established in June 2013, will be an essential contributor in the assessment of program applications, from the expression of interest stage through to the full funding application process.

TECHNICAL AND COMMERCIAL READINESS

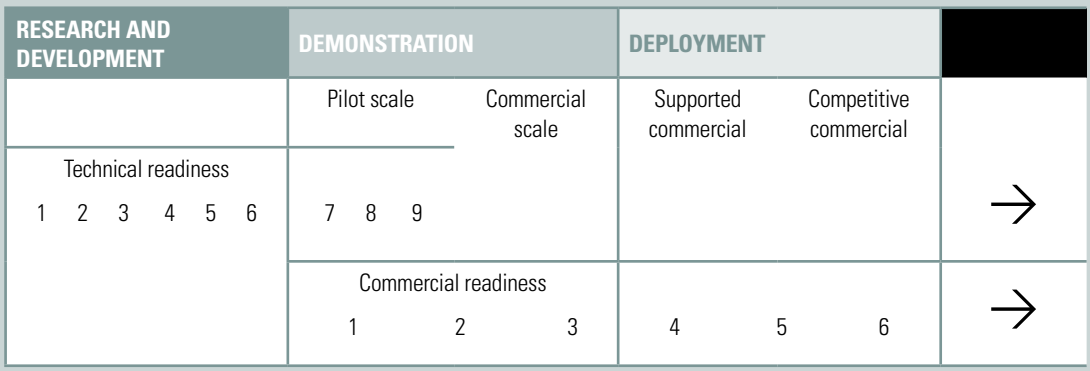
ARENA's principal objectives—decreasing the cost and increasing the supply of renewable energy—have driven the development of tools to objectively assess projects. Among these, the Technical Readiness Level and Commercial Readiness Index help to demonstrate a project's progress in the context of the innovation chain.

TECHNICAL READINESS LEVEL AND COMMERCIAL READINESS INDEX

ARENA is working on adopting and adapting the Technical Readiness Level (TRL), based on a level developed by the United States (US) National Aeronautics and Space Administration, as an indicator of project progress. The TRL is a benchmarking tool for tracking progress through the innovation chain, from blue sky research (TRL1) to actual system demonstration over the full range of expected conditions (TRL9).

The Commercial Readiness Index (CRI) is being developed to demonstrate the commercial viability of technologies. The CRI begins once the technology is at a stage where it can be trialled and demonstrated in the field (for example, TRL7). The CRI extends to the stage where the technology or application is being commercially deployed and has become a bankable asset class (CRI6).

Figure 3 Technical Readiness Level and Commercial Readiness Index on the innovation chain

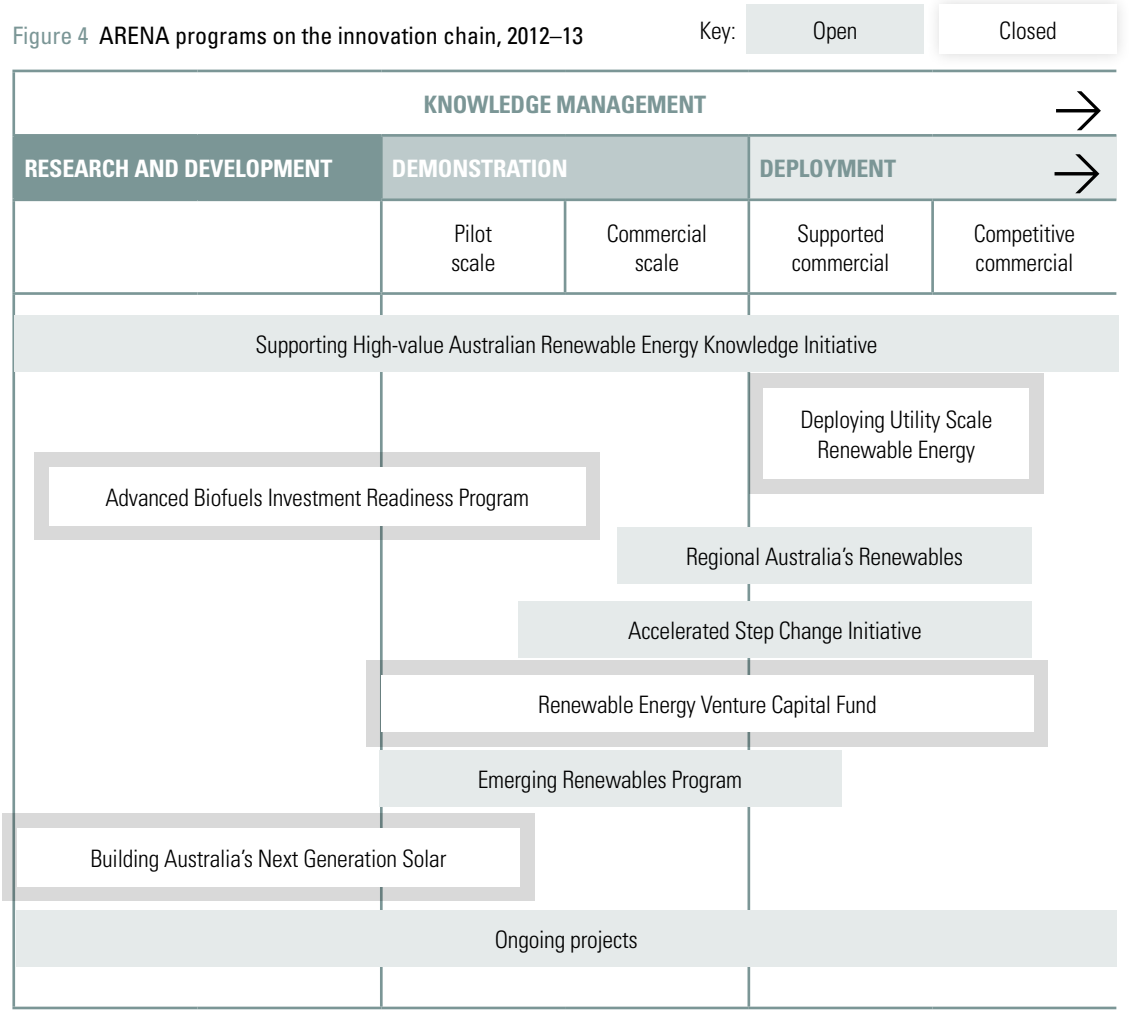


ADVANCEMENTS ALONG THE INNOVATION CHAIN

Progress achieved under ARENA initiatives and programs has been considerable, noting that 2012–13 was ARENA's start-up year.

Projects and measures for which ARENA provided financial assistance in 2012–13 are listed in Appendix B of this report. Summary details are also published on the ARENA website.

Figure 4 ARENA programs on the innovation chain, 2012–13



Note: The Southern Cross Renewable Energy Fund is funded by the Renewable Energy Venture Capital Fund.

ACHIEVEMENTS: ADVANCED BIOFUELS INVESTMENT READINESS PROGRAM

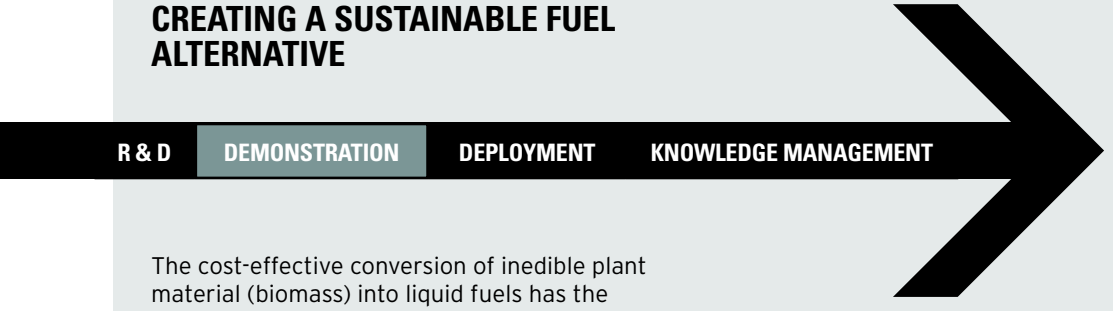
The Advanced Biofuels Investment Readiness Program supports the development of advanced biofuels technologies by seeking to progress the deployment of pre-commercial demonstration projects for the production of high-energy, drop-in advanced biofuels in Australia.

Almost $10 million is committed to advanced biofuels projects under the program:

- $5.4 million to Licella Pty Ltd for its Biomass to Bio-crude: Producing Advanced Drop-in Fuels for Australia project
- $4.4 million to Muradel Pty Ltd for its Advancing Established and Integrated Marine Microalgae Biofuel to Commercialisation project.

The program is now closed and ARENA is considering advanced biofuel and other biofuel proposals as part of its General Funding Strategy. ARENA is committed to continuing support for the development of advanced biofuels in Australia.

FROM POND TO PRODUCT—CREATING A SUSTAINABLE FUEL ALTERNATIVE



The cost-effective conversion of inedible plant material (biomass) into liquid fuels has the potential to create a new industry for Australia.

Muradel—one of only a handful of algal biofuel companies in Australia—is working towards building commercially viable algae-to-biofuels technology.

If commercialised, the technology has the potential to produce sustainable 'green crude' for the existing petroleum industry and to provide fuel security. It could significantly reduce carbon emissions in high-intensity sectors, such as mining and transport, while increasing the security of supply.

Leveraging Australia's abundance of sun and space to grow sustainable feedstock all year round, Muradel has begun the development of a scaled-up demonstration plant near Whyalla, South Australia.

Know-how

Microalgae are microscopic plant-like organisms that directly convert carbon dioxide and sunlight into biochemical energy. They are fast growing and can be produced all year round. Microalgae can provide five to 10 times the amount of biofuel for each unit of land compared with conventional crops and have the advantage of being able to grow in places not suitable for crops, potentially even using saline water instead of fresh water.

Muradel has developed a biofuel feedstock technology that enables marine microalgae to be sustainably produced and harvested continuously.

ARENA's commitment

ARENA has committed $4.4 million of a total project value of $10.7 million. ARENA will assist Muradel to reach investment readiness by scaling up to demonstration scale with full integration of the technology.

This project is an example of ARENA investing in an emerging renewable energy technology to progress it along the innovation chain towards commercialisation.

Achievements to 30 June 2013

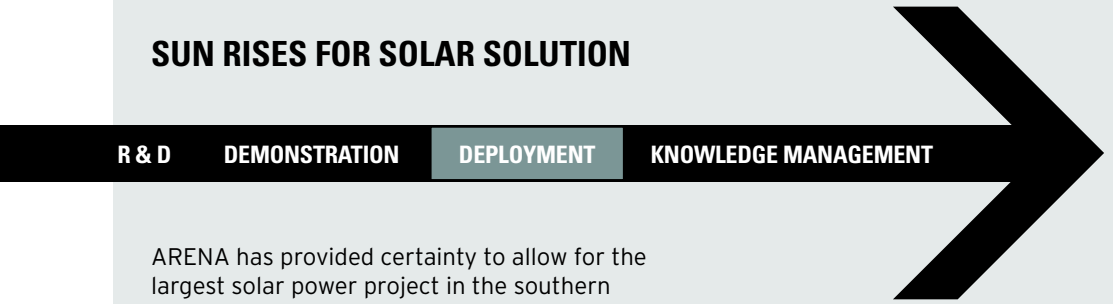
Muradel:

- completed continuous production of algae with full recycling at a pilot plant at Karratha, Western Australia
- produced biocrude from algal biomass
- completed the design and tender for the Whyalla demonstration plant
- unveiled the first biocrude and technology showcase.

ACHIEVEMENTS: DEPLOYING UTILITY SCALE RENEWABLE ENERGY

ARENA finalised a $166.7 million funding agreement with AGL to build Australia's biggest solar energy plants in New South Wales. The project will supply more than 50,000 homes with electricity and will pave the way for more ventures of this nature.

SUN RISES FOR SOLAR SOLUTION



ARENA has provided certainty to allow for the largest solar power project in the southern hemisphere—a project 15 times larger than any other solar project in Australia—to be constructed from January 2014.

ARENA reached agreement with AGL and First Solar to build the combined 155 megawatt solar project.

This project will power more than 50,000 New South Wales homes each year and represents significant progress towards making renewable energy cost-competitive and a bigger part of Australia's energy mix.

The project is being constructed over two sites, near Nyngan and Broken Hill. It is expected to create over 450 construction jobs across the two sites.

Gaining knowledge of the operating environment in the Australian context will pave the way for more plants to be built across the country.

Industry advancement

Promoting industry development by transferring skills and experience to the labour market as well as developing a supply chain will be key elements of this project. While assisting the solar industry to gain vital knowledge, these developments will also help reduce the cost of future large-scale solar projects.

The University of Queensland and the University of New South Wales will conduct related academic research under the $40.7 million EIF component of the project.

ARENA's commitment

ARENA has committed $166.7 million. The funding arrangement negotiated reduces the project risk by covering the gap between the market and the development. This aligns with ARENA's core objective of overcoming challenges to the deployment of renewable energy in Australia.

Achievements to 30 June 2013

The ARENA funding agreement was executed, with financial close expected in July 2013.

ACHIEVEMENTS: BUILDING AUSTRALIA'S NEXT GENERATION SOLAR

ARENA:

- managed the 65 former Australian Solar Institute projects and the provision of strategic advice in relation to the possible expansion of identified projects
- developed and circulated a consultation paper that focused on investment in early-stage technology offering the best prospects for successful commercialisation
- evaluated and identified potential new areas to support research and development in relation to a broader range of technologies, to complement existing funding for solar technologies.

SOLAR POWER AND STORAGE—ACHIEVING AN ENDLESS SUPPLY

R & D | DEMONSTRATION | DEPLOYMENT | KNOWLEDGE MANAGEMENT

The International Energy Agency has observed that Australia has the highest average solar radiation per square metre of any continent.

Photovoltaics

Australian and US researchers, research institutes and agencies are collaborating with the aim of significantly accelerating the development of photovoltaic technology.

Between 2000 and 2011, photovoltaic technology, which directly converts solar energy into electricity, was the fastest growing renewable power technology worldwide. It is reliable technology that is used commercially in residential, commercial, utility and off-grid applications and has significant potential for long-term growth.

The Australia–US Institute for Advanced Photovoltaics will develop the next generations of photovoltaic technology, providing a pipeline of opportunities for performance increase and cost reduction, as well as training research scientists and engineers in world-class facilities across Australia and the US. The project is aiming for a levelised cost of electricity (LCOE) of $0.06 per kilowatt hour in year eight, from a target of $0.15 per kilowatt hour in year three.

The collaborators are: University of New South Wales, Australian National University, University of Melbourne, Monash University, University of Queensland, Commonwealth Scientific and Industrial Research Organisation (CSIRO), US National Science Foundation – Department of Energy Engineering Research Center for Quantum Energy and Sustainable Solar Technologies, US National Renewable Energy Laboratory, US Sandia National Laboratories, Molecular Foundry, Stanford University, Georgia Institute of Technology, University of California—Santa Barbara, Suntech Australia, BT Imaging, Trina Solar, and BlueScope Steel.

ARENA's commitment

ARENA has committed funding of $33.1 million to the University of New South Wales for the project.

Concentrated solar power

Utility scale concentrated solar power (CSP) plants have been in operation in the US and Europe for decades, but are yet to be substantively deployed in Australia because of cost.

Through the Australian Solar Thermal Research Initiative, a consortium of universities is transforming Australia into a global leader in CSP technologies, in collaboration with US Government agencies and CSIRO.

CSP systems can store clean energy that can be delivered at any time of the day or night. This makes CSP 'dispatchable' and CSP technology suitable for hybridisation with conventional energy generation systems.

Over the next eight years, the project will provide a substantial boost to the renewables sector in Australia by contributing to dramatic technology cost reductions approaching grid parity while building the skills of future leaders in the sector. In carrying out its research, the initiative will work closely with the US Department of Energy's SunShot program, which has ambitious cost reduction targets. The project is targeting a LCOE of $0.12 per kilowatt hour in year eight, from $0.265 per kilowatt hour at project inception.

The collaborators are: CSIRO, Australian National University, University of Queensland, University of Adelaide, Queensland University of Technology, University of South Australia, Flinders University, US Sandia National Laboratories, US National Renewable Energy Laboratory, and Arizona State University.

ARENA's commitment

ARENA has committed $35 million to CSIRO for the project. CSIRO is responsible for the overall management of the project, including the distribution of ARENA funds among all Australian project partners.

ACHIEVEMENTS: EMERGING RENEWABLES PROGRAM

Through ERP, ARENA supported the development, deployment and early-stage deployment of renewable energy technologies. In addition, we:

- increased program funding from $126.6 million to $215 million
- expanded the program to include objectives that enhanced funding of
  - activities that develop or demonstrate renewable energy technologies that reduce or remove roadblocks
  - knowledge activities that contribute to the program's objectives.

Six project funding agreements were entered into and eight measures progressed under ERP.

COAL TO SOLAR THERMAL—POWERING AHEAD

R & D | DEMONSTRATION | DEPLOYMENT | KNOWLEDGE MANAGEMENT

With a number of Australian coal-fired power stations nearing the end of their lives, the viability of converting them to renewable energy or hybrid generators is being assessed. This could potentially lead to a breakthrough in the costs of integration with existing technology.

Adding solar energy to existing coal-fired power stations can extend the life of existing plants, allowing Australia to take full advantage of existing infrastructure and reducing the cost of renewable energy.

RATCH-Australia Corporation Limited is conducting a feasibility study into the conversion of the 180 megawatt coal-fired Collinsville Power Station in Queensland to a 30 megawatt hybrid solar thermal and gas power station.

The feasibility study will assist other generators to assess the possibility of using solar thermal technologies at coal-fired plants.

Renewable interest

Knowledge of the technical requirements for solar hybrid plants and the potential to convert coal-fired power stations to solar thermal power stations will be gained through the study. The study will also increase local expertise more generally in relation to high-temperature solar thermal power plants. This will help to lower the cost and improve the reliability and efficiency of solar energy.

The measure will have significant benefits for the renewables industry, particularly in Australia, by increasing understanding of how carbon-intensive electricity generators can be converted using hybrid renewable energy technologies to produce low-carbon power.

The study will also provide an opportunity for these technologies to build a track record in a commercial environment, helping to create pathways for more hybrid and standalone renewable energy plants in the future.

ARENA's commitment

ARENA has committed $2.5 million of a total project value of $5.6 million.

Achievements to 30 June 2013

An initial plant assessment report and a modelling and optimisation report were prepared. A research collaboration agreement was executed with the University of Queensland.

GEOTHERMAL—EXPLORING UNTAPPED POTENTIAL

R & D | **DEMONSTRATION** | DEPLOYMENT | KNOWLEDGE MANAGEMENT

Accommodating changes to the market environment and project scope were the driving factors in adjusting support for the development of a research project on the potential of geothermal energy technology.

By restructuring funding to geothermal energy group Petratherm, reducing one grant in order to support another, ARENA has shown its commitment to making decisions that support the development of renewable energy technologies that will positively influence the Australian market.

ARENA and Petratherm have agreed to reduce the size of the planned 30 megawatt power station at the Paralana site in South Australia to a 7 megawatt project.

This will make way for ARENA to support, through ERP, an applied research project to prove the commercial potential of geothermal energy technology.

The pilot research project involves drilling a well, connecting it to an existing well and testing the temperature, flow rate and other characteristics of geothermal energy production.

Petratherm's drilling rig at Paralana Joint Venture project in South Australia

Road smoothed with change

The changes to arrangements were a reflection of the latest information on geothermal project costs and the challenges of those costs to industry.

The changes focus on ensuring that geothermal projects are achievable and the use of the technology in Australia is increased. This will allow geothermal companies such as Petratherm to provide viable off-grid energy supply solutions.

ARENA's commitment

ARENA has committed $13 million for the ERP research project to demonstrate commercialised flow rates and $24.5 million for the Paralana power station project.

Achievements to 30 June 2013

The variation to the funding agreement was executed on 19 June 2013.

OCEAN ENERGY—RIDING THE WORLDWIDE WAVE

The ocean's potential to provide reliable renewable, base-load energy is becoming recognised, particularly in Australia where access to the ocean resource is considered to be abundant. Ocean energy can be derived from waves and tides (mechanical energy) or from the sun's heat (thermal energy).

ARENA aims to build on the developments occurring both nationally and internationally. This includes contributing to capacity building and knowledge generation for the ocean energy sector, as well as providing support to projects that will demonstrate innovative ocean energy technologies.

ERP is currently supporting three ocean (wave) energy pilot-scale projects that are deploying different technologies, in different locations, at early stages of the innovation chain. The project partners are:

- BioPower Systems Pty Ltd
- Carnegie Wave Energy Limited
- Oceanlinx Limited.

Outside of ERP, ARENA is also providing support to a fourth ocean energy company, Victorian Wave Partners Pty Ltd, for a demonstration-scale wave energy project based in Victoria. This project was transferred to ARENA at its establishment.

Further information on each of ARENA's ocean projects can be found at Appendix B.

ACHIEVEMENTS: REGIONAL AUSTRALIA'S RENEWABLES

In June 2013, ARENA launched the Regional Australia's Renewables program. This $400 million initiative is designed to provide grants for the deployment of renewable energy technologies with commercial prospects. The initiative has three streams:

1. Community—working directly with electricity distributors to demonstrate technologies that can feed more renewable energy into off-grid communities
2. Industry—supporting the development of renewable energy solutions, including hybrid and integrated systems, in off-grid and fringe-of-grid locations around Australia
3. Removing roadblocks—enabling regional and remote deployment, including system integration, variability, storage, technology demonstration and testing facilities.

REGIONAL AUSTRALIA'S RENEWABLES INDUSTRY PROGRAM—BUILDING LOCAL SOLUTIONS

I-RAR was launched in June 2013 to support the development and deployment of renewable energy solutions, including hybrid and integrated systems, in off-grid and fringe-of-grid locations around Australia.

While demand for on-grid electricity has been declining by around 2 per cent per year since 2008–09, demand for off-grid generation, largely driven by growth in the mining sector, has been increasing by around 6 per cent per year.

Off-grid electricity obtains 74 per cent of its energy from natural gas and the remainder mostly from diesel fuel. These sources are vulnerable to price shock events or supply chain interruptions.

These factors present an opportunity to increase the uptake of renewable energy in off-grid locations. Despite this, renewable sources—hydro-electric, wind, solar and geothermal—accounted for only 2 per cent of total off-grid electricity generation in 2011–12, compared to 13 per cent renewable penetration across Australia.

The Regional Australia's Renewables initiative was established to address roadblocks to the deployment of renewable energy. I-RAR is designed to build confidence by supporting the development of renewable energy solutions in off-grid and fringe-of-grid locations by removing roadblocks and ensuring that any knowledge generated is disseminated. The expression of interest period for applications is open until 31 December 2013.

ACHIEVEMENTS: RENEWABLE ENERGY VENTURE CAPITAL FUND PROGRAM (SOUTHERN CROSS RENEWABLE ENERGY FUND)

ARENA worked with funds manager Southern Cross Venture Partners to manage a $100 million venture capital fund dedicated to renewable energy.

Two projects under this fund were announced:

- $2.5 million in total for Brisbane Materials Technology Pty Ltd to commercialise high-performance anti-reflective coatings to make solar panels more efficient
- $4.5 million in total for Hydrexia to develop hydrogen storage technology.

ACHIEVEMENTS: TRANSFERRED PROJECTS

Projects under the former Renewable Energy Demonstration Program were transferred from the Department on ARENA's establishment. Projects covered a broad cross-section of renewable technologies and, importantly, supported initiatives that leveraged more than one technology.

FULL STEAM AHEAD FOR GEOTHERMAL

R & D | **DEMONSTRATION** | DEPLOYMENT | KNOWLEDGE MANAGEMENT

Power generated by enhanced geothermal systems has been created for the first time in Australia. This is a potential global milestone, as only three other operators have achieved demonstration success with this new energy resource globally.

Conventional geothermal power generation utilises volcanic geology. The company Geodynamics is leading the development of enhanced geothermal systems technology, which does not rely on volcanic systems: instead, the target geothermal resource is hot granite rocks.

The hot granite rocks in the Cooper Basin reach temperatures in excess of 280 degrees Celsius. This energy resource is utilised by drilling wells 4 kilometres to 5 kilometres deep into the granite rock and pumping in water at high pressure to open up naturally occurring fracture systems. This enables water to be circulated down injection wells into the hot rocks, through the granite and back up through production wells. The energy in the hot geothermal fluid delivered to the surface is used to drive a steam turbine and produce electricity.

Geodynamics is currently demonstrating a 1 megawatt turbine at Innamincka, South Australia.

In-depth solutions

The engineering solutions that are being developed by Geodynamics, for high-pressure and high-temperature environments, will be most valuable for the technology and industry.

Enhanced geothermal systems technology is an area of interest globally, because it has the potential to open up heat resources around the world.

ARENA'S commitment

ARENA has paid $27.9 million, to unlock a total of $141.3 million, to date.

Achievements to 30 June 2013

Geodynamics:

- completed drilling and stimulation tests of its Habanero 4 production well to a depth of 4.2 kilometres
- completed the remediation of its Habanero 1 injection well
- commissioned and generated electricity from the 1 megawatt pilot plant using the Habanero 1 and 4 wells, and commenced testing of the plant.

INTEGRATED SYSTEMS—POWERING AN ISLAND OF OPPORTUNITY

R & D | DEMONSTRATION | DEPLOYMENT | KNOWLEDGE MANAGEMENT

The King Island Advanced Hybrid Power Station

A world-leading power system will deliver 65 per cent of the energy needs of King Island in Tasmania as renewable energy and will reduce carbon dioxide emissions by up to 95 per cent.

The King Island Renewable Energy Integration Program uses a combination of technologies to create a power system that will rely less on diesel generation while providing a stable electricity supply.

Located off the electricity grid, communities like those on King Island rely heavily on diesel-generated electricity. Problems such as integration make it difficult to introduce large amounts of renewable energy into such power systems, and new knowledge of how technology can be used and integrated will be an asset for other projects of its kind.

Led by Hydro Tasmania, in partnership with the Tasmanian Government, the project will be completed by the start of 2014.

Unique supply

The power system is a unique combination of several technologies. It combines well-established renewable energy sources—wind, solar and biodiesel—with new and emerging enabling and storage technologies. Effectively combining these technologies was the first demonstration of this type of system integration in the world. The system will include battery energy storage, a diesel uninterruptable power supply incorporating a large flywheel, a smart grid system and an advanced control system.

By the end of 2013, the systems will be fully integrated after three years of work. The King Island community is highly supportive of the project and excited about what it will achieve.

The project will increase awareness among other off-grid communities of ways that renewable energy sources and enabling technology can provide reliable electricity generation.

The project has already attracted international interest from Pacific Island and South-East Asian countries.

ARENA's commitment

ARENA has committed $15.28 million to the $45.84 million project.

Achievements to 30 June 2013

Biodiesel trials commenced: during the trials, the power station experienced periods of 100 per cent sustainable energy use.

Two diesel uninterruptible power supply units were installed and were officially unveiled on 26 October 2012. These units will allow the system to run on 100 per cent renewable energy while enabling seamless diesel backup.

The contract for the energy storage system—Australia's largest battery—was awarded.

ACHIEVEMENTS: SUPPORTING HIGH-VALUE AUSTRALIAN RENEWABLE ENERGY KNOWLEDGE

ARENA launched the $60 million SHARE Initiative to help overcome barriers and increase the use of renewable energy.

Through this program we will share the expertise developed in our research, demonstration and deployment projects, and support the development of other relevant information by seeking and commissioning projects from industry.

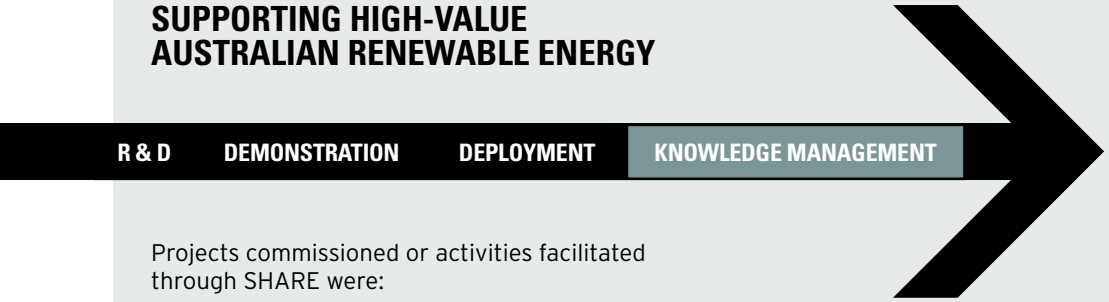
Industry can apply for this funding through ERP. The annual priority topics for 2013–14 will be:

- understanding renewable energy potential
- grid integration
- international engagement.

ARENA has already identified gaps and commissioned projects to help address these.

We share information and expertise developed during ARENA projects by publishing fact sheets on each project as well as best practice guides and a final report once the project is completed. We also provide information about renewable energy technologies.

SUPPORTING HIGH-VALUE AUSTRALIAN RENEWABLE ENERGY



Projects commissioned or activities facilitated through SHARE were:

- work by the Bureau of Resources and Energy Economics to produce an inaugural Australian liquid fuels technology assessment and to update the Australian Energy Technology Assessment
- a review of Australian geothermal pathways
- a detailed study of the technical and commercial feasibility of large-scale hybridisation of existing fossil fuel power plants in Australia.

ACHIEVEMENTS: ACCELERATED STEP CHANGE INITIATIVE

ARENA launched ASCI in June 2013 to place the agency in a flexible position to respond to unforeseen, significant opportunities that arise and are not captured under other initiatives.

Through ASCI, ARENA is targeting the barriers to commercial readiness which are common to a number of different technology solutions in the early stages of deployment.

SNAPSHOT—ARENA'S PRIORITIES FOR 2013–14

Information relating to funding initiatives is maintained on the ARENA website—this includes information on programs open for funding applications as well as the status of projects that have been funded. Importantly, material aimed at knowledge sharing is an information asset that will continue to grow and help support the renewable energy industry into the future.

Key priorities for 2013–14 include:

- creating innovative funding models where we take on the risk of funding shortfalls
- supporting projects that require funding solutions from commercial and non-commercial sources
- prioritising investments that are near commercial demonstrations and energy production
- exploring opportunities in off-grid and fringe-of-grid areas
- addressing specific roadblocks to renewable energy solutions
- developing ways of measuring ARENA's impact on the energy market and the renewable energy industry.

ARENA

OTHER REPORTABLE MATTERS

4 OTHER REPORTABLE MATTERS

LEGISLATION

On 10 July 2011, the Australian Government announced the establishment of the Australian Renewable Energy Agency (ARENA).

The *Australian Renewable Energy Agency Act 2011* (ARENA Act) received royal assent on 4 December 2011 and took effect on 1 July 2012. It established ARENA as a *Commonwealth Authorities and Companies Act 1997* (CAC Act) authority, with a Board and a Chief Executive Officer.

The ARENA Act was accompanied by the *Australian Renewable Energy Agency (Consequential Amendments and Transitional Provisions) Act 2011*, which:

- provided for a number of transitional amendments to allow the establishment of ARENA, including repeal of the *Australian Centre for Renewable Energy Act 2010*
- established transition times for Commonwealth and Australian Solar Institute (ASI) programs and projects (including allowing consideration of funding applications)
- outlined arrangements for ASI staff.

The Australian Renewable Energy Agency (Consequential Amendments and Transitional Provisions) Determination 2012 transferred the support for the Advanced Biofuels Initiative and the agreement between the Commonwealth of Australia and ASI.

Two determinations enabling the interim General Funding Strategy and the General Funding Strategy for 2012–13 to 2014–15 were also enacted during the year:

- Australian Renewable Energy Agency Determination 2012
- Australian Renewable Energy Agency Determination No. 2 of 2012.

ARENA is an independent statutory authority established with the objectives of improving the competitiveness of renewable energy technologies and increasing the supply of renewable energy in Australia.

ARENA's functions and powers include providing financial assistance for:

- research, development, demonstration, deployment and commercialisation of renewable energy and related technologies
- storage and sharing of knowledge and information about renewable energy technologies.

To ensure accountability and transparency for expenditure of a significant sum of public funds, the Australian Government has put in place some safeguards which ARENA must follow when making funding decisions. The legislation underpinning ARENA requires the Minister for Resources and Energy to approve program guidelines where they permit grants for projects in excess of $15 million. The Minister must approve projects where grants in excess of $50 million are to be awarded.

RESPONSIBLE MINISTERS

During 2012–13, the position of Minister for Resources and Energy was held initially by the Hon Martin Ferguson MP and from 25 March 2013 by the Hon Gary Gray MP.

On 11 July 2012, the then Minister for Resources and Energy, the Hon Martin Ferguson MP, wrote to ARENA setting out his expectations for the effective operations of ARENA as recommended by the *Review of the Corporate Governance of Statutory Authorities and Office Holders*.

In its reply of 14 August 2012, ARENA outlined its efforts in relation to improving the competitiveness of renewable energy technologies and increasing renewable energy supply in Australia over the longer term, consistent with the ARENA Act and the Australian Government's clean energy policy agenda. During 2012–13, ARENA established processes to pursue this outcome through the guiding principles set out in ARENA's General Funding Strategy and annual Work Plan.

The Minister also requested quarterly reports on ARENA's progress against the General Funding Strategy as well as a written report of each ARENA Board meeting outlining key deliberations, meeting outcomes and significant correspondence.

On 2 May 2013, the then Minister for Resources and Energy, the Hon Gary Gray MP, confirmed that his expectations for the effective operations of ARENA were consistent with those of his predecessor.

During 2012–13, the ARENA Board gained Ministerial approval in respect of:

- one application for a grant exceeding $50 million (section 12 of the ARENA Act)
- guidelines for financial assistance in excess of $15 million (section 25 of the ARENA Act)
- the 2012–13 ARENA Work Plan
- the interim General Funding Strategy, the General Funding Strategy for 2012–13 to 2014–15 and the General Funding Strategy for 2013–14 to 2015–16, which was subsequently enabled by the Australian Renewable Energy Agency Determination 2012 (section 20 of the ARENA Act).

The guidelines, Work Plan and General Funding Strategy were published on the ARENA website.

On 9 June 2012, the then Minister for Resources and Energy, the Hon Martin Ferguson MP, announced that short-listed projects for Solar Flagships Program funding, including Moree Solar Farm, TRUenergy and Infigen–Suntech, would be referred for funding consideration to ARENA on the establishment of the agency. Since the establishment of ARENA, no requests to consider providing funding for particular projects have been made by the Minister as permitted by section 11 of the ARENA Act.

No Ministerial directions were made under section 13 of the ARENA Act in respect of seeking advice in relation to renewable energy technologies.

Under section 28 of the CAC Act, ARENA must comply with General Policy Orders (made by the Finance Minister) to the extent that they apply. One General Policy Order applied, in respect of the Parliamentary Budget Office, and was complied with.

CONSULTANCIES

The Board has voluntarily adopted key principles of the *Commonwealth Procurement Rules* for ARENA procurements. Section 63 of the ARENA Act states that consultants may be engaged by ARENA to provide technical and specialist advisory services to assist ARENA in the performance of its functions. ARENA must not engage consultants to perform operations or administrative duties of a kind that are performed, or are capable of being performed, by Departmental staff made available to ARENA.

In 2012–13, ARENA entered into 50 new consultancy arrangements, involving total actual expenditure of $2,000,011 (inclusive of GST).

ARENA's money is generally not to be applied to costs associated with Departmental staff made available to ARENA. Procurements undertaken by ARENA in relation to such Departmental staff are generally paid from Departmental funds and, as such, are subject to *the Commonwealth Procurement Rules*. For more detail, please refer to the Department of Resources, Energy and Tourism's Annual Report 2012–13.

ECOLOGICALLY SUSTAINABLE DEVELOPMENT

Table 5 sets out ARENA's report against section 516A of the *Environment Protection and Biodiversity Conservation Act 1999*.

Table 5 Contribution to ecologically sustainable development, 2012–13

REPORTING CRITERIA	PERFORMANCE
Accord with and contribution to ecologically sustainable development (ESD), including the development and implementation of policies, plans, programs and legislation.	The Australian Government recognises that, while mechanisms such as carbon pricing and the Renewable Energy Target scheme provide incentives for the market to find renewable energy solutions based on currently deployable technology, the private sector alone will not invest adequately in the new technologies that the world needs for a sustainable energy future. That is why the Australian Government established ARENA. Through its legislation, ARENA is specifically tasked with facilitating research, development, demonstration and deployment of renewable energy technologies with a view to driving the commercialisation and reducing the cost of renewable energy. ARENA's policies, plans and programs all accord with the ESD principles by: ■ helping to foster the long-term sustainability of Australia's energy sector while promoting the reduction of energy-related greenhouse gas emissions ■ taking into account economic, environmental and social considerations when developing renewable energy measures. Information on ARENA's measures and programs is outlined in Appendix B.
Environmental performance, including the impact of the agency's activities on the natural environment, how any impacts are mitigated and how they will be managed.	ARENA's accommodation and facilities arrangements are supported by the Department of Resources, Energy and Tourism. The Department operates under the Energy Efficiency in Government Operations policy, which forms part of the government's climate change strategy. Its purpose is to reduce the energy consumption of government operations, with particular emphasis on the energy efficiency of buildings. The Department also aims to improve its environmental management practices, reduce the impacts of its operations, and foster greater efficiencies and operational costs savings consistent with legislative, regulatory and policy requirements such as the Australian National Audit Office's *Public Sector Environmental Management Better Practice Guide* of April 2012. For more information, please refer to the Department's Annual Report 2012–13. In late 2012–13, ARENA was preparing to move into office space in the NewActon Nishi Building. The Nishi Building has an 8-star rating (under the Nationwide House Energy Rating Scheme) and is considered to be Canberra's most sustainable mixed-use building complex.

ETHICS AND RISK MANAGEMENT

In 2013, the ARENA Board adopted a conflicts of interest policy which describes:

- the duties and obligations in respect of potential conflicts for all ARENA personnel, including
  - members of the Board
  - members of the Risk and Audit Committee (RAC) (and any other subcommittee of the Board)
  - the CEO and the CFO
  - all ARENA staff, including employees, contractors and consultants of the Department who are made available to ARENA
  - consultants engaged by ARENA, including probity advisers, expert due diligence advisers and other independent technical advisers
  - members of ARENA assessment advisory committees
- how individuals are to discharge their duties under the policy
- how declarations are managed.

ARENA is committed to integrating risk management practices into all processes and operations. ARENA can thereby deliver consistent, effective and accountable action, decision-making and management practice.

The RAC oversees risk management and provides advice to the Board as required. In 2012–13, the Risk Management Work Plan and Risk Register were developed. The Risk Register is updated before each meeting of the RAC.

Taking into account the operational context of ARENA, the risk framework and policy adopted by the Board is consistent with the 'level, program, policy or project area risk plan' of the international standard for risk management, ISO 31000.

FRAUD CONTROL

The Board is satisfied that ARENA has:

- prepared a fraud control plan that is consistent with the *Commonwealth Fraud Control Guidelines*
- set in place appropriate fraud prevention, detection, investigation and reporting and data collection procedures and processes that meet the agency's needs
- taken all reasonable measures to minimise the incidence of fraud in the agency and to investigate and recover the proceeds of fraud against the agency.

A fraud control risk assessment will be finalised in the latter half of 2013.

FREEDOM OF INFORMATION AND INFORMATION PUBLICATION SCHEME

Australian Government entities that are subject to the *Freedom of Information Act 1982* (FOI Act) are required to publish information to the public as part of the Information Publication Scheme.

ARENA's publications covered by the scheme are accessible through the ARENA website at www.arena.gov.au. Consistent with its knowledge management agenda, ARENA publishes information relating to the renewable energy sector, including information from financial assistance recipients.

Information on how to make a request under the FOI Act is available on the Department's website. Contact details are:

The Freedom of Information Coordinator
Corporate Services Division
Department of Resources, Energy and Tourism
GPO Box 1564
Canberra ACT 2601

Email: RET-FOI@ret.gov.au
Phone: +61 2 6243 7581

No requests for information under the FOI Act were received by ARENA in 2012–13.

INDEMNITIES AND INSURANCE PREMIUMS OF OFFICERS

ARENA is required by the Australian Government to use Comcover for its insurance needs. ARENA provides insurance cover to Board members and other officers in line with the CAC Act. Comcover's relevant insurance policy covers legal liability (including legal costs) for Board members and employees. The premium paid for this insurance for 2012–13 was $204,505.06 (exclusive of GST). ARENA indemnifies its staff as required by its governing legislation.

INTERNAL AUDIT AND QUALITY ASSURANCE

The RAC oversaw the development of ARENA's governance framework and made recommendations to the Board on the governance framework.

ARENA also worked with the Department's internal audit team to align processes where appropriate.

Synergy Group Limited was engaged to support ARENA's internal audit requirements.

JUDICIAL DECISIONS AND REVIEWS BY OUTSIDE BODIES

In 2012–13, ARENA was not affected by judicial decisions or reviews by administrative tribunals, the Auditor-General, parliamentary committees, the Commonwealth Ombudsman or the Office of the Australian Information Commissioner.

ARENA received an unqualified audit report on its financial statements for 2012–13. The Auditor-General's independent report is presented in the financial statements section of this annual report.

KEY ACTIVITIES AND CHANGES AFFECTING ARENA

During 2012–13, as a result of the implementation of legislative transition arrangements the following were transferred or referred to ARENA:

- projects and measures from initiatives formerly administered by the Australian Centre for Renewable Energy and the Department
- activities of the ASI (on 1 January 2013)
- activities relating to the Advanced Biofuels Initiative
- short-listed projects for the Solar Flagships Program, including Moree Solar Farm, TRUenergy and Infigen–Suntech, for funding consideration.

Note 1.1 in the Notes to the Financial Statements further refers to the activities transferred or referred to ARENA.

ARENA did not experience any 'significant events' (as defined in section 15 of the CAC Act) or 'material' matters disclosed in the financial statements (as defined in paragraph 12(1) of the Finance Minister's Orders for Financial Reporting (Incorporating Policy and Guidance) and the Ministerial direction outlined in *Finance Circular 2008/05—Compliance Reporting*).

Of note was that ARENA's funding was rephased as part of the May 2013 Budget announcements, as outlined in Table 6. In addition, $278,892,619 was added to ARENA's appropriation for 2012–13 in accordance with the ARENA Act Subsection 64(3) Determination (signed by the Minister for Finance on 25 June 2013). A further $88,180,950 relating to ASI Limited's closing bank account balance was added to ARENA's special appropriation for 2012–13. Amounts remaining unspent as of 30 June 2013 of $553.445 million ($609.639 million less $56.193 million drawdown) rolled into the 2013–14 revised appropriation of Table 6, in accordance with section 64(2) of the ARENA Act.

Table 6 Deferral of ARENA funding at the May 2013 Budget

FINANCIAL YEAR	ORIGINAL ESTIMATE $'000	MAY 2013 REVISED ESTIMATE $'000
2012–13	$292,565	$609,639
2013–14	$344,904	$394,904
2014–15	$436,640	$366,640
2015–16	$321,810	$171,810
2016–17	$299,550	$149,550
2017–18	$221,000	$221,000
2018–19	$237,000	$237,000
2019–20	$368,340	$468,340
2020–21	–	$135,000
2021–22	–	$135,000

LEGAL EXPENDITURE

During 2012–13, ARENA incurred $916,933 (excluding disbursements of $60) in external legal service expenditure, in accordance with legal procurement rules and ARENA's procurement policy. Payments to the Department for legal services ($34,487) are included in that amount. In respect of the financial statements, the payments to the Department are reported as part of the service level agreement. Figures are GST inclusive.

ARENA has reported the expenditure to the Office of Legal Services Coordination as required under the Legal Services Directions 2005.

RELATED ENTITY TRANSACTIONS

Details of related entity transactions are covered in Note 11 of the financial statements section of this report.

SOCIAL INCLUSION

ARENA works to support the Australian Government's vision of a socially inclusive society in which all Australians feel valued and have the opportunity to participate fully in the life of their society.

The energy sector provides opportunities to deliver economic benefits and address social disadvantage, especially for Australia's remote and Indigenous communities. ARENA has programs that target these areas, in particular the:

- Emerging Renewables Program component Removing Roadblocks for Regional and Remote Renewable Energy
- Regional Australia's Renewables program components
  - Regional Australia's Renewables Industry Program
  - Regional Australia's Renewables Community and Regional Program.

Outcomes of these programs will be published on the ARENA website.

Information relating to the *National Disability Strategy 2010–2020* is available at www.fahcsia.gov.au. Information relating to social inclusion matters can be found at www.socialinclusion.gov.au.

SUBSIDIARIES

ARENA did not have any subsidiaries during 2012–13.

WORK HEALTH AND SAFETY

The *Work Health and Safety Act 2011* (WHS Act) aims to secure the health and safety of workers and workplaces by eliminating or minimising risks. ARENA personnel have a personal and proactive duty to exercise due diligence to ensure that ARENA complies with its obligations under the work health and safety (WHS) legislation.

ARENA is committed to taking active steps to protect the health and safety of all employees, contractors, visitors and third parties.

In June 2013, the ARENA Board adopted the *Work Health and Safety (WHS) ARENA Officers Manual and Due Diligence Framework*, which describes:

- ARENA's WHS duties and obligations
- who 'officers' are
- how officers discharge their duty of due diligence, including examples of what officers need to do
- to what standard the duty of due diligence must be discharged.

To promulgate the framework, ARENA personnel were briefed by Norton Rose Fulbright Australia in respect of their obligations under the WHS Act.

Complementing the Board's framework, ARENA is supported in its day-to-day operations by arrangements put in place by the Department that provide ARENA with access to:

- the Department's Health and Safety Committee
- health and safety representatives, first aid officers and fire wardens
- a Departmental Manager Work Health and Safety, Rehabilitation and Compensation.

In respect of ARENA, no investigations were conducted nor incidents reported during 2012–13. Reporting in respect of Departmental staff made available to ARENA is covered in the Department's Annual Report 2012–13.

ARENA

APPENDICES

APPENDIX A

ARENA APPOINTMENTS

APPENDIX A—ARENA APPOINTMENTS

ARENA BOARD

Section 17 of the *Australian Renewable Energy Agency Act 2011* (ARENA Act) provides that there is to be a Board of ARENA.

Responsibilities

The ARENA Board is an independent, decision-making board. The functions of the Board relate to:

(a) developing general funding strategies, financial assistance guidelines and work plans (under Division 2 of Part 3 of the ARENA Act)
(b) determining other strategies, objectives and policies to be followed by ARENA
(c) ensuring that ARENA complies with the ARENA Act.

Members

Section 29 of the ARENA Act provides that the Board consists of:

(a) up to six members, appointed on a part-time basis by the Minister for Resources and Energy
(b) the Secretary of the Department of Resources, Energy and Tourism.

A person is eligible for appointment if the Minister is satisfied that the person has experience or knowledge in at least one of the following fields:

(a) renewable energy technology
(b) commercialisation
(c) business investment
(d) corporate governance.

An interim board comprising Mr Greg Bourne (Acting Chair), Mr Drew Clarke (Secretary of the Department) and Dr Brian Spalding was constituted pending the enactment of the ARENA legislation and the establishment of the board proper.

Board members are initially appointed for terms of up to two years, and may be reappointed for a total of up to six continuous years. Figure 5 provides details of ARENA's Board members in 2012–13.

Figure 5 Members of the ARENA Board, 2012–13

Greg Bourne Chair *Non-executive director* Appointed: July 2012 Term expiring: July 2014	Mr Bourne studied chemistry at the University of Western Australia via a scholarship from BP Refinery (Kwinana). After graduating with honours in 1971, he carried out research into refinery processes before joining BP Exploration. As a drilling engineer, he worked and lived in the United Kingdom, North America, South America, the Middle East, China and Australia. In 1988, Mr Bourne was seconded to the Prime Minister's Policy Unit in the United Kingdom, where he was the Special Adviser on Energy and Transport. Mr Bourne returned to Australia in 1992 to be in charge of BP Exploration's activities in Australia's North West Shelf region and Papua New Guinea. After working overseas as Director, BP Scotland, and then Regional Director, Latin America, based in Caracas, he returned to Australia in 1999 to become Regional President, BP Australasia, the position from which he retired from BP in 2003. In 2004, Mr Bourne was appointed Chief Executive Officer of WWF Australia, a position he held until 2010. Mr Bourne is a member of a number of government and business advisory groups primarily concerned with energy, climate change and sustainability. He was awarded the Centenary Medal for services to the environment and an Honorary Doctorate from the University of Western Australia for services to international business.

Betsy Donaghey *Non-executive director* Appointed: July 2012 Term expiring: July 2014	Ms Donaghey is currently a Director of Imdex, a company that provides drilling fluids and instrumentation to the mining, oil and gas, water well, and civil engineering industries. She is also a Director of St Barbara, a gold production and exploration company. Ms Donaghey was a Solar Flagships Council member. From 2000 until 2009, Ms Donaghey worked for Woodside Petroleum in various senior roles, including Senior Vice President, Australian Business Unit, and Executive Vice President, Browse Business Unit. Prior to joining Woodside Petroleum, she worked for BHP Billiton for 19 years. Ms Donaghey holds a Bachelor of Science (Civil Engineering) from Texas A&M University and a Master of Science (Operations Research) from the University of Houston. She has also completed the Advanced Management Program at Harvard Business School.
Jane Sargison *Non-executive director* Appointed: July 2012 Resigned: August 2013	Dr Sargison BE (Hons), DPhil, GAICD, CPEng, FIEAust is a mechanical engineer with a background in energy industry research and development. She is Director of her business, JSA Consulting Engineers. Dr Sargison is a director of the board of TasWater and the Executive Director of Rainbow Bee Eater Pty Ltd, a technology start-up company which develops straw-to-energy power stations with carbon sequestration via biochar across the West Australian wheat belt. Dr Sargison was a Rhodes Scholar and was named the Tasmanian and National Professional Engineer of the Year for 2011 by Engineers Australia.
Judith Smith *Non-executive director* Appointed: July 2012 Term expiring: July 2014	Ms Smith is the Head of Private Equity, Industry Funds Management (IFM). IFM invests on behalf of clients in local and international private equity funds, as well as co-investments. Ms Smith is also the IFM Risk Committee Chair and IFM Investments and Strategy Committee Deputy Chair. As of May 2013, Ms Smith was on extended leave from IFM but still involved in IFM investment functions. Prior to joining IFM, Ms Smith held various investment management roles. During more than a decade at National Mutual Funds Management, she managed Australian equity portfolios (including large capitalisation portfolios, specialist small company portfolios and private equity investments) and Australian equity research and strategy. Ms Smith holds a Master of Applied Finance from the University of Melbourne and a Bachelor of Economics (Honours) from Monash University. She is a Fellow of the Financial Services Institute of Australasia.
Brian Spalding *Non-executive director* Appointed: May 2012 Term expiring: May 2014	Dr Spalding is a Commissioner at the Australian Energy Market Commission and was a board member of the former Australian Centre for Renewable Energy. Dr Spalding has had more than 30 years' experience in power system operations. He played a key role in the implementation and operation of electricity markets, in New South Wales and nationally, from the early 1990s. In 2008, Dr Spalding became Chief Executive Officer of NEMMCO and was responsible for the day-to-day operations of the National Electricity Market and the electricity power system for southern and eastern Australia. In 2009, he became Executive General Manager, Operations, of the Australian Energy Market Operator. Dr Spalding holds a Bachelor of Science, a Bachelor of Engineering (Electrical Honours Class 1 and University Medal), and a Doctor of Philosophy in power system analysis from the University of New South Wales.

Mark Twidell

Non-executive director

Appointed: July 2012

Term expiring: July 2014

Mr Twidell was the Executive Director of the Australian Solar Institute from 2009 until 2012 and was a Solar Flagships Council member.

Mr Twidell has over 20 years' experience in the Australian renewable energy sector. From 1988 to 2009, he held senior roles with BP Solar in Australia, America and Asia. Between 2006 and 2009, he was the BP Solar Performance Unit Leader based in India. In this role, he was responsible for all activity outside of Europe and the United States. Prior to this role, he was the BP Solar Australia Regional Director, Australia–Asia.

Mr Twidell holds a Bachelor of Science in Electrical and Electronic Engineering (Honours) from the University of Edinburgh and a Master of Business Administration from the Graduate School of Business, Sydney University.

Blair Comley
Secretary of the Department of Resources, Energy and Tourism

Ex-officio member

Commenced: March 2013

Term expired: September 2013

Mr Comley commenced as Secretary of the Department in March 2013. Prior to this appointment, he was Secretary of the Department of Climate Change and Energy Efficiency (DCCEE).

Mr Comley's previous roles include Deputy Secretary of DCCEE, with executive oversight of climate change strategy and market instruments, international climate change policy, and issues related to the land sector. He has also held senior positions in the Treasury, including General Manager of the Business Tax Division, Indirect Tax Division, Macroeconomic Policy Division and Debt Management Review Team.

Mr Comley represented Australia for three years on economic matters at the Organisation for Economic Co-operation and Development and was the Acting Chief Executive Officer of the Australian Office of Financial Management, with responsibility for managing the Australian Government's debt and related derivative portfolio. He has previously worked on competition policy, environment policy and welfare reform.

Mr Comley holds a Bachelor of Economics (Honours) and a Master of Economics from Monash University as well as a Graduate Diploma in Legal Studies from the Australian National University. He was awarded a Public Service Medal in 2012 for his outstanding contribution in the development of public policy.

Drew Clarke
Former Secretary of the Department of Resources, Energy and Tourism

Former ex-officio member

Commenced: July 2012

Term expired: March 2013

Mr Clarke was a Board member until March 2013, when he left the position of Secretary of the Department to take up the role of Secretary of the Department of Broadband, Communications and the Digital Economy.

Mr Clarke's earlier career included leadership roles in AusIndustry and energy policy and science agencies.

Mr Clarke holds a Master of Science from Ohio State University and is a Fellow of the Australian Academy of Technological Sciences and Engineering. He was awarded a Public Service Medal in 2009 for his work in energy market reform and clean energy.

Meetings

The interim board comprising Mr Bourne (Acting Chair), Mr Clarke and Dr Spalding held two meetings:

1. 24 May 2012
2. 21 June 2012.

Between 1 July 2012 and 30 June 2013, the Board met 10 times:

1. 14–15 August 2012
2. 28 September 2012
3. 15 October 2012
4. 9 November 2012
5. 19 December 2012
6. 6 February 2013
7. 13 March 2013
8. 10 April 2013
9. 21 May 2013
10. 12 June 2013.

All seven members were present at the meetings. In the role of Secretary of the Department:

- Mr Clarke's final meeting was on 6 February 2013
- Mr Comley's first meeting was on 13 March 2013.

Reporting

Consistent with the letter of expectations, the Chair provided to the Minister for Resources and Energy reports of Board meeting outcomes as well as quarterly updates on ARENA's activities.

Induction

New members received relevant information and briefings on their appointment to assist them in meeting their responsibilities.

Board review

The Board discussed the need to undertake a performance review at its meeting of 21 May 2013, and subsequently engaged a consultant to facilitate a review early in the new financial year.

Subcommittees

In late 2012, the Board established the Risk and Audit Committee (RAC), in compliance with section 32 of the *Commonwealth Authorities and Companies Act 1997* (CAC Act) and Regulation 6A of the Commonwealth Authorities and Companies Regulations 1997, and as authorised by section 48 of the ARENA Act.

ARENA CHIEF EXECUTIVE OFFICER

Section 50 of the ARENA Act provides that there is to be a Chief Executive Officer (CEO) of ARENA. Under section 52 of the ARENA Act, the CEO is appointed on a full-time basis by the Minister for Resources and Energy (on the recommendation of the Board) for a period of up to three years.

The ARENA CEO has responsibility for the day-to-day business of ARENA, including:

- executing directions of the ARENA Board
- overseeing administration of existing projects
- supporting the ARENA Board to develop and execute its funding strategy, forward work plan and initiatives
- representing ARENA at public events and managing stakeholder engagement
- analysing and sharing knowledge and information about renewable energy technologies
- developing advice to the Minister for Resources and Energy on renewable energy technology innovation.

Until the ARENA CEO was appointed, the Deputy Secretary of the Department, Mr Martin Hoffman, directed the day-to-day operations of ARENA as the Head of Office—ARENA.

Following a selection process, the ARENA Board recommended to the Minister for Resources and Energy that Mr Ivor Frischknecht be appointed as the inaugural CEO of ARENA.

Figure 6 ARENA Chief Executive Officer, 2012–13

Ivor Frischknecht Appointed: 6 August 2012 Term expiring: 5 August 2015	Mr Frischknecht brings experience as a former Investment Director of Starfish Ventures Pty Ltd, a venture capital firm that managed $400 million primarily on behalf of Australian superannuation funds. His key activities included responsibility for the firm's clean tech investment activities in areas such as alternative energy, water and environmental technologies. Mr Frischknecht was previously Director, New Ventures, of Idealab, a company involved in developing and investing in technology start-up companies, including renewable energy companies. He was also previously the Chief Executive Officer of H2OnSite, a company involved in the commercialisation of clean energy generation technology, and a senior executive and advisor to a range of venture capital and energy companies. Mr Frischknecht holds a Bachelor of Laws and Bachelor of Economics (Honours) from the University of Sydney and a Master of Business Administration and Public Management Certificate from Stanford University's Graduate School of Business.

ARENA CHIEF FINANCIAL OFFICER

Section 61 of the ARENA Act provides that ARENA may employ a person to perform CFO functions. The CFO at 30 June 2013 was Mr Ian Kay.

ARENA RISK AND AUDIT COMMITTEE

The ARENA Board established the RAC in late 2012.

The objective of the RAC is to provide independent assurance and advice to the Board on ARENA's risk, control and compliance framework; governance arrangements; and financial statement responsibilities. The Board has authorised the RAC, within the scope of its responsibilities, to:

- obtain any information that it requires from any employee or external party (subject to any legal obligation to protect information)
- discuss any matters with the external auditor or other external parties (subject to confidentiality considerations)
- request the attendance of any member of the Board or ARENA staff member, including the CEO, at committee meetings
- obtain legal or other professional advice, as considered necessary to meet its responsibilities, at ARENA's expense (to a pre-approved limit of $100,000 in any financial year and in excess of that amount with approval of the Chair).

Responsibilities

Members of the RAC are expected to understand and observe the legal requirements of the CAC Act and regulations. Members are also expected to:

- act in the interests of ARENA
- apply good analytical skills, objectivity and good judgment
- express opinions constructively and openly
- raise issues that relate to the committee's responsibilities and pursue independent lines of enquiry.

Members

Members of the RAC are appointed for two years. Members in 2012–13 were:

- Ms Judith Smith (Chair and ARENA Board member)
- Ms Betsy Donaghey (ARENA Board member)
- Mr Peter Thomas
- Ms Jenny Morison.

Meetings

The RAC met four times in 2012–13, with all four members in attendance:

1. 8 November 2012
2. 25 February 2013
3. 15 April 2013
4. 27 May 2013.

Reporting

The RAC provided a report to the Board following each meeting.

Induction

New members received relevant information and briefings on their appointment to assist them in meeting their responsibilities.

Assessment arrangements

The Chair of the RAC, in consultation with the Chair of the Board, will initiate a review of the performance of the RAC at least once every two years.

Subcommittees

No subcommittees were established under the RAC.

APPENDIX B

FINANCIAL ASSISTANCE

APPENDIX B—FINANCIAL ASSISTANCE

Section 70(c) of the ARENA Act requires ARENA to publish details of financial assistance agreements and progress. In addition, ARENA must report details of people to whom financial assistance is provided under a transferred Commonwealth funding agreement or ASI Limited agreement (under section 28 of *Australian Renewable Energy Agency (Consequential Amendments and Transitional Provisions) Act 2011*).

Table 7 outlines financial assistance provided, or committed, during the year, including projects that transitioned to ARENA.

Table 7 Financial assistance, 2012–13

RESEARCH AND DEVELOPMENT					
Project name	Description	Location	Funding amount provided / committed (GST exclusive)	Technology	Assessment of progress or expected progress in the year (see Key)
Almond Board of Australia Limited	Assess technical and economic feasibility of bioenergy generation projects using almond waste.	VIC and SA	$32,100	Bioenergy	Complete
Australian National University	Investigate the use of plasmonics for high-efficiency solar cells.	Canberra (ACT) and Belgium, UK and Sweden	$1,607,374	Solar	On track
Australian National University	Develop machine-learning based forecasting of distributed solar energy.	Canberra (ACT) and multiple sites in the US	$799,522	Solar	On track
Australian National University	Develop local doping using laser chemical processing technology for advanced silicon solar cells	Canberra (ACT) and Germany	$352,365	Solar	On track
Australian National University	Develop innovative characterisation approaches that can allow high-quality data to be collected relatively quickly and accurately.	Canberra (ACT)	$446,582	Solar	On track
Australian National University	Develop the next generation of sliver solar cells.	Canberra (ACT)	$4,953,473	Solar	Delayed
Australian National University	Develop a roof-mounted hybrid CST system for the distributed generation of heating, cooling and electricity.	Canberra (ACT)	$3,235,710	Solar	On track
Australian National University	Investigate the use of improved high-temperature receivers for dish concentrators.	Canberra (ACT), Newcastle (NSW) and the US	$1,436,210	Solar	On track

RESEARCH AND DEVELOPMENT					
Project name	Description	Location	Funding amount provided / committed (GST exclusive)	Technology	Assessment of progress or expected progress in the year (see Key)
Australian National University	Develop industry-ready n-type silicon solar cells.	Canberra (ACT)	$3,335,254	Solar	On track
Australian PV Association	Collect and analyse data for the development of a climate-based photovoltaic module rating scheme.	Sydney (NSW), Melbourne (VIC) and the US	$268,320	Solar	On track
Australian PV Association	Investigate consumer and utility interest in active participation in the distributed energy market.	Sydney (NSW), Newcastle (NSW) and the US	$173,550	Solar	On track
Australian PV Association	Provide, through an interactive solar-mapping web interface (Solar Portal), an ongoing facility to track and analyse photovoltaic deployment.	NSW	$268,375	Solar	On track
Australian Solar Thermal Energy Association Limited	Lead a collaborative research activity to quantify economic benefits from concentrating solar thermal electricity generation in the National Electricity Market.	QLD, NSW, ACT, VIC, SA	$85,215	Solar	On track
Australian Solar Thermal Energy Association Limited	Work with NREL to modify its 'System Advisor Model' to suit Australian locations and markets.	Sydney (NSW)	$73,500	Solar	Complete
Barbara Hardy Institute, University of South Australia	Demonstrate the financial viability of high-temperature thermal storage systems.	Adelaide (SA), Whyalla (SA), Spain	$689,500	Solar	On track
BlueScope Steel Limited	Develop a systematic approach and methodology to optimise the design configuration and sizing of building integrated photovoltaic (BIPV) thermal systems.	Wollongong (NSW) and Germany	$477,320	Solar	On track
BT Imaging Pty Ltd	Develop in-line inspection tools for photovoltaic manufacturing.	Sydney (NSW)	$2,250,000	Solar	On track
Bureau of Sugar Experiment Stations Ltd	Develop an optimised and sustainable sugar cane biomass feedstock system for lignocellulosic ethanol production facilities.	Indooroopilly (QLD)	$1,266,000	Bioenergy	Complete

RESEARCH AND DEVELOPMENT					
Project name	Description	Location	Funding amount provided / committed (GST exclusive)	Technology	Assessment of progress or expected progress in the year (see Key)
CAT Projects	Analyse variations in instantaneous weather to develop an improved estimate for the maximum penetration of grid-connect solar generators achievable without energy storage.	Alice Springs (NSW)	$242,625	Solar	On track
Chromasun Pty Ltd	Establish an Australian pilot manufacturing capability for the Chromasun Micro-Concentrator (MCT) concentrating solar thermal product.	Sydney (NSW), Canberra (ACT), Echuca (VIC), Darling Heights (QLD), Fremantle (WA)	$3,461,677	Solar	On track
CSIRO	Develop a world-first 'firm' solar system to reliably reduce the impacts of peak demand by tackling air-conditioner electrical consumption.	Newcastle (NSW)	$225,715	Solar	On track
CSIRO	Demonstrate the technical and economic feasibility of the deployment of a combined cycle using solar reformed gas in north-western Australia.	Newcastle (NSW) and the US	$351,453	Solar	On track
CSIRO	Develop hybrid CST systems for commercialisation.	Wendouree (VIC)	$520,011	Solar	On track
CSIRO	Evaluate and demonstrate hybridisation of CST with carbon capture and storage.	Newcastle (NSW)	$667,500	Solar	On track
CSIRO	Integrate solar radiation data sources over Australia.	Canberra (ACT), Melbourne (VIC) and the US	$712,581	Solar	On track
CSIRO	Optimise central receivers for advanced power cycles.	Newcastle (NSW) and multiple sites in the US	$1,150,879	Solar	On track
CSIRO	Investigate plug and play solar power, simplifying the integration of solar energy in hybrid applications.	Newcastle (NSW) and the US	$1,292,725	Solar	On track

RESEARCH AND DEVELOPMENT					
Project name	Description	Location	Funding amount provided / committed (GST exclusive)	Technology	Assessment of progress or expected progress in the year (see Key)
CSIRO	Improve translation models for predicting the energy yield of photovoltaic power systems.	Newcastle (NSW), Alice Springs (NT) and the US	$1,318,721	Solar	On track
CSIRO	Conduct research on the use of solar hybrid fuels.	Newcastle (NSW)	$1,585,853	Solar	On track
CSIRO	Develop a thermoelectric generator for application in a concentrated solar thermal topping cycle.	Newcastle (NSW)	$2,200,912	Solar	On track
CSIRO	Develop advanced steam-generating receivers for high-concentration solar collectors.	Newcastle (NSW)	$2,821,978	Solar	On track
CSIRO	Develop solar air turbine systems.	Newcastle (NSW)	$3,055,000	Solar	On track
CSIRO	Develop the first phase of the Australian Solar Energy Forecasting System (ASEFS).	Canberra (ACT), Melbourne (VIC), Adelaide (SA), Sydney (NSW) and the US	$3,089,000	Solar	On track
CSIRO	Develop and demonstrate reliable high-temperature storage systems/ heat transfer mediums to overcome CSP intermittency.	Newcastle (NSW)	$3,538,846	Solar	On track
CSIRO	Construct a solar thermal research hub at CSIRO Energy Centre, Newcastle.	Newcastle (NSW)	$5,000,000	Solar	On track
CSIRO	Deliver the next wave of CSP cost reductions to deliver solar electricity at between 9 and 12 cents per kWh, under the Australian Solar Thermal Research Initiative.	Newcastle (NSW) and multiple other Australian sites, and US sites	$35,000,000	Solar	On track
CSIRO	Investigate the use of a solar-driven supercritical CO_2 Brayton cycle.	Newcastle (NSW) and multiple sites in the US	$2,496,835	Solar	On track
Curtin University of Technology	Demonstrate sustainable production of high quality second-generation transport biofuels by pyrolysis and biorefining.	Perth (WA)	$2,500,000	Bioenergy	Complete

RESEARCH AND DEVELOPMENT					
Project name	Description	Location	Funding amount provided / committed (GST exclusive)	Technology	Assessment of progress or expected progress in the year (see Key)
Ipsos Social Research Institute	Investigate levels of community awareness and attitudes towards large-scale solar installations, and develop best practice guidelines for the development of large-scale solar projects.	Melbourne (VIC)	$153,388	Solar	On track
Licella Pty Ltd	Develop technology to manufacture stable biocrude from lignocellulosic biomass.	Somersby (NSW)	$2,288,000	Bioenergy	Complete
Microbiogen Pty Ltd	Demonstrate feasibility of Microbiogen's fuel and feed biorefinery concept at a pilot-scale and develop data to enable construction of a commercial-scale biorefinery.	Lane Cove (NSW)	$2,374,996	Bioenergy	Complete
MNGI Pty Ltd (Petratherm)	Demonstrate commercial rates of geothermal energy production.	Paralana (SA)	$12,997,300	Geothermal	On track
MNGI Pty Ltd (Petratherm)	Build a 7 MW enhanced geothermal system demonstration power station at Paralana in SA (following successful completion of the flow tests supported by Emerging Renewables Program (ERP) funds).	Paralana (SA)	$24,520,833	Geothermal	On track Note: this project is not scheduled to start until Feb 2016
MNGI Pty Ltd (Petratherm)	Demonstrate an innovative geothermal heat exchanger through an engineered geothermal system (EGS). This project was closed on 20 June 2013.	Paralana (SA)	$4,200,000	Geothermal	Discontinued
Monica Oliphant Research Scientist	Develop a publicly accessible online system for the delivery of one-minute solar data recorded at Bureau of Meteorology ground solar network stations.	Adelaide (SA)	$15,000	Solar	On track
National ICT Australia Ltd	Develop software to improve the process of identifying geothermal targets.	Sydney (NSW)	$1,901,980	Geothermal	On track

RESEARCH AND DEVELOPMENT					
Project name	Description	Location	Funding amount provided / committed (GST exclusive)	Technology	Assessment of progress or expected progress in the year (see Key)
Power and Water Corporation	Research and develop methods to enable higher solar energy penetration in isolated diesel mini-grids.	NT	$500,000	Solar	On track
RATCH-Australia Corporation Limited	Assess the viability of converting the existing 180 MW coal-fired Collinsville Power Station in Queensland to a 30 MW hybrid solar thermal–gas power station.	Collinsville (QLD)	$2,500,000	Solar	On track
RayGen Resources Pty Limited	Construct and commission a 200 kW commercial-scale pilot plant using RayGen's proprietary Central receiver Concentrator Photovoltaic (C2PVTM) technology.	Melbourne and Gannawarra (VIC)	$1,750,000	Solar	On track
Royal Melbourne Institute of Technology	Develop innovative collector platforms for the delivery of up to 400°C thermal energy and electricity from building roofs.	Melbourne (VIC), Canberra (ACT), Sydney (NSW) and multiple sites in the US	$4,521,191	Solar	On track
Solar Systems Pty Ltd	Develop next generation triple-junction solar cells using a 'virtual germanium-on-silicon' substrate.	Mildura (VIC)	$2,000,000	Solar	On track
Suntech R&D Australia Pty Ltd	Use novel texture processes for multi-crystalline and cast-mono wafers with manufacturing compatible tools and processes.	NSW	$495,000	Solar	On track
University of Adelaide, South Australian Centre for Geothermal Energy Research (SACGER)	Conduct a scientific research-driven analysis to evaluate why the achieved fluid flow rates of hot sedimentary aquifer reservoirs in Australia are significantly lower than expected.	Adelaide (SA)	$1,250,000	Geothermal	On track
University of Melbourne	Develop new materials and device architectures to enhance the overall efficiency and durability of printed solar cells.	Melbourne (VIC)	$1,762,500	Solar	On track

RESEARCH AND DEVELOPMENT					
Project name	Description	Location	Funding amount provided / committed (GST exclusive)	Technology	Assessment of progress or expected progress in the year (see Key)
University of Melbourne	Enhance efficiencies in printed solar cells by controlling morphology development.	Melbourne (VIC) and multiple sites in Germany	$500,000	Solar	On track
University of Melbourne	Develop technology to produce biodiesel and other products from large-scale cultivation of microalgae.	Parkville Campus (VIC)	$1,240,000 (reduced to $920,000 following a variation)	Bioenergy	Complete
University of Melbourne	Conduct a study into achieving cost-efficient abatement from Australian electricity generation, including the development of software for modelling the operation and performance of the National Electricity Market under different renewable energy penetrations.	Melbourne	$931,207	Hybrid/ Enabling	On Track
University of Newcastle	Develop a working prototype device using refractory thermionic materials, for the direct conversion of the sun's energy to electricity.	Newcastle (NSW)	$515,359	Solar	On track
University of NSW	Develop tools for the design and scale-up of solar thermochemical reactors.	Sydney (NSW), Adelaide (SA) and the US	$1,083,320	Solar	Delayed
University of NSW	Model and develop a new type of silicon cell that will use nanoscale silicon quantum dots.	Sydney (NSW) and Singapore	$1,375,000	Solar	On track
University of NSW	Develop advanced weather and climate forecasting tools that contribute to the successful integration of solar power.	Sydney (NSW), Adelaide (SA) and Melbourne (VIC)	$470,284	Solar	On track
University of NSW	Develop next-generation crystalline silicon on glass modules.	Sydney (NSW)	$1,178,000	Solar	On track
University of NSW	Develop a high-voltage cell that will be 40% more efficient than conventional solar cells.	Sydney (NSW) and multiple sites in the US	$2,480,000	Solar	On track
University of NSW	Fabricate a silicon-based cell with world-record >30% efficiency at low cost.	Sydney (NSW) and the US	$1,265,000	Solar	On track

RESEARCH AND DEVELOPMENT					
Project name	Description	Location	Funding amount provided / committed (GST exclusive)	Technology	Assessment of progress or expected progress in the year (see Key)
University of NSW	Develop a practical hot carrier solar cell.	Sydney (NSW) and multiple sites in the US	$2,278,343	Solar	On track
University of NSW	Develop a new generation of silicon-based cells by producing tandem devices that will achieve efficiency beyond 30%.	Sydney (NSW) and multiple sites in the US	$1,511,828	Solar	On track
University of NSW	Provide a pathway for highly visible, structured photovoltaic research collaboration between Australian and American researchers.	Sydney (NSW) and multiple other Australian sites, and US sites	$33,100,000	Solar	On track
University of NSW	Investigate the use of silicon nanocrystals embedded in silicon oxide and nitride as nanoscale heterojunction for third-generation photovoltaics.	Sydney (NSW) and multiple sites in Germany	$500,000	Solar	On track
University of NSW	Investigate methods to more accurately identify the type and amount of efficiency-reducing contaminants in silicon solar cells.	Sydney (NSW), Canberra (ACT) and Germany	$490,166	Solar	On track
University of NSW	Develop and commercialise high-efficiency silicon solar cell technology.	Sydney (NSW)	$3,972,980	Solar	On track
University of NSW	Investigate methods to overcome the fundamental performance limitations of commercial solar cells.	Sydney (NSW)	$4,400,000	Solar	On track
University of NSW	Develop an innovative spectral splitting device to increase photovoltaic efficiency to above 46%.	Sydney (NSW)	$550,000	Solar	On track
University of NSW	Develop a hot carrier solar cell to tackle the major loss in conventional solar cells due to heat shedding of 'hot' excited carriers.	Sydney (NSW)	$563,906	Solar	On track
University of Queensland	Develop new materials and architectures for organic solar cells beyond the Shockley-Queisser limit.	Brisbane (QLD)	$945,817	Solar	On track

RESEARCH AND DEVELOPMENT					
Project name	Description	Location	Funding amount provided / committed (GST exclusive)	Technology	Assessment of progress or expected progress in the year (see Key)
University of South Australia	Mimic the natural photosynthesis process to convert solar energy into a fuel.	SA	$500,000	Solar	On track
University of Sydney	Investigate the use of up-conversion of the solar spectrum to improve photovoltaic energy conversion.	Sydney (NSW), Adelaide (SA), UK and Germany	$487,584	Solar	On track
Waratah Power Pty Ltd	Provide Australian developers of small-scale hydropower technologies and projects with a more detailed understanding of the impacts from turbines on Australian native fish species.	North Bondi and various sites across NSW	$613,377	Hydropower	On track
Total funding for 77 Research and development projects:			**$216,845,041**		

DEMONSTRATION					
Project name	Description	Location	Funding amount provided / committed (GST exclusive)	Technology	Assessment of progress or expected progress in the year (see Key)
BioPower Systems Pty Ltd	Design, construct, deploy and test a 250 kW bioWAVE unit at Pt Fairy, with grid connection in the later stages of the project.	Port Fairy (VIC)	$5,600,000	Ocean	Delayed
BlueScope Steel Limited	Develop low-cost building integrated photovoltaic (BIPV) and BIPV-thermal systems for mass deployment on Australian residential and commercial/ industrial rooftops.	Port Kembla, with prototype installations in QLD, VIC and NSW	$2,284,800	Solar	On track
Brisbane Materials Technology Pty Ltd	Develop a pilot-scale plant for the production of solar anti-reflection (AR) coatings.	Brisbane (QLD) and multiple sites in the US	$1,262,000	Solar	On track
Carnegie Wave Energy Ltd	Design, construct and deploy a pilot-scale grid connected CETO wave energy facility with up to 2 MW capacity.	Garden Island (WA)	$9,938,818*	Ocean	On track

*The ARENA Board has committed a further $3,156,563 to Carnegie Wave Energy (since 30 June 2013). This increase in funding reflects the potential of the technology and the opportunities for this emerging industry.

DEMONSTRATION					
Project name	Description	Location	Funding amount provided / committed (GST exclusive)	Technology	Assessment of progress or expected progress in the year (see Key)
CS Energy Limited	Demonstrate the use of solar thermal energy to provide a 44 MW boost to the Kogan Creek coal-fired power station in Chinchilla, Qld.	Chinchilla (QLD)	$34,900,000	Solar	On track
Geodynamics Limited	Build a 25 MW engineered geothermal system demonstration power station that will demonstrate a new multi-level fracturing technique and specialised well design.	Cooper Basin (SA)	$90,000,000	Geothermal	On track
Granite Power Ltd	Develop a solar supercritical organic Rankine cycle for power and industrial heat.	Newcastle (NSW)	$770,000	Solar	On track
Hydro-Electric Corporation	Integrate wind and solar energy and energy storage and a demand-side management system with a biodiesel generator to power the King Island mini-grid.	King Island (TAS)	$15,280,000	Hybrid/ Enabling	On track
James Cook University	Perform research, development and demonstration of biofuels from macroalgal feedstock.	Townsville (QLD)	$5,000,000	Bioenergy	On track
Licella Pty Ltd	Deliver a de-risked feasibility study for the construction of Licella's first pre-commercial module in Australia to produce 125,000 barrels of biocrude oil per annum.	Sydney (NSW)	$5,423,155	Bioenergy	On track
Muradel Pty Ltd	Commercialise biofuel feedstock by scaling up a demonstration plant for investment readiness by 2014.	Whyalla (SA)	$4,398,000	Bioenergy	On track
Oceanlinx Limited	Design, construct and commission a 1 MW pilot-scale grid-connected WAVE energy demonstration project.	Port MacDonnell (SA)	$3,970,450	Ocean	On track
Qantas Airways Ltd	Conduct a feasibility study to determine the optimum method of producing alternative aviation fuel in Australia.	Multiple sites	$575,000	Bioenergy	On track

DEMONSTRATION					
Project name	Description	Location	Funding amount provided / committed (GST exclusive)	Technology	Assessment of progress or expected progress in the year (see Key)
Renergi Pty Ltd	Demonstrate scale-up to 100 kg/hr novel biomass gasification system with compact design and integrated hot gas cleaning.	Perth (WA)	$3,624,253	Bioenergy	On track
Smart Storage P/L (Ecoult)	Develop the CSIRO's UltraBattery energy storage technology to reduce energy storage and energy system costs in residential areas, remote areas and hybrid diesel systems.	Sydney (NSW)	$480,000	Hybrid/ Enabling	On track
Southern Cross Venture Partners Pty Ltd	Make equity investments in early-stage Australian renewable energy companies to help them overcome capital constraints, develop technologies, increase skills and forge international connections (Softbank China Venture Capital (SBCVC) will match the Australian Government's $100 million investment up front and dollar for dollar).	Sydney (NSW); Silicon Valley, the US; SBCVC's offices in Shanghai	$100,000,000	Renewable energy industry capacity building	On track
Vast Solar Pty Ltd	Validate performance modelling for a 1.2 thermal megawatt (MWth) solar array with a high-temperature receiver and integrated thermal storage.	Jemalong (NSW), Sydney (NSW) and Melbourne (VIC)	$437,243	Solar	On track
Victorian Wave Partners Pty Ltd	Construct 45 powerbuoys and deploy them as a 19 MW demonstration power station.	Portland (VIC)	$66,465,000	Ocean	On track
Total funding for 18 demonstration projects:			**$340,469,901**		

DEPLOYMENT

Project name	Description	Location	Funding amount provided / committed (GST exclusive)	Technology	Assessment of progress or expected progress in the year (see Key)
AGL Energy Ltd	In conjunction with First Solar (Australia) Pty Ltd, construct a 159 MW photovoltaic power plant on two sites near Broken Hill and Nyngan in NSW.	Broken Hill and Nyngan (NSW)	$166,700,000	Solar	On track
Solar Systems Pty Ltd (Silex Systems Ltd)	Construct a 100 MW large-scale solar concentrator power project at Mildura (funding is conditional on the successful completion of a 2 MW pre-production prototype plant, also located in Mildura).	Mildura (VIC)	$75,000,000	Solar	Project approved by Board and announced
Moree Solar Farm Pty Ltd	Construct a 56 MW photovoltaic plant on one site located in Moree, NSW.	Moree (NSW)	$101,680,000	Solar	Project contracted
Total funding for 3 deployment projects:			**$343,380,000**		

KNOWLEDGE MANAGEMENT

Project name	Description	Location	Funding amount provided / committed (GST exclusive)	Technology	Assessment of progress or expected progress in the year (see Key)
Geoscience Australia	Produce solar resource data to be used by solar researchers and the Australian solar power industry.	Multiple sites	$5,000,000	Solar	On track
Australian Energy Technology Assessment (AETA) – 2013 update	Review the O&M cost estimates for renewable energy technologies in the 2012 AETA and update the AETA model to account for any changes to parameters since the release of the 2012 AETA.	Multiple sites	$200,000	Electricity generation	On-track
Australian Liquid Fuel Technology Assessment (ALFTA)	Production of inaugural bottom up cost analysis of a range of liquid fuel technologies including development of free to use spreadsheet model.	Multiple sites	$454,545	Liquid transport fuels	On-track
Engagement with International Energy Agency	Supporting Australian participation in the International Energy Agency's PV Power Systems (PVPS) and Solar Heating and Cooling (SHC) implementing agreements.	Multiple sites	$440,500	Solar	On-track
Total funding for 4 knowledge management projects:			**$6,095,045**		

POSTGRADUATE SCHOLARSHIPS AND FELLOWSHIPS					
University/ institution	Scholar	Type of funding	Funding amount provided/ committed (GST exclusive)	Technology	Assessment of progress or expected progress in the year (see Key)
University of New South Wales	Jonathon Dore	Scholarship	$18,335	Solar	On track
University of New South Wales	Nicholas Boerema	Scholarship	$19,678	Solar	Completed
University of Newcastle	Natalie Holmes	Scholarship	$36,178	Solar	On track
Australian National University	Thomas Ratcliff	Scholarship	$23,552	Solar	On track
University of New South Wales	Xiaojing Hao	Fellowship	$315,015	Solar	On track
University of Melbourne	Wallace Wing Ho Wong	Fellowship	$324,515	Solar	On track
University of South Australia	Ming Liu	Fellowship	$278,136	Solar	On track
Australian National University	Jaret Lee	Scholarship	$26,375	Solar	On track
Monash University	Alex Pascoe	Scholarship	$48,816	Solar	On track
University of Sydney	Bjorn Sturmberg	Scholarship	$43,815	Solar	On track
Royal Melbourne Institute of Technology	Ahmad Mojiri	Scholarship	$39,816	Solar	On track
University of New South Wales	Jae Sung Yun	Scholarship	$53,334	Solar	On track
University of South Australia	Shane Sheoran	Scholarship	$120,000	Solar	On track
University of New South Wales	Simon Heslop	Scholarship	$121,321	Solar	On track
Murdoch University	Tobias Prosin	Scholarship	$120,000	Solar	On track
Australian National University	James Bullock	Scholarship	$49,402	Solar	On track
University of Newcastle	Dylan Cuskelly	Scholarship	$48,816	Solar	On track
University of Wollongong	Joseph Giorgio	Scholarship	$48,816	Solar	On track
University of Western Sydney	Guodong Du	Fellowship	$321,768	Solar	On track
Swinburne University	Wensheng Yan	Fellowship	$343,920	Solar	On track

POSTGRADUATE SCHOLARSHIPS AND FELLOWSHIPS					
University/ institution	Scholar	Type of funding	Funding amount provided/ committed (GST exclusive)	Technology	Assessment of progress or expected progress in the year (see Key)
University of New South Wales	Thilini Ishwara	Fellowship	$356,964	Solar	On track
University of Adelaide	Philip van Eyk	Fellowship	$273,856	Solar	On track
Australian National University	Niraj Lal	Fellowship	$325,586	Solar	On track
CSIRO	Kallista Sears	Fellowship	$301,530	Solar	On track
University of Newcastle	Mitchell Wilson	Scholarship	$32,544	Solar	On track
Swinburne University	Ben Ekman	Scholarship	$96,667	Solar	On track
University of New South Wales	Clare Disney	Scholarship	$106,668	Solar	On track
University of New South Wales	Jianshu Han/Allen Barnett	Scholarship	$80,000	Solar	On track
University of New South Wales	Chao Shen	Scholarship	$37,968	Solar	On track
Australian National University	Da Wang	Scholarship	$120,000	Solar	On track
Australian National University	Thomas Allen	Scholarship	$120,000	Solar	On track
University of New South Wales	Vincent Allen	Scholarship	$120,000	Solar	On track
University of Newcastle	Anthony Rawson	Scholarship	$46,095	Solar	On track
University of New South Wales	Adrian Shi	Scholarship	$120,000	Solar	On track
University of Melbourne	Kyra Schwarz	Scholarship	$120,000	Solar	On track
University of Sydney	Andrew Danos	Scholarship	$70,000	Solar	On track
University of New South Wales	Robert Patterson	Fellowship	$327,240	Solar	On track
University of New South Wales	Supriya Pillai	Fellowship	$370,288	Solar	On track
Charles Darwin University	Wai Kean Yap	Fellowship	$333,049	Solar	On track
Australian National University	Fiacre Rougieux	Fellowship	$338,351	Solar	On track

POSTGRADUATE SCHOLARSHIPS AND FELLOWSHIPS					
University/ institution	Scholar	Type of funding	Funding amount provided/ committed (GST exclusive)	Technology	Assessment of progress or expected progress in the year (see Key)
Australian National University	Andrew Thomson	Fellowship	$347,054	Solar	On track
University of Western Sydney	Wenxian Li	Fellowship	$284,482	Solar	On track
Australian National University	Ngwe Soe Josh Zin	Fellowship	$378,154	Solar	On track
Australian National University	Elizabeth Thomsen	Fellowship	$357,993	Solar	On track
Swinburne University	Benjamin Mashford	Fellowship	$347,055	Solar	On track
University of South Australia	Nguan Hwee Steven Tay	Fellowship	$289,930	Solar	On track
University of Sydney	Miroslav Dvorak	Fellowship	$352,321	Solar	On track
University of Newcastle	Krishna Feron	Fellowship	$333,027	Solar	On track
University of New South Wales	Henner Kampwerth	Fellowship	$403,315	Solar	On track
Australian National University	Andreas Fell	Fellowship	$420,270	Solar	On track
University of New South Wales	Matthew Edwards	Fellowship	$422,138	Solar	On track
Australian National University	Jose Zapata	Fellowship	$359,654	Solar	On track
CSIRO	Hasitha Weerasinghe	Fellowship	$284,904	Solar	On track
University of New South Wales	Sammy Lee	Fellowship	$330,195	Solar	On track
University of New South Wales	Binesh Puthen Veettil	Fellowship	$330,195	Solar	On track
University of Melbourne	Shuhea Peng	Fellowship	$336,612	Solar	On track
University of New South Wales	Xi Wang	Fellowship	$396,843	Solar	On track
Australian National University	Nicholas Grant	Fellowship	$355,525	Solar	On track
University of Wollongong	Andrew Nattestad	Fellowship	$374,510	Solar	On track

POSTGRADUATE SCHOLARSHIPS AND FELLOWSHIPS					
University/ institution	Scholar	Type of funding	Funding amount provided/ committed (GST exclusive)	Technology	Assessment of progress or expected progress in the year (see Key)
University of Queensland	Ajay K Pandey	Fellowship	$349,864	Solar	On track
Australian National University	Katherine Booker	Fellowship	$356,749	Solar	On track
University of New South Wales	Xinbo Yang	Fellowship	$370,622	Solar	On track
University of Melbourne	Viktoras Dryza	Fellowship	$370,622	Solar	On track
University of Queensland	Yuan Fang	Fellowship	$349,864	Solar	On track
University of South Australia	Martin Belusko	Fellowship	$394,585	Solar	On track
Australian National University	Qunyu Bi	Fellowship	$356,749	Solar	On track
University of New South Wales	Bernard Mitchell	Fellowship	$330,195	Solar	On track
University of New South Wales	Hangtao Cui Bi	Fellowship	$330,195	Solar	On track
University of New South Wales	Craig Johnson	Fellowship	$216,241	Solar	On track
University of New South Wales	Yang Yang	Fellowship	$330,195	Solar	On track
University of New South Wales	Murad Tayebjee	Fellowship	$330,195	Solar	On track
CSIRO	Tianshi Qin	Fellowship	$329,231	Solar	On track
University of New South Wales	Peerapat Vithayasrichareon	Fellowship	$396,843	Solar	On track
CSIRO	Timothy Jones	Fellowship	$329,231	Solar	On track
University of New South Wales	Zi Ouyang	Fellowship	$391,717	Solar	On track
University of New South Wales	Simon Chung	Scholarship	$40,680	Solar	On track
University of New South Wales	Alexander To	Scholarship	$46,041	Solar	On track
University of New South Wales	Gough Lui	Scholarship	$27,816	Solar	On track
University of Sydney	Tom Keevers	Scholarship	$32,544	Solar	On track

POSTGRADUATE SCHOLARSHIPS AND FELLOWSHIPS					
University/ institution	Scholar	Type of funding	Funding amount provided/ committed (GST exclusive)	Technology	Assessment of progress or expected progress in the year (see Key)
University of New South Wales	Edward Law	Scholarship	$46,041	Solar	On track
University of Sydney	Alexandre La Fontaine	Scholarship	$120,000	Solar	On track
Australian National University	Keith Sue	Scholarship	$120,000	Solar	On track
University of New South Wales	Sisi Wang	Scholarship	$31,041	Solar	On track
CSIRO	Benjamin Duck	Researcher Exchange	$109,081	Solar	On track
CSIRO	Jacek Jasieniak	Researcher Exchange	$83,512	Solar	On track
Wizard Power	Christopher Felix Venn	Researcher Exchange	$7,000	Solar	Completed
AE Comm	Dr Jenny Riesz	Researcher Exchange	$7,000	Solar	On track
University of South Australia	Ming Liu	Researcher Exchange	$7,000	Solar	On track
Powerark Solar	NA	Work Experience Program	$5,000	Solar	On track
FRV Services Australia	NA	Work Experience Program	$5,000	Solar	On track
Regen Power	NA	Work Experience Program	$5,000	Solar	On track
BlueScope Steel	NA	Work Experience Program	$5,000	Solar	On track
Solgen Energy	NA	Work Experience Program	$5,000	Solar	On track
Granite Power	NA	Work Experience Program	$5,000	Solar	On track
Vast Solar	NA	Work Experience Program	$15,000	Solar	On track
Global Sustainable Energy Solutions	NA	Work Experience Program	$10,000	Solar	On track
Total funding for 96 postgraduate scholarships and fellowships:			**$19,129,054**		

NA = Not applicable

Assessment key

Complete: All outcomes have been delivered and final payments made.

On track: Project is on track; there is only a low risk that the outcomes will not be delivered.

Delayed: Progress is off track and/or there is a medium to high level of risk that the outcomes will not be delivered.

Discontinued: Project has been terminated.

Project contracted: Funding agreement has been entered into.

APPENDIX C

SPATIAL REPORTING

APPENDIX C—SPATIAL REPORTING

As part of an agreement between independent members of parliament and the Australian Government, the Department of Finance and Deregulation was tasked with the development of a spatial accounting model. The model was developed to provide better visibility of government expenditure in regional Australia.

The first phase of this model was implemented in the 2011–12 Budget as part of the *Investing in Australia's Regions* Ministerial statement, and enhanced reporting was implemented in the 2012–13 Budget as part of the *Stronger Regions, Stronger Nation* Ministerial Statement.

Agencies identified (including ARENA) are required to report on actual spatial information (i.e. ex-post) in their annual reports from 2012–13. Table 8 sets out ARENA's report for 2012–13.

Table 8 Expenditure disaggregated for spatial accounting, 2012–13

PROGRAM	CATEGORY	BUDGET ESTIMATE 2012–13 $m (a)	ACTUAL EXPENSES 2012–13 $m (b)	VARIATION $m (a) – (b)
Australian Renewable Energy Agency (ARENA)—Departmental				
	Regional	69	25	44
	Non-regional	21	25	(4)
	Non-specific	195	1	194
	Total	**285**	**51**	**242**

Note: As at the 2012–13 Budget, financial assistance expenditure was estimated to be $285 million. The 2012–13 estimated actuals for financial assistance expenditure was varied down to $124.1 million in the 2013–14 Budget. The $124.1 million is a component of the $128.6 million disclosed in the Budget 2012–13 column of Table 4 of this report. The actual expenses of $51 million are consistent with Note 3C in the Notes to the Financial Statements (Appendix D).

Explanation

The regional variation was largely the result of slippage in a number of project milestones. Some non-regional expenses were not accounted for in Budget estimates. In respect of non-specific items, the Budget estimate included funding allocated to new programs and initiatives.

APPENDIX D

FINANCIAL STATEMENTS

APPENDIX D—FINANCIAL STATEMENTS

Australian National
Audit Office

INDEPENDENT AUDITOR'S REPORT

To the Minister for Industry

I have audited the accompanying financial statements of the Australian Renewable Energy Agency for the year ended 30 June 2013, which comprise: a Statement by the Chair of the Board, Chief Executive and Chief Financial Officer; the Statement of Comprehensive Income; Balance Sheet; Statement of Changes in Equity; Cash Flow Statement; Schedule of Commitments; and Notes comprising a Summary of Significant Accounting Policies and other explanatory information.

Directors' Responsibility for the Financial Statements

The directors of the Australian Renewable Energy Agency are responsible for the preparation of the financial statements that give a true and fair view in accordance with the Finance Minister's Orders made under the *Commonwealth Authorities and Companies Act 1997*, including the Australian Accounting Standards, and for such internal control as is necessary to enable the preparation of the financial statements that give a true and fair view and are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

My responsibility is to express an opinion on the financial statements based on my audit. I have conducted my audit in accordance with the Australian National Audit Office Auditing Standards, which incorporate the Australian Auditing Standards. These auditing standards require that I comply with relevant ethical requirements relating to audit engagements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgement, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the Australian Renewable Energy Agency's preparation of the financial statements that give a true and fair view in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Australian Renewable Energy Agency's internal control. An audit also includes evaluating the appropriateness of the accounting policies used and the reasonableness of accounting estimates made by the directors, as well as evaluating the overall presentation of the financial statements.

I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my audit opinion.

GPO Box 707 CANBERRA ACT 2601
19 National Circuit BARTON ACT
Phone (02) 6203 7300 Fax (02) 6203 7777

Independence

In conducting my audit, I have followed the independence requirements of the Australian National Audit Office, which incorporate the requirements of the Australian accounting profession.

Opinion

In my opinion, the financial statements of the Australian Renewable Energy Agency:

(a) have been prepared in accordance with the Finance Minister's Orders made under the *Commonwealth Authorities and Companies Act 1997*, including the Australian Accounting Standards; and

(b) give a true and fair view of the matters required by the Finance Minister's Orders including the Australian Renewable Energy Agency's financial position as at 30 June 2013 and of its financial performance and cash flows for the year then ended.

Australian National Audit Office

Kristian Gage
Audit Principal

Delegate of the Auditor-General

Canberra
25 September 2013

AUSTRALIAN RENEWABLE ENERGY AGENCY
STATEMENT BY THE CHAIR OF THE BOARD, CHIEF EXECUTIVE OFFICER AND CHIEF FINANCIAL OFFICER

In our opinion, the attached financial statements for the year ended 30 June 2013 are based on properly maintained financial records and give a true and fair view of the matters required by the Finance Minister's Orders made under the *Commonwealth Authorities and Companies Act 1997*, as amended.

In our opinion, at the date of this statement, there are reasonable grounds to believe that the agency will be able to pay its debts as and when they become due and payable.

This statement is made in accordance with a resolution of the directors.

Signed	Signed	Signed
Gregory Bourne	Ivor Frischknecht	Ian Kay
Chair	Chief Executive	Chief Financial Officer
25 September 2013	25 September 2013	25 September 2013

AUSTRALIAN RENEWABLE ENERGY AGENCY

Statement of Comprehensive Income for the period ended 30 June 2013

	Notes	2013 $'000
EXPENSES		
Employee benefits	3A	**850**
Suppliers	3B	**12,315**
Grants	3C	**50,924**
Other expenses	3D	**1,751**
Total expenses		**65,840**
LESS:		
OWN-SOURCE INCOME		
Own-source revenue		
Interest	4A	**2**
Total own-source revenue		**2**
Gains		
Other gains	4B	**8,555**
Total gains		**8,555**
Total own-source income		**8,557**
Net cost of services		**57,283**
Revenue from Government	4C	**59,580**
Surplus on continuing operations		**2,297**
Total comprehensive income		**2,297**

The above statement should be read in conjunction with the accompanying notes.

AUSTRALIAN RENEWABLE ENERGY AGENCY

Balance Sheet as at 30 June 2013

	Notes	2013 $'000
ASSETS		
Financial assets		
Cash and cash equivalents	5A	**221**
Trade and other receivables	5B	**5,751**
Other investments	5C	**1,926**
Total financial assets		**7,898**
Non-financial assets		
Intangibles	6A,B	**368**
Total non-financial assets		**368**
Total assets		**8,266**
LIABILITIES		
Payables		
Suppliers	7A	**1,276**
Grants	7B	**4,545**
Other payables	7C	**114**
Total payables		**5,935**
Provisions		
Employee provisions	8A	**34**
Total provisions		**34**
Total liabilities		**5,969**
Net assets		**2,297**
EQUITY		
Retained surplus		**2,297**
Total equity		**2,297**

The above statement should be read in conjunction with the accompanying notes.

AUSTRALIAN RENEWABLE ENERGY AGENCY

Statement of Changes in Equity for the period ended 30 June 2013

	Retained earnings 2013 $'000	Total equity 2013 $'000
Opening balance		
Balance carried forward from previous period	-	**-**
Comprehensive income		
Other comprehensive income	-	**-**
Surplus for the period	2,297	**2,297**
Total comprehensive income	2,297	**2,297**
Closing balance as at 30 June	2,297	**2,297**

The above statement should be read in conjunction with the accompanying notes.

AUSTRALIAN RENEWABLE ENERGY AGENCY

Cash Flow Statement for the period ended 30 June 2013

	Notes	2013 $'000
OPERATING ACTIVITIES		
Cash received		
Receipts from Government		**56,194**
Interest		**2**
Net GST received		**2,596**
Total cash received		**58,792**
Cash used		
Employees		**(702)**
Suppliers		**(3,725)**
Grants		**(50,096)**
Total cash used		**(54,523)**
Net cash from operating activities	9	**4,269**
INVESTING ACTIVITIES		
Cash used		
Purchase of intangibles		**(368)**
Investments		**(3,677)**
Total cash used		**(4,045)**
Net cash used by investing activities		**(4,045)**
FINANCING ACTIVITIES		
Cash used		
Deposits held		**(3)**
Total cash used		**(3)**
Net cash used by financing activities		**(3)**
Net increase in cash held		**221**
Cash and cash equivalents at the beginning of the reporting period		**-**
Cash and cash equivalents at the end of the reporting period	5A	**221**

The above statement should be read in conjunction with the accompanying notes.

AUSTRALIAN RENEWABLE ENERGY AGENCY
Schedule of Commitments as at 30 June 2013

	2013 $'000
BY TYPE	
Commitments receivable	
Net GST recoverable on commitments[1]	**(65,164)**
Total commitments receivable	**(65,164)**
Commitments payable	
Other commitments	
Project commitments[2]	**670,923**
Research and development commitments[2]	**151,998**
Other commitments	**12,955**
Total commitments payable	**835,876**
Net commitments by type	**770,712**
BY MATURITY	
Commitments receivable	
GST recoverable on commitments[1]	
One year or less	**(47,430)**
From one to five years	**(15,519)**
Over five years	**(2,215)**
Total commitments receivable	**(65,164)**
Commitments payable	
Project commitments[2]	
One year or less	**496,931**
From one to five years	**161,900**
Over five years	**12,092**
Total project commitments	**670,923**
Research and development commitments[2]	
One year or less	**69,685**
From one to five years	**58,036**
Over five years	**24,277**
Total research and developement commitments	**151,998**
Other commitments	
One year or less	**7,895**
From one to five years	**4,440**
Over five years	**620**
Total other commitments	**12,955**
Total commitments payable	**835,876**
Net commitments by maturity	**770,712**

1. Commitments were GST inclusive where relevant.

2. The Australian Renewable Energy Agency is currently providing financial assistance to a broad portfolio of projects and measures across the various stages of renewable energy commercialisation. Project commitments are in accordance with signed funding agreements, as varied, or in the case of fellowships and scholarships, in accordance with the grant offer letter.

Table of contents: Notes

Note 1: Summary of significant accounting policies

1.1 Objectives of the Australian Renewable Energy Agency

The Australian Renewable Energy Agency (ARENA) is an Australian Government controlled entity established on 1 July 2012 as an independent statutory authority under the *Commonwealth Authorities and Companies Act 1997* (CAC Act). ARENA has a standing appropriation set out in its legislation. ARENA operates primarily under the following legislation:

- *Australian Renewable Energy Agency Act 2011*;
- *Australian Renewable Energy Agency (Consequential Amendments and Transitional Provisions) Act 2011*; and
- Australian Renewable Energy Agency Determination No. 2 of 2012.

ARENA is governed by an independent, decision-making Board. The members of the Board draw together skills in renewable energy technology, commercialisation, business investment and corporate governance to provide independent and expert administration of ARENA funds.

ARENA is a portfolio agency of the Department of Resources, Energy and Tourism (RET). Under the *Australian Renewable Energy Agency Act 2011* the Secretary of RET is required to make staff available to ARENA and pay associated costs.

ARENA is a not-for-profit entity. The objective of ARENA is to improve the competitiveness of renewable energy technologies and increase the supply of renewable energy in Australia.

ARENA is structured to meet the following outcome:

> Outcome 1: Support improvements in the competitiveness of renewable energy and related technologies and the supply of renewable energy by administering financial assistance, developing analysis and advice about and sharing information and knowledge with regard to, renewable energy and related technologies.

The continued existence of ARENA in its present form and with its present programs is dependent on:

- Government policy;
- continued funding under the legislation for the ARENA's administration and programs; and
- the Secretary of RET making sufficient staff available.

From ARENA's commencement on 1 July 2012, the agency became responsible for the administration of committed projects and measures from initiatives formerly administered by the Australian Centre for Renewable Energy (ACRE) and RET. Projects from the following former programs became the responsibility of ARENA:

- Emerging Renewables Program;
- Renewable Energy Venture Capital Fund;

Note 1: Summary of significant accounting policies (continued)

- Solar Flagships Program;
- Geothermal Drilling Program;
- Renewable Energy Demonstration Program;
- Second Generation Biofuels;
- Australian Biofuels Research Institute; and
- Low Emissions Technology Demonstration Program (one project only).

1.2 Basis of preparation of the financial statements

The financial statements are general purpose financial statements and are required by clause 1(b) of Schedule 1 to the CAC Act.

The financial statements have been prepared in accordance with:

a) Finance Minister's Orders as amended; and

b) Australian Accounting Standards and Interpretations issued by the Australian Accounting Standards Board (AASB) that apply for the reporting period.

The financial statements have been prepared on an accrual basis and in accordance with the historical cost convention, except for certain assets and liabilities at fair value. Except where stated, no allowance is made for the effect of changing prices on the results or the financial position.

The financial statements are presented in Australian dollars and values are rounded to the nearest thousand dollars unless otherwise specified.

Unless an alternative treatment is specifically required by an accounting standard or the FMOs, assets and liabilities are recognised in the balance sheet when and only when it is probable that future economic benefits will flow to the entity or a future sacrifice of economic benefits will be required and the amounts of the assets or liabilities can be reliably measured. However, assets and liabilities arising under executory contracts are not recognised unless required by an accounting standard. Liabilities and assets that are unrecognised are reported in the schedule of commitments or the schedule of contingencies.

Unless alternative treatment is specifically required by an accounting standard, income and expenses are recognised in the Statement of Comprehensive Income when and only when the flow, consumption or loss of economic benefits has occurred and can be reliably measured.

1.3 Significant accounting judgements and estimates

No accounting assumptions and estimates have been identified that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next reporting period.

Note 1: Summary of significant accounting policies (continued)

1.4 New Australian Accounting Standards

Adoption of new Australian Accounting Standard requirements

No accounting standard has been adopted earlier than the application date as stated in the standard.

A number of new standards (including reissued standards) and interpretations that were issued prior to the signing of the financial statements by the Chief Executive and Chief Financial Officer and are applicable to the current reporting period did not have a material financial impact, and are not expected to have a future material financial impact on ARENA.

Future Australian Accounting Standard requirements

The following new standards/revised standards/interpretations/amending standards were issued by the Australian Accounting Standards Board prior to the sign-off date, which are expected to have a financial impact on ARENA for future reporting periods:

- AASB 9 *Financial Instruments*;
- AASB 13 *Fair Value Measurement*;
- AASB 2011-8 Amendments to Australian Accounting Standards arising from AASB 13 [AASB 1, 2, 3, 4, 5, 7, 9, 2009-11, 2010-7, 101, 102, 108, 110, 116, 117, 118, 119, 120, 121, 128, 131, 132, 133, 134, 136, 138, 139, 140, 141, 1004, 1023 & 1038 and Interpretations 2, 4, 12, 13, 14, 17, 19, 131 & 132];
- AASB 1055 *Budgetary Reporting*; and
- AASB 2013-3 *Amendments* to AASB 136 *Recoverable Amount Disclosures for Non-Financial Assets*.

Other new standards/revised standards/interpretations/amending standards that were issued prior to the sign-off date and are applicable to the future reporting period are not expected to have a future financial impact on ARENA.

1.5 Revenue

Interest revenue is recognised using the effective interest method as set out in AASB 139 *Financial Instruments: Recognition and Measurement*.

Revenue from Government

Funding received or receivable from RET (appropriated to the agency as a CAC Act body payment item for payment to ARENA) is recognised as Revenue from Government unless the funding is in the nature of an equity injection or a loan.

An amount of $278,892,619.29 was, by a determination made by the Finance Minister dated 25 June 2013 under section 64(3) and (4), added to the table in section 64(1) of the *Australian Renewable Energy Agency Act 2011*.

Note 1: Summary of significant accounting policies (continued)

This determination amount was part of the balance standing to the credit of the Clean Energy Initiative Special Account within RET and represented post 1 July 2012 funding for projects transferred to ARENA.

Governance and management of the Australian Solar Institute (ASI) funding agreements transferred to ARENA on 1 January 2013.

Under Schedule 2 of the *Australian Renewable Energy Agency (Consequential Amendments and Transitional Provisions) Act 2011* the assets and liabilities of ASI, under the transferred ASI Limited funding agreements, cease to be assets and liabilities of ASI and became assets and liabilities of ARENA. An amount of $88,180,950.24 equivalent to the ASI closing cash at bank was added to the table in section 64(1) of the *Australian Renewable Energy Agency Act 2011*, pursuant to section 64(5).

1.6 Gains

Resources received free of charge

Resources received free of charge are recognised as gains when a fair value can be reliably determined and the services would have been purchased if they had not been donated. Use of those resources is recognised as an expense.

Resources received free of charge are recorded as either revenue or gains depending on their nature.

1.7 Employee benefits

Liabilities for 'short-term employee benefits' (as defined in AASB 119 *Employee Benefits*) and termination benefits due within twelve months of the end of reporting period are measured at their nominal amounts.

The nominal amount is calculated with regard to the rates expected to be paid on settlement of the liability.

Leave

The liability for employee benefits includes provision for annual leave and long service leave. No provision has been made for sick leave as all sick leave is non-vesting and the average sick leave taken in future years by employees of ARENA is estimated to be less than the annual entitlement for sick leave.

The leave liabilities are calculated on the basis of employees' remuneration at the estimated salary rates that will be applied at the time the leave is taken, including ARENA's employer superannuation contribution rates to the extent that the leave is likely to be taken during service rather than paid out on termination.

Note 1: Summary of significant accounting policies (continued)

The liability for long service leave has been determined by reference to the Short Hand Method as per the FMOs. The estimate of the present value of the liability takes into account attrition rates and pay increases through promotion and inflation.

Superannuation

ARENA's staff are members of defined contribution schemes.

The liability for superannuation recognised as at 30 June represents outstanding contributions.

1.8 Leases

Operating lease payments are expensed on a straight-line basis which is representative of the pattern of benefits derived from the leased assets.

1.9 Cash

Cash is recognised at its nominal amount. Cash and cash equivalents includes:

a) cash on hand; and

b) demand deposits in bank accounts with an original maturity of 3 months or less that are readily convertible to known amounts of cash and subject to insignificant risk of changes in value.

1.10 Financial assets

ARENA classifies its financial assets in the following categories:

a) available-for-sale financial assets; and

b) loans and receivables.

The classification depends on the nature and purpose of the financial assets and is determined at the time of initial recognition. Financial assets are recognised and derecognised upon trade date.

Available-for-sale financial assets

Available-for-sale financial assets are non-derivatives that are either designated in this category or not classified in any of the other categories.

Available-for-sale financial assets are recorded at fair value. Gains and losses arising from changes in fair value are recognised directly in reserves (equity) with the exception of impairment losses. Interest is calculated using the effective interest method and foreign exchange gains and losses on monetary assets are recognised directly in profit or loss. Where the asset is disposed of or is determined to be impaired, part (or all) of the cumulative gain or loss previously recognised in the reserve is included in surplus and deficit for the period.

Note 1: Summary of significant accounting policies (continued)

Where a reliable fair value cannot be established for unlisted investments in equity instruments, these instruments are valued at cost.

Loans and receivables

Trade receivables and other receivables that have fixed or determinable payments that are not quoted in an active market are classified as 'loans and receivables'. Loans and receivables are measured at amortised cost using the effective interest method less impairment. Interest is recognised by applying the effective interest rate.

Impairment of financial assets

Financial assets are assessed for impairment at the end of each reporting period.

Available for sale financial assets. If there is objective evidence that an impairment loss on an available-for-sale financial asset has been incurred, the amount of the difference between its cost, less principal repayments and amortisation, and its current fair value, less any impairment loss previously recognised in expenses, is transferred from equity to the Statement of Comprehensive Income.

Financial assets held at cost. If there is objective evidence that an impairment loss has been incurred, the amount of the impairment loss is the difference between the carrying amount of the asset and the present value of the estimated future cash flows discounted at the current market rate for similar assets.

1.11 Financial liabilities

Financial liabilities are classified as either financial liabilities 'at fair value through profit or loss' or other financial liabilities. Financial liabilities are recognised and derecognised upon 'trade date'.

Financial liabilities at fair value through profit or loss

Financial liabilities at fair value through profit or loss are initially measured at fair value. Subsequent fair value adjustments are recognised in profit or loss. The net gain or loss recognised in profit or loss incorporates any interest paid on the financial liability.

Other financial liabilities

Other financial liabilities are initially measured at fair value, net of transaction costs. These liabilities are subsequently measured at amortised cost using the effective interest method, with interest expense recognised on an effective yield basis.

The effective interest method is a method of calculating the amortised cost of a financial liability and of allocating interest expense over the relevant period. The effective interest rate is the rate that exactly discounts estimated future cash payments through the expected life of the financial liability, or, where appropriate, a shorter period.

Note 1: Summary of significant accounting policies (continued)

Supplier and other payables are recognised at amortised cost. Liabilities are recognised to the extent that the goods or services have been received (and irrespective of having been invoiced).

1.12 Contingent liabilities and contingent assets

Contingent liabilities and contingent assets are not recognised in the balance sheet but are reported in the relevant schedules and notes. They may arise from uncertainty as to the existence of a liability or asset or represent an asset or liability in respect of which the amount cannot be reliably measured. Contingent assets are disclosed when settlement is probable but not virtually certain and contingent liabilities are disclosed when settlement is greater than remote.

There were no known contingencies as at 30 June 2013.

1.13 Acquisition of assets

Assets are recorded at cost on acquisition except as stated below. The cost of acquisition includes the fair value of assets transferred in exchange and liabilities undertaken. Financial assets are initially measured at their fair value plus transaction costs where appropriate.

Assets acquired at no cost, or for nominal consideration, are initially recognised as assets and income at their fair value at the date of acquisition, unless acquired as a consequence of restructuring of administrative arrangements. In the latter case, assets are initially recognised as contributions by owners at the amounts at which they were recognised in the transferor's accounts immediately prior to the restructuring.

1.14 Property, plant and equipment

Asset recognition threshold

Purchases of property, plant and equipment are recognised initially at cost in the balance sheet, except for purchases costing less than $5,000, which are expensed in the year of acquisition (other than where they form part of a group of similar items which are significant in total).

1.15 Intangibles

ARENA's intangibles comprise internally developed software for internal use. These assets are carried at cost less accumulated amortisation and accumulated impairment losses. The threshold for the recognition is $5,000 for purchased software and $200,000 for internally developed software.

Software is amortised on a straight-line basis over its anticipated useful life. The useful lives of ARENA's software are 3 to 10 years.

All software assets were assessed for indications of impairment as at 30 June 2013.

Note 1: Summary of significant accounting policies (continued)

1.16 Taxation

ARENA is exempt from all forms of taxation except Fringe Benefits Tax (FBT) and the Goods and Services Tax (GST).

Revenues, expenses and assets are recognised net of GST except:

a) where the amount of GST incurred is not recoverable from the Australian Taxation Office; and

b) for receivables and payables.

1.17 Comparatives

ARENA commenced operation on 1 July 2012 and as such there are no comparatives.

Note 2: Events after the reporting period

There was no subsequent event that had the potential to significantly affect the ongoing structure and financial activities of ARENA.

Note 3: Expenses

Note 3A: Employee benefits	**2013 $'000**
Board sitting fees	**214**
Wages and salaries	**504**
Superannuation (defined contribution plans)	**68**
Leave and other entitlements	**64**
Total employee benefits	**850**
Note 3B: Suppliers	
Goods and services	
Audit fees	**114**
Consultants	**1,845**
Insurance	**205**
Travel	**139**
Legal fees	**803**
Service level agreement	**237**
RET support costs (resources received free of charge)[1]	**8,555**
Other	**392**
Total goods and services	**12,290**
Goods and services are made up of:	
Provision of goods – external parties	**24**
Rendering of services – related entities	**9,191**
Rendering of services – external parties	**3,075**
Total goods and services	**12,290**
Other supplier expenses	
Operating lease rentals – external parties:	
Minimum lease payments	**21**
Workers compensation expenses	**4**
Total other supplier expenses	**25**
Total supplier expenses	**12,315**

1. RET support costs represent the costs of staff and associated costs made available by the Secretary of RET (also refer Note 4B).

Note 3: Expenses (continued)

Note 3C: Grants	**2013 $'000**
Public sector:	
Australian Government entities (related entities)	**4,506**
State and territory governments	**75**
Private sector:	
Australian private companies	**4,993**
Australian public companies	**32,193**
Individual/sole traders	**19**
International organisations	**1,433**
Other incorporated entities	**7,705**
Total grants	**50,924**

Note 3D: Other expenses	
Change in the value of investment	**1,751**
Total other expenses	**1,751**

Note 4: Income

OWN-SOURCE REVENUE	2013 $'000
Note 4A: Interest	
Deposits	2
Total interest	2
GAINS	
Note 4B: Other gains	
Resources received free of charge – services	8,555
Total other gains	8,555
REVENUE FROM GOVERNMENT	
Note 4C: Revenue from Government	
Department of Resources, Energy and Tourism:	
CAC Act body payment item	59,580
Total revenue from Government	59,580

Note 5: Financial assets

Note 5A: Cash and cash equivalents	**2013 $'000**
Cash on hand or on deposit	**221**
Total cash and cash equivalents	**221**
Note 5B: Trade and other receivables	
Department of Resources Energy and Tourism:	
Receivable	**3,387**
Total receivable from the Department of Resources, Energy and Tourism	**3,387**
Other receivables:	
GST receivable from the Australian Taxation Office	**1,044**
Bond deposits	**3**
Other	**1,317**
Total other receivables	**2,364**
Total trade and other receivables (gross)	**5,751**
Receivables are expected to be recovered in:	
No more than 12 months	**5,751**
More than 12 months	**-**
Total trade and other receivables (gross)	**5,751**
Receivables are aged as follows:	
Not overdue	**5,751**
Note 5C: Other investments	
Other[1]	**1,926**
Total other investments	**1,926**
Total other investments are expected to be recovered in:	
More than 12 months	**1,926**

1. REVC Fund Commonwealth Participation Trust

ARENA holds 4,639,502 fully paid 'A' class units in the REVC Fund Commonwealth Participation Trust (the Trust). The fair value of this investment is ARENA's share of the net assets of the audited Trust. The change in the value of the investment is shown in the Statement of Comprehensive Income (refer to Note 3D).

The principal activity of the Trust is to invest in early stage renewable energy companies.

ARENA's return from the Trust is limited to the capital committed plus interest at the long-term bond rate. Following this, any additional returns of the Trust is split amongst unit holders on an agreed basis.

Note 6: Non-financial assets

Note 6A: Intangibles	**2013 $'000**
Computer software:	
Internally developed – in progress	**368**
Total computer software	**368**
Total intangibles	**368**

No amortisation was expensed during the year as the computer software was work in progress.

No intangibles are expected to be sold or disposed of within the next 12 months.

Note 7: Payables

Note 7A: Suppliers	**2013 $'000**
Trade creditors and accruals	**1,276**
Total supplier payables	**1,276**
Supplier payables expected to be settled within 12 months:	
Related entities	**729**
External parties	**547**
Total supplier payables	**1,276**

Settlement was usually made within 30 days.

Note 7B: Grants	
Grants	**4,545**
Total grant payables	**4,545**
Grant payables expected to be settled within 12 months:	
Related entities	**3,221**
External parties	**1,324**
Total grant payables	**4,545**

Settlement was usually made within 30 days.

Note 7C: Other payables	
Wages and salaries	**106**
Superannuation	**2**
Fringe benefits tax payable	**6**
Total other payables	**114**
Total other payables are expected to be settled in:	
No more than 12 months	**114**

Note 8: Provisions

Note 8A: Employee provisions	**2013 $'000**
Leave	**34**
Total employee provisions	**34**
Employee provisions are expected to be settled in:	
No more than 12 months	**29**
More than 12 months	**5**
Total employee provisions	**34**

Note 9: Cash flow reconciliation

Reconciliation of cash and cash equivalents as per Balance Sheet to Cash Flow Statement	**2013 $'000**
Cash and cash equivalents as per:	
Cash flow statement	**221**
Balance sheet	**221**
Difference	**-**
Reconciliation of net cost of services to net cash from operating activities:	
Net cost of services	**(57,283)**
Add revenue from Government	**59,580**
Adjustments for non-cash items	
Change in value of investment	**1,751**
Changes in assets / liabilities	
(Increase) in net receivables	**(5,748)**
Increase in employee provisions	**34**
Increase in supplier payables	**1,276**
Increase in grant payables	**4,545**
Increase in other payable	**114**
Net cash from operating activities	**4,269**

Note 10: Directors' remuneration

The numbers of non-executive directors of the entity included in these figures are shown below in the relevant remuneration bands:	**2013 No.**
$0 to $29,999	**3**
$30,000 to $59,999	**3**
$60,000 to $89,999	**1**
Total	**7**

	$
Total remuneration received or due and receivable by directors of ARENA	**214,182**

Remuneration of executive directors is included in Note 12: Senior executive remuneration.

The Board consists of up to six appointed members and the Portfolio Secretary. Only appointed members are remunerated.

Note 11: Related party disclosures

	2013 $'000
Other transactions with Directors or Director-related entities	
ARENA has a contract for the provision of services in place with SolarFuture Pty Ltd, a director-related entity of Mark Twidell. The contract is to provide high-level advice to assist ARENA to prepare and implement its strategy; manage relationships with key stakeholders; integration of programs and improving business processes.	
Payments to directors/director-related entities	**77**

Note 12: Senior executive remuneration

Note 12A: Senior executive remuneration expenses for the reporting period	**2013 $**
Short-term employee benefits:	
Salary	**292,280**
Annual leave accrued	**27,373**
Other Allowances	**37,148**
Total short-term employee benefits	**356,801**
Post-employment benefits:	
Superannuation	**24,150**
Total post-employment benefits	**24,150**
Other long-term employee benefits:	
Long-service leave	**4,942**
Total other long-term employee benefits	**4,942**
Total senior executive remuneration expenses	**385,893**

1. Note 12A is prepared on an accrual basis.

2. Note 12A excludes acting arrangements and part-year service where total remuneration expensed as a senior executive was less than $180,000.

Note 12: Senior executive remuneration (continued)

Note 12B: Average annual reportable remuneration paid to substantive senior executives during the reporting period

Average annual reportable remuneration paid to substantive senior executives in 2013

Average annual reportable remuneration[1]	Substantive senior executives No.	Reportable salary[2] $	Contributed superannuation[3] $	Reportable allowances[4] $	Total reportable remuneration $
Total reportable remuneration (including part-time arrangements):					
less than $180,000	**3**	**71,982**	**10,724**	**1,679**	**84,385**
$270,000 to $299,999	**1**	**274,984**	**22,106**	**-**	**297,090**
Total number of substantive senior executives	**4**				

Note 12B is prepared on an cash basis.

1. This table reports substantive senior executives who received remuneration during the reporting period.

2. 'Reportable salary' as per the individual's payment summaries includes the following:
   a) gross payments;
   b) reportable fringe benefits (at the net amount prior to 'grossing up' for tax purposes);
   c) exempt foreign employment income; and
   d) salary sacrificed benefits.

3. The 'contributed superannuation' amount is the cost to the entity for the provision of superannuation benefits to substantive senior executives in that reportable remuneration band during the reporting period.

4. 'Reportable allowances' are the average actual allowances paid as per the 'total allowances' line on individuals' payment summaries.

Note 12C: Average annual reportable remuneration paid to other highly paid staff during the reporting period

No other staff were paid above the threshold of $180,000 during the reporting period.

Note 13: Remuneration of auditors

	2013 $'000
The auditor of ARENA is the Australian National Audit Office (ANAO).	
Amounts received or due and receivable by the ANAO for:	
Financial statement audit services for ASI[1]	24
Financial statement audit services for ARENA	90
Total	114

No other services were provided by the ANAO.

Note 1: The Australian Solar Institute (ASI) ceased operation on 31 December 2012 and the entity's functions were transferred to ARENA. As a result ARENA paid the amount of $24,164 for the ANAO audit of ASI financial statements for the period ended 31 December 2012.

Note 14: Financial instruments

Note 14A: Categories of financial instruments	**2013 $'000**
Financial assets	
Loans and receivables:	
Cash and cash equivalents	**221**
Trade and other receivables	**1,320**
Total	**1,541**
Available for sale:	
Investments	**1,926**
Total	**1,926**
Carrying amount of financial assets	**3,467**
Financial liabilities	
At amortised cost:	
Trade creditors	**1,276**
Grant payables	**4,545**
Total	**5,821**
Carrying amount of financial liabilities	**5,821**

Note 14B: Net income and expense from financial assets	
Loans and receivables	
Interest revenue	**2**
Net gain from loans and receivables	**2**
Available for sale	
Fair value changes	**(1,751)**
Net gain/(loss) available for sale	**(1,751)**
Net loss from financial assets	**(1,749)**

Note 14: Financial instruments (continued)

Note 14C: Fair value of financial instruments

	Carrying amount 2013 $'000	Fair value 2013 $'000
Financial assets		
Loans and receivables:		
Cash and cash equivalents	**221**	**221**
Trade and other receivables	**1,320**	**1,320**
Available for sale:		
Investments	**1,926**	**1,926**
Total	**3,467**	**3,467**
Financial liabilities		
At amortised cost:		
Trade creditors	**1,276**	**1,276**
Grant payables	**4,545**	**4,545**
Total	**5,821**	**5,821**

Note 14: Financial instruments (continued)

Note 14D: Credit risk

ARENA was exposed to minimal credit risk as loans and receivables were cash and trade receivables. The maximum exposure to credit risk was the risk that arises from potential default of a debtor. This amount was equal to the total amount of other receivables (2013: $1,320,000).

The entity held no collateral to mitigate against credit risk.

The following table illustrates the entity's gross exposure to credit risk, excluding any collateral or credit enhancements.

	2013 $'000
Financial assets	
Trade and other receivables	**1,320**
Total	**1,320**

Credit quality of financial instruments not past due or individually determined as impaired

	Not past due nor impaired 2013 $'000	Past due or impaired 2013 $'000
Receivables for goods and services	**1,320**	-
Total	**1,320**	-

Ageing of financial assets that were past due but not impaired for 2013

	0 to 30 days $'000	31 to 60 days $'000	61 to 90 days $'000	90+ days $'000	Total $'000
Receivables for goods and services	**1,320**	**-**	**-**	**-**	**1,320**
Total	**1,320**	**-**	**-**	**-**	**1,320**

Note 14: Financial instruments (continued)

Note 14E: Liquidity risk

ARENA's financial liabilities were payables. The exposure to liquidity risk was based on the notion that ARENA will encounter difficulty in meeting its obligations associated with financial liabilities. This was highly unlikely due to government funding mechanisms available to ARENA and internal policies and procedures in place to ensure there were appropriate resources to meet its financial obligations.

Maturities for non-derivative financial liabilities 2013

	On demand $'000	Within 1 year $'000	1 to 2 years $'000	2 to 5 years $'000	> 5 years $'000	Total $'000
Trade creditors	1,276	-	-	-	-	1,276
Grant payables	4,545	-	-	-	-	4,545
Total	5,821	-	-	-	-	5,821

Note 14F: Market risk

ARENA held basic financial instruments that did not expose the entity to certain market risks, such as 'Currency risk' and 'Other price risk'.

Note 15: Financial assets reconciliation

Financial assets	Notes	2013 $'000
Total financial assets as per balance sheet		**7,898**
Less: non-financial instrument components		
Statutory receivables	5B	**(1,044)**
Receivable from portfolio department	5B	**(3,387)**
Total non-financial instrument components		**(4,431)**
Total financial assets as per financial instruments Note 14		**3,467**

Note 16: Compensation and debt relief

Compensation and debt relief

No 'Act of Grace' payments were incurred during the reporting period.

Note 17: Reporting of outcomes

Note 17A: Net cost of outcome delivery

	Outcome 1 2013 $'000	Total 2013 $'000
Departmental		
Expenses	**65,840**	**65,840**
Own-source income	**(8,557)**	**(8,557)**
Net cost of outcome delivery	**57,283**	**57,283**

Outcome 1 is described in Note 1.1. Net costs shown included intra-government costs that were eliminated in calculating the actual Budget Outcome. Refer to Outcome 1 Resourcing table of this annual report.

The face statements of these financial statements represent the major classes of departmental expense, income, assets and liaibilities by outcome and as such they are not repeated in Note 17.

ARENA

REFERENCES

INDEX OF COMPLIANCE WITH ANNUAL REPORT REQUIREMENTS

Australian Renewable Energy Agency Act 2011 (section 70)	For each person to whom financial assistance has been provided, particulars of: ■ name of the person ■ nature and amount of the financial assistance provided or committed ■ renewable energy technology or technologies to which the assistance relates	53–69
	Assessment of the extent to which agreements for the provision of financial assistance entered into during the year have progressed, or are expected to progress, the principle objectives and priorities as stated in the general funding strategy in force for the year	53–69
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	Ministerial requests under s. 11 (Minister requests ARENA to consider funding for specified projects)	37
Australian Renewable Energy Agency (Consequential Amendments and Transitional Provisions) Act 2011 (Schedule 2, Part 2, section 28)	In respect of financial assistance provided under a transferred Commonwealth funding agreement or ASI Limited agreement: ■ name of the person ■ nature and amount of the financial assistance provided or committed ■ renewable energy technology or technologies to which the assistance relates	41, 53–69

Commonwealth Authorities and Companies Act 1997 (section 16; Schedule 1, parts 1 and 2)	Annual Report content requirements:
	■ financial statements prepared by the directors in accordance with the:
	  ■ Commonwealth Authorities (Annual Reporting) Orders 2011—which contain the requirements for the content of the report of operations of a Commonwealth authority for financial years ending on or after 30 June 2005
	  ■ Commonwealth Authorities and Companies Orders (Financial Statements)—which outline the requirements for the preparation of annual financial statements by Commonwealth authorities
	■ Auditor-General's report to the Minister on those financial statements, prepared under Part 2 of Schedule 1
	■ provision of reports, documents and information in relation to ARENA's operations as required by the Finance Minister, including but not limited to annual CAC Act compliance reporting under Finance Circular 2008/05
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Commonwealth Authorities (Annual Reporting) Orders 2011 (*Commonwealth Authorities and Companies Act 1997*)	Directors (para 13) ■ names, qualifications and experience ■ executive director or non-executive director ■ meeting attendance ■ approval and preparation of report of operations (para 6)	iii, 10, 45–48
	Disclosure requirements for government business enterprises (para 20)	Not a GBE
	Exemption from the Orders (para 7)	None
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Commonwealth Authorities (Annual Reporting) Orders 2011 (*Commonwealth Authorities and Companies Act 1997*) *continued*	Judicial decisions and reviews by outside bodies (para 17) ■ decisions of administrative tribunals ■ reports by the Auditor-General, a parliamentary committee, the Commonwealth Ombudsman or the Office of the Australian Information Commissioner	40
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	Organisational structure (para 14)
	■ structure
	■ location/s of operations
	■ statement on governance, including
	  ■ board committees and responsibilities
	  ■ education and performance review processes for directors
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ABBREVIATIONS LIST

ARENA	Australian Renewable Energy Agency
ARENA Act	*Australian Renewable Energy Agency Act 2011*
ASCI	Accelerated Step Change Initiative
ASI	Australian Solar Institute
CAC Act	*Commonwealth Authorities and Companies Act 1997*
CARRE	Regional Australia's Renewables Community and Regional Program
CEO	Chief Executive Officer
CFO	Chief Financial Officer
CRI	Commercial Readiness Index
CSIRO	Commonwealth Scientific and Industrial Research Organisation
CSP	concentrated solar power
Department	Department of Resources, Energy and Tourism
EIF	Education Investment Fund
ERP	Emerging Renewables Program
FOI Act	*Freedom of Information Act 1982*
GST	goods and services tax
I-RAR	Regional Australia's Renewables Industry Program
RAC	Risk and Audit Committee
SHARE	Supporting High-value Australian Renewable Energy Knowledge
TRL	Technical Readiness Level
US	United States
WHS	work health and safety
WHS Act	*Work Health and Safety Act 2011*

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