

Australian Renewable Energy Agency

Parliamentary Inquiry into Funding Australia's Research

July 13, 2018



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INTRODUCTION

ARENA is pleased to make a submission to the *Parliamentary Inquiry into Funding Australia's Research*.

ARENA makes this submission to inform the Inquiry of ARENA's role in energy innovation in Australia; specifically the range of programs, guidelines and methods of assessment of grants that ARENA uses to maximise the impact of funding and prioritise delivery of national priorities and deliver public benefit.

In this submission, ARENA addresses the following term of reference:

'Opportunities to maximise the impact of funding by ensuring optimal simplicity and efficiency for researchers and research institutions while prioritising delivery of national priorities and public benefit.'

EXECUTIVE SUMMARY

ARENA maximises the impact of its funding and prioritises delivery of national priorities and public benefit while ensuring simplicity and efficiency for the funding recipients by:

- Working in partnership - ARENA achieves impact by working in partnership with individuals and organisations across the research sector, industry and government to assist with the transition of Australia's energy system (as part of the global transition to more renewable and therefore, lower emissions energy). Our work addresses the technical, regulatory and commercial factors that play a major role in enabling or slowing change.
- Strategy setting - ARENA develops its investment priorities in close consultation with key industry participants to ensure that its activities will contribute most effectively to enabling the energy transformation. Once approved by ARENA's Board, the investment priorities are implemented through programs, guidelines and project assessment and selection. ARENA will continue to fund high quality R&D and will target its R&D investment to best support the delivery of competitive, secure and reliable electricity for the longer term.
- Project selection and management - ARENA's processes support the selection of projects that align with our investment priorities and minimise administration required of applicants. Elements of the project selection process include development of funding guidelines which guides the submission of an expression of interest and, if successful a full application. Funding applications are assessed by an expert advisory panel.



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Funding agreements with project proponents are managed with the flexibility required to ensure project outcomes are achieved.

- Knowledge Sharing is a key component of ARENA's work, consistent with the ARENA Act. By sharing knowledge, ARENA amplifies the effect of projects, driving improvement and adoption of promising renewable energy technologies and business models. By way of example, ARENA provides funding for the Asia-Pacific Solar Research Conference with the aim of enabling Australian solar research entities to present their research, disseminate knowledge and encourage collaboration.

ABOUT ARENA

The Australian Renewable Energy Agency (ARENA) was established with the aim of improving the competitiveness of renewable energy technologies and increasing the supply of renewable energy in Australia.

ARENA provides financial assistance to support innovation and commercialisation of renewable energy and enabling technologies. This assistance is designed to accelerate the commercialisation of these technologies by helping to overcome technical and commercial barriers.

A key part of ARENA's role is to collect, store and disseminate knowledge gained from the projects and activities it supports for use by the wider industry and Australia's energy market institutions.

WORKING IN PARTNERSHIP

ARENA is one of several government and private sector bodies working towards change in Australia's energy system, covering the technical, regulatory and commercial factors that play a major role in enabling or slowing change. We work in partnership with many organisations to ensure that support for clean energy innovation is collaborative, efficient and is effective in drawing clean energy innovations along the innovation pathway from R&D towards commercialisation.

ARENA works closely with the Clean Energy Finance Corporation (CEFC) and the Department of the Environment and Energy and the Australian Energy Market Operator (AEMO) to make an effective contribution to the Australian Government's desired renewable energy innovation outcomes.

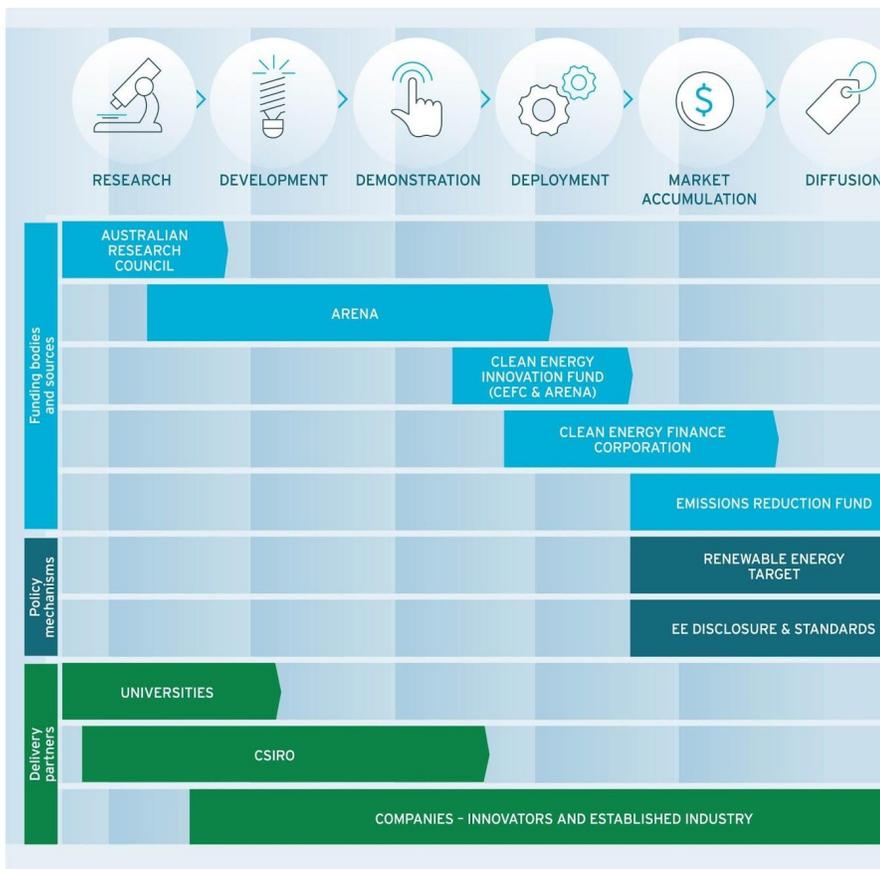


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ARENA focuses on the pre-commercial stages in the innovation chain, including research, development, demonstration and pre-commercial deployment. This focus calls for funding programs that reflect the relatively high risks associated with early stage innovation.

Figure 1 illustrates the role of Australian Government funding agencies and programs in Australia’s energy innovation chain, relative to supporting policy mechanisms and delivery partners.



Source: ARENA General Funding Strategy 2017-2018

ARENA’s support is complementary to that of the Australian Research Council (ARC) at the early stages of the innovation chain (see Figure 1). The ARC supports fundamental and applied research and research training, while ARENA’s support is directed at improving the technology readiness and commercial readiness of early-stage clean energy innovations and drawing them along the innovation pathway towards commercialisation.



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Likewise, the Clean Energy Innovation Fund (CEIF), which has allocated to it up to \$200 million for debt and equity investment in emerging clean energy projects and businesses, draws clean energy innovations towards commercialisation. CEIF, which is jointly managed by ARENA and the CEFC, targets technologies and businesses that have passed beyond the research and development stage, and which can benefit from early stage seed or growth capital to help them progress to the next stage of their development.

ARENA also works closely with AEMO, under a memorandum of understanding (MOU) and associated shared work program, to develop better ways to operate the electricity system with more renewable energy. This joint work will deliver on the COAG Energy Council ministers commitment in December 2016 to accelerate ‘proof of concept’ projects for grid security technologies.

ARENA’s A-Lab is a collaborative platform that creates cross-sector partnerships and world first projects. The forum draws on a network of people with a wide range of expertise and passion to drive systemic change in the electricity sector. A-Lab brings together Australia’s top researchers, energy industry leaders, cleantech innovators, regulators, and energy consumers to design new projects and programs that break ground in energy innovation and lead to real-world solutions, in an environment that encourages constructive engagement and innovative thinking. Since its inception, A-Lab has facilitated partnerships between R&D and industry, effectively driving clean energy innovations towards commercialisation. One example is the Australian National University’s contribution to the decentralised energy exchange (deX). DeX is a prototype online marketplace that will provide a way for households and businesses with rooftop solar and battery storage systems to be paid for allowing electricity network businesses to access their rooftop solar and stored electricity to strengthen the grid.

MISSION INNOVATION CONTRIBUTION

The Australian Government has committed to double Australia’s R&D investment in clean energy by 2020, from a 2015 baseline as part of Australia’s commitment to Mission Innovation.

Mission Innovation is an initiative which will dramatically accelerate global clean energy innovation, and ARENA is a major contributor to Australia’s implementation of this commitment.

ARENA aims to help reach Australia’s target by at least doubling its own investment in 2020/21 (compared with its 2015/16 research and development baseline)

FUNDING PRINCIPLES



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The principles that guide how ARENA provides financial assistance are laid out in its General Funding Strategy (GFS).

ARENA's approach is:

- Targeted for maximum impact
- Technology neutral (within the context of our legislated mandate)
- Responsive and agile
- Diverse
- Commercially focused

The GFS takes account of the Government's priorities as reflected in the Minister's Statement of Expectations.

INVESTMENT APPROACH

ARENA pursues investment priorities that it has identified as likely to have the most impact on achieving its objective (set out in the ARENA Act), and publishes them in our Investment Plan.

In developing these priorities, ARENA takes into account views from a wide range of stakeholders, research and complementary initiatives. The investment priorities enable ARENA to focus its efforts to ensure it achieves impact in the activities it undertakes. ARENA delivers on the investment priorities via programs. ARENA deliberately limits the number of programs that it operates. This reduces administrative overheads but, more importantly, simplifies the application process for project proponents. We have three current funding programs:

- Advancing Renewables Program (ARP)
- Renewable Energy Venture Capital Fund (REVC) and,
- Research and Development Program (R&D) Program.

While the ARP can fund late-stage R&D projects (where the projects meet the eligibility and merit criteria of those programs), ARENA's R&D Program is the primary funding mechanism by which ARENA funds projects at the early stages of the innovation chain. The fund established under the REVC is focused on funding later stage clean energy innovations and does not usually invest at the R&D stage.

RESEARCH AND DEVELOPMENT (R&D) PROGRAM, GUIDELINES AND ASSESSMENT OF APPLICATIONS

Research support is available through ARENA's Research and Development (R&D) Program. ARENA's R&D Program is open to applications from Australia's research institutions and private companies and is run in competitive, technology-specific time-based funding rounds.



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Round-based funding opportunities are best suited to creating competitive tension, helping find the best ideas to progress. They are also a good way for ARENA to pursue specific outcomes. Rounds are developed in consultation with stakeholders across industry, government and the research sector via public workshops, external working groups, webinars, surveys, calls for submissions and A-Lab.

To date, ARENA has provided \$67.7 million via three competitive rounds:

- Solar Excellence (solar PV, concentrated solar thermal and associated enabling technologies such as storage)
- Industry-researcher collaboration and,
- Solar PV

The results of the fourth round - addressing Renewable Hydrogen for Export (with a funding allocation of \$20 million) will be announced later this year.

ARENA has invested a total of \$195 million in R&D projects across all of our programs - past and present since ARENA's establishment on 1 July 2012. ARENA's first three competitive rounds have produced some outstanding results. ARENA funded projects have entrenched Australia's world-leading solar research capabilities, achieving new world records in solar efficiency and supporting nearly 1000 research positions in solar. ARENA funded storage R&D projects include development of advanced lithium-sulphur batteries by the University of Technology, Sydney, establishment of a mobile energy storage test facility at the University of Adelaide, and a number of projects involving CSIRO's patented UltraBattery.

ARENA has also funded two strategic research initiatives (the Australian Centre for Advanced Photovoltaics (ACAP) and the Australian Solar Thermal Research Initiative (ASTRI), which support longer term research and development. Both ACAP and ASTRI provide sustained, collaborative research funds for agreed, strategic goals within specific technology sectors. At present, ARENA has committed \$35.2 million in grant funding for ASTRI, where the total project cost is \$87.5 million, and \$46 million to ACAP, which has a total project cost of \$101.8 million.

ARENA's program guidelines set out eligibility and merit criteria and help ARENA to select high merit projects that align with ARENA's investment priorities (outlined in ARENA's Investment Plan) that reflect Australia's energy policy priorities (set out in the Statement of Expectations). ARENA has made improvements and streamlined the process for applicants applying for ARENA funding. The application process is a short expression of interest followed by full application with applications submitted via ARENA's online ARENANet application portal. This process minimises administration required by applicants. ARENA seeks feedback from applicants to inform continuous improvement of our processes.



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The ARENA Advisory Panel (the Panel) provides technical advice to support the selection of projects for funding by ARENA. The Panel comprises independent technical experts engaged to support the development and assessment of projects and initiatives for funding by ARENA. The Panel provides recommendations to ARENA.

FUNDING AGREEMENTS

ARENA negotiates funding agreements with proponents to maximise the impact of the projects funded while ensuring simplicity and efficiency for the funding recipients. Funding agreements are structured to reduce burdensome administration and reporting and focus on highlighting achievements, progress and lessons learnt. In late 2017 ARENA simplified our standard funding agreement, helping to streamline contract negotiation. ARENA manages funding agreements with the flexibility required to ensure project outcomes are achieved.

Knowledge Sharing is a key component of ARENA's funding agreements, consistent with the ARENA Act. At the R&D end of the innovation chain, researchers already have strong career incentive to publish results. ARENA continues to look for opportunities to further knowledge sharing outcomes by:

- Facilitating Industry/Researcher engagement workshops,
- Encouraging researchers to engage with industry earlier, including presenting at industry level conferences and,
- Encouraging researchers who have successfully reached commercialisation to assist/mentor earlier stage researchers in achieving the same success.

RISK BASED APPROACH TO PROJECT MANAGEMENT

ARENA's client managers are focussed on managing projects to success. Our people are strongly customer- and outcome-focused.

To ensure that we properly balance rigour and efficiency, our client managers are highly skilled at risk-based approaches to project management. ARENA's entire project portfolio is risk-rated and managed accordingly. This maximises the chances of each project succeeding and ensures that we can quickly respond to projects that are not proceeding as planned by either renegotiating or terminating those projects.

ARENA would welcome the opportunity to meet with the Inquiry team and discuss these matters in more detail.

Please feel free to contact us if we can be of any assistance.



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