

ARENA CORPORATE PLAN

2017/18–2020/21



Australian Government
Australian Renewable
Energy Agency

ARENA

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From the Chair

There are still many questions that will shape the future of our energy system: Which new technologies will emerge to provide more efficient and cleaner forms of electricity? How quickly will new types of decentralised energy generation transform our traditional ideas about what a grid should be? And what role will innovative new business models play in this transformation?

While many uncertainties exist, the heightened prominence of energy issues in the national and international discourse shows no signs of abating. People everywhere are focused on finding solutions to the challenges facing our energy system, as well as pursuing exciting new ways of producing and distributing energy. At ARENA, we are helping to find answers to facilitate the challenges and rapid transformations that lie ahead.

ARENA operates at the leading edge of new energy technology, where both risk and potential reward are high. Our role is to choose the best ideas and bring them to life. By choosing wisely, we help accelerate the move to a more secure, reliable and affordable low emissions energy system for our children and their children.

As ARENA approaches this task, we know that success requires us to seize rapidly emerging opportunities and help sow the seeds of long-term structural changes in the energy sector. We will also need to be responsive to broader changes in the energy sector, such as those resulting from the Final Report of the Independent Review into the Future Security of the National Electricity Market (Finkel Review).

Our strong relationships with a wide range of participants in the energy sector enable us to support innovation and facilitate change within the sector and community. This is why, for example, ARENA is working with the Australian Energy Market Operator (AEMO) to support a pilot program to trial and implement demand response measures. The more we can help develop innovative solutions for the market to use, the smoother this journey will be.

To boost our capacity to play this important role, ARENA has worked hard reviewing and refining its strategic direction and the organisation's capacity and capability. Our investment priorities, released in 2017, chart a path to achieving the desired balance of security, reliability, affordability and emissions reduction.

This Corporate Plan describes the significant activities that we will undertake in coming years and the results we expect from these efforts. It builds on our recent success with programs, such as the large-scale solar round, which has unlocked \$1 billion in investment from other sources and has helped launch the large-scale solar industry in Australia.

The plan is intended to provide stakeholders with a clear view of what we are trying to achieve in the near and longer term and to provide them with a means of assessing our progress towards, and the extent to which we have succeeded in, achieving those goals.

In short, it's about ARENA being accountable - to its stakeholders and itself - as we seek to help transform Australia's energy sector.

Statement of preparation

I, as Chair of the Board of the Australian Renewable Energy Agency (the accountable authority) present our four-year Corporate Plan as required under paragraph 35(1)(a) of the Public Governance, Performance and Accountability Act 2013.



Mr Martijn Wilder AM
Chair
(August 2017)

The Corporate Plan is prepared for the reporting period 2017/18 to 2020/21.



It is our job to find Australia's best renewable energy ideas and connect them with the resources they need to help power the nation's future.

About ARENA

It is our job to find Australia's best renewable energy ideas and connect them with the resources they need to help power the nation's future.

ARENA's purpose is to accelerate Australia's shift to an affordable and reliable renewable energy future.

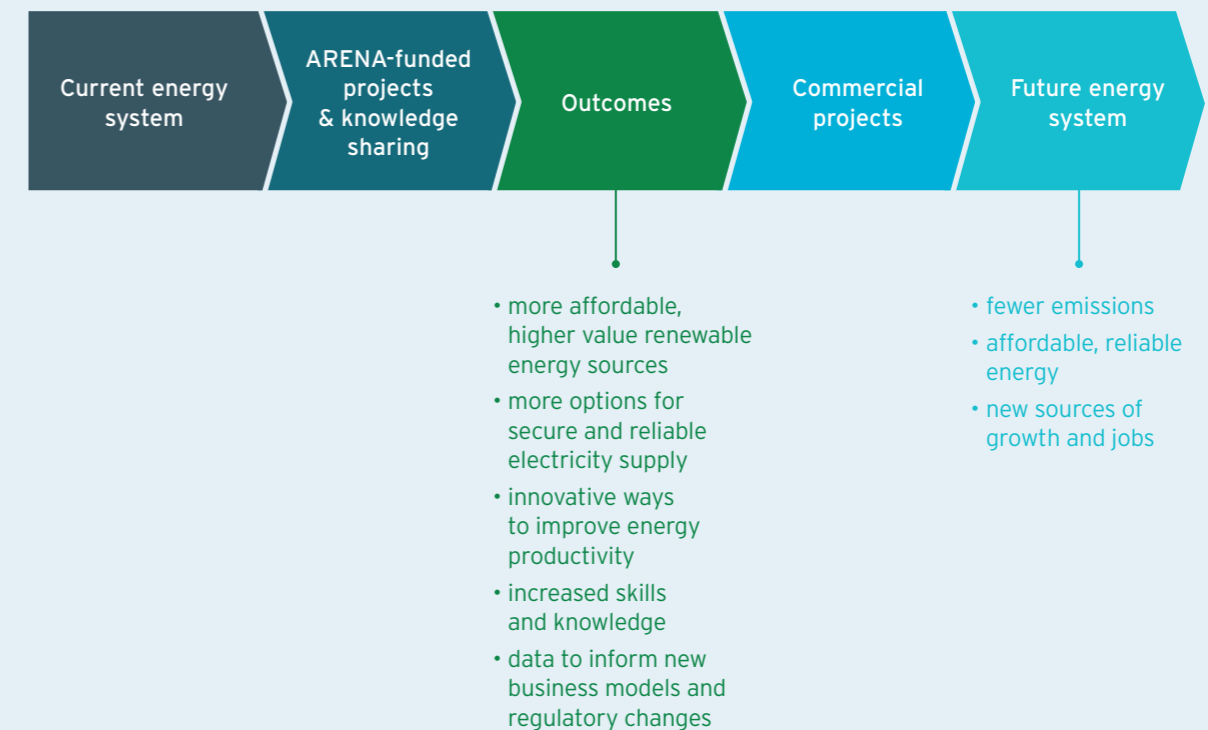
ARENA was established on 1 July 2012 by the Australian Renewable Energy Agency Act 2011 and is funded to 2022.

Our overarching objectives are set out in this Act. They are to:

- Improve the competitiveness of renewable energy technologies
- Increase the supply of renewable energy in Australia.

To learn about our achievements and outcomes to date, read our Annual Report. For more information about our investment priorities, read our Investment Plan. To find out more about ARENA, go to arena.gov.au

Figure 1 – Shaping Australia's future energy system



Our investment approach

Investment in high-quality projects is the foundation of ARENA's work, although our contribution to Australia's energy transformation goes beyond the funds we provide.

ARENA is committed to achieving maximum impact and value from the projects it funds, with minimal capital investment.

We fund projects across the innovation chain - from research to pre-commercial deployment. This funding is focused on finding and demonstrating first-of-a-kind renewable energy solutions, which reduce technical and commercial risks and grow Australia's renewable energy knowledge and expertise. Renewable energy technologies include hybrid, related or enabling technologies. This means ARENA may fund technology solutions such as storage, demand response, energy efficiency, electrification and fuel switching, where they could help grow the supply of renewable energy in the long term.

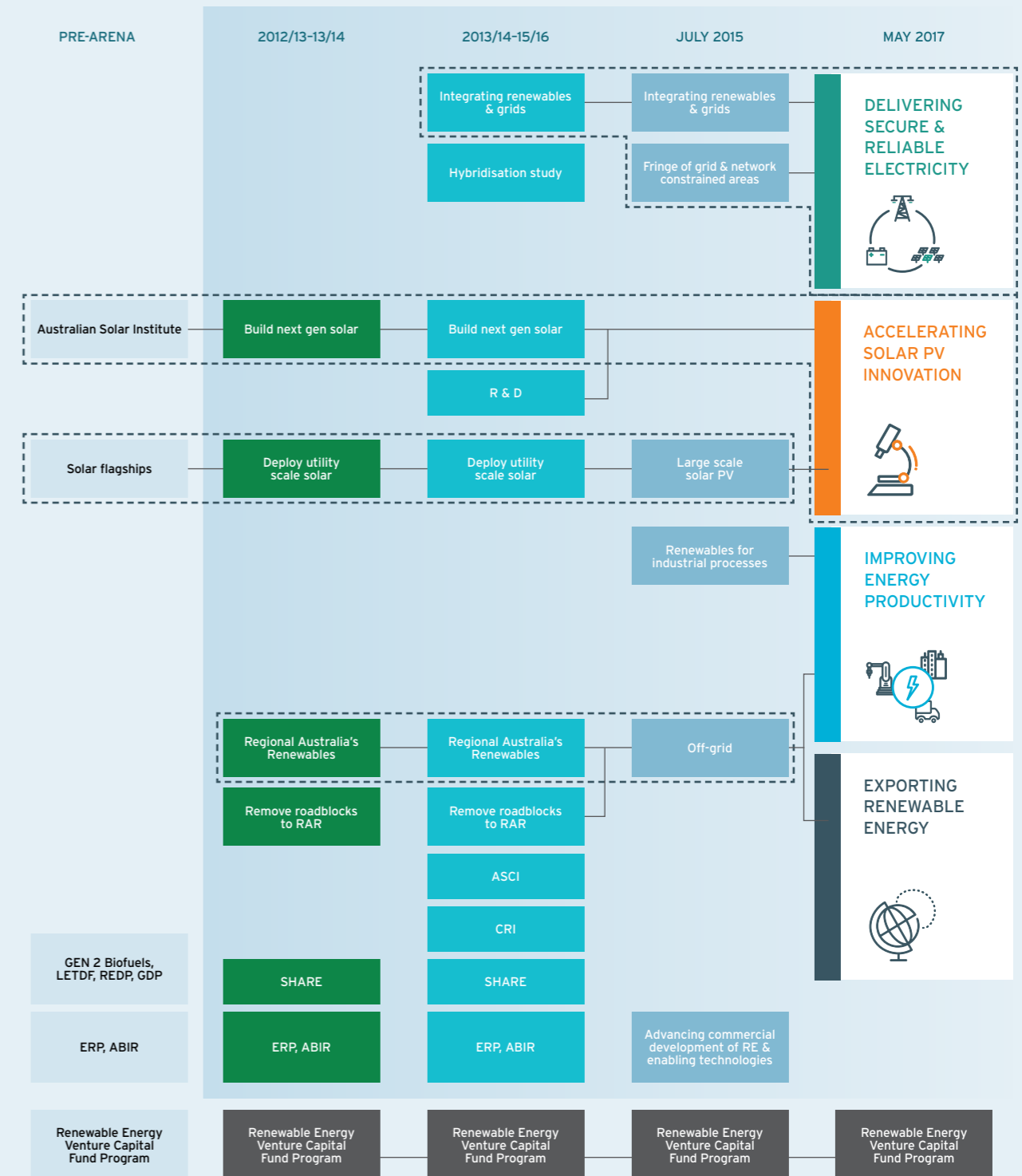
We work with project proponents to set the size and nature of funding and scope a project's value. This includes collaborating with industry, researchers and government to achieve specific outcomes that can be replicated for future projects.

Over the next three years, we will significantly increase the number of projects we fund and the value of our grants, committing most of our available funds to the four investment priorities in our 2017 Investment Plan, Innovating Energy:

- **Delivering secure and reliable electricity**
- **Accelerating solar PV innovation**
- **Improving energy productivity**
- **Exporting renewable energy.**

Funding rounds, broadening the scope of our work and extending our support of promising renewable energy research and commercialisation activities, will be announced on the ARENA website.

Figure 2 – How ARENA's investment priorities have evolved



ASCI: Australian Step Change Initiative SHARE: Supporting High Value Renewable Energy Knowledge Initiative CRI: Commercialisation Readiness Index ERP: Emerging Renewables Program ABIR: Advanced Biofuels Investment Readiness Program GEN 2 Biofuels: Second Generation Biofuels Program REDP: Renewable Energy Development Program GDP: Geothermal Drilling Program LETDF: Low Emissions Technology Demonstration Fund RAR: Regional Australia's Renewables RE: Renewable Energy

Achieving our purpose

ARENA helps accelerate Australia's shift to an affordable and reliable renewable energy future by:

- supporting world-leading Australian research and development (R&D)
- fast-tracking commercialisation of innovative technologies and business models
- building knowledge and evidence to inform decision-making.

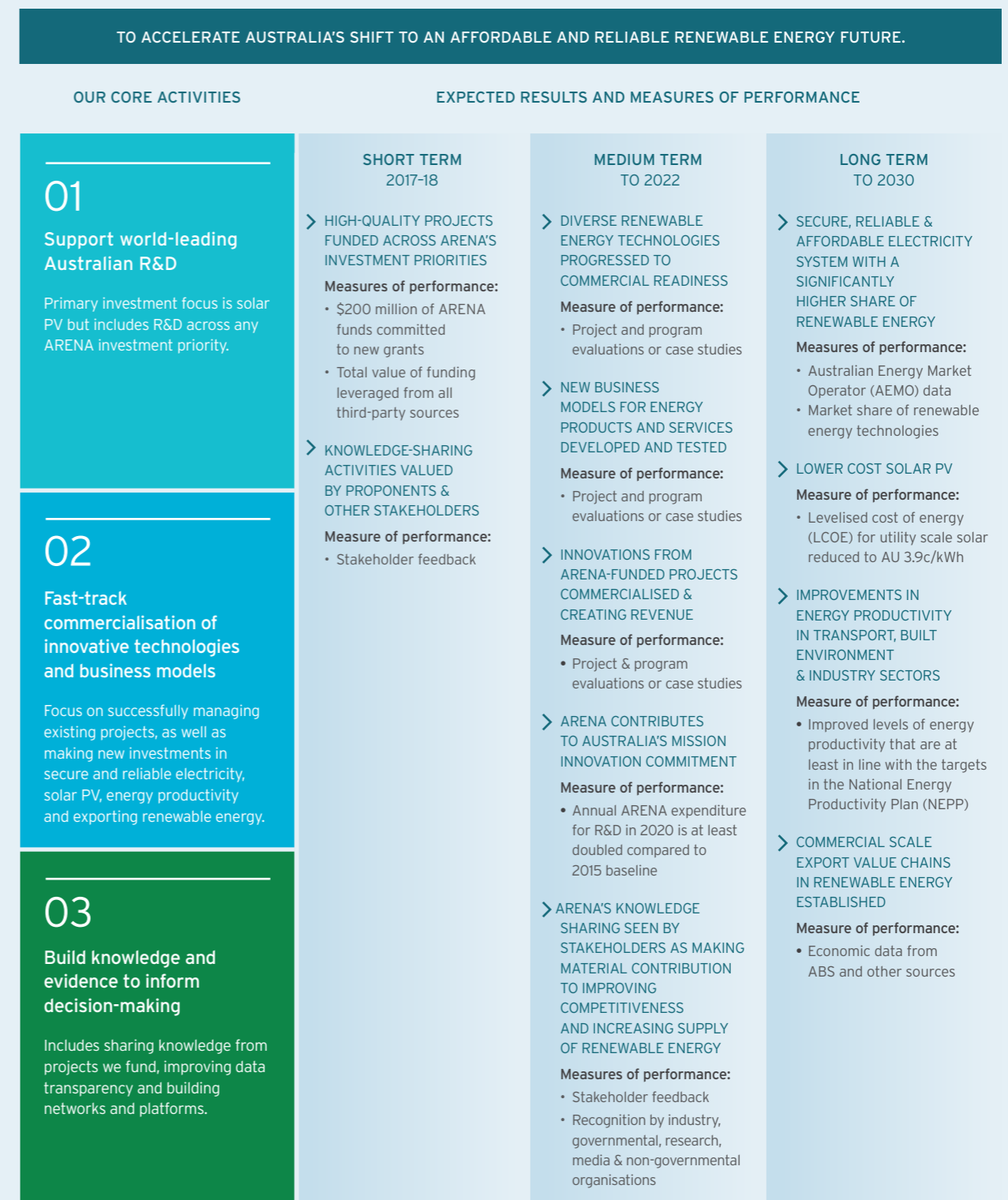
We invest in high-quality projects that align with our 2017 investment priorities and we manage our projects to maximise their contribution to Australia's energy transformation. This includes delivering benefits from existing projects and projects we inherited from before ARENA was established in 2012 by providing financial assistance to extend or complement these projects and sharing the knowledge, experience and expertise we gain.

We expect our activities to have the greatest impact between 2020 and 2040.

Our activities are designed to produce results that will enable and encourage investment in future commercial projects - investment that will lead to lasting change in Australia's energy system. These changes will benefit Australian businesses and families in the short, medium and long term.

Figure 3 sets out our performance framework, which provides an overview of ARENA's activities, the results we expect to achieve and key measures of our success.

Figure 3 - Our performance framework



OUR PLAN ON A PAGE

OUR PURPOSE

To accelerate Australia's shift to an affordable and reliable renewable energy future

OUR CORE ACTIVITIES

Support world leading Australian R&D

Fast-track commercialisation of innovative technologies & business models

Build knowledge & evidence base to inform decision-making

2012 – 2017

2017 – BEYOND

FUNDING PRIORITIES

INTEGRATING RENEWABLES INTO THE GRID

LARGE SCALE SOLAR

OFF GRID & FRINGE OF GRID

DELIVERING SECURE & RELIABLE ELECTRICITY

ACCELERATING SOLAR PV INNOVATION

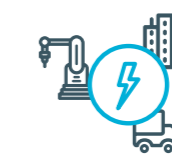
IMPROVING ENERGY PRODUCTIVITY

EXPORTING RENEWABLE ENERGY

FELLOW-SHIPS

SOLAR R&D

INDUSTRIAL PROCESSES



IMPACT

Maturing of utility solar sector, years ahead of schedule

- At least 14 solar cell efficiency world records broken
- Renewable energy off-grid mining solutions leading the world
- Industry enabled to diversify energy use and reduce costs

Delivering affordable low emission electricity solutions that keep the lights on

Making solar PV more efficient and affordable through research and development

Helping reduce energy cost and emissions in the transport, building and industry sectors

Creating new, scalable export value chains in renewable energy

STRATEGIC ENABLERS

Knowledge sharing

Data transparency

Facilitating collaboration

Operating environment

Uncertainty and risk is inherent in the research, development and commercialisation of new energy solutions.

At ARENA, we offset this uncertainty and risk with a diverse investment portfolio, designed to help us take best advantage of future opportunities and different policy and economic circumstances.

We also consider closely various scenarios for technology development, market evolution and emissions reduction trajectories, drawing on initiatives such as the Low Emissions Technology Roadmap (LETR) and CSIRO/ENA Network Transformed Roadmap. We expect that our investment would contribute to the competitiveness of renewables under at least one scenario. These scenarios inform the potential value of our investment, as reflected in the intended results for each investment priority.

We take into account significant market trends as part of our planning, such as those below.

Transitioning energy systems

As Australia transitions to a low emissions economy, the way we produce and use energy will continue to change.

Renewable energy is an essential part of this transition. Its role in the energy mix in Australia and globally is set to continue to grow as a result of technical, economic, social and policy developments, including Australia's ratification, in November 2016, of the Paris Agreement which requires all parties to agree to take action on climate change from 2020.

Australia has set an ambitious target to reduce emissions by 26-28 per cent below 2005 levels by 2030, which builds on our 2020 target of reducing emissions by 5 per cent below 2000 levels.

While ARENA's focus is on developing energy options - including scalable export value chains - to help Australia prosper through the energy transition, our efforts to support Australian companies and researchers will contribute to global improvements in the competitiveness of renewable energy.

Global context

Implementation of the Paris Agreement will require massive investment in low emissions technologies and energy efficiency between now and 2030. This suggests a significant global demand for low emissions technologies, including renewable energy.

ARENA investment has the potential to increase the take-up of Australian-developed technology and intellectual property, helping to meet this global demand.

The Australian Government has also committed to double Australia's R&D investment in clean energy by 2020, from a 2015 baseline, as a signatory to the global Mission Innovation initiative to dramatically accelerate global clean energy innovation.

Domestic context

Australia's energy productivity policies and future emissions reduction policies are expected to change demand for energy, as well as the energy mix. These changes will affect the timeframe in which renewable energy innovations will have the most impact and value in Australia.

The Australian Government also has several policies to help drive supply of, and innovation in, low emissions technology and emissions reduction, including ARENA, the Clean Energy Finance Corporation (CEFC), the Renewable Energy Target and the Emissions Reduction Fund.

Several reviews and inquiries are informing Australian policy in relation to the Paris Agreement and Mission Innovation, or will affect the regulatory landscape. These include the Government's 2017 review of climate change policies and the Independent Review into the Future Security of the National Electricity Market (Finkel Review).

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 resisting change.

We work in partnership with many organisations to ensure that support for clean energy innovation is collaborative, efficient and effective.

We work closely with the CEFC and the Department of the Environment and Energy to make an effective contribution to the Australian Government's desired renewable energy innovation outcomes.

ARENA and the CEFC jointly manage the Clean Energy Innovation Fund (CEIF), which has up to \$200 million available for debt and equity investment in emerging clean energy projects and businesses. This investment is designed to deliver a financial return to taxpayers from projects at the later end of the innovation chain and boost the competitiveness of renewable energy and related technologies.

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.

We work in partnership with many organisations to ensure that support for clean energy innovation is collaborative, efficient and effective.

Our planned activities

Priority 1: Delivering secure and reliable electricity

Delivery strategies

Maximising benefits from existing investments

We have a strong portfolio of projects already under way, which could enable renewable energy to provide affordable, secure and reliable electricity to more Australians into the future.

Our ongoing involvement will give these projects the best chance of success - enabling them to deliver the solutions we need, such as improved grid integration of renewable energy, or contribute new knowledge that can benefit other projects in the pipeline.

We will also continue to support the Australian Solar Thermal Research Initiative (ASTRI), which has shown that solar thermal could contribute to grid security and reliability. This decision is based on the findings of the independent mid-term review of ASTRI and its own stakeholder consultation and analysis. Our goal is to prove the viability of concentrating solar thermal (CST) technology by demonstrating components like high temperature sodium receivers, supercritical CO₂ cycles and modular scalable CST systems. In doing so, we will take an important step towards the establishment of utility-scale facilities, with large-scale storage capabilities, which can offer a secure and reliable long-term electricity supply.

Making new investments

Our new investments will largely focus on demonstrating new ways to deliver security and reliability in grids with high shares of renewable energy and preparing prospective technologies for commercialisation. We will also target our R&D investment - in CST, for instance - to best support the delivery of competitive, secure and reliable electricity.

These investments will be a priority for ARENA, given the need to transition Australia's electricity system to a higher share of low or zero emissions electricity. We will aim to bring forward investment in priority one, with a large share of our commitments to be made in 2017-18.

Our shared work program with AEMO will help focus our efforts where innovation is needed most, starting with the launch of a demand response round for summer 2017-18. In 2017-18, we will also launch a battery round and, potentially, a competitive CST round.

ARENA's innovation lab, A-Lab, will support the development of new projects and provide opportunities to collaborate, improve industry dialogue and share ideas.

Priority 2: Accelerating solar PV innovation

Delivery strategies

Maximising benefits from existing investments

ARENA will continue to support the Australian Centre for Advanced Photovoltaics (ACAP), with a focus on making step-change improvements to PV efficiency, improving capacity, reducing manufacturing and Australian-specific installation costs, and increasing the lifespan of key system components (such as PV modules).

The outcomes of projects funded under ARENA's large-scale solar funding round are also expected to reduce the cost of large-scale solar, increasing the capacity and capabilities of the Australian supply chain and reducing uncertainty for financiers.

Making new investments

Under priority two, ARENA will complete delivery of a solar PV R&D funding round in 2017-18, focused on applied research, proof of concept and component/subsystem validation in a laboratory environment.

Our goal will be to reduce the future cost of solar PV through R&D on:

- established and emerging solar cell technologies, including lower cost materials, and/or improved efficiency and/or stability and/or reliability and/or scalability
- established or emerging solar module technologies, including lower cost materials, and/or improved efficiency and/or reliability and/or durability.

Subsequent funding rounds will be launched in the following two years, with an initial focus on supporting technology commercialisation.

Priority 3: Improving energy productivity

Delivery strategies

Maximising benefits from existing investments

We will manage our existing remote and regional projects closely to help them succeed in encouraging businesses to use renewable energy. An evaluation of the Regional Australia's Renewables (RAR) initiative in 2017-18 will inform our approach to these projects, so we can maximise their contribution to this investment priority. The evaluation will also help us decide if and how we will need to adjust our 'off-grid' strategy.

Making new investments

ARENA is undertaking scoping work to understand where it could best improve energy productivity across industry, the built environment and transport. Prospective areas identified by this scoping work will shape the design and funding of projects in 2017-18. Our commitments under this investment priority will increase significantly in the subsequent two years, as we make new investments and begin to see outcomes from earlier projects.

Priority 4: Exporting renewable energy

Delivery strategies

Maximising benefits from existing investments

Under the Regional Australia's Renewables initiative, ARENA has supported trials of renewable energy solutions, including hybrid systems, which have the potential to increase the proportion of renewable energy in traditional resource exports. The mid-term evaluation of the Regional Australia's Renewables initiative will inform the way we manage our existing projects to create export value chains based on greater use of renewable energy.

Making new investments

In 2017-18, ARENA will likely launch a funding round on hydrogen production, dependent on responses received from a request for information (RFI). Further R&D rounds will be considered as required.

We will also look for opportunities - for example, by funding feasibility studies or demonstration projects - to help build export value chains based on renewable energy.

Strategic enablers

Technological progress and innovation is underpinned by the accumulation and application of knowledge, while open data provides a foundation to improve decision-making and support private sector investment.

At ARENA, we make sure every new project we support improves on the projects that came before it.

Knowledge sharing

By gathering and sharing our data, insight and knowledge about renewable energy, our efforts can help others to overcome barriers to innovation. When the lessons from one project are learned by the entire industry, ARENA can move new technologies towards commercial readiness more quickly and at lower cost, and use limited funds more effectively.

ARENA will continue to improve how we collect, analyse, interpret and disseminate information and knowledge relating to renewable energy technologies and projects.

Data transparency

Improved data availability and transparency contribute to reduced transaction costs at all stages of the innovation chain. Data about renewable energy technologies also contributes to the Government's commitment to open data and to the creation of a strategic national resource.

We will support development of the Australian Renewable Energy Mapping Infrastructure project (AREMI) to make sure it provides businesses, policy-makers and the public with access to more renewable energy data. We will also look for other opportunities to improve the availability and transparency of data for the energy sector.

Facilitating collaboration

By facilitating collaboration and building networks, ARENA can harness knowledge, skills and experience across the energy sector. We can also encourage the sector to think creatively about pooling resources and opportunities to accelerate the cycle of idea creation, testing and application.

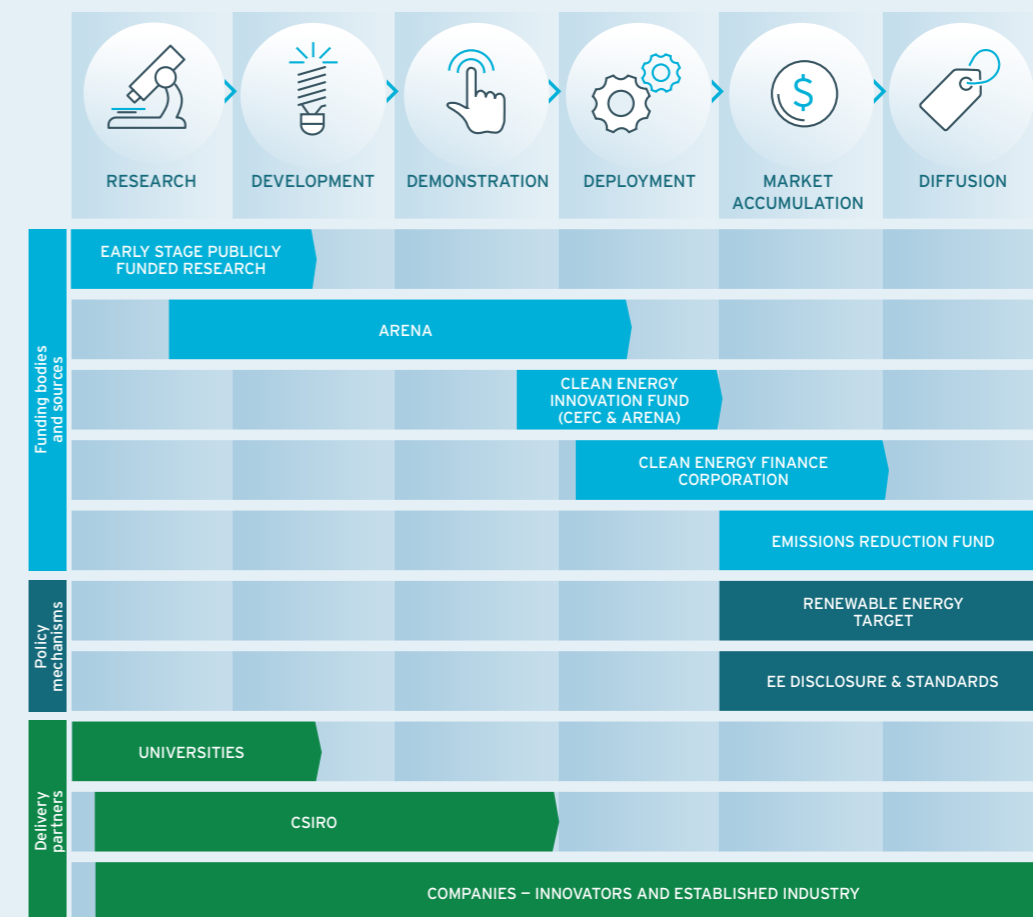
Our unique mix of skills, including those in technology development and financing, enables us to effectively work across the Australian renewable energy innovation chain (as shown in Figure 4).

We work with other Australian government agencies, state and territory governments, industry groups and, where appropriate, international bodies. This includes contributing to programs administered by the Department of the Environment and Energy, which aim to reduce Australia's greenhouse gas emissions and advance renewable energy technology development, and helping state and territory governments to drive innovation in renewable energy. For example, the Queensland Government's reverse auction for solar energy will improve bankability for renewable energy by providing long-term revenue contracts to successful Queensland bidders under ARENA's large scale solar round.

A-Lab is an innovation laboratory that brings together people from across the electricity sector and provides a variety of tools and approaches to facilitate intensive collaboration and the generation of new project ideas. ARENA created A-Lab to provide a mechanism to collaborate in a strategic way, to solve complex problems facing renewable energy integration in the electricity sector in Australia.

We will pursue opportunities to work with, and facilitate collaboration between, energy users and technology providers across our investment priorities.

Figure 4 – ARENA's role across the innovation chain





The ARENA culture emphasises a commercially-oriented, outcome-driven attitude when dealing with stakeholders.

Our capabilities

Our Board (at June 2017)

- Mr Martijn Wilder AM (Chair)
- Dr Gordon de Brouwer PSM (ex-officio)
- Ms Maria Atkinson AM
- Ms Susan Jeanes
- Mr Jonathan Jutsen
- Ms Meg McDonald
- Dr Katherine Woodthorpe AO

Meetings and the operation of the Board are conducted in accordance with the requirements of the legislation applicable to ARENA. The ARENA Board forms subject-specific committees when required.

Risk and Audit Committee

The Risk and Audit Committee provides independent advice to the Board on ARENA's financial reporting, performance reporting, system of risk oversight and management and system of internal control. The Committee also provides a forum for communication between the Board and the internal auditor, and the external auditor (Australian National Audit Office).

ARENA Advisory Panel

The ARENA Advisory Panel provides advice to management to support the development and selection of activities for funding. The panel's role includes assessing funding applications and providing expert specialist advice as required. A current list of panel members is available on the ARENA website.

Executive Leadership Team

ARENA's Chief Executive Officer, Mr Ivor Frischknecht, is supported by an executive team, including a Chief Financial Officer and Chief Operating Officer. A current list of the Executive Leadership Team is available on ARENA's website.

Staff

ARENA has an agile, commercially-oriented and outcome-driven team. This team includes staff made available to ARENA by the Secretary of the Department of the Environment and Energy, under section 62 of the ARENA Act, and consultants and contractors appointed in accordance with the Act.

Culture

The ARENA culture emphasises a commercially-oriented, outcome-driven attitude when dealing with stakeholders. ARENA aims to respond quickly to its stakeholders' needs and changes in the operating environment. In order to serve our stakeholders effectively, we have offices in Sydney and Melbourne, as well as Canberra.

Risk oversight and management

ARENA's governance system is fit-for-purpose and effectively manages risk across all aspects of its operations, in accordance with the Public Governance, Performance and Accountability Act 2013 and other relevant requirements.

Our risk management strategy provides a framework to ensure the rigorous identification and management of risks across ARENA and to maximise opportunities for attainment of business objectives. This includes regularly reviewing our risks (including workplace health and safety risks), controls and mitigation strategies within our operating environment.

Outcomes of operational reviews are considered by our Executive Leadership Team and used to inform our strategic risk profiles. These profiles, and any changes, are provided regularly to the Risk and Audit Committee and the Board as part of a risk report. The Executive Leadership Team and the Board also actively monitor workplace health and safety risks.

Over the period covered by this Corporate Plan, we will maintain our internal control framework, including:

- Policies and procedures that support compliance with legislative and policy requirements
- A positive compliance and management environment, with an effective schedule of delegations
- An internal audit function that seeks to appropriately balance performance and compliance audits
- A risk management framework, including fraud control, risk management plans, security and business continuity management and disaster recovery
- Compliance with Australian Public Service values and Code of Conduct
- Monitoring controls through effective planning and reviews at all levels of the organisation, and ongoing budget management
- Accountability mechanisms, including reports, reviews and individual performance management arrangements.



ARENA's governance system is fit-for-purpose and effectively manages risk across all aspects of its operations

Further information is available at
arena.gov.au

Australian Renewable Energy Agency

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