



Australian Government



Supercharging Australia's cleantech ecosystem

The Clean Energy Innovation Fund is backing specialist investors and incubators in providing industry knowledge and financial backing to innovators and entrepreneurs developing Australia's cleantech industry of the future.



Backing business, and innovation to deliver decarbonisation

The Clean Energy Innovation Fund, investing on behalf of the Australian Government, is Australia's leading cleantech investor. The Fund invests in clean energy technologies and businesses that have passed beyond the research and development stage and require seed or growth capital to progress to the next stage of commercialisation.

An important element of the Innovation Fund investment strategy includes support at the earliest stages of the cleantech ecosystem, through cornerstone and mentoring investments in three cleantech accelerator and incubator programs – Artesian, Tenacious Ventures and Startmate. These specialised programs nurture startups with unique intellectual property and the potential to reach commercial scale. As well as the critical injection of finance, the Innovation Fund and these programs offer a wealth of

corporate experience to guide companies through the often tumultuous first few years, helping spur larger capital raising rounds with domestic and international investors. The Clean Energy Innovation Fund is managed by Virescent Ventures.

Guiding innovator growth

Each program brings its own field expertise to help startups overcome key challenges to growth including:

- Large amounts of capital investment required before a product is brought to market
- A long pathway to deployment for companies developing breakthrough materials
- Matching hardware supply chains and manufacturing to demand.

“

Our activity across the cleantech ecosystem is about supporting deal and investment flow, connecting entrepreneurs, innovators and investors who share a commitment to cutting our carbon footprint.”

Ian Learmonth
CEO, CEFC

~80

cleantech startups

\$18.3m

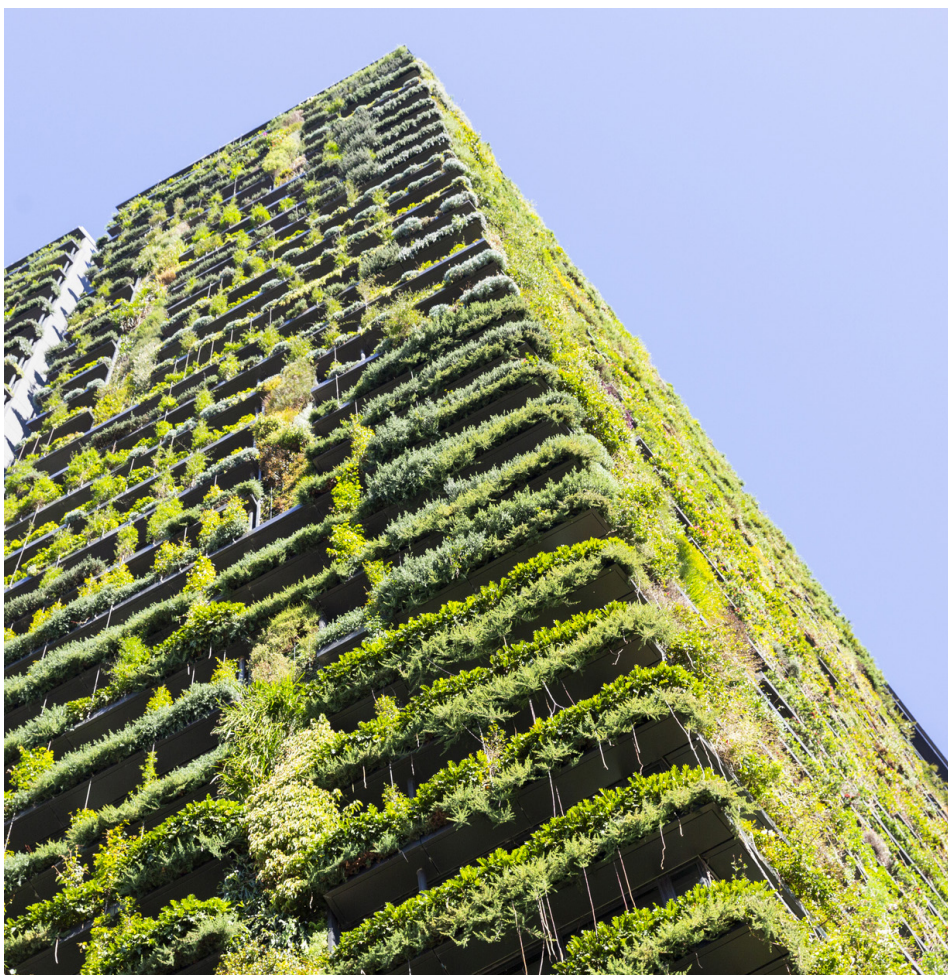
Innovation Fund investment

3





specialist programs

Growing cleantech, cutting emissions

There is no single solution to the complex challenge of cutting emissions across the economy. The Clean Energy Innovation Fund supports cleantech entrepreneurs across a diverse range of businesses and technology, with a particular focus on four priority areas that offer strong commercial opportunities with the potential to substantially reduce emissions.



Cleantech innovators: priority investment areas

Priority	Pathway	Technology
 Clean energy transition	Increasing the adoption and efficient use of low-cost renewable energy through technologies that tap into our vast natural renewable resources.	<ul style="list-style-type: none"> – Smart energy management systems – Decentralised energy generation – Energy storage – Lightweight flexible solar panels
 Food and agriculture	Accelerating the electrification of multiple modes of transportation while improving the energy efficiency of the built environment and focusing on embodied carbon.	<ul style="list-style-type: none"> – Widespread electrification – Smart charging networks – EV battery technologies – e-bikes for commercial purposes – Internet of things technologies
 Mobility and smart cities	Reducing food and land emissions through technologies that enrich and build resilient soils and improve supply chain efficiencies.	<ul style="list-style-type: none"> – Alternative proteins production – Cellular agriculture – Soil carbon technologies – Internet of things technologies
 Circular economy and industry	Improving industrial efficiency, while reusing and recycling materials to address the waste crisis.	<ul style="list-style-type: none"> – Biotechnology that reduces food waste – Biofuels – Repurposed second-life batteries – Compostable plastics

Clean Energy Seed Fund

The Clean Energy Seed Fund invests in cleantech startups which have high growth potential.

Established in 2016, the Clean Energy Seed Fund (CESF) successfully completed a \$26 million capital raise with a cornerstone investment of \$10 million from the Innovation Fund. Other investors included Australian Ethical Investment, Hostplus and Future Super.

Specialised investment manager Artesian Venture Partners manages the CESF using a diversified portfolio approach. The CESF portfolio of companies is pursuing low emissions opportunities including alternative energy generation, green building and biomaterials, transport technologies and water and waste.

\$10m

Innovation Fund commitment

Portfolio highlights

Regrow: Unlocking the potential of resilient agriculture

Regrow is a multinational team of scientists, agronomists, engineers and software developers committed to empowering the food and agriculture industries to adopt, scale and monetise resilient agricultural practices. The company was named Flurosat when the CESF invested in it. Flurosat was subsequently rebranded to Regrow in 2021 following its acquisition of US-based agricultural and environmental data services company Dagan. The acquisition provided further scale and product offering to Regrow, which is raising a Series B Round.

5B: Reinventing solar energy from the ground up

5B has created a modular prefabricated, plug and play solution to allow the low cost, rapid deployment of solar farms. The 5B MAVERICK design system can be deployed in remote areas and subpar terrain, where it is difficult and expensive to transport labour. The CESF initially invested in 2020 in the company's Series A round alongside US utility AES. 5B recently raised a \$12 million pre-series B round with the CESF investing alongside AES, former Australian Prime Minister Malcolm Turnbull and others. 5B is expected to raise its Series B round at the end of 2021.

Allume: Enabling solar in multi-tenanted buildings

Allume provides a way for apartments and multi-tenanted buildings to access the benefits of solar energy. The company's SolShare technology splits the electricity produced behind the meter to separately metered units within a building. The CESF invested in Allume alongside Mirvac Ventures and the Victorian Clean Technology Fund in 2019. Allume recently announced a partnership with the ASX-listed energy company Locality Planning Energy to roll out SolShare across its customer base in New South Wales and Queensland and closed a \$6 million funding round backed by the CESF and Taronga Ventures' RealTech Ventures Fund, which is the family foundation of ex-CEO and Chair of Google Eric Schmidt.

“

The investments in the Clean Energy Seed Fund from high profile institutional investors are a validation of the Fund's objectives and a huge vote of confidence that Australian clean energy entrepreneurs and startups can be at the forefront of the revolution in clean energy innovation.”

Jeremy Colless,
Managing Partner, Artesian

Investor insights

1

The Australian cleantech sector's reputation as a hotbed of innovation continues to be reinforced with increasing investment from international corporates and investors

2

Startups developing CO2 trackers and offset solutions are on the rise, with corporate climate targets driving growth

3

Australian corporates are playing a greater role both as investors and deployment partners for early-stage clean technologies as they pursue net zero emissions targets

4

Corporates seeking to invest in the energy innovation space are looking to create new business and ensure their assets are not stranded. They are seeking to maintain a competitive advantage and want access to technologies that solve their problems.

Tenacious Ventures

Tenacious Ventures is Australia's only specialist agrifood tech venture capital firm. It supports early stage startups with tech-enabled new business models that are helping agriculture transition to a carbon neutral and climate change resilient future.

Tenacious Ventures was founded by agrifood tech experts Matthew Pryor and Sarah Nolet. Tenacious Ventures Fund I achieved its first close in March 2020 at just over \$20 million, backed by cornerstone commitments of \$8 million each from the Innovation Fund and Grok Ventures – the private investment fund of Atlassian founder Mike Cannon-Brookes.

In its first year, Tenacious Ventures made six investments and raised a further \$15 million during the COVID-19 pandemic. Fund I investors included tech and agribusiness executives, family offices, impact investors and active primary producers.

\$8m

Innovation Fund commitment



CEFC Investment Insights

Portfolio highlights

Goterra: Organic waste management, reimagined

Goterra revolutionises organic waste management, combining robotics with the larvae of black soldier flies. Goterra offers an attractive, cost-effective alternative to landfill by working with insects in small, modular units to deliver waste management close to the source. The end product can be used as either pet food or fertiliser. At the end of 2020, Goterra deployed one of its units at the Lendlease carbon neutral precinct at Barangaroo South to help it manage the 60 tonnes of food waste created at the precinct each month.

SwarmFarm Robotics: autonomous agriculture

SwarmFarm Robotics is an autonomous agricultural vehicle platform company. Its SwarmBot is a nimble, lightweight fully autonomous robotic platform that delivers agtech to farming customers. Its SwarmConnect ecosystem is a development environment for applications which can run on SwarmBot. SwarmFarm designs and builds the robots at Gindie, near Emerald in Central Queensland. The company has deployed its robots across Australia in orchards, on cotton and grain properties and a turf farm.

Vow Group: A new approach to food

Vow is a cellular agriculture company that makes lab grown meat products using exotic animal cells. It is working with chefs, designers and scientists to construct a new category of food to meet consumer preferences. Building food from a cellular level, yields a reliable, consistent quality product. The company uses software development principles and tools including automation to aid its research and development, manufacturing and food science processes. Vow takes animals out of the equation and says its technology reduces the need for clearing of land for animal farming.

Investor insights

1

The market for alternative proteins will reach 97 million metric tons a year by 2035, making up 11 per cent of the overall protein market, according to the Food for Thought: The Protein Transformation report.

2

With both meat and alternative plant or algae-based proteins critical for the growing global population, the Food and Agriculture Organization forecasts dramatic changes to produce more food using less land and resources.

3

Competition, technological disruption and climate variability are slowing agricultural productivity, which ABARES reports grew just 0.6 per cent annually in the 15 years to 2019-20, against 3.6 per cent in the previous period.

4

Despite having a relatively rate of adoption compared with similar markets, the Australian Farm Institute sees the full implementation of digital technology boosting the value of Australian agriculture by 25 per cent.

Startmate Accelerator

Startmate is one of Australia's most successful accelerator programs, having invested in more than 150 startups, with a collective portfolio value of more than \$1 billion.

With early backing from Grok Ventures, Startmate created a climate accelerator track in 2019. Startups in the climate accelerator are part of a three-month program where ideas are fast tracked through Startmate's global network of mentors, investors and founders.

The Innovation Fund has since invested \$50,000 in six climate cohorts to run over three years. Innovation Fund team members also act as mentors to participating startups.

\$300k
Innovation Fund commitment

Portfolio highlights

Gridcognition: Thinking Energy

Gridcognition software allows energy users to navigate the transition to a decentralised and decarbonised future. By creating a sophisticated digital twin of existing and future energy projects, the technology can run thousands of simulations, optimising technology and commercial decisions across multiple variables, to benefit environmental and financial outcomes. As well as its investment through Startmate, the Innovation Fund has directly invested \$300,000 in Gridcognition's commercialisation.

Cass Materials: Shaping the future of cultivated meat

Perth-based Cass Materials has developed BNC scaffold technology – a novel edible scaffold for cultivated meat production. BNC scaffolding, which is made from nata de coco cellulose, provides an affordable, scalable and edible cell culture scaffold to grow a meat alternative.

Sicona: Paradigm shift in battery technology

Sicona Battery Technologies is commercialising an innovative silicon-composite battery anode technology, which has the potential to extend EV range by more than 50 per cent. The Sydney-based company has pioneered a simple and robust production process, to produce high-performance silicon-graphite composite anode and polymer binder materials. The Innovation Fund has also indirectly invested in Sicona through the Clean Energy Seed Fund.

Great Wrap: Compostable cling wrap

Great Wrap manufactures certified home compostable cling wrap and is working to manufacture commercial and pallet wrap. The Mornington Peninsular-based manufacturer takes potato waste and a mix of other compostable biopolymers and ferments it to make cling wrap.



“We're here to help the people rolling out these new energy assets to get both the best economic outcome for their stakeholders and the best environmental outcome to tackle the climate crisis.”

Sascha Kerbert,
Head of Accelerator, Startmate



Connecting investors and cleantech innovators

Australia is becoming an increasingly attractive destination for international and domestic investors seeking to invest in cleantech startups.

The latest data indicates a promising future, including:

- Respected Australian industry analyst **Techboard** estimated total startup and tech company funding in 2019-20 was almost \$7 billion, almost doubling in just two years
- Global industry analyst **Cambridge Associates** has reported a 146 per cent increase in sustainable and impact in four years, with private wealth owners and family offices increasingly integrating sustainability into investment strategies, as a source of competitive advantage
- From a startup point of view, global consultancy **PwC** has reported that founders and entrepreneurs are increasingly focused on measures to meet the challenges of decarbonisation and climate change.

What we look for in investee companies



High calibre team



Strong and defensible intellectual property



Large addressable market



Ability to scale globally



Emissions reduction

How we support investee companies



Access to patient, specialised capital



Long-term, forward-looking perspective and commitment



Deep industry insights and technical expertise



Private and public sector networks



Connections with research, education and low emissions bodies

About the CEFC

The CEFC has a unique mission to accelerate investment in Australia's transition to net zero emissions. We invest to lead the market, operating with commercial rigour to address some of Australia's toughest emissions challenges. We're working with our co-investors across renewable energy generation and energy storage, as well as agriculture, infrastructure, property, transport and waste. Through the Advancing Hydrogen Fund, we're supporting the growth of a clean, innovative, safe and competitive hydrogen industry. And as Australia's largest dedicated cleantech investor, we continue to back cleantech entrepreneurs through the Clean Energy Innovation Fund. With \$10 billion to invest on behalf of the Australian Government, we work to deliver a positive return for taxpayers across our portfolio.

