

FUTURE BATTERY INDUSTRIES

COOPERATIVE RESEARCH CENTRE

Providing strategic leadership for Australia's Future Battery Industries

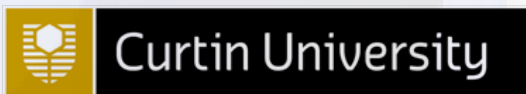
PROSPECTUS

May 2018





INITIAL PROPONENTS OF THE FUTURE BATTERY INDUSTRIES
COOPERATIVE RESEARCH CENTRE (FBI CRC):



BE PART OF THE STRATEGIC DEVELOPMENT OF FUTURE AUSTRALIAN BATTERY INDUSTRIES TRANSFORMING THE ENERGY SECTOR

Vision

To position Australia as a globally strategic provider for the future battery industries value chain, and transform the energy sector by leveraging our new energy material resources and internationally recognised research capability.

Mission

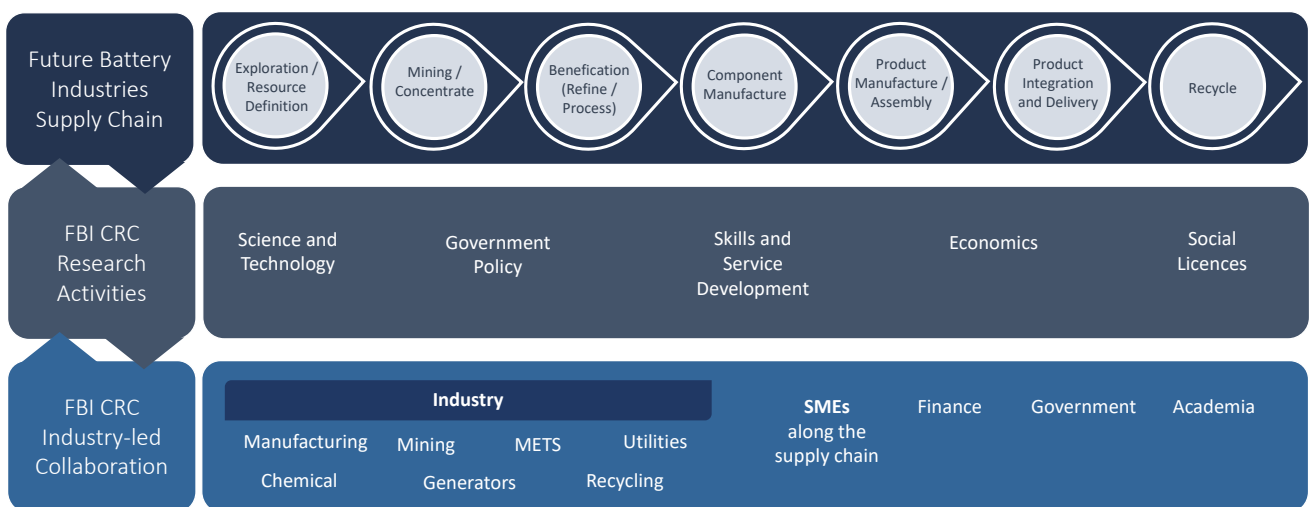
To create value through industry led research that builds Australian capacity along the future battery industries value chain, driving global demand for Australian products, services and solutions globally.

OVERVIEW

As economies around the world decarbonise, demand for energy products using new energy materials is forecast to increase 10-fold by 2030.¹ Australia is abundantly rich in the new energy materials (e.g. lithium, vanadium, nickel, cobalt, Rare Earth Elements (REEs) and graphite) that are fundamental to future battery industries. Through participation in all stages of the value chain, Australia can work with international organisations and position itself globally as a strategic partner providing certainty of supply, quality, reliability, affordability and sustainability.

The Future Battery Industries Cooperative Research Centre (FBI CRC) will provide leadership for Australia to participate meaningfully in the future battery industries value chain. It will contribute industry focussed research to the development of the whole value chain, transforming energy systems and sectors globally, and ensure economic return is maximised for Australia's new energy materials.

The FBI CRC will connect world class research capability with industry needs to build knowledge, and develop processes and battery applications using Australia's new energy materials. This will underpin the path to commercialisation for Intellectual Property developed by the CRC, and seed economic growth opportunities.



1. Source Bloomberg New Energy Finance

THE CASE FOR FUTURE BATTERY INDUSTRIES CAPACITY BUILDING

WHY NOW?

- › There is a rapidly increasing demand for new energy materials and battery products.
- › Australia is in a position to become a global leader in future battery industries.

WHY AUSTRALIA?

Australia has a number of competitive advantages:

- › Australia is rich in new energy materials that underpin future battery industries.
- › Australia has strong skills in exploring, mining and mineral production.
- › Australia has well established technology and infrastructure base.

There is opportunity for Australia to use this competitive advantage to:

- › Increase value-add into refining and efficient production of finished and/or customised battery products.
- › Develop an alternative supply chain for geographic markets/customers.

WHAT IS THE VALUE PROPOSITION?

The FBI CRC will:

- › Connect material producers, METS, end users and build critical mass for future battery industries.
- › Connect companies with world class research and development to support future battery industries.
- › Support existing companies and new opportunities for commerce.

The FBI CRC will support value chain research opportunities such as:

- › Manufacturing next generation energy materials that bolster efficiency, reliability and security of the future global battery industries.
- › Energy storage systems for domestic, industrial and Defence applications.
- › Designing and manufacturing next generation products, including integration and control technologies. Developing comprehensive recycling capacity for high value energy materials.
- › Establishing government policies and regulations to spring board domestic and export growth in the future battery industries.
- › Securing public trust and social licence for new battery industries and technologies.
- › Support existing commercial entities or start-ups to develop opportunities for sales of high-value energy materials.



POSSIBLE PROGRAMS AND ACTIVITIES

The FBI CRC activities will be directed by industry-led research. Using Australia's new energy materials (such as lithium, vanadium, nickel, cobalt, REEs and graphite) to increase value chain participation for future battery industries. The governance framework will guide the selection of projects and ensure best practice research approaches are adopted. The FBI CRC will focus on innovation to maximise the impact of research investment, ensuring commercialisation



POTENTIAL RESEARCH PROJECTS

Potential research projects include:

- › Techno-economic optimisation for power supply markets
- › Improved resource identification and extraction methods for new energy materials
- › New and optimised flow sheets for the beneficiation and production of new energy materials
- › By product beneficiation and new material development
- › Next generation energy material and cell development to address affordability and performance
- › Product scale up through pilot programs
- › Product testing and evaluation such as power grid or heavy electric vehicle testing
- › Integration of battery products into selected applications.

HOW TO PARTICIPATE IN THE PROCESS

COOPERATIVE RESEARCH CENTRES

CRCs are jointly funded by industry participants, research organisations and Federal Government for up to 10 years. Since the inception of CRCs in 1991, 210 have been funded. Over the ensuing years, CRCs have undergone several independent reviews, all concluding that the CRC program has delivered significant economic, environmental and social benefits to Australia.

A proven model

The Australian Government's CRC program is a proven model that supports industry-led collaborations between industry, researchers, government and the community within Australia and internationally to develop new technologies, products and services. In 2018, there are 31 active CRCs in Australia including the CRC for Optimising Resource Extraction, Deep Exploration Technologies CRC and Energy Pipelines CRC.

Benefits for participants

By participating in the CRC, organisations will be able to:

- › Provide input into the research areas the FBI CRC will focus on, to align with their needs.
- › Use outputs and findings from the FBI CRC's research to advance the organisation's own capability including access to new opportunities to for commerce.
- › Have access to a pool of leading academics focusing on major challenges in future battery industries to provide solutions geared towards end use and commercialisation.
- › Obtain significant leverage on their contribution, with more than \$100 million worth of resources pooled into fully funded CRCs, on average to solve industry problems.
- › Be at the forefront of developments in the future battery industries, reaping the benefits of the CRC's research.
- › Enhance credibility with customers and be recognised as an organisation that supports and delivers significant benefit to Australia.
- › Provide input into the skills and training required for the next generation workforce in future battery industries.
- › Have access to post graduate and PhD students to support the organisation.

The FBI CRC will bid into the 2018 Round 20 Federal Government call for CRC submissions.



INTELLECTUAL PROPERTY

Initially, the CRC owns the IP resulting from CRC research projects on behalf of the project participants. For specific projects, participants can agree first rights to commercialise IP developed by that project. Participants can also licence existing IP to the CRC should it be beneficial to a selected research project.

CRC PARTICIPATION

Round 20 bid phase: March 2018 – December 2018

Australian (research, industry and government) and international organisations should participate in the bid phase to influence and drive the bid strategy and content. Activities during this phase include:

- › Establish a bid team to prepare deliverables required for the Stage 1 bid
- › Engage with industry, government and research institutes to refine scope and confirm participation agreement
- › Prepare research project agreements with core research institutes and industry participants to build a CRC budget
- › Prepare a bid phase budget

Participants can join at any time during the bid phase. At the completion of the bid phase, the funding provided by all participants will be equal. Proponents contribute an equal share to bid costs, notionally \$20,000 to \$30,000, depending on the number of proponents.

With a successful CRC outcome, bid phase proponents join the CRC as Essential Participants, and their CRC fees for year 1 are reduced by an amount equal to the funding provided in bid phase.

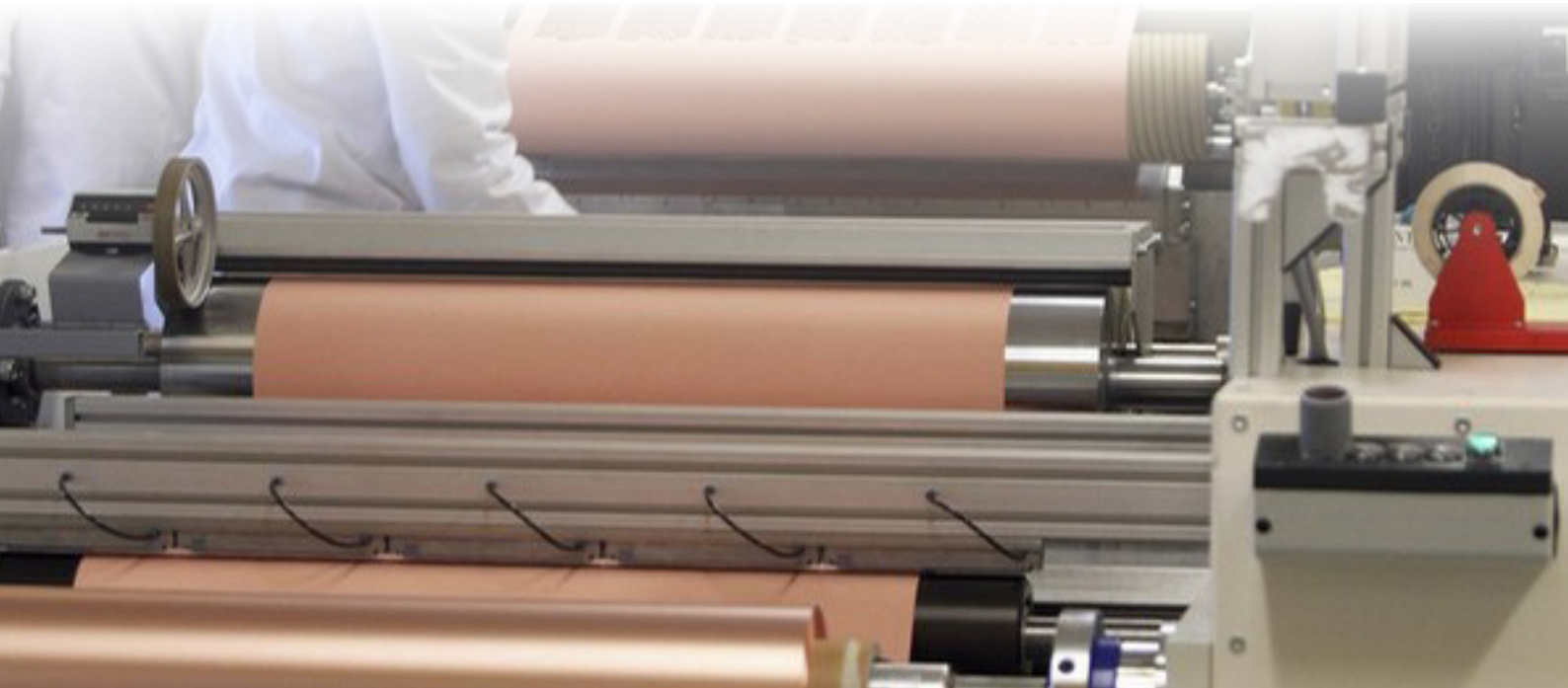
CRC timing: March 2019 – June 2024

Once funding has been announced the CRC is set up, this includes establishing initial governance structures (appoint Chair, Board and CEO) and working with government to finalise the funding agreement to start in July 2019.

In order to provide timely impact and match the pace of change in future battery industries, the term of the FBI CRC is proposed to be 5 years, dependent on final research project time lines.

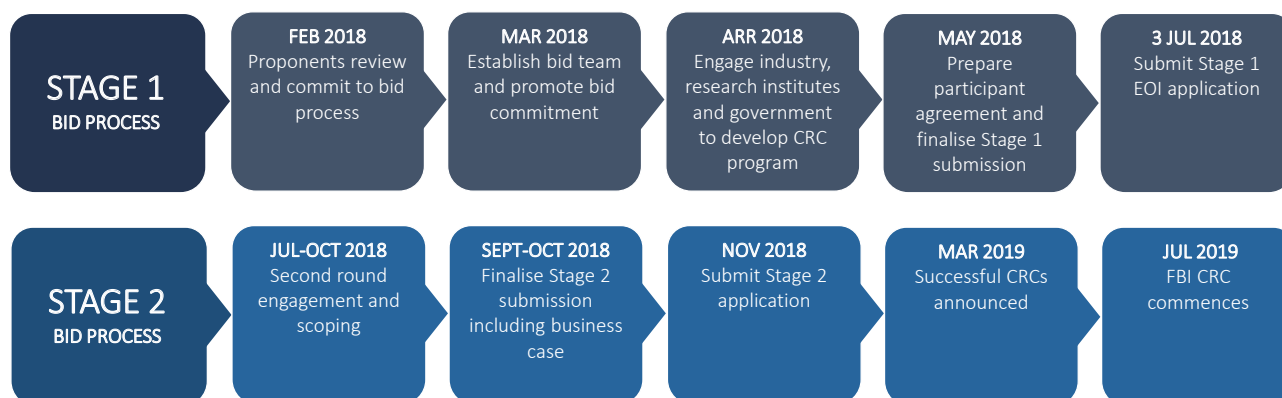
Participant Agreements will be executed with notional annual commitments:

- › Core Participant: \$250,000 and above.
- › Affiliate Participant: \$20,000 to \$250,000.



CRC ROUND 20 BID PROCESS AND NEXT STEPS

The FBI CRC bid development process and the timeline is set out in the flowchart below. A bid team has been established and industry workshops have been held in Adelaide, Brisbane, Melbourne and Perth to support the development of a research program that aligns to industry needs.



The FBI CRC is now in the process of formalising and confirming participation with interested parties.

If you would like to participate in the CRC please contact to discuss your potential involvement:

Tim Shanahan

Chair
FBI CRC

E: tim@timshanahan.com.au
T: +61 8 9266 4243 (Stacy)

Greg Spinks

Bid Director
FBI CRC

E: gregspinks@consultingis.com.au
M: +61 3 9081 0413

Next Steps

A participant pack will be sent to organisations interested in becoming a participant of the FBI CRC. The pack will include information on the FBI CRC, the CRC program and the forms that will need to be completed to confirm your participation for the Stage 1 EOI application.

Forms to complete and send back to us:

- › **Participant declaration** - a declaration of intent by participants to confirm to the Commonwealth their intention to participate in the CRC should the application be successful. This form is issued by the Commonwealth and cannot be adjusted or changed if the Stage 1 bid is to remain compliant. Refer also CRC Participant Declaration FAQ.
- › **Participant contribution form** - a form to confirm the participant's cash and in-kind contributions to the FBI CRC.

Information for your reference only:

- › **FBI CRC Prospectus** - a document providing information on the FBI CRC, its proposed research program and the bid development process.
- › **FBI CRC Workshop Presentation** - a copy of the presentation slides presented at the industry workshop in your State.
- › **CRC Program Guidelines** - information on the operation and administration framework of the CRC program including funding rules and eligibility guidelines.
- › **CRC Participant Declaration FAQ** - information on the purpose of the participant declaration and answers to frequently asked questions in relation to the declaration.

Please contact us if you have any questions on the participant pack or need support with completing any of the forms for our Stage 1 application.

FUTURE BATTERY INDUSTRIES

COOPERATIVE RESEARCH CENTRE

To participate in the FBI CRC please contact:

Tim Shanahan

Chair

FBI CRC

E: tim@timshanahan.com.au

T: +61 8 9266 4243 (Stacy)

Greg Spinks

Bid Director

FBI CRC

E: gregspinks@consultingjs.com.au

T: +61 3 9081 0413



Prospectus developed by
Consulting & Implementation Services (CIS)
and Phronis Consulting