

Media FAQs August 2021

1. Why have you chosen to build your facility in the Hunter region?

The Hunter region has all the right skills, natural resources, expertise and an abundance in solar energy to develop a successful battery manufacturing business. Less than twenty minutes from our facility, we have access to a constant stream of talent and innovation from Newcastle University and CSIRO, and nearby we can access the world-class facilities at the Port of Newcastle.

2. What is the size of your manufacturing facility?

The Renaissance One battery manufacturing facility is currently under construction. It is a 4,500m² facility with a capacity of up to 800MWh per year. We are currently in the preliminary planning stages for Renaissance Two, our cell manufacturing facility.

3. What is the cost to build the Renaissance One battery manufacturing facility?

We don't have the cost of building the Renaissance One manufacturing facility as we have entered a 5+5-year lease agreement with ATB Morton, who is building and constructing the facility.

4. How will you power your manufacturing operations in Tomago?

We will be installing a 500kW rooftop solar system at Renaissance One that will initially provide 100% of our energy requirements.

5. You had initially announced you were going to set up your facility in NT. Why has this changed?

Energy Renaissance and the NT Government spent almost 18 months working on the project, but in the end, an agreement couldn't be reached that satisfied both parties.

Our experience with the NT Government was excellent, and we remain strong supporters of the Territory. We do not discount the possibility of developing a Renaissance facility in the NT in the future. However, Darwin is no longer being considered for our first manufacturing location.

6. Your location announcement in October 2020 said construction would commence in December 2020. Why has this been delayed? When will you start manufacturing batteries and battery cells??

The COVID-19 pandemic has impacted many businesses. For Energy Renaissance, this affected timing of investment funds, equipment and material supply constraints and travel restrictions, ultimately impacting the commencement date for the construction of our first facility.



Energy Renaissance plans to roll out its manufacturing facility in three phases.

In the first phase, we have secured the lease for a temporary facility in Tomago, NSW, to allow us to commence production of batteries by October 2021. This will allow us to service demand and finalise the manufacturing process and procedures to scale to our permanent facility.

The second phase is underway and involves constructing a 4,500 sqm purpose-built facility in Tomago, NSW. We plan to be in this facility by the end of the year and to operate commercially from Renaissance One by February 2022. Renaissance One will have the capacity to manufacture up to 800MWh per year of superStorage batteries.

We have commenced planning for the third phase of a dedicated facility that we will use to manufacture battery cells that will supply the Renaissance One facility. We've called this Renaissance Two. At this stage, we hope that Renaissance Two will commence operations in mid-2023.

7. How much have you invested in the first stage of Renaissance One?

ER is an Australian, privately held company funded by founders and private investors. To date, we have raised c.\$17M that we have used for research and development and commercialisation of operations.

8. Has Energy Renaissance received any funding from the government for your manufacturing facility?

The funding for the development and operation of the Renaissance One manufacturing facility comes from our private investors.

To date, we have not received any direct funding from the government to construct our manufacturing facility. However, we have received funding from government agencies that have supported the development of our manufacturing capabilities.

In July 2021, we received a \$1.48 million co-funded grant from the Advanced Manufacturing Growth Centre (AMGC) to develop processes and workforce skills for our pilot manufacturing facility at Tomago, NSW. This is in addition to a \$246k (dollar-matching) grant from the AMGC in July 2020 to accelerate the research and development for the manufacturing of our batteries. We have also contributed to jointly funding a \$1.46 million project in March 2021 with CSIRO and IMCRC to develop a defence-grade cybersecure Battery Management System (BMS) for our Renaissance superStorage™ family of batteries. We also received a \$140k grant from the Impact Investment Ready Growth Grant from Impact Investing Australia in November 2019.

9. What will you do with the funding that AMGC has given you in July 2021 for your temporary facility?

The funding from this AMGC grant will allow us to test and develop a scalable manufacturing line, train and upskill our workforce. In addition, this will further inform the technology, systems, and processes at our Renaissance One facility.



10. Has COVID impacted your ability to secure new funding, and how far are you from closing off your capital raise?

COVID has impacted how business is being done worldwide, including slowing the pace of capital raising. While discussing with potential investors, the pandemic has further demonstrated the importance of sovereign security and Advanced Manufacturing in Australia.

11. How many jobs will you create?

An independent economic impact analysis undertaken by Energy Renaissance demonstrated that 720 jobs would be created by the Renaissance One (battery manufacturing) and Renaissance Two (cell manufacturing) facilities.

One indirect job will be created for every two direct jobs created, or approximately 475 direct and 245 indirect, with skilled workers and technical staff comprising the bulk of direct positions created.

Renaissance One is currently under construction, and we will commence operations at the new site in late 2021. We are in the preliminary stages of planning for Renaissance Two, and we are currently expecting this to commence operations in mid-2023.

The analysis reveals the opportunity to catalyse an Australian battery industry that can supply and export battery-grade chemicals and materials to create over 100,000 construction and 80,000 active jobs. This will add \$7.3 trillion in export revenue.

12. What is your battery production capacity?

We will have a short-term battery production capacity of 36MWh per year out of our temporary facility. Once operating from our 'Renaissance One' purpose-built facility in 2022, we will be able to provide 200MW/h per year up to 800MWh per year, depending on the final level of automation. Energy Renaissance's long-term plans are to develop a 1GWh battery manufacturing facility, and it aims to grow this to 5.3GWh and beyond.

13. Why have you chosen to manufacture in Australia?

Australia is the only country in the world with all the raw materials we need to make lithium-ion batteries. We will be able to engage with suppliers of nickel, cobalt, manganese, graphite, lithium, copper to use their materials and products in our superStorage™ family of products.

Through our commitment to manufacturing batteries locally, we can provide a pathway for battery raw material processing to take place here. Besides bringing greater certainty and investment to process raw materials locally, we can expect the cost of materials to be reduced, making energy storage more affordable and accessible.



We will be a catalyst for the growth of Australia's advanced manufacturing sector, providing a much-needed stimulus for jobs and economic growth in the Hunter Region and beyond.

As highlighted by the Future Battery Industry Cooperative Research Centre (FBICRC), the battery industry is a significant economic opportunity for Australia. It will bring us closer to our ambitions to be a secure and sustainable partner on the global battery stage.

A booming local battery manufacturing supply works to solve the problem of firming renewable energy storage with flexible, dispatchable capacity via large scale, community and household batteries and serving the transport demand for bus, train and particular purpose vehicles. Not only will this make our electricity supply reliable and affordable, but it will also re-establish Australia's advantage in advanced manufacturing.

14. Where will you source your raw materials from, and will you be using Australian raw materials?

In the early stages, we will look to manufacture superStorage™ batteries using a combination of Australian and imported materials. By 2024, we hope to be using all Australian raw materials to produce our batteries.

15. How does Energy Renaissance plan to transition from imported minerals and rare earths to Australian supplied, Australian resources that have been value-added in Australia?

When Energy Renaissance starts to manufacture batteries in August 2021, we will be using imported Lithium-ion battery cells from South Korea until we can manufacture battery cells in Australia.

Australia currently does not have battery cell manufacturing or raw material processing capabilities. This is why Energy Renaissance has been working with CSIRO to develop a roadmap to support our business in manufacturing battery cells locally and from local battery-grade materials. In the future, when Energy Renaissance commences production of our battery cells, we will be able to engage with suppliers of Australian nickel, cobalt, manganese, graphite, lithium, aluminium and copper and to use their materials in our batteries.

16. What type of battery cell technology will you be using when you start manufacturing in Australia?

We will be delivering power (1C) and Energy (C/2, C/4) batteries in both LFP and NMC cell chemistries.

17. Can you elaborate on your relationship with CSIRO?

CSIRO is our research collaborator, and their work has been pivotal in our product development. Dr Adam Best is a principal researcher from CSIRO who is currently seconded to Energy Renaissance. He is working with our business to coordinate research and development activities, including developing an Australian supply chain roadmap strategy and designing and establishing an energy innovation grant program.



18. What challenges do heat and humidity introduce when it comes to energy storage?

The hot climates in Australia and Southeast Asia place a great deal of stress on all cooling systems. The result is over-sized batteries to cater to the parasitic load of cooling systems, increasing the cost of hot-climate storage. Energy Renaissance's superStorage™ provides the best performance operating in hot climates.

19. What is your position on the safety and fire risk associated with lithium-ion batteries?

Energy Renaissance has spent the last five years preparing to manufacture batteries powered by Australian people and resources that are safe, affordable, and optimised for hot climates for a better economy, society, and the environment. From the very start, our priority has been on safety and security.

Our work with CSIRO, supported by AMGC and IMCRC, has focused on a battery design that is both safe and secure. Our superStorage family of batteries and supercell batteries are designed to perform in hot climates. We've focused our product design and development on reinforcing the cooling systems of our batteries in a stressed environment. The Battery Management System that we've designed in partnership with CSIRO provides secure real-time data, analytics and remote management capabilities that will drive down the risk of battery failure for grid-scale energy storage users.

The ability of our batteries to operate safely is essential to us, and we continue to work with our partners and clients to ensure that this remains a priority.

20. What applications can your batteries be used for?

Our batteries can be used for Stationary applications such as grid and microgrid, renewables, community storage (including remote communities), mining electrification, and Defence SilentWatch application. As well as Transport applications such as buses, light commercial and industrial vehicles.

21. How will you support the Hunter Renewable Energy Industrial Precinct?

Energy Renaissance supports the Hunter Renewable Energy Industry Precinct (REIP).

Low-cost electricity is the key to sustaining and reviving our manufacturing sector. Renewables offers the lowest-cost option for new electricity generation, which will soon be cheaper than relying on fossil fuel alternatives.

Increasing the adoption of renewable energy will support manufacturers in an REIP to be powered by 100% renewable energy. As a battery manufacturer based in Tomago, Energy Renaissance's goal is to be energy independent by powering 100% of our operations with a 500kW rooftop solar system when our manufacturing facility is built.

We would look to collaborate with other stakeholders in the Hunter REIP to power the region with solar and stored energy if we can develop a Virtual Power Plant that will allow us to share any excess solar energy that our system generates with the Hunter community.



22. What are your thoughts on the planned gas-fired power plant at Kurri Kurri to replace the baseload generation when Liddell is closed? If this isn't the solution for baseload, what is?

Australia is the sunniest country globally, and enough solar energy is being generated to support the grid. According to the Clean Energy Council, renewable energy was responsible for 27.7 per cent of Australia's total electricity generation in 2020 - the first time where more than a quarter of our country's energy is coming from renewable sources.

We believe renewable energy can replace baseload generation, and it requires both policy and investment drivers to make this happen. Therefore, the planned closure for Liddell makes sense.

Based on my understanding, the new gas-fired power plant at Kurri Kurri is only expected to run at 2 per cent of its capacity through the year. So instead of funding a gas-fired power plant, we should look at large scale energy storage or a combination of storage and distributed generation to provide the firming capacity we need on the grid.

23. What are your thoughts on the Hunter Region becoming a Green Hydrogen Hub?

The Hunter Region has the right skills and resources to deliver a green hydrogen hub. It is an excellent project for NSW as it aligns with the state government's goals to achieve Net Zero Emissions by 2050. Along with batteries, hydrogen will support our transition to 100% renewable energy. In addition, the green hydrogen hub in the Hunter will create new jobs and support the region as it transitions away from its reliance on coal.

24. What are your plans to recycle Lithium-Ion batteries?

To date, recycling large lithium-ion batteries ('LIBs') has been much more complicated than smaller consumer electronic LIBs. Energy Renaissance' recycling and second-life strategy are to address the recycling challenge up-front – in the design stage before the beginning of the batteries life – and to embrace existing fully and emerging battery stewardship guidance and legislation.

25. What are your thoughts on the Federal Government's Modern Manufacturing Initiative regarding upstream minerals processing for Lithium-Ion batteries?

Australia must have an upstream minerals processing industry for minerals used in lithium-ion batteries. Australia can be a global battery superpower, and we support the Modern Manufacturing Initiative as it will encourage the development of a critical local industry.

An Australian advanced manufacturing industry supplying and exporting battery-grade chemicals and materials would create over 100,000 construction and 80,000 active jobs and add \$7.3 trillion in export revenue.



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ENERGY RENAISSANCE RECEIVES ADDITIONAL FUNDING FROM AMGC FOR ADVANCED LITHIUM-ION BATTERY MANUFACTURING

Sydney, AUSTRALIA – 20 July 2021 – Energy Renaissance, Australia's first lithium-ion battery manufacturer in New South Wales, announced today that it had received an additional \$525,072 grant from the Advanced Manufacturing Growth Centre (AMGC) to develop processes and workforce skills for its pilot manufacturing facility at Tomago, NSW that will be used to build its superStorage™ batteries.

This co-funded grant includes financial and in-kind contributions matched by Energy Renaissance for a total project value of \$1.48 million. With the additional funding, Energy Renaissance will accelerate the scalable process and procedures from a 2,700 square metre pilot facility in Tomago.

Funding from this grant will allow rapid testing and the development of a scalable, manufacturing line and trained workforce that will inform the technology, systems and processes for Renaissance One, Energy Renaissance's permanent, purpose-built, 4,400 square metres battery manufacturing facility in Tomago that is slated for completion in February 2022.

Brian Craighead, Technology and Development Director of Energy Renaissance, said, "AMGC has played a strategic role by supporting Energy Renaissance with a seed funding round last year that went towards the design and prototyping of our superStorage battery. The new funding injection from AMGC will now help us scale up towards commercial production and accelerate our ability to manufacture batteries faster. This is a win for Australia, our economy and workforce as we ascend the stage to become a global battery manufacturing powerhouse."

AMGC's Managing Director, Dr Jens Goennemann, said, "Australia relies heavily on imported batteries, a reliance Energy Renaissance is committed to changing. By investing in local manufacturing, upskilling a new workforce for manufacturing and developing an innovative battery solution, Energy Renaissance will showcase how Australia can and will have a global competitive edge in battery manufacturing."

This pilot project will validate Australia's sovereign capabilities for manufacturing energy storage systems and demonstrate a more robust and more integrated Australian supply chain for crucial battery components and battery management systems that captures a more significant share of supply-chain value-adding.

With its scalable, automated manufacturing line, Energy Renaissance will support an upskilled Australian workforce across the supply chain to support accelerating domestic and export market growth. Through this pilot, the company will look to refine its product technology platform to manufacture superStorage batteries securely and safely and secure the ongoing development of Australian-led IP in battery storage technology and supply chain collaboration.



Energy Renaissance manufactures Australian made batteries that are safe, secure, affordable and optimised to perform in hot climates. These batteries will power stationary (grid and microgrid, renewables, community storage, mining electrification, Defence SilentWatch applications) and transport (buses, light commercial and industrial vehicles) applications.

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ENERGY RENAISSANCE TO DELIVER DEFENCE-GRADE CYBERSECURE BATTERY MANAGEMENT SYSTEM WITH CSIRO AND IMCRC

Sydney, AUSTRALIA – 25 March 2021 – Energy Renaissance, an Australian lithium-ion battery manufacturer, announced today that it would develop a defence-grade cybersecure Battery Management System (BMS) for its superStorage™ family of batteries that are to be manufactured in Tomago, NSW.

The A\$1.46 million BMS project is jointly funded and developed by Energy Renaissance with Australia's national science agency, CSIRO and the Innovative Manufacturing CRC (IMCRC). The BMS will monitor and report the battery's usage, lifespan, and faults to Energy Renaissance and their customers through a mobile network. Communicating through an inverter, the system will enable secure real-time data, analytics and remote management to drive down the risk of battery failure and operating costs for grid-scale energy storage users.

Brian Craighead, Technology and Development Director of Energy Renaissance, said, "The collaboration between Energy Renaissance, CSIRO, and IMCRC will promote an Australian Battery Management System instead of relying on an overseas technology platform. Working together with CSIRO will ensure we can create a world-class defence-grade cybersecure Battery Management System that is fully developed and managed in Australia for critical energy storage infrastructures."

"Software designed and developed in Australia has a strong global reputation, and we've built a history and track record as an industry. Through this project, we will demonstrate the advantage that Australian intellectual property can bring to a highly competitive energy storage market where a superior Battery Management System is critical for the operating efficiency of a battery."

Dr Adam Best, Principal Research Scientist at CSIRO, said, "CSIRO is delighted to be working with Energy Renaissance to develop a Battery Management System that is the 'nerve centre' of a battery, and will make batteries safer, more affordable and optimised to operate in high-temperature environments. Our partnership with Energy Renaissance validates CSIRO's capabilities to collaborate, train and transfer skills for the advanced manufacturing of batteries."

David Chuter, CEO and Managing Director at IMCRC, sees the research collaboration between Energy Renaissance and CSIRO as a catalyst for further establishing an Australian battery manufacturing sector.



"The growing interest in renewable energy and thus demand for lithium-ion batteries provide an excellent opportunity for Australia. Through accessing local knowledge and expertise, this project will demonstrate how we can utilise Industry 4.0 technologies and principles to establish a viable Australian battery manufacturing sector for the benefit of all Australians and as a national manufacturing priority.

The commitment from all involved in this project will help position and strengthen the value and influence of Australia's role as a strategic partner in the global lithium-ion battery value chain."

Minister for Industry, Science and Technology Karen Andrews, who launched Australia's Resources Technology and Critical Minerals Processing manufacturing road map at Energy Renaissance's site earlier this month, welcomed the research collaboration.

"This project is a great example of how local industry and research organisations can work together to turn an innovative idea into a high-value product that strengthens Australia's competitive advantage and secures greater investment and market share."

Energy Renaissance's 4,500 sqm purpose-built facility in Tomago, NSW, will manufacture Australian made batteries that are safe, secure, affordable and optimised to perform in hot climates. These batteries will power stationary (grid and microgrid, renewables, community storage, mining electrification, Defence SilentWatch applications) and transport (buses, light commercial and industrial vehicles) applications.

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ENERGY RENAISSANCE WELCOMES COMMONWEALTH GOVERNMENT'S RESOURCES TECHNOLOGY AND CRITICAL MINERALS ROAD MAP

Sydney, AUSTRALIA – 4 March 2021 – Energy Renaissance, an Australian lithium-ion battery manufacturer, has welcomed the Resources Technology and Critical Minerals Processing road map in the Commonwealth Government's Modern Manufacturing Strategy announced today.

The announcement was made by Karen Andrews, the Minister for Industry, Science and Technology and the Prime Minister, Scott Morrison, at a media event held at the future location of Energy Renaissance's manufacturing facility at Tomago, NSW. Australia is the only country in the world sitting on all the raw materials needed to make lithium-ion batteries.

Mark Chilcote, Managing Director of Energy Renaissance, said, "The Commonwealth Government's Resources Technology and Critical Minerals Processing road map will increase the value and influence Australia's battery industry in the global lithium value chain."

On 24 February 2021, the United States [announced](#) that it would prioritise the domestic consumption and production of critical and rare earth minerals. Chilcote added, "Australia



cannot afford to be at the end of a queue for these minerals. There is currently no commercial production of battery-grade materials and chemicals in Australia."

"But we will change this in the very near future when Energy Renaissance commences production of its batteries. Then, we will be able to engage with suppliers of Australian nickel, cobalt, manganese, graphite, lithium, aluminium and copper and to use their materials in our batteries."

Energy Renaissance's commitment to manufacturing batteries locally will provide a pathway for battery raw material processing in Australia. Besides bringing greater certainty and investment to process raw materials locally, it expects the cost of materials to be reduced, making energy storage more affordable and accessible for everyone.

According to an independent economic impact analysis undertaken by CIS Solutions, an Australian advanced manufacturing industry supplying and exporting battery-grade chemicals and materials would create over 100,000 construction and 80,000 active jobs and add \$7.3 trillion in export revenue.

The investment that Energy Renaissance has made for the battery manufacturing facility can be a catalyst for the growth of Australia's advanced manufacturing sector, providing a much-needed stimulus for jobs, economic growth in the Hunter Region and beyond.

Energy Renaissance's 4,500 sqm purpose-built facility will manufacture Australian made batteries that are safe, secure, affordable and optimised to perform in hot climates. These batteries will power stationary (grid and microgrid, renewables, community storage, mining electrification, Defence SilentWatch applications) and transport (buses, light commercial and industrial vehicles) applications.

Construction of the facility will commence in April 2021, with small-scale batteries to start by July 2021, with the full-scale expected in October 2021.

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AMGC BACKS AUSTRALIAN BATTERY MANUFACTURER HEADING FOR EXPORT MARKETS

Sydney, AUSTRALIA – 31 July 2020 - Australia's capabilities to produce lithium-ion (Li-ion) batteries for hot-climate operating environments has been strengthened by a co-funding grant from the Advanced Manufacturing Growth Centre (AMGC) that was awarded to Australia's first utility-scale Li-ion battery manufacturer, Energy Renaissance.

The co-funded grant includes matched financial contributions from the AMGC of \$246,625 and Energy Renaissance each for the project. The project funding will accelerate research and development and design that will lay the foundation for the company to advance Australia's lithium-ion battery materials industry as it starts to manufacture batteries for Australia and export to Southeast Asia.

Energy Renaissance will work with research collaborator CSIRO and Cadenza Innovation, and Wuxi LEAD on these design projects. This includes research and development to re-design components used by Energy Renaissance for its battery energy storage systems. The



grant will also be used to design an automated production line using robotics and automated quality control systems to increase efficiencies across Energy Renaissance's manufacturing facility.

Mark Chilcote, Managing Director of Energy Renaissance, said, "The cleantech manufacturing industry has the potential to lead Australia's economic recovery post-COVID-19. By partnering with AMGC, Energy Renaissance will advance local battery manufacturing capabilities, create jobs in Australia and build significant economic benefits for our lithium-ion battery materials industry through a local supply chain."

When Energy Renaissance's manufacturing facility operates at total capacity, it is expected to employ 1,300 workers. Sixty per cent of its batteries produced will be exported with an expected contribution of A\$3 billion per annum to Australia's Gross Domestic Product (GDP). In addition, modelling conducted by Energy Renaissance has revealed it has the potential to create five jobs in upstream industries such as mining for every new employee hired.

AMGC's Managing Director, Dr Jens Goennemann, said, "Australia has an opportunity to lead the world when it comes to energy transition while adding value to our abundant natural resources. It was this ability we identified some time ago with Energy Renaissance and its manufacturing aspirations.

"Energy Renaissance's hot-climate battery technology has numerous applications across multiple sectors including energy, defence, commercial and industrial – both domestically and abroad. They are an example of how Australia's advanced manufacturing industry is developing world-leading solutions."

The location for Energy Renaissance's first manufacturing facility in Australia will be announced in the second half of 2020.

Further details of the project can be found: <https://www.amgc.org.au/project/lithium-ion-battery-module/>

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