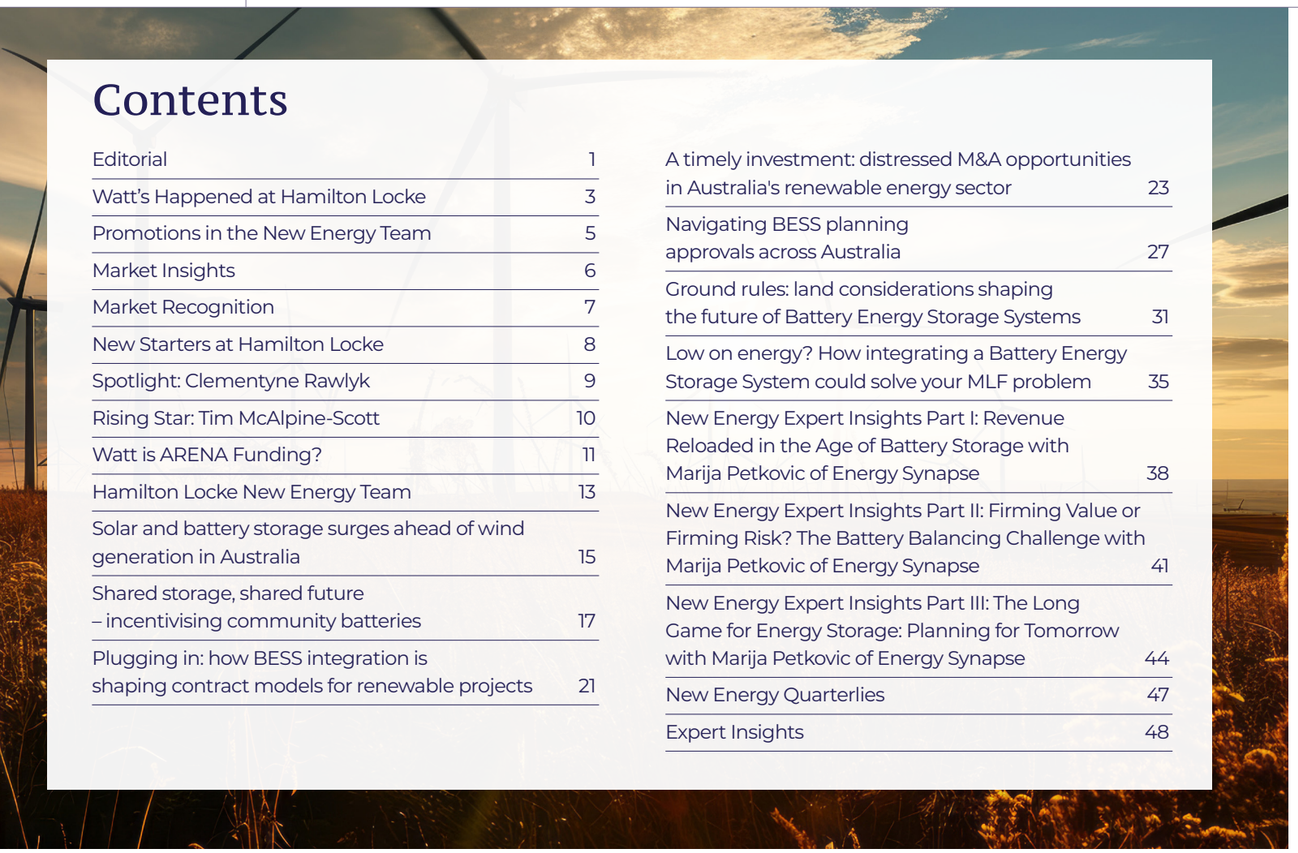
New Energy Quarterly

Dispatchable Renewables

Winter 2025



Hamilton Locke



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Editorial

As winter settles over Australia, our energy system faces its perennial test to meet peak demand. This challenge is compounded by ageing infrastructure, outages and the still intermittent nature of renewables. This year, the challenge is more acute than ever, with outages at coal and gas power stations coinciding with low wind and solar generation and falling winter temperatures. The pressure on reliability in our energy networks continues to rise.

At the same time, the shape of Australia's future grid is becoming clearer. Firmed solar and battery storage are rapidly emerging as the preferred generation model, overtaking wind due to falling costs, faster deployment and growing investor appetite. The energy transition will be enabled by Battery Energy Storage Systems (**BESS**), community batteries, and hybrid solar-storage configurations. Dispatchable renewables offer the ability to store clean energy and deliver it when the grid needs it most. They are and will be a central pillar to commercial viability, project finance and grid integration into Australia's renewable future.

Australia's renewable energy sector is experiencing remarkable growth. In 2024, renewable energy now accounts for 40 per cent of Australia's total electricity generation.[1] 1.2 GW of large-scale solar capacity was added in 2024, accounting for 16.5% of the clean energy generation mix.[2] Large-scale BESS systems will provide 8.7 GW / 23.3 GWh of capacity up from 5 GW / 12GWH under construction in 2023.[3]

In this edition of *New Energy Quarterly*, we explore what it takes to make dispatchable renewables work. Each article responds to an emerging tension or bottleneck we are seeing in practice. These challenges are not just technical, but also legal, commercial, and strategic. From project feasibility and financing hurdles to community trust and integration complexity, dispatchable renewables demand a coordinated, multidisciplinary response.

Shared storage, shared future – incentivising community batteries

We begin with the fast-evolving space of community batteries, which are emerging as a key solution to broaden access to renewable energy and enhance grid resilience at a local level. These shared assets can enable apartment dwellers and non-solar households to tap into clean energy, reduce peak demand, and lower electricity bills.

However, the rollout has been slow with only 21 of the 400 batteries promised under federal initiatives have been deployed to date. Our article examines what's holding deployment back: inter-governmental friction, market regulation gaps, and tariff misalignment, particularly for non-DNSPs. We also highlight policy opportunities to unlock these assets' potential and ensure equitable access and long-term viability.

Plugging in: how BESS integration is shaping contract models for renewable projects

With storage now a commercial necessity, developers are grappling with how to structure BESS integration into their projects. We explore how contract models, whether full-wrap EPCs or split contracts, impact project risk, financing, and operational delivery.

We look at the growing uptake of hybrid solar + BESS systems, particularly DC-coupled configurations, and unpack the contractual and regulatory implications of retrofitting storage onto legacy PV projects. This piece is essential for project owners, in-house counsel, and advisors navigating bankability, grid compliance, and integration risk in an increasingly complex energy landscape.

Navigating BESS planning approvals across Australia

With the number of BESS projects rapidly increasing, navigating the planning system has become a critical component of project development. Our third article provides a comparative overview of development pathways, environmental triggers, and approval timelines across jurisdictions.

We also cover how bushfire risks, lack of policy recognition, and decommissioning uncertainty are affecting approval outcomes. Whether you're preparing a DA for a 5MW project or a 300MW grid-scale system, this article offers practical guidance on early engagement, risk mitigation, and aligning your strategy with evolving state-level expectations.

Ground rules: land considerations shaping the future of Battery Energy Storage Systems

Securing land access for BESS projects can involve complexities. While footprint and locational constraints may be lower than for wind or solar, BESS projects face their own suite of legal and social hurdles, from securing exclusive tenure and navigating FIRB thresholds, to managing community relations, contamination risk, and biosecurity concerns.

We explore the documentary frameworks (option deeds, leases, cultural heritage agreements), the neighbour impacts, and the challenges of co-location versus standalone use. If land is where every project begins, this article outlines how to secure it wisely and sustainably.

Low on energy? How integrating a BESS could solve your MLF problem

We close this edition by tackling one of the most commercially significant, but often misunderstood challenges facing renewable generators, Marginal Loss Factors (**MLF**). These AEMO-calculated transmission loss estimates can seriously erode project revenue and viability, especially for sites far from key load centres.

In this piece, we explain how BESS integration can offset MLF volatility by storing energy during low-demand or curtailment periods and discharging when grid conditions are more favourable. We also explore how these storage solutions can create new revenue streams and help make even marginal sites bankable again.

The future of the energy transition

This winter edition of our New Energy Quarterly was curated with the central theme of renewables in real-world conditions. That means facing up to issues while celebrating clean energy growth. Whether you are a developer assessing a new greenfield site, a financier weighing the risks of a hybrid retrofit, or a council navigating community battery approvals, this edition offers practical, timely insights into the legal and commercial levers shaping project success.

As the grid evolves and expectations rise, dispatchable renewables will define the next phase of Australia's energy transition. Dispatchable renewables not only promise a cleaner environment but also a more reliable and resilient energy system for all Australians.



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[1] Clean Energy Council, 'Clean Energy Australia 2025' (Report, 27 May 2025).
[2] Ibid.
[3] Ibid.

Watt's Happened at Hamilton Locke



23 June 2025

Ally has recently returned from a three-month secondment at Potentia Energy. Potentia Energy develops, constructs, and operates leading solar, wind, storage and hybrid projects across Australia, with deep expertise across the entire project lifecycle. The secondment was a fantastic opportunity to learn more about Potentia Energy's business, support key legal and commercial workstreams and gain hands-on experience with developer-side matters. The experience gave Ally valuable insight into the scale, complexity and collaboration involved in delivering these projects and a genuine appreciation for the talented and committed team behind them.



5 June 2025

RiverCity Renewables Women in Energy

Marni Riley, Adriaan van der Merwe, Raeesa Lambat, Megan Chau, Aarthi Parthiban, Cory Johnson and Ellie Zervos attended the RiverCity Renewables Women in Energy event to discuss how to promote gender diversity and equity in the Energy Industry.



27 May 2025

Sundowners 2025

Hamilton Locke is proud to have sponsored Sundowners 2025. The New Energy team enjoyed reconnecting with clients and colleagues at the event, sharing insights and celebrating progress across the sector.



5 May 2025

Matt Baumgurtel named Finalist for the Lawyers Weekly Partner of the Year Awards 2025

Matt Baumgurtel was named Finalist for the Lawyers Weekly Partner of the Year Awards 2025 for Projects, Energy and Infrastructure



11 April 2025

Enhar Responsible Battery Energy Storage Development Summit 2025

Matt Baumgurtel spoke at the Enhar Responsible Battery Energy Storage Development Summit on ensuring responsible BESS Development and how to ramp up while developing responsibly in the Australian Battery Energy Storage System (BESS) industry.



9 April 2025

Smart Energy 2025

Marni Riley, Adriaan van der Merwe, Kylie Zih, Tim McAlpine-Scott, Minji Kim, Eamonn Carpenter, Anna Mouat, Lily Clements-Markham and Ollie Chang attended day 1 of the Smart Energy 2025, held by Smart Energy Council.



3 April 2025

NEAN Pub Social

On 3 April 2025, the HL team hosted the NEAN pub social at the Edinburgh Castle in Sydney to catch up with existing NEAN community members and meet some new friendly faces.



2 April 2025

The Sydney Member Mixer 2025

Matt Baumgurtel, Adriaan van der Merwe, David O'Carroll, Minji Kim and Gareth Howard attended the Sydney Member Mixer, hosted by Clean Energy Council.



26-27 March 2025

Solar & Storage Live Queensland 2025

Marni Riley, Cory Johnson, Aarthi Parthiban and Ellie Zervos attended the Solar & Storage Live Queensland, hosted by Terrapinn.



25 March 2025

WA Clean Energy Summit

Matt Baumgurtel spoke at the Clean Energy Council WA Clean Energy Summit on the future of consumer energy.

Promotions in the New Energy Team



Adriaan van der Merwe
Partner

Adriaan joined Hamilton Locke in February 2022 as a Senior Associate in the New Energy team. He has since advised clients on the entire lifecycle of new energy projects, including project development, M&A, construction, power purchase, contract management and disputes.

He has extensive experience advising clients (including the public sector, developers, sponsors, head contractors and subcontractors) on renewable (solar PV, CSP, hydrogen, biomass, landfill and hydro) and conventional (gas, coal and nuclear) energy generation technologies, battery storage, as well as transmission and distribution related assignments.

He has worked on projects across Australia, Africa, and the Indian Ocean region, delivering industry leading solutions for complex projects. Adriaan regularly publishes on new energy, presents at industry conferences and lectures at universities across Australia and Africa. He has a particular interest in distributed energy resources (DER), agrivoltaics and African energy generation projects, having worked extensively in these areas.

Prior to joining Hamilton Locke, Adriaan worked at MinterEllison in Australia and DLA Cliffe Dekker Hofmeyr Inc in South Africa.



Minji Kim
Senior Associate

Minji joined Hamilton Locke in October 2024 as a Lawyer in the New Energy team. Minji's areas of expertise include wind farms, floating offshore wind projects, power plant construction, project development and public-private partnership projects. She is experienced in negotiating and drafting EPC contracts, development agreements, lease, licenses, engineering services agreements and supply agreements. Having gained international experience in Seoul, South Korea in recent years, Minji has worked with renowned global EPC services providers.

Prior to joining Hamilton Locke, Minji worked at POSCO E&C and Shin & Kim LLC in Korea and PwC in Australia. She also had a secondment to the legal team at the Transport for NSW.



Tim McAlpine-Scott
Senior Associate

Tim joined Hamilton Locke in October 2024 as a Consultant in the New Energy Corporate M&A team. Tim's areas of expertise are in advising private equity institutions and management on private M&A transactions and on corporate governance matters.

Tim trained with leading Scottish law firm Burness Paull LLP and qualified in 2020 as a solicitor in Scotland. During his traineeship, Tim spent time on secondment at The Weir Group PLC, a FTSE 100 multinational engineering company.

Prior to joining Hamilton Locke, Tim was an associate for 4 years in the M&A team at Carey Olsen.

Market Insights

- At the recent meeting of the Marine Environmental Protection Committee, the International Maritime Organisation (IMO) introduced long-awaited reforms to the maritime industry. With new fuel standards and carbon emissions thresholds on the horizon, the shipping industry is poised for a wave of innovation, especially in the alternative fuel space.

  Read more

- China's first-ever consolidated Energy Law took effect on 1 January 2025, establishing a national framework focused on carbon control, market reform, and energy security. The law boosts renewables, backs long-term energy trading, and keeps coal in the mix to stabilise the grid. For Australia, it means rising demand for critical minerals like lithium and copper, but also sharper price swings and supply chain risks.

  Read more

- After a decisive election win, Labor is now in the driver's seat to reshape Australia's energy future. With majority control and the approval of the Australian people, the government is gearing up to roll out major reforms across clean energy, battery storage, gas security and grid transformation.

  Read more

- The release of ASIC's Regulatory Guide 280 (RG 280) marks a critical development in Australia's corporate sustainability reporting landscape. With mandatory climate-related disclosures now confirmed, RG 280 provides much-needed clarity on ASIC's expectations and a roadmap for compliance.

  Read more

- On 18 March 2025, the NSW Government introduced the Product Lifecycle Responsibility Bill 2025 to establish a product stewardship framework for brand owners of certain products.

  The Bill is a nation leading reform which reflects NSW Government's commitment to, and growing prioritisation of, the circular economy.

  Read more

- On 26 February 2025, the Australian Renewable Energy Agency (ARENA) announced Round 2 of the community batteries program, allocating a further $46.3 million towards community batteries. After a successful Round 1, which saw $124.7 million in funding to deploy 318 batteries across all states and the Northern Territory. ARENA aims to fund a further 24 battery projects in this round, with the purpose of lowering energy bills, reducing emissions, and easing the pressure on the electricity grid.

  Read more

- The National Hydrogen Strategy 2024 (the Strategy), developed by the Federal Government, aims to position Australia as a global leader in hydrogen production and export. The Strategy supports Australia's transition to net zero and seeks to capitalise on the significant economic opportunity renewable hydrogen presents globally. The road to net zero is challenging, but with strategic investments and innovative policies, Australia has the potential to lead the hydrogen revolution.

  Read more

- On 5 February 2025, Revenue NSW released significantly updated guidance on the application of transfer duty to the grant of call options to purchase land, including: (1) characterising types of options; (2) payments considered to form part of option fees (and therefore dutiable); and (3) when Revenue NSW will consider the use of put and call options to fall within the anti-avoidance provisions.

  Read more

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Market Recognition

- Adriaan van der Merwe promoted to Partner, effective 1 July 2025!

Read more

- Matt Baumgurtel and Veno Panicker named a finalist in the Lawyers Weekly Partner of the Year Awards 2025

Read more

- Hamilton Locke advises Enervest on the Stoney Creek BESS sale

Read more

- Hamilton Locke ranks equal second in Mergermarket's Australian M&A league tables for deal count in Q1 2025.

Read more

- Hamilton Locke Recognised in Best Lawyers 2026 Edition of Best Law Firms – Australia.

Read more

- Matt Baumgurtel recognised as a Lexology Legal Influencer – Q1 2025.

Read more

- Matt Baumgurtel named finalist in Dealmaker of the Year in the Lawyers Weekly Australian Law Awards 2025.

Read more

- Hamilton Locke advises Australian Soil Management on its acquisition partnership with Climate Friendly.

Read more

- Marni Riley named finalist in Special Counsel of the Year in the Lawyers Weekly Australian Law Awards 2025.

Read more

- Hamilton Locke has increased its ranking for Energy in Legal 500.

Read more

- Hamilton Locke tops WA Business News' 2024 Corporate Finance Survey.

Read more

- Hamilton Locke ranks in Chambers and Partners 2025 Asia-Pacific and FinTech Guides.

Read more

- Hamilton Locke excels in national M&A and ECM rankings.

Read more

- William Ryan named finalists in the 2025 Lawyers Weekly 30 Under 30 Awards for the Projects, Energy and Resources category.

Read more

- HPX Group recognised in AFR Fast 100 List for the second consecutive year.

Read more

New Starters at Hamilton Locke

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Emile McPhee

Senior Associate
Tom Wilson
Claudia Silano-Malouf

Lawyer
Crystal Xu
Heidi Knights
Briony Pearson
Raeesa Lambat
Duyen Mai
Georgia Mackenzie
Dion Yoon

Vacation Clerk
Will Davidson
Narayan Judge
Christy Wah
Connor Raine
Kendall Fleming
Hilary Hon
Emilia Palka
Nina Fuller
Lani Moon

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Watt's Next?

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SPOTLIGHT

Clementyne Rawlyk



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Can you share your journey to becoming a lawyer? Was this always the path you envisioned for yourself?

My career path has been fairly straightforward. I've always known I wanted to be a lawyer, ever since I did work experience at a law firm in high school and knew it was the right fit for me. I studied Arts / Law at Monash University, majoring in political studies and behavioural psychology, and graduated with Honours. For quite a while, I thought I wanted to pursue litigation, but that changed during my corporate rotation in my graduate year. I found the corporate side of law much more engaging, and it's where I've focused ever since. I spent 15 years at my previous firm before joining Hamilton Locke two years ago, and it's been a fantastic decision.

What aspects of being a lawyer do you find most fulfilling?

As an M&A lawyer, I find it incredibly rewarding to guide clients through some of the most significant and transformative moments in their business journey. I love the challenge of solving complex issues, crafting practical commercial solutions, and bringing all the moving parts of a deal together. Whether clients are growing through acquisitions, exiting a business they have built from the ground up, or entering new markets, there is real satisfaction in helping them achieve their strategic goals.

The collaborative nature of the work makes it even more fulfilling. Negotiating with the other side, managing diverse stakeholders, and working closely with a team towards a shared outcome is energising. My work in foreign investment adds another dimension. I sit on Hamilton Locke's foreign desk, which is such a fun and dynamic part of my role. It aligns closely with my FIRB practice and gives me the opportunity to work with global firms on cross-border deals.

Do you have a favourite book, and what draws you to it?

All the Light We Cannot See by Anthony Doerr. It is a beautifully written and incredibly moving novel that follows the lives of a blind French girl and a German boy whose paths collide during World War II. The story explores the resilience of the human spirit and the ways in which people try to be good to one another, even in the darkest of times. One of those rare books that stays with you long after you finish it.

With your extensive experience in Australia's foreign investment regulations, what are the trends or upcoming developments you see shaping the regime?

A key development is the introduction of the new FIRB portal. Having used it for the last month, it makes the application process smoother and more user-friendly for applicants. The portal is designed to streamline submissions and reduce the overall information burden.

We are also seeing an increased focus on tax, with applicants now required to provide more detailed tax-related information as part of the process in many applications. In parallel, FIRB has significantly ramped up its compliance activity. There has been a notable rise in random compliance audits, and we are seeing stricter enforcement, including increased penalties for non-compliance.

What motivated you to join Hamilton Locke two years ago, and how would you describe your experience since then?

After 15 years at my previous firm, I was ready for a change. I was fortunate to move across with a large part of my team and help build the Melbourne office and Corporate practice from the ground up. At the time, Hamilton Locke had only been around for five years but had already achieved remarkable things. I was drawn to that ambition and energy. What really resonates with me is the firm's people focus. Our Melbourne office is majority female partners, many of whom are mums with young kids. It is a genuinely supportive environment that challenges the traditional law firm model and allows people to thrive both professionally and personally. That re aligns with me.

For the company's "Da Vinci Program", which encourages employees to explore new hobbies, what activity did you choose and what was your experience like?

Shamefully, I did not choose an activity this year. But next year I'm torn between learning French or diving into French cooking. I love to cook and am very much a cook-from-scratch kind of person, so the idea of mastering some classic French techniques really appeals to me. I did a secondment to leading French firm Bredin Prat earlier in my career without speaking a word of French, and while the experience was incredible, it sparked a lasting curiosity about the language and culture that I would love to explore further.

RISING STAR

Tim McAlpine-Scott



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What do you enjoy most about working at Hamilton Locke?

Purpose can be a really difficult concept for a law firm to deliver, but I have not found that to be the case here. There is a clear sense of purpose to the New Energy team - to be the market leader. The team have their finger on the pulse and everyone takes responsibility to drive standards. I also genuinely like my colleagues on a personal level which, when you are in the trenches, helps.

What achievement in your career are you most proud of?

I was in the M&A team at Carey Olsen for four years before I joined Hamilton Locke and I was part of some brilliant transactions there, from advising on the merger of the Jersey Evening Post and the Bailiwick Express to working with Nordic Capital on many of their investments. The final deal I worked on was the acquisition of a corporate administration business – managing a PE sponsor and navigating complex equity documents while packing up my life to move across the globe kept me on my toes. The timing was such that I signed the deal just before I finished up and whilst it didn't exactly allow me to put my feet up for my final few weeks, signing so close to finishing up caused me to pause and reflect on how proud I was of those four years – both from a personal and professional perspective.

We have heard that you are a pianist – could you tell us more about that?

I was very fortunate to have lessons growing up and had the same teacher from age 6 to 18 – Judith Keaney, an amazing pianist. I was not blessed with talent and loathed sitting the exams, I just loved playing for the sake of playing. It is somewhat an awkward instrument to cart around with you and as I've moved from city to city, my skills are no doubt sadly fading. This question is a good prompt to be honest! If anyone knows of a good second hand piano going, please let me know!

What is your favourite movie, and why?

When the original Spider-Man film (the one with Toby Maguire and Willem Dafoe) was released back in 2002 it was rated a 12 in the UK i.e. you had to be or look over 12 to see it – I was neither! We were on holiday on in France which had a more lenient film rating system so my parents took me to see it there – it is difficult to put into words the thrill of seeing something that no other 8-year-old in the UK could – I can't see any other film replicating that buzz.

What aspects of being a lawyer do you find most enjoyable or rewarding?

It is a really hard job and being a lawyer demands a lot of you and your team, intellectually and personally – but that means it is really satisfying when the team succeed. For anyone that chooses this career, you will most likely end up working with like minded people from all over the world. That exposure to different cultures is a great aspect of the job.

We have heard that you were a 'buyer' for a breweries company – can you tell us more about that?

That's right, after I finished my law degree I worked as a buyer for Tennent Caledonian Breweries –a Scottish institution. You can get a pint of Tennents in virtually every Scottish pub (every good pub at least!). Working for a company that is so ingrained in the fabric of the nation was really cool. I had the opportunity to work with some really commercial and creative people. For anyone that visits Glasgow, you must do the tour of the brewery and bring me back a can or two.

How do you like to unwind or manage stress?

I listen to two podcasts: (i) the Rest is History; and (ii) Clyde Superscoreboard, which is a Glasgow based radio show covering Scottish football. I find when I put my headphones and listen to those shows, it takes me out a stressful situation and naturally calms me down. Stress can be good though, it means you are being challenged and gets the adrenaline going – you just need to stay in control of it, which is easier said than done at time. I love doing the New York Times crossword as well – great for taking your mind off whatever is causing you angst.

Watt is ARENA Funding?

Program	Summary	Funding available	Closing Date
Viriscent Ventures Investments	The Clean Energy Finance Corporation (CEFC) has spun out Viriscent Ventures as a venture capital fund focused around the climate. It is an investment portfolio that has deployed over $270 million of taxpayer funds through the CEFC, into climate-focused technology start-ups. The CEFC has pledged to provide up to a third of the second fund.	AUD $100 million	Ongoing
Hydrogen Headstart Round 2	Hydrogen Headstart Round 2 was announced in the May 2024 Federal Budget. The Program will provide up to $2 billion of revenue to support large-scale renewable hydrogen production projects. Further information on Hydrogen Headstart Round 2 will be made available in the second half of 2024.1	AUD $2 billion	In development. Applicants can register their interest to get updates on information about Hydrogen Headstart Round 2 when it becomes available.
Battery Breakthrough Initiative	The Battery Breakthrough Initiative was announced in the May 2024 Federal Budget. The program will provide $523.2 million to promote the development of battery manufacturing capabilities in Australia.	AUD $523.2 million	In development. Applicants can register their interest to get updates on information about Battery Breakthrough Initiative when it becomes available.
Solar Sunshot	The Solar Sunshot program will support Australia's photovoltaic (PV) manufacturing capabilities. The program aims to support innovative manufacturing facilities in Australia across the solar PV supply chain. The solar PV supply chain includes polysilicon production, production of ingots, wafers, solar PV cells and solar module assembly. The program may also support complementary aspects of the solar PV supply chain such as solar glass, module frames, deployment technology and other innovation or manufacturing elements required for solar deployment.	AUD $1 billion	Ongoing. Round 1 funding launched in August 2024, with Round 1A Expression of Interest due on 10 December 2024 and Round 1A Full Applications due on 30 April 2025.
Advancing Renewables Program (ARP)	The ARP awards grants to a range of projects that seek to: • optimise the transition to renewable electricity; • commercialise clean hydrogen; and • support the transition to low emission metals.	Up to AUD $50 million	Ongoing.
Powering the Regions Industrial Transformation Stream	The Industrial Transformation Stream seeks to support existing industrial facilities, and new clean energy developments, in regional areas to reduce their emissions, in line with Australia's 2030 targets and in support of reaching net zero by 2050.	AUD $400 million	Ongoing.

[1]Australian Renewable Energy Agency, *Solar Sunshot* (Web Page) <https://arena.gov.au/funding/solar-sunshot/>.

Program	Summary	Funding available	Closing Date
Regional Microgrids Program (RMP)	The Regional Microgrids Program (**RMP**) aims to support the development and deployment of renewable energy microgrids across regional Australia that contribute to the Program Outcomes. Funding has been allocated across two Streams under the Program, each with its own Outcomes: 1. **Stream A – Regional Australia Microgrid Pilots** – to fund Projects that contribute to the innovation and/or acceleration of developing and deploying equipment that enables the coordinated use of distributed renewable energy technologies, improving the resilience and reliability of electricity supply in regional areas and addressing barriers to deployment of microgrid solutions. 2. **Stream B – First Nations Community Microgrids** – to fund Projects that contribute to the provision of cleaner, cost effective and reliable energy in First Nations Communities and empowering these Communities to participate in electricity supply arrangements and the development of energy infrastructure.	Total AUD $125 million; - Stream A AUD $50 million; and - Stream B AUD $75 million	19 December 2025.
Driving the Nation Program	The Program is focused on accelerating the uptake of Zero Emission Vehicles (**ZEVs**). ZEVs include Battery Electric Vehicles, Hydrogen Fuel Cell Vehicles and biofuel vehicles. The Program has various focus areas that will be funded (**Focus Areas**). The current Focus Area for funding is projects which encourage uptake of battery electric vehicles by supporting innovation in the deployment and use of charging infrastructure that accelerates the adoption of managed charging.	AUD $500 million	Ongoing.
Clean Energy Innovation Fund (CEIF)	Seeks to fund emerging Australian technologies and businesses to speed the nation's transition to a renewable economy.	Up to $200 million[2]	Ongoing.
Future Made in Australia Innovation Fund	The Future Made in Australia (FMA) Innovation Fund administered by ARENA will provide up to $1.5 billion in grant funding to support pre-commercial innovation, demonstration and deployment of renewable energy and low emission technologies, to support Australia's transition to a net zero economy. The funds will be split into three priority areas: Green Metals, Clean Energy Technology Manufacturing and Low Carbon Liquid Fuels.	Up to $1.5 billion	Ongoing.

[2]*Clean Energy Finance Corporation Investment Mandate Direction 2023* sub-s 16(1).

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Solar and battery storage surges ahead of wind generation in Australia

Authors: Matt Baumgurtel, Minji Kim, Ollie Chang and Michael Kinsella



Australia is quickly becoming a renewables first economy. In this new energy mix, combined solar and battery projects are taking the lead over utility-scale wind generation.

Construction and transmission costs for new wind farms are rising. Conversely, batteries are becoming more technologically advanced and affordable, prompting developers to increasingly choose firmed solar instead. In a recent article published by Infralogic on 9 May 2025 titled "Firmed Solar Overtakes Australian Wind", Rob Clow, Senior Reporter, observed that "Australian developers are turning to solar and batteries after rising turbine, building and transmission costs have made new wind projects uneconomical".

Key insights

1. Wind costs have nearly tripled in recent years

From $1.5-2 million per MW to around $4 million per MW in total construction costs. This does not account for the "need to build new transmission" for unexploited windy areas. These transmission costs have increasingly blown out in recent years making wind an expensive and time-intensive option for developers.

2. Solar and battery costs have fallen dramatically

From $2 million per MW in 2017 to just over $1 million per MW as of 2024 for utility-scale solar. Further, battery costs have fallen from $2 million to $500,000 per MW; Brad Hopkins of AGP Sustainable Real Assets noted that "there has been an extraordinary drop in battery prices… for the energy sector that flips a lot of things on its head." This cost shift is pointed to as a key reason behind the surge in investor appetite for large-scale storage projects, which now deliver attractive arbitrage returns.

3. Cheaper and more efficient batteries drive demand

The economic advantage of developing battery and solar projects, over wind, is a key driver for the changing electricity generation market. Whilst the battery market share remains modest, the Clean Energy Council recently counted 52 storage projects in development, representing 10.5 GW / 26.3 GWh of capacity, with continued development of small- and large-scale battery projects predicted over the next decade.

4. Complications with batteries

As battery arbitrage becomes more crowded, the long-term profitability of utility-scale battery projects remains uncertain. Clow observes that "Arbitrages are meant to disappear from a market as more players crowd in to take advantage of them". This presents a long-term hurdle for parties to address early in the development.

5. Wind isn't out of the picture

Despite solar's momentum, wind still has a place in Australia's energy mix. With power demand expected to grow by 90% over the next 25 years, the industry will need every green electron it can get. Despite long wait times for wind approvals and many regulatory hurdles, now is the time to buy wind development projects in Queensland because they will need those projects to come online.

Looking ahead

An example of how battery technologies are evolving is the emergence of DC-coupled configurations, which allow solar farms to store power without first converting it to AC. As noted by Giles Parkinson in Renew Economy on 27 April 2025, the Cunderdin Hybrid Facility in Western Australia pairs a 128 MW solar farm with a 55 MW / 220 MWh battery. This setup enables the facility to shift solar output from midday into the evening peak, delivering steady "baseload-like" power between 5:30 pm and 9:30 pm.

The energy transition presents many opportunities both for consumers and producers. Firmed solar has emerged as a key technology in Australia's transition from fossil fuels to renewables. It is expected to form a significant share of the generation mix alongside wind, hydro, and hydrogen. This area is worth watching closely, particularly as battery technologies become even more efficient, cheap and capable."

The Hamilton Locke team advises across the energy project life cycle – from project development, grid connection, financing, and construction, including the buying and selling of development and operating projects. For more information, please contact Matt Baumgurtel.



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Shared storage, shared future – incentivising community batteries

Authors: Matt Baumgurtel, David O'Carroll, Megan Chau and Anne Pan



Community batteries are an emerging development in the energy sector. Introduced in Australia in 2020, they serve as a shared energy storage solution for local neighbourhoods, allowing residents to collectively store excess solar photovoltaic (**PV**) energy during the day and draw upon that stored power at peak demand to reduce reliance on grid electricity.

Benefits

As community batteries are still an emerging technology, their full benefits are yet to be realised. Nonetheless, there are a range of anticipated benefits that will significantly improve Australia's green energy landscape. Community batteries are expected to:

- make energy storage more cost-effective as the community batteries are designed to charge during periods of low electricity demand;[1]
- allow households that cannot install solar panels (such as apartments) to utilise renewable energy;[2]
- support voltage regulation and improve the overall quality of the local electricity network;[3]
- lower emissions; and
- lower electricity bills overall.[4]

Case studies on successful deployments

1. Mandurah (WA)[5]

In 2021, two community batteries were installed in Mandurah as part of Western Australia's first community battery storage trial, providing the community with a combined 221kW of solar energy storage. Western Power described the initiative as a significant success, noting that it contributed to Mandurah becoming 221 times more sustainable.

Several factors have contributed to this strong outcome. Mandurah has a well-established track record of proactive efforts to reduce its environmental footprint. At the time of installation, it was recognised as Western Australia's leading solar suburb. This pre-existing enthusiasm for renewable energy played a crucial role in the successful uptake and operation of the community battery trial.

2. 'Power Melbourne' Program[6]

In 2024, the City of Melbourne announced plans to deploy three community batteries at Council House, the Boyd Community Hub and the Library at the Dock as part of its long-term strategy to transition to 100% renewable energy by 2030 and achieve net-zero emissions by 2040.

In a densely populated urban centre like Melbourne, approximately 83% of residents live in apartments, which typically preclude the installation of individual solar energy systems. This program was designed to provide the community access to clean, renewable and cheaper energy, resulting in the powering of more than 70 homes on a daily basis.

The community battery at Council House was successfully deployed in July 2024, with the other batteries to be switched on at Boyd Community Hub and Library at the Dock in due course.

3. Community batteries for household solar program: the Illawarra[7]

As of late March 2025, Endeavour Energy has deployed 13 new community batteries in Illawarra through funding received from the federal 'Community Batteries for Household Solar' program. By installing these batteries, the initiative aims to continue lowering energy bills by up to $400 annually for 600 solar and non-solar residents, while actively advancing Australia's endeavours towards a more sustainable and reliable electricity grid.

This deployment comes after extensive consultation with residents, reflecting strong community support for sustainability and extensive access to renewable energy sources.[8]

On the horizon

The rollout of community batteries has historically encountered significant delays. In instances where deployment has occurred, the anticipated benefits have yet to materialise to a significant extent.

Notably, since the Albanese government came into power in 2022, only 21 of the 400 community batteries promised under Labor's initiative are in operation.[9] There are a number of potential reasons for this delay, such as supply chain and procurement issues, grid integration challenges, and regulatory and policy complications. However, to mitigate this issue and help Australians lower energy costs as community batteries continue to be gradually deployed, the Labor Government announced the 'Cheaper Home Batteries Program' in April 2025. The $2.3 billion initiative will aim to reduce the cost of home battery systems by approximately 30% from July 2025.[10]

Despite unprecedented delays, there is continued appetite for community batteries, with federal initiatives and funding supporting multiple projects in the pipeline. As of 10 April 2025, plans are in place to install 10 community batteries at the University of Wollongong to support the energy requirements of research laboratories, medical research facilities and other academic infrastructure.[11] This project is part of the Australian Renewable Energy Agency (ARENA) Community Batteries Funding Initiative, that has received a total of $171 million to develop at least 342 community batteries.[12]

At a state level, there are several initiatives that are well underway, including:

Victoria: The Victorian government commenced the '100 Neighbourhood Batteries Program' to support Victorian communities successfully transition to renewable energy, lower costs, increase energy reliability, and overall expand the deployment of operational models for neighbourhood-scale batteries.[13] The Victorian Government currently funds 26 projects, but promises a total installation of 90 batteries throughout Victoria.

South Australia: In South Australia, the government have partnered up with local councils to deliver community batteries for their citizens through the 'emPowering SA' program.[14] The first two batteries under this program are emPowering Magill and emPowering Edwardstown, which will lower residential electricity rates to at least 600 tenants combined over their expected 15-year life, totalling an estimated $5 million worth of benefits.

Policy considerations

1. Legislative and jurisdictional alignment

Federal government programs for community batteries need to align with city councils for continued installation. Without a clear alignment of environmental goals and continued conversations between governmental bodies, nor a formal national framework in place, the operation of community batteries within our current energy landscape will continue to be hindered or outright rejected.

For example, in March 2025, the Brisbane City Council denied three development applications under the 'Community Batteries for Household Solar' federal program.[15] The batteries would have been placed in public parks, which the Council argued would cause a loss of green space. This decision has been contentious, with concerns about delaying the rollout of such important infrastructure being voiced.

2. Economic viability

Economic viability of community batteries hinges on well-aligned network and storage tariffs, market incentives and government grants, especially for non-Distribution Network Service Providers (**DNSPs**).[16] Punitive storage and network tariffs disincentivises community-led battery initiatives because it is not financially viable. This can pose an issue because local governments and community-led groups tend to garner stronger trust within communities, which may lead to smoother implementation of community battery projects.[17] There needs to be supportive tariffs and more government grant allocation for non-DNSPs to increase economic viability for all groups that are advancing the deployment of community batteries.

For both DNSPs and non-DNSPs, the commercial outcomes of community batteries are heavily dependent on market conditions, which are known to be volatile.[18] This can pose risks on the potential revenue generated from community batteries.

Economic viability is a key consideration for consumers, too. Ausgrid reported that cost savings was the primary factor in focus group participants' interest in community batteries, suggesting there needs to be continued rebates on exporting solar energy, low energy bills, and low network costs for maximum community engagement.[19]

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3. Equitable access

There is a growing public sentiment that community batteries should benefit all members of the community, not just solar panel owners.[20] Future policy design should incorporate the need for equitable access to community battery benefits to encourage genuine community involvement, which will result in increased positive attitudes within the wider community towards creating a sustainable future.

Regulatory considerations

1. Ownership constraints

The current National Electricity Rules (**NER**) allow DNSPs to own community batteries. However, unless DNSPs are granted an approved waiver from the Australian Energy Regulator, they are limited to only delivering regulated network services such as supporting voltage in weak parts of the network or deferring a larger network investment. DNSPs cannot provide contestable services such as selling energy or participating in Frequency Control Ancillary Services markets.

Although the purpose is to maintain market contestability by preventing any monopolies from being formed, it may result in disincentivising DNSPs from installing batteries on their networks.[21]

2. Market registration and participation requirements

There are several complex regulatory requirements set for battery operators that intend to provide, or trade, energy or ancillary services in the National Energy Market (**NEM**). These requirements include registering as Small Generation Aggregators for batteries under 5MW, partnering with a registered market participant, or, for those who own, operate or control a battery system with a nameplate rating of 5MW or greater, registering as both a Scheduled Generator and a Market Customer, unless the battery system never imports electricity from the grid.[22]

Furthermore, there are additional financial, technical and compliance obligations imposed. For example, irrespective of the model, deploying community-scale batteries will require enhanced technological capabilities that will need to be coordinated by a community battery provider.[23] This may include new metering, integration, telemetry and control systems.[24]

Projects will also require management and governance structures to meet the interim arrangements of the Australian Energy Market Operator (**AEMO**), who manage the NEM. This includes:

- NER-compliant metering at each connection point;
- providing real-time data on the state of charge, charge/discharge rates, and other operational metrics to AEMO; and
- negotiating Generator Performance Standards.[25]

These requirements pose challenges predominantly for small councils or community-led groups due to a lack of resources and funding.

Due to such complex regulations, there are existing reforms and ongoing proposals at the federal level to expand the market and be more inclusive through the 'NEM Reform Program'[26] such as:

- the establishment of the Integrating Energy Storage Systems project, which introduced a new registration category called 'Integrated Resource Provider' that will accommodate hybrid battery systems to easily register in the market;[27] and
- integrating price-responsive resources into the NEM so that they are appropriately considered when determining energy demands, resulting in increased efficiency of energy, security and reliability services for consumers.[28]

3. Network tariffs and cost recovery

Currently, network tariff structures are not designed for localised, bidirectional energy systems.[29] This creates a major barrier for the feasibility of community-scale batteries within the NEM. To tackle this issue, there are current proposals and trials underway,[30] including:

- the local use of service tariff which is proposed to reward electricity that is locally generated and consumed; and
- allowing DNSPs to apply network tariffs to households for excess solar PV exports to levy customers for the cost of network usage associated with exporting the energy.

Overall, as community batteries are a very recent addition to the energy landscape, regulatory amendments are continuing to unfold and adapt to accommodate issues that arise as the batteries continue to be expanded.

Act now

The deployment of community batteries is a promising initiative pioneering Australia's transition to a cleaner, more resilient energy system. While the technology holds immense potential, from enabling equitable access to renewable energy to alleviating grid pressure and reducing electricity costs, large-scale deployment remains in its early stages. The success stories from Mandurah, Melbourne and the Illawarra illustrate that when implemented thoughtfully, community batteries can deliver meaningful benefits. However, regulatory hurdles, economic viability, and intergovernmental coordination continue to challenge progress.

To unlock the full potential of community batteries, it is crucial for governments, regulators, and communities to work collaboratively. Policy frameworks must evolve to better support innovation, ensure fair access, and create economic incentives for all stakeholders. As Australia continues to navigate the complexities of integrating distributed energy resources into the grid, community batteries, deployed effectively, could become a cornerstone of our clean energy future.

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Plugging in: how BESS integration is shaping contract models for renewable projects

Authors: Matt Baumgurtel, Adriaan van der Merwe, David O'Carroll, Megan Chau and Ollie Chang



As grid-scale battery energy storage systems (**BESS**) become central to making renewable energy projects more financially sustainable, more developers are choosing to integrate them on new projects. Likewise, existing asset owners are retrofitting BESS to enhance dispatch flexibility and improve, project returns. In both cases, project teams need to decide whether to manage the integration under a single full-wrap contract or under a split contracting structure.

Under the **Full Wrap** model, the principal entity contracts with the Engineering, Procurement and Construction (**EPC**) contractor, who is responsible for delivering the construction work, equipment and integration services under a single EPC contract. The EPC contractor then subcontract specific scopes to third party suppliers and contractors, such as the BESS supplier, construction work contractor and integrator.

A **Split Contract** sees the principal entity contracting separately with the construction work contractor, equipment supplier and integrator. Each contractor is responsible for their respective scope of works and the principal (either itself or through a consultant) is responsible for the management and coordination of delivery.

The full wrap model is generally preferred by principals seeking simplicity. There is a single point of accountability, reducing interface risk and limiting the need to resolve disputes (including recovery of costs) between multiple parties. This structure also aligns more comfortably with project financing, as lenders tend to favour a unified contract structure backed by familiar security instruments.

In contrast, the split model offers more flexibility and potential cost savings (though removing the EPC contract margin), particularly in a tight EPC market. Risks, however, abound and emphasis is often placed on coordination, a clearly defined responsibility matrix and expert in-house or external support.

Key split contracting considerations

1. **Principal contractor role** – Depending on how the works are scoped, a decision needs to be made if one principal contractor will be responsible for WHS compliance for the entire site, or if separate principal contractors will be appointed for specific portions of the site.
2. **Development approvals** – In many cases, planning approvals and lease terms would not have been drafted with future BESS expansion in mind. Changes to site use or new environmental assessments or approvals may be required, depending on the jurisdiction and project history.
3. **Offtake considerations** – Where offtake or support agreements are in place, the integration of a BESS may have implications for those arrangements. Project owners should consider whether any amendments, notifications or consents may be required depending on how the BESS will interact with the existing energy output or market participation strategy.
4. **Technology** – The BESS must be integrated and compatible with the technology used by the existing renewable energy project, including Supervisory Control and Data Acquisition (and the energy management system. This especially comes to the fore when integrating a new BESS onto a comparatively older project. Accordingly, the relevant BESS integrator must possess sufficient expertise to reconcile any technological differences and ensure the smooth operation of the assets.
5. **End-of-life strategy** – When integrating a BESS, project developers and owners should ensure an end-of-life strategy which plans for the disposal, recycling or replacement of the BESS in compliance with local environmental laws.
6. **Project finance** – In a third-party project finance context, contract structure can significantly influence lender appetite. Full-wrap arrangements commonly have a consent deed linking the lenders, EPC contractor, and project company to provide direct rights and enforceability. In contrast, split models often require additional due diligence and enhanced security to address integration risks. Lenders may seek conditional deeds of novation between the project company, EPC contractor and BESS integrator (and separately, with the Operations and Maintenance () contractor and BESS O&M provider) to ensure step-in rights and continuity. Additional security, such as parent company guarantees or bank guarantees from both the BESS integrator and BESS O&M provider, may also be required to mitigate risks of low performance, availability issues, or latent defects over the asset life.

Hybrid integration in solar: unlocking operational and commercial value

BESS integration into solar PV projects is rapidly becoming a core strategy for enhancing both grid reliability and commercial performance. Among the various integration methods, DC-coupling, where solar and storage assets share a single inverter and connection point, is typically preferred. This configuration streamlines grid interaction, reduces balance-of-plant costs, and eliminates the need for separate metering or dual-connection infrastructure. It also improves system efficiency by enabling direct charging from the solar array without intermediate AC conversion.

Beyond technical advantages, DC-coupled hybrid systems present a strong commercial case. By storing excess energy generated during periods of low demand or negative pricing, and discharging it during peak pricing intervals, these systems enable participation in energy arbitrage, frequency control ancillary services (**FCAS**), and other grid support mechanisms. This revenue stacking potential is particularly valuable in a volatile market. While hybrid development is increasingly being adopted at the greenfield stage, the economic impact of curtailment, particularly in high-penetration renewable zones, has prompted many asset owners across the National Electricity Market to explore retrofitting BESS onto existing solar PV assets.

Retrofitting BESS into existing projects introduces additional layers of technical and regulatory complexity. Initial feasibility assessments should consider whether amendments are needed to land tenure agreements, planning approvals, or other project authorisations. Upgrades to inverters and hybrid controllers may be required, depending on the existing site design and age of the PV plant. Compliance testing, including AEMO's Dynamic Model Acceptance Testing, may also be triggered, adding further cost and time to integration. Grid constraints can limit the feasible capacity or discharge profile of the battery, directly influencing system design and commercial returns. Despite these hurdles, a well-executed retrofit can significantly improve project economics and operational flexibility, particularly when supported by clear integration strategies.

For solar projects integrating BESS, whether through greenfield development or as a retrofit, the choice of contracting model remains a key commercial consideration. While full-wrap EPC arrangements continue to appeal to investors and lenders seeking a streamlined, lower-risk structure, BESS integration often demands deeper involvement from the asset owner due to its technical and regulatory complexity.

There is no one-size-fits-all model when it comes to BESS integration with renewable energy projects. What is clear is that as storage becomes a central pillar of renewable energy projects, integration will remain a critical area of legal and commercial focus.

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A timely investment: distressed M&A opportunities in Australia's renewable energy sector

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Australia's renewable energy transition is not without its challenges. The sector's rapid expansion, against a background of evolving government policies and shifting market dynamics, is creating challenging conditions for projects. While the industry has seen substantial growth in wind, solar, and battery energy storage systems (BESS), an increasing number of projects are facing financial and operational difficulties, leading to distressed asset sales.

Sub-optimal infrastructure, approval delays, rising debt costs, and financial stress have all contributed to the growing pool of distressed renewable assets. As a result, mergers and acquisitions (M&A) in the renewables sector are increasingly focused on acquiring and restructuring troubled projects. For well-capitalised investors, acquiring distressed assets at a discount presents a unique opportunity if they can successfully navigate the legal and financial complexities involved. These deals also provide a viable exit strategy for sellers who can minimise further expected losses from their asset.

When is a renewable energy asset 'distressed'?

A renewable energy project is considered "distressed" when it faces financial, operational, or physical challenges that threaten its viability. These challenges may include:

- **Revenue pressures** – Low or negative electricity prices reducing profitability.
- **Debt burdens** – High leverage making it difficult to service debt obligations.
- **Curtailment issues** – Limited grid capacity or economic factors forcing reduced generation.
- **Regulatory hurdles** – Permit or approval delays or compliance risks affecting project timelines.
- **Market dynamics** – Shifts in energy pricing, competition from newer technologies, or changing policy incentives.

What's driving distress in the renewables market?

1. Economic and grid curtailment

Curtailment is one of the most pressing challenges facing renewable energy projects. The main types of curtailment affecting energy assets are:

- **Economic curtailment:** when market conditions make it unprofitable to generate electricity, such as when wholesale prices drop to negative levels during periods of oversupply.
- **Grid curtailment:** when transmission infrastructure is unable to handle the volume of energy produced, forcing renewable generators to scale back output.

Projects located in areas with weak grid infrastructure or that are exposed to volatile market pricing, will be affected more by curtailment pressures.[1]

2. Financial viability and debt pressures

The financial health of a renewable asset is closely tied to its **Levelized Cost of Energy (LCOE)** and debt structure. Projects with **higher-than-market LCOE** struggle to compete, especially when technological advancements drive down the cost of new developments.[2]

- **Debt-heavy projects** face refinancing risks, particularly in a rising interest rate environment. Increased debt servicing costs can strain cash flow and lead to lower profitability.
- **Delayed projects** often suffer from cost overruns and revenue shortfalls, further compounding financial stress.

3. Transmission and infrastructure bottlenecks

Grid congestion and high **Marginal Loss Factors (MLF)** are additional challenges for renewable projects. Assets located far from demand centres experience higher transmission losses, reducing the actual energy delivered to the grid. Transmission delays and lack of energy storage solutions exacerbate these issues, making it difficult for projects to generate consistent returns.

The market outlook

Australia's renewable energy market is expected to continue its strong growth trajectory, with total capacity projected to reach **57.38 GW by the end of 2025,** driven by solar, wind, and battery investments.[3] M&A activity in renewables and energy infrastructure grew by 4% in 2024.[4]

The following factors will likely lead to **an increase in distressed M&A:**

- **Interest rate decreases** will allow for higher borrowing capacity for buyers. Similar increases in other markets have fuelled M&A activity.
- **Withdrawal of government support** provided during the COVID-19 pandemic has led to a growing number of businesses becoming insolvent.
- **Government policies** will continue to shape market dynamics, influencing investor appetite for struggling projects.

These conditions will likely see a surge of interested investors and allow owners of distressed assets to sell their assets, decreasing debt commitments and avoiding further costs. The ongoing global energy transition and heightened demand for renewable energy will mean higher deal value and minimal capital loss for sellers.

Turning distress into opportunity: Key strategies for M&A buyers

From a legal perspective, distressed assets often have encumbrances, unresolved contractual obligations, or regulatory compliance risks that can complicate transactions. Buyers must assess potential liabilities, unexpired power purchase agreements (PPAs), and pending litigation before pursuing a deal. For investors and energy companies looking to capitalise on distressed M&A opportunities, several key strategies can be employed:

1. Restructuring and financial optimisation

- Debt restructuring – Buyers with strong financial expertise can renegotiate debt terms or acquire distressed debt at a discount, converting it into equity.
- Cost optimisation – Implementing cost-saving measures, such as renegotiating supplier contracts or improving operational efficiencies, can enhance project viability.
- Refinancing under better terms – As interest rates shift, acquiring distressed assets and securing financing at lower costs can improve project economics.

2. Grid and transmission solutions

- Strategic site selection – Acquiring distressed assets in areas with lower grid congestion or planned infrastructure improvements can mitigate transmission risks.
- Storage integration – Investing in battery storage solutions to manage curtailment and capture value from peak pricing periods.

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3. Repowering and technology upgrades

- Replacing outdated technology – Older wind and solar projects with higher LCOE can benefit from repowering initiatives, where newer, more efficient equipment is installed.
- Leveraging AI and predictive maintenance – Optimising asset performance using data analytics can improve long-term profitability.

4. Acquiring assets below replacement cost

- Many distressed renewable assets are being sold below their original development cost, providing investors with an opportunity to acquire projects at attractive valuations. With careful due diligence, investors can unlock value by stabilising operations and securing long-term revenue streams.

Who stands to benefit?

The growing pool of distressed renewable assets presents opportunities for various market participants:

- Owners of distressed projects – While financial distress can be a challenge, owners have several potential avenues to extract value from their assets. Selling to a well-capitalised buyer can provide an exit strategy, allowing them to recover capital and avoid prolonged financial strain. Alternatively, restructuring through debt refinancing, joint ventures, or securing new PPAs can help stabilise the project and extend its operational viability. Owners who proactively engage with investors or restructuring specialists can ensure they retain some upside while alleviating financial pressure.
- Private equity and infrastructure funds – Can acquire distressed assets, restructure them, and exit profitably.
- Renewable Energy Developers/Asset Owners – Can deploy capital to the asset, optimise and renovate the equipment before operating efficiently.
- Utilities and independent power producers (IPPs) – Can expand their portfolios, optimise operations, and achieve economies of scale.
- Debt investors and special situation funds – Can take advantage of loan-to-own strategies, converting distressed debt into asset ownership.

For distressed asset owners, the key is early intervention and strategic decision-making: whether that means a structured exit, financial restructuring, or operational turnaround. By taking proactive steps, project owners can mitigate losses, preserve stakeholder confidence, and potentially reposition their projects for long-term success.

Navigating distressed M&A: legal and strategic considerations

While distressed asset acquisitions present significant opportunities, they also come with unique legal and financial risks that require careful navigation. Unlike traditional M&A deals, distressed transactions often occur on accelerated timelines with limited access to seller-provided information. This can create challenges in conducting due diligence and assessing potential liabilities.

Sellers in financial distress may not be able to provide extensive contractual protections, such as warranties and indemnities, leaving buyers exposed to greater risks. To mitigate this, investors should:

- Ensure comprehensive due diligence to uncover hidden liabilities, regulatory risks, or operational deficiencies before finalising the acquisition.
- Negotiate warranty and indemnity (W&I) insurance to protect against unforeseen risks, particularly in cases where sellers cannot offer traditional legal protections.
- Structure deals strategically, including considering deed of company arrangement (DOCA) mechanisms in insolvency situations to negotiate better terms with creditors.
- Address regulatory and compliance challenges early, ensuring that the acquisition meets all legal requirements and avoids post-transaction disputes.

With the right legal and financial strategy, buyers can successfully acquire and restructure distressed renewable energy assets, maximising value while minimising risk. Given the complex nature of these transactions, engaging experienced legal advisors is critical to navigating the process efficiently and ensuring a successful outcome.

The future of distressed M&A in renewables

With economic and market conditions creating an environment where distressed asset sales will likely increase, strategic investors have a unique opportunity to acquire and revitalise struggling renewable projects. By leveraging financial restructuring, operational efficiencies, and technological advancements, buyers can turn distressed assets into high-performing investments that contribute to Australia's clean energy transition.



As M&A activity in the renewable sector intensifies, those with the capital and expertise to navigate the distressed asset sector will be well-positioned to create long-term value while supporting the industry's growth.

Navigating distressed M&A requires more than just financial resources – it demands a deep understanding of regulatory risks, contract restructuring, and creditor negotiations. Our team has advised on complex energy transactions, from distressed debt restructures to insolvency-linked acquisitions, ensuring buyers mitigate risk while maximising value.

If you are looking to capitalise on distressed opportunities in renewables, we can guide you through every stage of your transaction.

The Hamilton Locke team advises across the energy project life cycle – from project development, grid connection, financing, and construction, including the buying and selling of development and operating projects.

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Navigating BESS planning approvals across Australia

Authors: Amelia Prokuda, Amelia Caldwell and Cory Johnson



As Australia works towards its target of 82% renewable energy generation by 2030,[1] battery energy storage systems (**BESS**) are playing a vital role. They store excess energy from sources like wind and solar when demand is low, and release it when it's needed, helping to keep the power grid stable.

In Q4 2024 alone, five new BESS projects reached financial close,[2] and with global demand for BESS expected to increase tenfold by 2030,[3] the number of projects is set to rise significantly. But getting approval for BESS projects isn't always straightforward — rules and regulations timelines vary across states. Below we explore the key planning and approval stages, and common regulatory challenges for battery projects in Australia.

Planning and approval stages for battery projects

While requirements differ across jurisdictions, the planning and approval process for BESS projects can be broadly categorised into the following steps.

1. Preliminary site assessment and strategic planning

The initial step is to confirm the permissibility of the proposed BESS use under the relevant local planning instrument (such as a local environmental plan (**LEP**) in New South Wales or a planning scheme in Queensland or Victoria). This involves:

- Reviewing zoning controls to confirm if the use is permitted with or without consent;
- Assessing whether specific overlays apply (e.g. environmental, bushfire, flood risk, cultural heritage); and
- Identifying whether the site is subject to any State or Regional infrastructure planning frameworks (e.g. Renewable Energy Zones).

At this stage, legal risks associated with land tenure, easements or the need for rezoning are also identified.

2. Development consent application

Once site suitability is confirmed, the proponent must determine the appropriate development pathway:

- **Exempt or complying development** – in limited cases, small batteries may be installed as exempt or complying development, particularly when ancillary to an approved land use;
- **Local development** – Most standalone or utility-scale battery projects require a development application (**DA**) to the local council or regional planning authority; or
- **State significant or major projects** – larger batteries, for example, those over 30MW in NSW, may qualify as State Significant Development (**SSD**) under the *Environment Planning and Assessment Act 1979* (NSW) (**EPA Act**) or equivalent major project categories in other jurisdictions. These require more rigorous environmental assessments and are determined by state-level authorities.

Battery projects are not yet uniformly recognised across planning frameworks, meaning classification must be carefully determined on a case-by-case basis.

3. Environmental impact assessment

Depending on size, location, and potential environmental effects, the project may require an Environmental Impact Statement (**EIS**) or other form of Environmental Impact Assessment (**EIA**).

Trigger points for EIA often include:

- Proximity to environmentally sensitive areas (e.g. threatened species habitat, wetlands, watercourses)
- Location within bushfire-prone or flood-prone areas
- Significant visual or landscape impacts
- Potential Aboriginal and Torres Strait Islander or historic cultural heritage impacts.

Where significant environmental impacts are likely, formal scoping and specialist studies (flora and fauna surveys, cultural heritage assessments, bushfire risk assessments, visual impact assessments) will be required. Early consultation with the planning authority is advisable to confirm assessment requirements and avoid incomplete lodgments.

4. Public exhibition and submission process

Where formal assessment is required, the development application and accompanying EIS (or relevant environmental documents) will be placed on public exhibition. During this period, interested parties (including landowners, community groups, and environmental organisations) may lodge submissions. Objections often focus on fire risk, property values, visual amenity, environmental concerns, and the industrialisation of rural landscapes. The developer must consider and respond to submissions, and in some cases, an Independent Planning Commission or equivalent body may conduct public hearings

5. Determination

Following public exhibition and assessment, the application is determined by the relevant authority. Local developments are typically decided by councils or regional planning panels, while State Significant Developments are determined by the Minister for Planning or an independent body (such as the IPC in NSW). Approval conditions are often imposed, including:

- Environmental management plans
- Fire safety measures
- Heritage protection requirements
- Landscaping and visual screening measures.

Developers and third parties may have limited rights of review or appeal to specialist courts or tribunals, depending on the jurisdiction.

6. Post-approval compliance and modification

After approval is obtained:

- Post-consent approval conditions must usually be submitted and approved before construction can commence.
- Monitoring and compliance obligations are imposed, including periodic reporting on environmental performance and incident notification requirements.
- Modification applications may be necessary if the project design evolves materially after development consent is granted.

Non-compliance with approval conditions can result in penalties, project delays, or enforcement action by regulators.

Differences in approval timelines by size and jurisdiction

Approval timelines vary significantly depending on the size and jurisdiction of the project. There is often a considerable gap between statutory approval timeframes and the actual time developers wait to receive their approvals. Utility-scale BESS projects over 30MW typically face longer approval periods—ranging from nine months to 2 years — especially where EIAs or ministerial sign-off are required, such as in New South Wales and Victoria.[4]

The industry average estimates below are for guidance purposes only based on what we are seeing in the market and may be subject to change.

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Jurisdiction	<5MW Projects		Utility-Scale Projects (>5MW)	
	Statutory Approval Timeframes (in some cases subject to extension by agreement)	Industry Average	Statutory Approval Timeframes (in some cases subject to extension by agreement)	Industry Average
New South Wales	40 calendar days	3-6 months	90 calendar days	6-24 months
Victoria	10 business days (VicSmart)	1-2 months	60 calendar days	6-12 months
Queensland	20 business days (code assessable)	2-4 months	35 business days after notification	6-12 months
South Australia	5-20 business days	1-3 months	20 business days	4-8 months
Western Australia	60 calendar days	3-6 months	60-90 calendar days	6-12 months
Tasmania	28 calendar days	2-4 months	42 calendar days	6-9 months
Northern Territory	28 calendar days	2-4 months	28 calendar days	4-8 months
Australian Capital Territory	30 working days	2-4 months	120 working days	8-14 months

Common regulatory hurdles and solutions

Currently, developers of BESS projects across Australia face several regulatory challenges in navigating the planning approval stage.

1. Lack of planning policy recognition

BESS projects are often not explicitly recognised as standalone land uses in local planning schemes, creating uncertainty around zoning, permitted uses and approval pathways.

While each State outlines the planning approval process for renewable energy projects generally, there is a lack of specific guidance for BESS projects. For example, the New South Wales Department of Planning, Housing and Infrastructure (**DPHI**) released a Wind Energy, Large-Scale Solar Energy, and Hydrogen Guideline but to date has remained silent on BESS'.[5]

Engaging specialist legal teams can help with interpreting existing planning frameworks, identifying applicable precedents, and developing robust strategies to navigate these policy gaps.

2. Bushfire risks and hazard concerns

The risk of fire, thermal runaway and hazardous material release is specific to battery technologies, especially lithium-ion systems.[6] While other energy projects may have their own safety concerns (e.g. oil leaks from transformers, or blade throw from wind turbines), the fire and chemical risks associated with large-scale batteries require bespoke safety assessments, emergency response planning and compliance with evolving standards.

In Victoria, the Central Fire Authority (CFA) has outlined its 'Design Guidelines and Model Requirements' for renewable energy projects (including BESS projects).[7] Among other things, CFA's model requirements state than an application for a BESS project planning approval in Victoria must contain an explicit statement from the developer that a Risk Management Plan, Fire Management Plan and Emergency Plan will be prepared in consultation with CFA prior to commencing development, along with a bushfire hazard site and landscape assessment if the project is located in a bushfire prone area.[8]

Early consultation with the relevant state or territory fire service is important to reduce the likelihood of planning approval delays.

3. Decommissioning and end-of-life management

Battery projects raise unique questions about the handling, recycling, or disposal of large volumes of electrochemical cells at the end of their operational life. The potential for hazardous waste, specialist recycling processes and the environmental impact of battery materials are more significant than for most energy projects.[9]

Technological advancements in recycling and evolving standards mean that regulatory expectations and industry best practice are continually shifting.

Developers must proactively monitor changes in relevant legislation, recycling technologies, and industry guidelines to ensure that their decommissioning and end-of-life management strategies remain current and effective.

This includes engaging with licensed waste contractors, prioritising recycling and resource recovery wherever possible and maintaining detailed records of all waste movements and disposal methods.

Find out more about the advancements in circular economy initiatives for renewable energy in our New Energy Quarterly: Circular Economy.

What's next

As Australia accelerates its shift to renewable energy, BESS projects are essential for supporting a stable and reliable grid. However, inconsistent planning frameworks, bushfire risks, and decommissioning uncertainty continue to pose significant regulatory challenges. To streamline approvals and avoid costly delays, developers must engage early with planning authorities and relevant stakeholders, including fire services. Clearer national guidance and policy recognition of planning approvals for BESS projects would help remove uncertainty and facilitate development. As demand for battery storage grows, proactive, transparent, and inclusive planning will be essential to ensure BESS projects can be delivered at the pace and scale needed to meet Australia's renewable energy targets.

The Hamilton Locke team advises across the energy project life cycle – from project development, grid connection, financing, and construction, including the buying and selling of development and operating projects. For more information, please contact Matt Baumgurtel and Amelia Prokuda.



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Ground rules: land considerations shaping the future of Battery Energy Storage Systems

Authors: Margot King, Ching Yee Tan and Aarthi Parthiban

Where a Battery Energy Storage System (**BESS**) is located is an important consideration for developers.

While there are less constraints on the location of a BESS development compared to weather dependent electricity generation plants, the proximity of a BESS to connection points and where it sits within a grid will affect construction costs, revenue generation and grid stability.

Establishing land use rights

Securing land use rights for a BESS development is similar to the process for solar and wind farm developments.

During the investigations and preliminary activity phase, a developer will need access. This is typically provided in an exclusivity agreement, option deed or a licence agreement.

- **Exclusivity agreement:** This agreement is typical in the very early stage of negotiations and it will require the landowner to give the developer exclusive rights to negotiate longer form binding agreements, in exchange for an exclusivity fee. It may also include access rights to carry out surveys and preliminary activities, which may be needed to determine the further commercial terms.
- **Option deed:** An option is the most commonly used document at the second stage of the project. This deed can either grant the developer an option to lease or an option to purchase land during a specific timeframe called an option period. Typically, the option agreement will allow developers to access the land during the option period to carry out investigations and to determine if that land is viable for the project.[1]
- **Access licence:** A developer can also enter into a licence agreement. This would usually be for an adjacent piece of land and would usually be for road access to the option/ exclusivity land.
- **Traditional owner agreement and engagement:** Traditional owner engagement needs to be started early. Some preliminary activities on land on which native title exists may require an indigenous land use agreement, although typically the Indigenous Land Use Agreement is not finalised until later.

A developer is unlikely to incur the costs of the preliminary activities without having secure rights to tenure.



If a developer concludes that a piece of land is suitable for its renewable energy project, the developer can enter into the following agreements with a landowner:

- **Lease:** A long term lease is usually preferred to freehold. This is because it is a better use of capital and is often more appealing to landowners that have held the land for generations. These leases typically are for terms of 20 – 40 years (taking into consideration the operative life of the infrastructure).
- **Sale Contract:** Developers will also buy land if the landowner is willing and there are no capital constraints. Good land with viable grid connections will typically sell at a significant premium to their rural land value alone.
- **Indigenous land use agreement and cultural heritage:** Traditional landowners may also have native title rights and developers should engage early and often in a meaningful way. Developers may also need a Cultural Heritage Management Plan to comply with state based legislation and also for social licence as well as respect for local communities and their heritage.

Additional requirements will apply if a developer intends to undertake a project on Crown Land.

Foreign Investment Review Board (**FIRB**) approval will generally be required for any licence or lease of land in excess of 5 years or purchase of land by a foreign person, above the applicable monetary thresholds. Generally, an option deed or contract for sale will be subject to a FIRB condition precedent.

Distinction from solar and wind farms

A BESS' footprint is much smaller than a solar or wind farm.[2] For example, a 1 MW BESS facility typically requires around 50 square meters.[3] In comparison, every MW of energy generated on a solar farm will have a 2 – 3 hectare land footprint.[4]

Further, developers are not as constrained when choosing a location for a BESS development in comparison with weather dependent energy developments, which requires significant testing and investigations to identify the most suitable areas for maximum production.[5] The location of solar and wind farms are also constrained by exclusion zones due to their size and impact on the local community – for example, the flickering and noise generated by wind turbines and the shadows casted over its surrounds.[6]

A BESS can be connected within many spots in the pre-existing transmission and distribution network without the same level of geographical consideration.[7]

One disadvantage that is posed by a BESS is the loss of availability for land for other purposes. While solar and wind farms occupy a larger space, they can often coexist with farming and agriculture uses.[8] The installation of solar panels have even been found to enhance the conditions of the land for grazing and crops due to the shade it provides.[9] In contrast, land occupied by a BESS cannot co-exist with other uses in this manner.

Relevant Considerations

Competing land uses

Similar to solar and wind farms, the development of a BESS project must take into consideration competing land uses and the terms of co-existence between the BESS, agricultural uses, mining activities and potentially native title rights.

See our article discussing issues with competing land uses here.

Community engagement, social benefits and impact on neighbours

In respect of a BESS project, neighbours are often concerned with increased noise levels and visual impacts of BESS structures.[10] BESS can generate a humming or buzzing noise which can be disturbing to noise receptors.[11] There is also likely disturbance from construction traffic.

Some developers enter into agreements with neighbours to compensate for or mitigate the impacts caused by their renewables project. This process can occur at an earlier stage to address potential roadblocks through consultations directly with the neighbours. These agreements may include various mechanisms such as annual payments to neighbours, reimbursement for items such as visual screening or an option to acquire the neighbour's property.[12]

Developers will also usually have a community benefits programme which supports local projects and community groups to establish good relationships with the community.

Subdivision requirements

When entering into lease agreements, the developer must also consider the potential need to subdivide the land. In NSW long term leases of BESS are 'premises' leases and do not trigger deemed subdivision rules. In Victoria and South Australia, lease of part of a lot for renewables projects do not trigger deemed subdivision rules that apply in other states. In Queensland and Western Australia, long term leases of part of a land requires subdivision approval.

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Fire risk management

Batteries are prone to thermal runaway (a rapid and uncontrolled increase in temperature), caused by manufacturing defects or overuse.[13] Potential locations need to be assessed for effects BESS may have on the public and nearby hazards prior to development. Developers will need to plan an adequate mitigation strategy for fire risks.[14] For example, nearby bushland can be affected by bushfires that may spread to the BESS infrastructure. Developers may also need to erect an adequate exclusion zone for public safety.[15]

Contamination and biosecurity

BESS can present a contamination risk, but it does depend on the type of technology. If there is a fire, toxic gases can be released and there can be contaminated run off water.

Landowners, especially those in Queensland, will be very concerned about traffic on and off the property and the potential for spreading of weeds and other biosecurity risks. Landowners will often require developers to have a wash down facility.

Developers will need to secure water for the washdown facility and other operational needs. This can be a challenge in remote or arid locations and may need to be trucked in.

Documents with landowners will generally require the developer to indemnify the landowner for contamination and biosecurity risks.

Decommissioning

Decommissioning involves removing equipment on the land and returning the land to as close as possible to its original state. Decommissioning a BESS poses safety and contamination risks. Decommissioning obligations are usually contemplated in lease agreements with the landowner and can involve the developers providing the landowners with security for decommissioning although this is usually heavily negotiated as it adds to the cost of capital.

Increasingly, development conditions or legislation require developers to provide a statutory decommissioning bond. Developers should avoid a 'double up' of these obligations.

Expansion of battery schemes

There has been a recent uptick in the number of BESS projects due to improved technologies, falling costs, the need for grid stability and the availability of various government grants. There is likely to be an increased uptake in residential BESS reducing demand on the grid.[16] Communities with high adoption of this small-scale technology will significantly reduce the demand for commercial BESS sites in the vicinity.[17]

However, commercial BESS sites will remain crucial as home batteries do not have enough capacity to completely stabilize the demand-curve.

Final thoughts

BESS play an important role for developers as a complementary hub technology to a solar or wind farms. Increasingly, they are also being deployed in stand alone situations as there is more flexibility for location. The importance of BESS for grid stability has seen Australian Energy Market Operator (**AEMO**) drive BESS development. This creates opportunities for capitalising on pricing structures that place a premium on peak load capacity.

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Low on energy? How integrating a Battery Energy Storage System could solve your MLF problem

Authors: William Ryan and Theo Whittaker

The National Electricity Market (**NEM**) plays a critical role in balancing supply and demand for electricity across Australia. One key factor influencing this balance is the Marginal Loss Factor (**MLF**), which the Australian Energy Market Operator (**AEMO**) publishes by 1 April each year.[1] AEMO estimates that approximately 10% of electricity transported between generators and consumers is lost each year due to electrical resistance and the heating of conductors.[2]

MLFs significantly impact the efficiency of power transmission, and have knock-on effects for electricity pricing and investment decisions. Understanding how MLFs are calculated and their broader implications can help stakeholders – from generators and investors to consumers – navigate the complexities of the electricity market.

What are MLFs?

MLFs measure the amount of electricity 'lost' as it travels through the transmission network from generators to consumers.[3] Electricity is lost during transmission primarily because it is converted into heat energy due to resistance in the transmission lines.[4]

The distance between the generator and the consumer, the quality of the transmission line (including resistance and voltage), and the amount of power transmitted all contribute to these heat losses.[5] Each of these factors affects the resistance of the transmission lines and the current flowing through them, which in turn influences how much electrical energy is lost as heat.[6]

How are MLFs calculated?

AEMO calculates MLFs using a detailed network model. This process includes forecast generation and load data, network constraints, and historical operating conditions.[7] The resulting MLFs reflect the efficiency of a generator's location relative to a Regional Reference Node (**RRR**) (the pricing and loss calculation reference point).[8]

An MLF of 1.0 means there are no marginal losses (so, 1 MWh generated results in 1 MWh credited to the market). By comparison, an MLF below 1.0 indicates transmission losses (so, 1 MWh generated results in an amount less than 1MWh credited to the market). The further a generator is below an MLF of 1.0, the more electricity is lost during transmission.[9]

Why do MLFs matter?

Because electricity lost during transmission reduces the amount of energy which reaches the market, MLFs have a significant impact on generators, investors and consumers.

How MLFs impact generators

In regions where transmission losses are high, generators typically receive lower revenue for the electricity they produce.[10] This is because when generators submit bids into the market, their MLF is factored into the dispatch and settlement process.[11] For example, if a generator bids $1/MWh but has an MLF of 0.5, it means only half of the generated energy is expected to reach the RRN due to losses. To deliver 1 MWh, 2 MWh must be generated. As a result, the market treats the effective cost of delivery as $2/MWh, reflecting the true cost of usable energy. Accordingly, generators with low MLFs may be less profitable than equivalent generators (by size and generator type) with a higher MLF.

How MLFs impact investors

MLFs have a direct influence on revenue and therefore play a critical role in shaping energy investment decisions for renewable developers.[12] Because lower MLFs reduce the effective income for each megawatt-hour generated, sites with poor MLFs – even if rich in wind or solar resources – can be financially unattractive.

Developers and investors are therefore incentivised to locate projects closer to RRNs or in areas with robust transmission infrastructure, where MLFs are higher and more stable. Furthermore, the year-to-year volatility of MLFs introduces uncertainty in long-term financial modelling. To mitigate this, developers and investors often engage consultants and grid operators early to forecast MLF trends, model various scenarios, and inform site selection and system design. Even small MLF declines over time can significantly impact profitability across a project's life span.

How MLFs impact consumers

Areas with consistently high MLFs (close to 1.0 or above) tend to attract more generation investment due to better returns, leading to more competitive and resilient energy markets.

By contrast, regions with low MLFs can face reduced generator investment due to the lower financial returns associated with transmission losses. This can lead to limited local competition,[13] reduced supply diversity, and greater reliance on distant generation sources. Over time, this may contribute to higher prices and reduced reliability for local consumers.

Although the current market design aims to reflect real network costs and encourage efficient siting of renewable energy projects, in practice, it can reinforce regional disparities – particularly if remote areas are persistently disadvantaged by low MLFs. Without targeted infrastructure upgrades or policy interventions, these communities may see slower adoption of renewables and miss out on the economic benefits of local energy development.

How can BESS integration help low MLF generators?

Battery storage systems are emerging as a key solution for energy projects facing the challenges of low Marginal Loss Factors (**MLFs**).

By co-locating battery storage with generating facilities – particularly in areas with less favourable MLFs – energy can be stored locally and discharged at times when demand is higher or when transmission conditions are more efficient. By tailoring discharge to the conditions of the market, generators can limit losses and hence increase the value of the energy delivered.[14] Further, in areas with low MLFs, there's often congestion on the grid, which can lead to renewable generators being curtailed (i.e., asked to reduce output).[15] A BESS can store excess generation during these times, reducing the impact of curtailment and improving asset utilisation.



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In addition to addressing transmission loss issues, batteries offer broader benefits. They help stabilise the grid by managing fluctuations in renewable energy output, supporting frequency control, and providing backup during periods of high demand or low generation.[16] These additional services can provide generators with additional revenue streams, and make the grid more flexible and reliable. We discuss more on the benefits of BESS systems in our article, 'Plugging in: how BESS integration is shaping contract models for renewable projects'.

Ultimately, battery storage can improve the economic viability of projects in low-MLF areas. By reducing the need to over-generate and making better use of available infrastructure, batteries make these projects more attractive to investors and contribute to a more efficient energy system overall.

MLFs: Low energy creates high stakes

In a market where efficiency and cost are paramount, MLFs are essential for optimising electricity transmission. While poor MLFs can challenge profitability and deter investment, especially in renewable energy projects, solutions like Battery Energy Storage Systems (**BESS**) offer promising ways to mitigate transmission losses and improve grid efficiency. As the renewable energy market continues to evolve, understanding MLFs and how to manage them will remain crucial for a more reliable and economically viable energy system, benefiting generators, investors and consumers.

The Hamilton Locke team advises across the energy project life cycle – from project development, grid connection, financing, and construction, including the buying and selling of development and operating projects. For more information, please contact Matt Baumgurtel.



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New Energy Expert Insights Part I: Revenue Reloaded in the Age of Battery Storage with Marija Petkovic of Energy Synapse

Authors: Matt Baumgurtel, Adriaan van der Merwe, David O'Carroll and Ollie Chang



In 2022, we sat down with Marija Petkovic, founder and Managing Director of Energy Synapse, to discuss the challenges and opportunities of incorporating Battery Energy Storage Systems (BESS) in renewable energy projects (Read Part I and Part II). In this new three-part New Energy Expert Insights series, we reconnect with Marija to explore how revenue streams for BESS have evolved over the last three years, the current state of the market and the role of emerging energy storage technologies in the energy transition.

Marija is one of the nation's leading energy analysts and her advice is often sought by government and major public and private actors in the energy sector. Energy Synapse is an Australian firm specialising in market analytics and market/revenue modelling for renewable and storage projects.

In this Part I, we will examine how the revenue streams for BESS projects have changed significantly since 2022. New and previously non-monetised services are emerging as crucial revenue drivers.

What is the current state of the BESS market in Australia?

The BESS market in the National Energy Market (NEM) has expanded rapidly between 2022 and 2025, with registered capacity growing from ~790 MW to over 3 GW.[1] This expansion has been driven by declining technology costs, increasing renewable penetration and a growing need for fast, flexible, and decentralised grid support solutions.

What key changes have shaped BESS revenue contracting in the NEM since 2022?

Over the past three years, the NEM's evolving approach to system services has reshaped BESS revenue structures. The Australian Energy Market Operator's (AEMO) shift toward flexible procurement and transitional strength measures has enabled shorter, modular contracts with more cost-reflective pricing. Decentralised procurement and faster grid connections are also allowing earlier revenue generation. These changes have improved bankability, with investors responding to clearer stacking opportunities and reduced reliance on single-service contracts. These are summarised in the table below.

Category	Previous State (2022)	Current State (2025)
Network contracting and service allocation	a) Rare support agreements applied to majority of BESS capacity year-round. b) One-size-fits-all Network Service Provider (**NSP**) contracts with limited targeting or price efficiency.	a) Bespoke support agreements now more common. b) Contracts can cover partial capacity. c) NSPs adopting more targeted and cost-efficient procurement, paying only for required services.
Contract duration and flexibility	Long-term agreements with broad, inflexible commitments.	Shorter, modular contract windows (e.g. seasonal or quarterly) with a greater need for operational flexibility from BESS owners.
Revenue stacking compatibility	a) Limited ability to stack services across markets. b) Contracts often conflicted or constrained dispatch.	a) Greater coordination across markets. b) Newer contracts allow co-optimisation of services (e.g. energy + FCAS + system strength) to maximise revenue potential.
Settlement and payment structure	Fixed pricing or flat capacity payments, not reflective of service quality or response speed.	Shift toward dynamic or performance-based payments tied to speed, accuracy, or availability of response (e.g. for fast frequency response or fast ramping).
Market-readiness and timing	Revenue often delayed until project completion or long-term agreement secured.	Earlier monetisation through staged commissioning, trials, or transitional service markets (e.g. interim system strength measures).

Table 1: Evolution of revenue-linked contracting models for BESS (2022 – 2025)

What new monetisable services for BESS are in the NEM?

As the NEM continues its transition to high renewables penetration, BESS has been recognised as a more versatile grid asset. This has led to the emergence of new monetisable services and a more sophisticated approach to valuing storage. New and existing services are summarised in the table below.

Market /Service	Description
Charging when electricity prices are low (or even	Wholesale Energy Arbitrage negative) and discharging during high-price periods. Revenue depends on market volatility and price spreads.
Frequency Control Ancillary Services (FCAS)	Providing fast response to frequency deviations. Includes regulation and contingency services (including new 1-second markets introduced in October 2023). Once dominant but now facing price compression due to competition.
System Strength / Inertia Services	Providing virtual inertia and system strength using advanced grid-forming inverters. Typically accessed under bespoke contracts with the NSP (or AEMO in Victoria)
System Integrity Protection Scheme (SIPS)	Acting as "virtual transmission" to support grid reliability during rare, high-impact events. Typically contracted by state governments or market operators to reserve capacity and ensure system integrity.

Table 2: Recognised revenue streams and monetisable services for BESS in the NEM in 2025

How have operational BESS projects approached revenue stacking to date?

A good example is the Victorian Big Battery, which is a 300 MW/450 MWh BESS that was built in late 2021. The table below shows approximate revenue breakdown for 2024 based on Energy Synapse's analysis using the Energy Synapse Platform.

Revenue stream	Registered capacity (MW)	Estimate share of total revenue in 2024	Details
Wholesale energy arbitrage	300	57%	Arbitrage revenues tend to be heavily tilted to winter months. SIPS obligation to keep 250 MW available from Nov-Mar, prevents VBB from fully participating in competitive markets during this time.
Contingency FCAS	171 (in each of the 8 contingency markets)	9%	Although registered capacity is high, FCAS enabled volumes are much smaller (typically only 23 MW for contingency and 36 MW for regulation) due to small size of FCAS markets.
Regulation FCAS	550 (in lower and raise regulation)	3%	Contracted with AEMO to deliver up to 250 MW (for at-least 30 minutes) from 1 November to 31 March each year. Payment of $12.5 million per year (escalated by CPI) for a 10-year period.
SIPS	250	31%	

Table 3: Estimated revenue stack breakdown of the Victorian Big Battery



Note that in addition to the above, the Victorian Big Battery has also received $5.72 million of grant funding from ARENA to retrofit the BESS to use grid-forming inverters and demonstrate advanced services such as system strength and virtual inertia.[2]

How have Network Services and Support Agreements changed over the last three years?

NSP agreements were previously tailored such that the majority of BESS capacity was contracted. Today, these agreements have become much more bespoke and tailored to the specific needs of the NSP. BESS owners are now contracting smaller portions of their BESS capacity for specific months or even shorter operational windows, often with precise availability requirements. For example, a portion of BESS capacity may be reserved for specific daytime periods to firm during peak demand with reduced overnight obligations.[3]

These arrangements are more cost-efficient for NSPs. While this creates new revenue opportunities for BESS owners, the increased segmentation introduces significant complexity in contract structuring. BESS owners may now be managing multiple overlapping agreements with varying performance obligations, durations, and pricing mechanisms, requiring careful coordination and detailed legal scrutiny. This intricate framework can increase administrative burden and introduce uncertainty around investment and financing, particularly where contract terms are short, and revenue stacking must be actively managed in real time.

In Part II we will gain Marija's insights into the current state and trends of Australia's energy market. As revenue streams diversify and become increasingly complex, understanding the broader market forces behind these shifts is essential.



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New Energy Expert Insights Part II: Firming Value or Firming Risk? The Battery Balancing Challenge with Marija Petkovic of Energy Synapse

Authors: Matt Baumgurtel, Adriaan van der Merwe, David O'Carroll and Ollie Chang





In 2022, we sat down with Marija Petkovic, founder and Managing Director of Energy Synapse, to discuss the challenges and opportunities of incorporating Battery Energy Storage Systems (BESS) in renewable energy projects. In this new three-part New Energy Expert Insights series, we reconnect with Marija to explore how revenue streams for BESS have evolved over the last three years, the current state of the market and the role of emerging energy storage technologies in the energy transition.

Marija is one of the nation's leading energy analysts and her advice is often sought by government and major public and private actors in the energy sector. Energy Synapse is an Australian firm specialising in market analytics and market/revenue modelling for renewable and storage projects

In Part II, we will examine the current state of the Australian energy market, and how investors and owners are navigating the shifting value proposition of their BESS assets.

What is driving market demand for BESS?

Australia's energy market continues to rely on BESS as a critical enabler of grid stability and flexible supply. Some of the core needs that are shaping the current landscape are:

a) **Grid stability and firming:** BESS remains essential in backing up variable renewable generation (e.g. wind and solar). As coal continues to exit the system and renewable penetration grows, BESS play a critical role in providing fast response to fluctuations in supply and demand.

b) **Peak shaving and arbitrage:** Price volatility in the National Electricity Market continues to create strong arbitrage opportunities for BESS, due to a high differential between cheap daytime prices and the evening peak.

c) **Localised network support:** Increasing focus is being placed on grid services that support specific zones or weak parts of the network. Rather than relying solely on system-wide solutions, network operators are targeting local congestion and stability issues with strategically placed BESS.

d) **Revenue strategy:** Market players are weighing the benefits of short-term market exposure against the certainty of longer-term contracts. Spot market participation offers flexibility and upside but comes with revenue risk. Structured agreements provide revenue stability that increase project bankability but may cap potential returns.

What are the current government support and incentives at the state and federal level?

Government support at both the federal and state level continues to reshape the investment landscape for energy storage in Australia. While revenue volatility and market risk remain, a growing number of policy levers is providing BESS proponents with stronger footing and faster timelines for decision-making and deployment.

Federal: Capacity Investment Scheme

The Capacity Investment Scheme (CIS) is a cornerstone of Australia's clean energy policy. It provides eligible projects with revenue certainty through government-backed contracts.[1] This helps unlock financing by improving bankability and reducing merchant risk.

Tenders have been consistently oversubscribed, signalling strong confidence from developers and a high degree of latent project capacity across jurisdictions.[2] In June 2025, the federal government confirmed that future CIS tenders will move to a streamlined one-stage process, cutting the assessment period from nine months to approximately six.[3] This shift is expected to give proponents faster clarity on outcomes and greater flexibility to participate in upcoming rounds.

State: Long-Term Energy Service Agreements

At the state level, particularly in New South Wales, Long-Term Energy Service Agreements (**LTESAs**) provide a pathway for BESS proponents seeking financial certainty. These agreements:

a) Guarantee a minimum floor price for eligible services (such as dispatchable capacity or firming);

b) Offer downside protection while preserving some market participation upside; and

c) Help de-risk projects, including for long duration (8+ hour) storage.

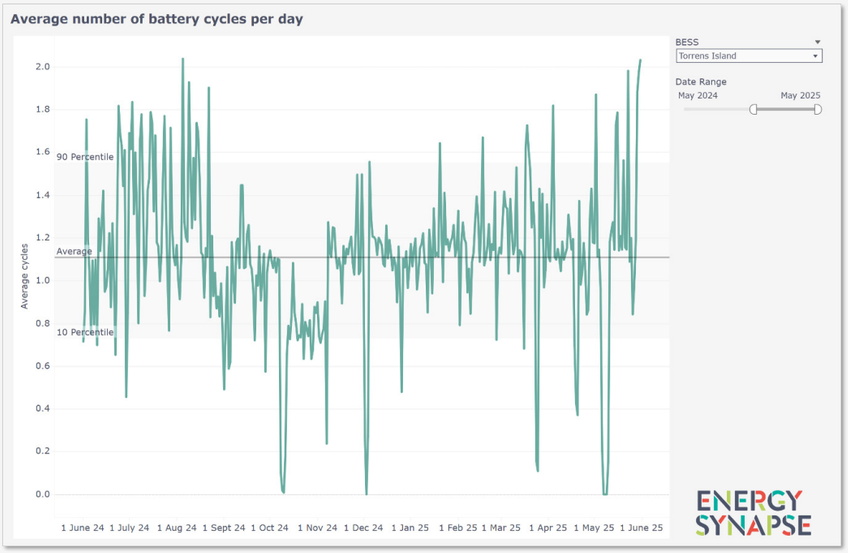
What are project proponents currently asking for?

As the market matures, investor questions have become more targeted. For example:

a) How hard should the battery be cycled to maximise revenue?

Owners are currently trying to balance revenue generation with battery degradation risks. However, modelling shows limited benefit in aggressive cycling, especially for systems with two or more hours of storage. For many projects, staying within warranty cycling parameters captures most of the available market value without shortening asset life or voiding warranties. However, it is important to note that this does not mean performing one cycle every single day.

The chart below shows the cycling behaviour of the Torrens Island battery in South Australia as calculated in the Energy Synapse Platform. Like most batteries, Torrens Island cycles harder (approaching two cycles) when there is higher volatility in the energy market, such as at dual morning and evening peak. In contrast, when prices are relatively flat throughout the day, the battery holds back on cycling (e.g. less than half a cycle). Despite this variability in cycling, the battery sticks to an average of 1.1 cycles per day.



Graph 1: Average number of battery cycles per day for the Torrens Island BESS

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b) Do long-duration batteries offer better risk-adjusted returns?

With growing renewable penetration, investors are questioning whether 4–8 hour systems can better capture value from extended price events. Energy Synapse modelling finds that the business case for 4+ hour batteries is very sensitive to the pace of coal closures. At present, high price events tend to be relatively short-lived. However, as more coal exits the market, peak prices are likely to last longer. Although there is a fundamental need for medium and long duration storage as coal exits the market, many investors are rightly concerned with the risk of government interventions to extend the life of coal as we have seen in recent years across Victoria, NSW, and Queensland. This is a key area that requires greater policy certainty.

c) What is the optimal project configuration?

Project proponents are increasingly interested in understanding the trade-offs between standalone vs hybrid projects, AC vs DC coupling, and the impact of sizing on returns. Project proponents are being smarter in working through these questions much earlier in the project development cycle, before key parameters are baked into the design. Energy Synapse specialises in this type of modelling and works closely with developers to inform optimal project configuration.



What decisions do project owners need to make in the current market?

A major decision point for many BESS project owners today is whether to lock in structured agreements or stay nimble. LTESAs or Network Support Agreements can contribute to project bankability, improved debt service coverage and stable, forecastable cashflows. But they may also limit upside, particularly in a volatile market where frequent price fluctuations create opportunities for higher returns through spot trading and ancillary services. Project owners may miss out on lucrative spot revenue or market services and committed revenue can affect capital structure by increasing gearing (debt-to-equity ratios).

Ultimately, it is a trade-off. It depends on whether the project values cashflow certainty or wants the flexibility to chase dynamic price signals.

In Part III, we will gain Marija's insights into scenario modelling and the future of the BESS industry. With these market dynamics in play, BESS owners are now turning to scenario modelling to navigate long-term uncertainty and plan for what comes next.

The Hamilton Locke team advises across the energy project life cycle – from project development, grid connection, financing, and construction, including the buying and selling of development and operating projects. For more information, please contact Matt Baumgurtel.



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New Energy Expert Insights Part III: The Long Game for Energy Storage: Planning for Tomorrow with Marija Petkovic of Energy Synapse

Authors: Matt Baumgurtel, Adriaan van der Merwe, David O'Carroll and Ollie Chang





In 2022, we sat down with Marija Petkovic, founder and Managing Director of Energy Synapse, to discuss the challenges and opportunities of incorporating Battery Energy Storage Systems (**BESS**) in renewable energy projects. In this new three-part New Energy Expert Insights series, we reconnect with Marija to explore how revenue streams for BESS have evolved over the last three years, the current state of the market and the role of emerging energy storage technologies in the energy transition.

Marija is one of the nation's leading energy analysts and her advice is often sought by government and major public and private actors in the energy sector. Energy Synapse is an Australian firm specialising in market analytics and market/revenue modelling for renewable and storage projects.

In Part III, Marija shares how scenario modelling is informing investor strategy, and what longer-duration solutions might look like in the coming decade.

Do you predict a shift toward longer-duration storage and what would that look like?

For years, two-hour batteries have been the industry standard, largely due to cost, bankability, and market design. But there are clear signs that this is starting to change:

a) Renewable firming will increasingly require longer storage windows to support evening demand and manage ramping as solar drops off, especially as more coal exits the market; and

b) the Capacity Investment Scheme (**CIS**) is already accelerating the shift toward four-hour batteries by rewarding longer-duration dispatchable capacity. Similarly, the NSW Long-term Energy Service Agreement (**LTESA**) is supporting 8-hour storage through its long duration product.

Going beyond four hours, however, remains a challenge. The longer the storage duration, the higher the revenue uncertainty. Furthermore, investors and lenders are cautious about backing alternative chemistries given their higher costs, limited track record, and perceived technical risk compared with lithium-ion

What do you see as the viable alternatives to lithium-ion storage?

Investor interest in alternative storage technologies is growing as we progress through the energy transition. A policy-driven phase-out of coal plants is expected to strengthen the commercial case for deeper storage solutions capable of supporting multi-hour renewable firming.

According to the Australian Energy Market Operator, up to 90% of coal-fired generation in the National Electricity Market could retire by 2035, with the entire fleet expected to close by 2040.[1] In response, Australia is accelerating investment in renewable generation, storage, and transmission infrastructure to ensure firm capacity is in place ahead of these retirements. This structural shift is driving strong demand for utility-scale batteries and long-duration storage technologies capable of delivering secure, low-cost electricity during the transition to a net zero economy.

Several long-duration technologies such as flow batteries, compressed air, and gravity storage are being actively trialled in Australia and internationally.[2] While these technologies offer the advantage of storing energy for six hours or more, widespread commercial deployment remains limited.

The primary barriers are currently cost and bankability. Most alternatives still have higher capital costs, lack proven long-term performance, and are not widely supported by financiers. As a result, lithium-ion still remains the default choice for energy storage projects due to its established supply chains, known degradation profiles, and favourable economics on a $/MWh basis.

It is also worth noting that lithium-ion technology was once restricted to relatively short durations. However, in recent times we have seen the emergence of longer duration lithium-ion projects. For example, Stoney Creek is a proposed 1 GWh (125 MW, 8 hour duration) lithium-ion facility backed by a 14 year LTESA in NSW, which demonstrates growing momentum for long-duration asset types.[3] Once constructed, it will be among Australia's first utility scale, firm-capacity systems over six hours which signals a significant systemic shift.



That being said, ongoing state government policy uncertainty around the timing of coal closures remains a key risk for long duration storage.

What role will pumped hydro play in the energy mix?

While Australia has a significant pipeline of pumped hydro energy storage (**PHES**) under development, how many of these projects will be built and when remains highly uncertain.

When developed at scale, PHES has the potential to store vast amounts of energy at a cost that is highly competitive with, and in many cases cheaper than competing technologies for long-duration storage.

Yet despite strong theoretical economics, most major PHES projects are still years away from financial close, let alone construction or operation. Delays are common due to complex planning approvals, environmental impact assessments, First Nations consultation requirements, and cost overruns.

In this context, the race for the dominant long duration storage technology is very much open. BESS remains essential in the near to medium term, particularly for firming renewable output and supporting grid stability during evening peaks or high-demand periods. Batteries also offer faster ramp times and more locational flexibility, making them a key technology in the interim.

Even if pumped hydro is the endgame for deep storage, BESS are the backbone of today's energy transition. We cannot wait a decade for firming capacity.

Once deep storage eventually comes online at scale, market dynamics will likely be reshaped significantly:

a) Wholesale price spreads will likely compress, especially during periods currently marked by high arbitrage potential. This will erode one of the key revenue streams for project owners. It is important to note that this is the market working as it should. High price spreads send a signal to investors that the market needs more storage. Once we have built enough storage, spreads will reduce to a point where further investment in storage will not be justified.

b) BESS owners may need to cycle their assets more frequently or aggressively to maintain profitability, particularly for older batteries nearing end-of-life, where degradation risks are already baked into financial models.

c) BESS may increasingly shift toward roles in grid support services or become part of hybrid projects where revenue stacking smooths the impact of reduced arbitrage margins.

How should BESS owners approach the next decade with the market uncertainty?

With increasing uncertainty across policy settings and market dynamics, scenario modelling has become a vital tool for BESS owners. Rather than relying on a single outlook, stakeholders are using modelling to test asset performance under a range of possible futures. These include changes to price spreads, firming requirements, contract structures, and technology pathways.

Owners are asking important strategic questions:

a) How do we remain profitable in the near term?

b) What might the storage market look like in five or ten years?

c) How do we position assets today to stay commercially viable tomorrow?

Short term

In the current environment, flexibility is essential. High-cycling strategies on volatile days, particularly for two-hour lithium-ion batteries, allow owners to take full advantage of market events. Offtake structures that allow asset owners to access some or all of this upside are proving to be lucrative.

Medium term

Looking ahead, the challenge is not only how to operate but how to adapt to changing conditions. Hybridisation is gaining traction. Pairing batteries with solar or wind can bring significant benefits through innovative offtake structures, monetisation of curtailed energy, efficiencies gains, and reduced connection costs.

Forward-thinking project owners are also closely monitoring policy developments. The structure of future CIS and LTESA tenders, timelines for coal retirement, and potential changes to market design will all influence future investment strategies.

Scenario modelling allows project owners to prepare for these possibilities. It helps assess risk, but just as importantly, it can highlight where new value may emerge. Storage is not a bridging technology anymore. It is fast becoming core infrastructure. But how you operate, contract, and position a BESS today could determine its long-term viability.

Looking to 2030 and beyond

Battery storage remains at the heart of Australia's clean energy transition. As the grid moves toward 82% renewable generation by 2030, batteries offer the flexibility and responsiveness needed to manage variable supply and replace retiring thermal generation. Success will require careful planning and the adaptability to respond to changing conditions. Project owners who adopt this mindset will safeguard project returns whilst also shaping the future of Australia's electricity system.

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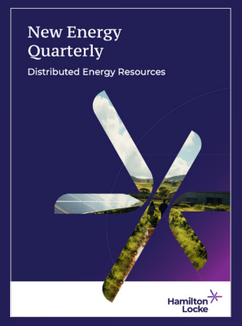
New Energy Quarterlies





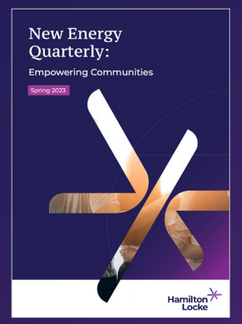


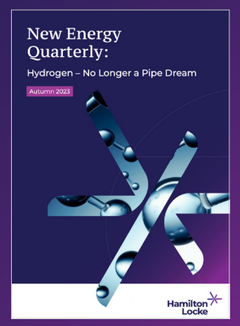


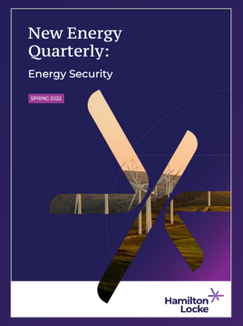
















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