

New Energy Special Edition

Second Horizon: 2025 and Beyond

October 2024



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Editorial

Welcome to the New Energy Second Horizon: 2025 and beyond, a New Energy Special Edition by Hamilton Locke, identifying current trends which will shape the future of Australia’s new energy market – our second horizon.

From split contracting models, hydrogen and critical minerals tax incentives, quantum technologies and offshore wind supply chains, this Special Edition brings together our insights on the most integral trends in the development of the New Energy sector. It offers a snapshot of

the current Australian New Energy market, with an additional perspective of the horizon outlook, where we see these trends going and the key impacts they will have for industry participants.

Renewable energy is set to receive an unprecedented amount of Australian Federal Government support in the 2024-25 Federal Budget as part of the government’s *Future Made in Australia* package. The \$22.7 billion package, dubbed Australia’s answer to the U.S. ‘Inflation Reduction Act’, demonstrates the government is committed to transforming the nation into a renewable energy superpower by developing green manufacturing capabilities and renewable technologies.¹ What do these measures actually mean for New Energy participants and what other events are shaping the industry? (See: [2024 Federal Budget](#)).

Perhaps nothing has gained more attention globally in 2024, in nearly every industry, than the rise of artificial intelligence tools and advanced technologies. As we stand at the crossroads of technological innovation and environmental necessity to keep global warming temperatures below 1.5°C, the renewable energy sector looks set to be enhanced by the development of advanced quantum technologies. From more efficient solar panels to breakthroughs in energy storage, quantum technologies hold the power to drive unprecedented innovation in renewable energy (see: *Quantum Meets Energy [Part One](#) and [Part Two](#)*).

Not only is technology driving this change, but recognition of environmental, social and governance (**ESG**) objectives, policy and regulatory updates are likely to contribute to an industry that looks very different from today. Mandatory sustainable accounting standards, for example, are on the doorstep for many large Australian organisations. The *Treasury Laws Amendment (Financial Market Infrastructure and Other Measures) Act 2024* (Cth), which will take effect on 1 January 2025, introduces mandatory climate-related financial disclosures through amendments to the *Corporations Act 2001* (Cth) and the *Australian Securities and Investment Commission Act 2001* (Cth). The amendments are set to implement the sustainability and assurance standards governed and developed in the Australian Sustainability Reporting Standards (**ASRS**).² The amendments and ASRS put recognition of ESG on a statutory footing and will require in-scope entities to prepare a ‘sustainability report’ for the financial year, underscoring the importance of ESG in modern corporate business. The ASRS may provide organisations the opportunity to innovate, better understand risk, differentiate themselves from the market and foster long-term competitiveness.

Alternatively, however, some participants may see these regulatory developments as a hindrance to productivity (see: [Environmental, Social and Governance](#)).

With regards to Australia Carbon Credit Units (**ACCUs**), the Clean Energy Regulator (**CER**) released a discussion paper in October 2024 seeking feedback on the development of a new Unit and Certificate Registry and the introduction of exchange trading for ACCUs. The modernised Unit and Certificate Registry aims to streamline carbon market operations by providing real-time access to unit and certificate holdings, integrating with other digital trading platforms via application programming interfaces (**APIs**). These infrastructure developments represent a significant step towards creating a more robust and efficient carbon market, essential for achieving Australia’s emission reduction targets.

This Special Edition also provides useful insights into the growing interest in supporting renewable energy projects through tax incentives, particularly in critical minerals and hydrogen production. Other tax developments include changes to the foreign resident capital gains tax regime in Australia and how it affects foreign residents investing in renewable energy. Increased tax obligations may affect the financial planning and investment strategies for renewable energy infrastructure, such as solar farms and wind turbines, ensuring that foreign investors contribute fairly to Australia’s tax system. These articles highlight the important role played by regulators in facilitating investment in renewable energy projects and ensuring fairness among market participants (see: [Hydrogen on the Horizon](#) and [Rocking Renewable Energy](#) and [Law, Regulation and Policy Landscape](#)).

While the future of renewable energy is promising, it is not without challenges, such as grid integration and the intermittency of renewable sources. Additionally, supply chain constraints in Australia’s nascent offshore wind industry are impeding the industry’s progress (see: [Five Key Constraints on Australia’s Offshore Wind Industry Supply Chains](#)). These challenges also present opportunities for innovation and growth. The development of smart grids, advanced battery technologies and hybrid systems are just a few examples of how the sector is evolving to meet these challenges, particularly during the influx of distributed energy resources, virtual power plants and maturing frequency control ancillary services (see: [Distributed Energy Resources](#) and [Power Purchase Agreements](#).) Further, solutions to issues such as constraints on offshore wind industry supply chains are available, albeit requiring significant changes in policy, investment and capability. Key to addressing

these challenges will be an industry mindset and bias toward innovation (see: [Five Key Solutions to Constraints on Australia’s Offshore Wind Industry Supply Chains](#)).

Innovation itself is being driven by changes to the way projects are being structured. Split contracting models, for example, will continue to upend traditional full-wrap engineering, procurement and construction contracts. Split contracting models have profound implications for the future of renewable energy projects, including bankability and contractual liability considerations, workplace and employment matters and dispute resolution procedures (see: [Wrap is Dead: Navigating Split Contracting Models in Renewable Energy Projects](#)).

Additionally, it is not just contracting arrangements which will continue to innovate. New investors, in the form of superfunds, are demonstrating growing interest in renewable energy projects. Novel ownership arrangements for renewable energy projects with First Nations communities are also set to change the way some projects are owned and operated and will similarly have a strong influence on the engagement and empowerment of communities (see: [Project Strategies: New Developments](#)).

The future of the Australian renewable energy sector is full of potential. With continued technological advancements, supportive government policies and innovation in how projects are structured and executed, Australia is on the path to a cleaner, more sustainable future. The journey ahead is challenging, but the rewards beyond the horizon are immense – a healthier planet and a more resilient energy system for all.



Matt Baumgurtel
Partner, New Energy Lead
[+61 459 900 080](#)





Adriaan van der Merwe
Special Counsel
[+61 403 120 410](#)





Marni Riley
Special Counsel
[+61 7 3036 7886](#)





David Wan
Graduate
[+61 2 8072 8271](#)



¹Department of the Treasury, ‘Investing in a Future Made in Australia’ (Web Page, 2024) <<https://budget.gov.au/content/03-future-made.htm>>.
²Treasury Laws Amendment (Financial Market Infrastructure and Other Measures) Act 2024 (Cth), Schedule 4. Corporations Act 2001 (Cth) s 336A.

Watt’s Happened at Hamilton Locke



▶ Matt Baumgartel, Amelia Prokuda, Adriaan van der Merwe, Marni Riley, Megan Chau and Kusum KC attended the RiverCity Renewables Women in Energy event in Brisbane.



▶ The Hamilton Locke New Energy team attended the Australian Institute of Energy event Unlocking QLD's Potential: The Vital Role of Green Electrons in Advancing Green Molecule Projects.

Read our key takeaways [here](#).



▶ Matt Baumgartel, Jo Ruitenbergh and Ally Frizelle attended the Clean Energy Investor Conference hosted by the Clean Energy Investor Group in Melbourne.

Read our key takeaway [here](#).



▶ Adriaan van der Merwe and Will Ryan hosted the New Energy Associates Network (NEAN) fireside chat with Dr Madeline Taylor.

Read our key takeaways [here](#).



▶ The Hamilton Locke New Energy team attended the Large-Scale Renewable Generation and Storage Summit hosted by the Smart Energy Council.

Read our key takeaways [here](#).



▶ The Hamilton Locke New Energy team attended the Clean Energy Summit 2024.

Read our key takeaways [here](#) for Day 1 and [here](#) for Day 2.



▶ The Hamilton Locke New Energy team attended the inaugural Energy Storage Summit Australia.

Read our key takeaways [here](#).



▶ The Hamilton Locke New Energy team attended the 3rd Annual Hydrogen Connect Summit hosted by Smart Energy Council's Zero Carbon Hydrogen Australia in Brisbane, with Marni Riley moderating a panel on hydrogen project financing.

Read our key takeaways [here](#).



▶ The Hamilton Locke New Energy team attended the Australia-Africa Clean Energy Conference in Perth. Matt Baumgartel and Adriaan van der Merwe presented on Connecting Continents: What Africa and Australia can teach each other about New Energy.

Read our key takeaways [here](#).



▶ Marni Riley attended the German-Australian Hydrogen Alliance's Critical Aspects of Financing Hydrogen Forum

Read our key takeaways [here](#).



▶ Matt Baumgartel and David Wan attended the Australian Hydrogen Research Conference in Perth.

Read our key takeaways [here](#) for Day 1, [here](#) for Day 2 and [here](#) for Day 3.

Market Insights

▶ On 11 October 2024, the Clean Energy Regulator released a consultation paper inviting feedback in relation to the new Unit and Certificate Registry which will replace the Australian National Registry of Emissions Units as the main registry for participation in the Australia carbon market.

[Read more](#)

▶ On 30 September 2024, the Queensland Government's updated version of State Code 23: Wind farm development came into effect, following community consultation and review of the existing Code and the associated Planning Guidance. Wind farm development applications will now be assessed against this new Code.

[Read more](#)

▶ On 13 September 2024, the Australian Government released its 2024 National Hydrogen Strategy and its vision for a “clean, innovative, safe and competitive hydrogen industry that benefits Australia's communities and economy, enables our net zero transition, and positions us as a global hydrogen leader”.

[Read more](#)

▶ On 12 September 2024, the Department of Climate Change, Energy, the Environment and Water introduced the new landmark Future Made in Australia (Guarantee of Origin) Bill 2024 into the Australian Parliament. This proposed legislation will establish the voluntary Guarantee of Origin scheme which is designed to track and verify the attributes associated with low-emission products.

[Read more](#)

▶ On 12 September 2024, the Future Made in Australia (Guarantee of Origin) Bill 2024 was introduced into Parliament by the Department of Climate Change, Energy, the Environment and Water (DCCEEW). This marks a pivotal step in Australia's clean energy transition, establishing a framework to track and verify low-emissions products and creating an enduring certification mechanism for renewable electricity.

[Read more](#)

▶ On 2 September 2024, the Australian Energy Market Operator released a public consultation report on the technical requirements for the connection of 200 kW to 5 MW distributed energy resources to the National Energy Market.

[Read more](#)

▶ On 22 July 2024, Western Australia signed a Renewable Energy Transformation Agreement with the Federal Government and opened registration for the first Capital Investment Scheme Tender in the state.

[Read more](#)

▶ On 12 July 2024, the consultation period for the Hydrogen Production Tax Incentive introduced by the Australian Government under the 2024-25 Budget as part of the Future Made in Australia package closed.

[Read more](#)

▶ On 4 July 2024, the long-anticipated Future Made in Australia Bill 2024 was introduced by the Australian Government. The Bill enforces the Government's commitment to invest \$22.7 billion in the Future Made in Australia package, which was announced under the 2024-25 Federal Budget.

[Read more](#)

▶ On 28 June 2024, the Treasury released a consultation paper seeking feedback on the Hydrogen Production Tax Incentive introduced under the 2024-25 Budget as part of the Future Made in Australia package. This incentive aims to accelerate Australia's hydrogen industry by offering a refundable tax offset to eligible producers of renewable hydrogen.

[Read more](#)

▶ On 26 June 2024, AEMO release the 2024 Integrated System Plan (ISP) for the NEM. This is AEMO's latest investment roadmap for the transition of the NEM, with a clear plan for essential infrastructure to meet future energy needs.

[Read more](#)

▶ On 26 June 2024 the Australian Energy Market Operator published the 2024 Integrated System Plan.

[Read more](#)

Market Recognition

► **Hamilton Locke Continues to Top National ECM and M&A Rankings!**

[Read more](#)

► **Marni Riley joined Hamilton Locke New Energy team**
Hamilton Locke's New Energy team continues its growth with the appointment of Marni Riley as Special Counsel in our Brisbane office. Marni has significant experience in project development and M&A transactions in both Australia and internationally, with a specific focus on the energy and resources sectors.

[Read more](#)

► The Hamilton Locke New Energy team contributed to the latest edition of Lexology In-Depth Renewable Energy Law in Australia.

[Read more](#)

► Matt Baumgurtel named as the winner for Energy and Natural Resources in Mondaq's Spring 2024 Thought Leadership Awards.

[Read more](#)

► **Hamilton Locke Advises European Energy on 56MW Mokoan Solar Farm**
The project is a significant step for renewable energy in Australia. The Mokoan Solar Farm will supply over 15,000 households while reducing carbon emissions by over 85,000 tonnes. The Hamilton Locke team is proud to have supported European Energy every step of the way in this important transaction.

[Read more](#)

► **Hamilton Locke advises Energy Vault on ACEN's New England BESS Project**
The project will deploy two BESS systems at ACEN Australia's 720MW New England solar and battery project (the largest solar farm in NSW). The project will have a capacity of 200MW/400MWh.

[Read more](#)

► **New Energy Partner and Lead Matt Baumgurtel Named a Dealmaker of the Year**
Australian Lawyer and NZ Lawyer's inaugural Dealmakers of the Year list celebrates the top 25 dealmakers from Australia and New Zealand's legal profession, chosen based on quantity, quality importance and innovation of their deal involvements. We are thrilled to see Matt recognised for his ongoing dedication to the sector!

[Read more](#)

► **William Ryan promoted to Senior Associate**
The New Energy team is proud to announce the promotion of a key member, William Ryan to Senior Associate. Since joining the Hamilton Locke, Will has been an invaluable asset to our team, clients, and the entire firm. We look forward to Will's continued success.

[Read more](#)

► **Partner of the Year Awards**
Matt Baumgurtel and Jo Ruitenberg are named finalists in Lawyers Weekly's 2024 Partner of the Year Awards.

[Read more](#)

► Hamilton Locke Recognised in the 2025 Edition of Best Lawyers in Australia

[Read more](#)

► We were named a winner in the Client Choice Awards 2024 in the category 'Most Innovative Law & Related Services Firm'.

[Read more](#)

► Hamilton Locke recognised in The Legal 500 2024 Asia-Pacific Guide

[Read more](#)



Watt is ARENA Funding?

Program	Summary	Funding available	Closing Date
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. ²	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

¹Australian Renewable Energy Agency, *Hydrogen Headstart Round 2* (Web Page) <<https://arena.gov.au/funding/hydrogen-headstart-round2/>>.

²Australian Renewable Energy Agency, *Solar Sunshot* (Web Page) <<https://arena.gov.au/funding/solar-sunshot/>>.

Program	Summary	Funding available	Closing Date
National Industrial Transformation Program	A range of technology solutions targeting industrial emissions abatement may be supported, from electrification and energy efficiency to fuel switching and zero emissions vehicles. Enabling technologies such as energy storage, demand management and critical infrastructure supporting onsite decarbonisation will also be considered. Projects can range from studies to scale demonstration and deployment.	AUD \$40 million National Industrial Transformation Program	Ongoing
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 - \$50 million Stream B - \$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. ³	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 ⁴	Ongoing

³Australian Renewable Energy Agency, ‘Driving the Nation Program 2023 Focus Areas’ (Report, April 2023) 3 <<https://arena.gov.au/assets/2023/04/driving-the-nation-2023-focus-areas.pdf>>.

⁴Clean Energy Finance Corporation Investment Mandate Direction 2023 subsection 16(1).

Hamilton Locke New Energy Team

Partners



Matt Baumgurtel
Partner, New Energy Lead
[+61 459 900 080](tel:+61459900080)
 



Veno Panicker
Partner, Construction & Infrastructure
[+61 409 495 242](tel:+61409495242)
 



Brit Ibanez
Partner, Litigation
[+61 421 355 503](tel:+61421355503)
 



Michael Boyce
Partner, Mining & Resources
[+61 400 142 494](tel:+61400142494)
 



Tricia Moloney
Partner, Finance
[+61 434 154 180](tel:+61434154180)
 



Margot King
Partner, Property
[+61 406 056 651](tel:+61406056651)
 



James Simpson
Partner, Employment
[+61 407 061 641](tel:+61407061641)
 



Alistair Newton
Partner, Competition and consumer
[+61 2 8072 8271](tel:+61280728271)
 



Andrew Vincent
Partner, Finance
[+61 417 544 925](tel:+61417544925)
 



Jo Ruitenberg
Partner, Corporate
[+61 427 182 390](tel:+61427182390)
 



Amelia Prokuda
Partner, Planning and environment
[+61 410 032 358](tel:+61410032358)
 



Seema Sandhu
Partner, Tax
[+61 2 8072 8271](tel:+61280728271)
 



Timothy Zahara
Partner
[+61 7 3036 7886](tel:+61730367886)
 

Special Counsel



Adriaan van der Merwe
Special Counsel
[+61 40 312 0410](tel:+61403120410)
 



Marni Riley
Special Counsel
[+61 7 3036 7886](tel:+61730367886)
 



Eliza Buchanan
Special Counsel
[+61 2 8072 8271](tel:+61280728271)
 



Kaday Conteh
Special Counsel
[+61 439 335 094](tel:+61439335094)
 

Senior Associates



Hannah Jones
Senior Associate
[+61 450 584 149](tel:+61450584149)
 



David O'Carroll
Senior Associate
[+61 421 497 311](tel:+61421497311)
 



William Ryan
Senior Associate
[+61 2 8072 8271](tel:+61280728271)
 



Tariq Alardah
Senior Associate
[+61 2 8072 8271](tel:+61280728271)
 



Cormac Foley
Senior Associate
[+61 2 8072 8271](tel:+61280728271)
 



Gareth Howard
(Consultant admitted in South Africa, not admitted in Australia)
[+41 424 372 390](tel:+41424372390)
 



Ching Yee Tan
Senior Associate
[+61 863 119 160](tel:+61863119160)
 

Lawyers



Conor Bates
(Consultant, admitted in Ireland, not admitted in Australia)
[+61 431 958 212](tel:+61431958212)
 



Michael Liu
Lawyer
[+61 458 311 888](tel:+61458311888)
 



Ally Frizelle
Lawyer
[+61 2 8072 8271](tel:+61280728271)
 



Sally Yang
Lawyer
[+61 2 8072 8271](tel:+61280728271)
 



Megan Chau
Lawyer
[+61 2 8072 8271](tel:+61280728271)
 



Matthew Dean
Lawyer
[+61 2 8072 8271](tel:+61280728271)
 



Eamonn Carpenter
Lawyer
[+61 2 8072 8271](tel:+61280728271)
 



Raymond Deng
Lawyer
[+61 430 813 873](tel:+61430813873)
 

Graduates



Kusum K C
Graduate
[+61 2 8072 8271](tel:+61280728271)
 



David Wan
Graduate
[+61 2 8072 8271](tel:+61280728271)
 



Sam Poulsen
Graduate
[+61 2 8072 8271](tel:+61280728271)
 



Christine An
Graduate
[+61 8 6311 9160](tel:+61863119160)




Lachlan Stagoll
Graduate
[+61 8 6311 9160](tel:+61863119160)




Lana Knaggs
Graduate
[+61 2 8072 8271](tel:+61280728271)
 

Paralegals



Lily Clements-Markham
Paralegal
 



Leila Huthart
Paralegal
[+61 2 8072 8271](tel:+61280728271)
 



Suwathie Rajeswaran
Paralegal
[+61 2 8072 8271](tel:+61280728271)
 

New Energy Market Outlook: 2025 and Beyond

Authors: The Hamilton Locke New Energy Team

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1. 2024 Federal Budget

1.1 Overview

The FY2024-25 Federal Budget was delivered on 14 May 2024 (**Federal Budget**). As part of the Federal Budget, the Federal Government released its Future Made in Australia (**FMA**) package. This \$22.7 billion package demonstrates the current Federal Government's commitment to making Australia a 'renewable energy superpower'.¹ In this market outlook, we will explore in greater detail the key budget measures that impact our clients in the energy space. This includes investments in renewable hydrogen, critical mineral processing, clean energy manufacturing, green metals and low-carbon liquid fuels.

Additionally, we will offer our insights on what the Federal Budget means for New Energy participants in the medium and long term. We will present our view on how clients can best prepare for, and respond to, this developing landscape.

1.2 Federal Budget: Key Takeaways

The table below summarises some of the key investment commitments made within the Federal Budget. These investment targets align with the priority sectors identified in the 'Net Zero Transformation' stream of the National Interest Framework (**NIF**).² The NIF is designed to impose rigour on the Government's decision making on significant public investments, particularly those which aim to incentivise large-scale private investment.³

Target	Amount	Purpose
Critical Minerals	\$7.1 billion	Support refining and processing of critical minerals, aiming to enhance Australia's economic resilience and security. ⁴
Scaling Hydrogen	\$8 billion	Support the production of renewable hydrogen through tax incentives and programs such as the Hydrogen Headstart ⁵ program. ⁶
Clean Energy Manufacturing	\$1.4 billion	Strengthen manufacturing capabilities in clean energy technologies such as solar and battery manufacturing, with a focus on supply chain resilience. ⁷
Innovation and Renewable Energy Technologies	\$1.7 billion	Future Made in Australia Innovation Fund (FMA Fund), ⁸ to be administered by the Australian Renewable Energy Agency (ARENA), to support innovation, commercialisation, pilot and demonstration projects and early-stage development in priority sectors, including renewable hydrogen, green metals, low-carbon liquid fuels and clean energy technology manufacturing (such as batteries). ⁹
Clean Energy Workforce	\$218.4 million	To support the development of a skilled and diverse clean energy workforce in Australia. ¹⁰ The Federal Government has also committed \$134.2 million ¹¹ to ensure workers impacted by the net zero transition are supported during that transition. A further \$44.4 million has been committed to deliver the Energy Industry Jobs Plan, ¹² which will assist employees in the coal and gas sectors to access new employment opportunities in the renewable energy sector or to retire early. ¹³

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¹Department of Climate Change, Energy, the Environment and Water (DCCEEW), 'Delivering a Reliable and Renewable Future, Made in Australia' (Media Release, Chris Bowen MP, 14 May 2024) <<https://minister.dcceew.gov.au/bowen/media-releases/delivering-reliable-and-renewable-future-made-australia>>.

²Department of the Treasury, 'Future Made in Australia: National Interest Framework' (Supporting Paper, May 2024) 9 <<https://treasury.gov.au/sites/default/files/2024-05/p2024-526942-fmia-nif.pdf>>.

³Australian Government, 'A Future Made in Australia' (Fact Sheet, May 2024) 1 <<https://budget.gov.au/content/factsheets/download/factsheet-fmia.pdf>> ('*Australian Government FMA Factsheet*').

⁴Commonwealth of Australia, Budget 2024-25: 'Budget Measures Budget Paper No 2' (Budget, May 2024) 68 <https://budget.gov.au/content/bp2/download/bp2_2024-25.pdf> ('Budget 2024-25').

⁵See generally DCCEEW, 'Hydrogen Headstart Program' (Web Page, 15 May 2024) <<https://www.dcceew.gov.au/energy/hydrogen/hydrogen-headstart-program>> ('*Australian Government Hydrogen Headstart Program*').

⁶Budget 2024-25 (n 4).

⁷Ibid 68-69.

⁸*Australian Government FMA Factsheet* (n 3) 4.

⁹*Budget 2024-25* (n 4).

¹⁰Ibid 72.

¹¹Ibid 160.

¹²See generally Department of the Prime Minister and Cabinet, 'Supporting a Net Zero Workforce' (Media Release, 27 March 2024) <<https://www.pmc.gov.au/news/supporting-net-zero-workforce>>.

¹³Budget 2024-25 (n 4) 160.

1.3 What the Federal Budget means for New Energy in Australia

(a) Hydrogen – Investments in Renewable Hydrogen

The Federal Government will invest \$8 billion from 2024 to 2034 (and \$1.2 billion per year from 2034 to 2040) to support the production of renewable hydrogen.¹⁴ This includes:

- (i) \$6.7 billion in the form of a Hydrogen Production Tax Incentive from 2024 to 2034 (and \$1.1 billion per year from 2034 to 2040)¹⁵ for producers of renewable hydrogen to support the growth of a competitive hydrogen industry and Australia’s decarbonisation; and
- (ii) \$2 billion for an additional round of the Hydrogen Headstart program¹⁶ comprising:
 - (A) \$1.3 billion from 2024 to 2034; and
 - (B) an average of \$151.6 million per year from 2034 to 2038, to bridge the green premium for early-mover renewable hydrogen projects.¹⁷

A further \$20.9 million has been allocated to incentives to support the production of, and demand for, low-carbon liquid fuels, as well as the development of a low-carbon liquid fuels certification scheme through the Guarantee of Origin (**GO**) scheme.¹⁸ The Federal Budget allocates \$11.4 million to fast track the initial phase of the GO scheme for green hydrogen and bring forward work on green metals, including iron, steel and aluminium.¹⁹ To further this, on 12 September 2024, the Department of Climate Change, Energy, the Environment and Water (**DCCEEW**) introduced the *Future Made in Australia (Guarantee of Origin) Bill 2024 (GO Bill)* which aims to outline the structure and functionality of the GO scheme. Our publication [Pressing GO! on Clean Energy Certification: Understanding the Future Made in Australia \(Guarantee of Origin\) Bill 2024](#) discusses the GO Bill and scheme, detailing the process and its implications.

On 13 September 2024, the Federal Government released its 2024 [National Hydrogen Strategy \(Strategy\)](#).²⁰ The Strategy’s vision is for a “*clean, innovative, safe and competitive hydrogen industry that benefits Australia’s communities and economy, enables our net zero transition, and positions us as a global hydrogen leader*”.²¹ Our New Energy Bulletin titled [Australia’s National Hydrogen Strategy: Australia and Germany sign Joint Declaration of Intent to negotiate](#) provides some further information on the Strategy.

(b) Prioritising Critical Minerals Investment

The Federal Government has prioritised investment in critical minerals to support Australia’s future economic resilience and security, in response to the projected 350% increase in global demand for such resources by 2040.²² Australia has some of the largest reserves of known critical minerals like lithium, cobalt and rare earths, however, 80% of Australia’s landmass is unexplored.²³ The Federal Government has granted \$566.1 million to Geosciences Australia to explore and create detailed maps of critical mineral deposits under Australia’s soil and seabed.²⁴

The Federal Government has also committed \$7.1 billion over the next 11 years to support the refining and processing of critical minerals in Australia, by:

- (i) introducing the Critical Minerals Production Tax Incentive (**CMPTI**) to support downstream refining and processing of 31 critical minerals to improve supply chain resilience. This program is expected to cost \$7 billion. For more information on the CMPTI, take a look at our recent [article](#); and
- (ii) allocating \$10.2 million for pre-feasibility studies for processing facilities to enhance Australia’s capacity to process critical minerals.²⁵

A further \$1.2 billion has been committed to strategic critical mineral projects, including the [Alpha HPA alumina project](#) in Queensland and [Arafura Rare Earth’s Nolans Rare Earth project](#) in the Northern Territory.²⁶ Earlier this year we published a two-part series to explore the opportunities and challenges within the critical minerals industry in Australia: Part I: [Unlocking Clean Energy: The Crucial Role of Rare Earth Minerals: What’s all the Fuss About?](#); and Part II: [Unlocking Clean Energy: The Crucial Role of Rare Earth Minerals: Recent Announcements and the Path Forward](#)

(c) Clean Energy Manufacturing

The Federal Government will invest \$1.4 billion from 2024 to 2035 to support manufacturing of clean energy technologies, with a particular focus on solar and battery manufacturing capabilities.²⁷ The focus to support clean energy manufacturing includes:

- (i) \$835.6 million to establish the Solar Sunshot program to promote solar manufacturing capabilities and improve the industry’s supply chain resilience; and
- (ii) \$549 million to support battery manufacturing, through production incentives and enhancing industry and research collaboration.²⁸

ARENA opened the first phase of the \$1 billion Solar Sunshot program on 31 August 2024 to support innovation in Australia’s solar photovoltaic (**PV**) manufacturing industry.²⁹ Two Funding Rounds were launched, with a total of \$550 million available as follows:

- (i) Round 1A (\$500 million) aims to support solar PV manufacturing innovation.
- (ii) Round 1B (\$50 million) will provide funding for solar PV manufacturing studies.³⁰

Applications for the first round of funding are now being taken, with applications for Round 1A due by 30 April 2025, and applications for Round 1B due by 12 November 2025.³¹ The guidelines for applications can be accessed here. A further \$18.1 million has been allocated for the foundational initiatives for the emergence of Australia’s green metals industry.³² It aims to support the production of green iron, steel, alumina and aluminium.³³

(d) Innovation and Renewable Energy Technologies – ARENA

The Federal Government will invest \$1.7 billion in the FMA Fund, to be administered by ARENA.³⁴ This will support innovation, commercialisation, pilot and demonstration projects and early-stage development in priority sectors, including renewable hydrogen, green metals, low-carbon liquid fuels and clean energy technology manufacturing such as batteries.³⁵

In addition, the Federal Government will invest \$1.5 billion from 2027 to 2034 to supercharge ARENA’s core investments in renewable energy technologies, including development, demonstration, commercialisation, manufacturing and deployment to make Australia a renewable energy superpower.³⁶

¹⁴Ibid 68.

¹⁵Becky Bathgate, ‘New Industrial Policy: A Future Made in Australia’ (Web Page, May 2024) *Parliament of Australia* <https://www.aph.gov.au/About_Parliament/Parliamentary_departments/Parliamentary_Library/Budget/reviews/2024-25/NewIndustryPolicy?CalendarWidgetTarget=26-05-2024&tab=tab2b>.

¹⁶*Australian Government Hydrogen Headstart Program* (n 5).

¹⁷*Budget 2024-25* (n 4).

¹⁸See generally DCCEEW, ‘Powering Australia’ (Web Page, 24 May 2024) <<https://www.dcceew.gov.au/energy/strategies-and-frameworks/powering-australia>>.

¹⁹*Budget 2024-25* (n 4) 69.

²⁰DCCEEW, ‘New hydrogen strategy sets path for Australia to become a global H2 leader’ (Web Page, 13 September 2024) <<https://www.dcceew.gov.au/about/news/new-hydrogen-strategy-sets-path-global-h2-leader>>.

²¹DCCEEW, ‘Australia’s National Hydrogen Strategy 2024’ (Report 2024) <<https://www.dcceew.gov.au/sites/default/files/documents/national-hydrogen-strategy-2024.pdf>>.

²²Australian Government, ‘Intergenerational Report 2023 Australia’s Future to 2063’ (Report 2023) 17 <<https://treasury.gov.au/sites/default/files/2023-08/p2023-435150.pdf>>.

²³Australian Government ‘Critical Minerals Strategy 2023-2030’ (Report 2023) 12 <<https://www.industry.gov.au/sites/default/files/2023-06/critical-minerals-strategy-2023-2030.pdf>>.

²⁴Department of Industry, Science and Resources, ‘Investments to map Australian resources that will power our future prosperity’ (Article, 16 May 2024) <<https://www.industry.gov.au/news/investments-map-australian-resources-will-power-our-future-prosperity>>.

²⁵*Budget 2024-25* (n 4).

²⁶Ibid 69.

²⁷Ibid 68-69.

²⁸Ibid.

²⁹Australian Renewable Energy Agency (ARENA), ‘Solar Manufacturing Gets a Sunshot’ (Media Release, 31 August 2024) <<https://arena.gov.au/news/solar-manufacturing-gets-a-sunshot/>>.

³⁰Ibid.

³¹ARENA, ‘Solar Sunshot’ (Web Page, 2024) <<https://arena.gov.au/funding/solar-sunshot/>>.

³²Department of Industry, Science and Resources, ‘Investments to Position Australia as a World Leader in Green Metals Production’ (Article, 3 June 2024) <<https://www.industry.gov.au/news/investments-position-australia-world-leader-green-metals-production>>.

³³Ibid.

³⁴*Budget 2024-25* (n 4).

³⁵Ibid.

³⁶Ibid.

(e) Clean Energy Workforce

The Federal Government has committed \$218.4 million to support the development of a skilled and diverse clean energy workforce in Australia, including:

- (i) \$91 million to address vocational education and training sector shortages and to fund new and upgraded training facilities;
- (ii) \$55.6 million to establish the Building Women’s Careers program to improve women’s access to traditionally male dominated sectors; and
- (iii) \$10 million to establish a National Hydrogen Technology Skills Training Sector.³⁷

The Federal Government has also committed \$134.2 million to ensure workers impacted by the net zero transition are supported during that transition.³⁸ A further \$44.4 million has been committed to deliver the Energy Industry Jobs Plan³⁹ to assist employees in the coal and gas sectors to access new employment opportunities in the renewable energy sector or to retire early.

(f) Regulatory Reforms for Investment, Sustainable Finance Markets and Approvals

In an attempt to better attract and deploy investment, the Federal Government has committed significant funds to deliver regulatory reforms in key areas with the intention of creating a competitive business environment in Australia.⁴⁰ This will have a positive impact on facilitating and accelerating renewable energy investments.

The reforms will be introduced as part of the FMA package.

A summary the proposed reforms is outlined below.

Promote investment:

- (i) \$68 million over 4 years from 2024–2025 to attract investment in key industries, including \$54.7 million over 2 years from 2024–2025 for regulatory reforms to develop a ‘single front door’ for major investment proposals⁴¹ which is open for consultation until 4 October;⁴² and
- (ii) the Federal Government also intends to support Indigenous Business Australia⁴³ to better leverage their capital to invest in First Nation communities and businesses.⁴⁴

Sustainable finance markets:

- (iii) \$17.3 million over 4 years from 2024–2025 to develop sustainable finance markets, including \$10 million for the Australian Securities and Investments Commission to investigate and take enforcement action against market participants engaging in greenwashing and other sustainability-related financial misconduct;⁴⁵ and
- (iv) \$5.3 million over 4 years from 2024–2025 to deliver a sustainable finance framework.⁴⁶



Strengthen approvals processes:

- (v) \$182.7 million over 8 years from 2023–2024 to strengthen the approval processes to deliver the FMA package, including:
 - (A) \$96.6 million over 4 years from 2023–2024 to strengthen environmental approvals processes for renewable energy, transmission and critical minerals projects;
 - (B) \$20.7 million over 7 years from 2024–2025 to improve community engagement and social licence outcomes in regional communities affected by the energy transition;
 - (C) \$19.9 million over 4 years from 2024–2025 to develop, agree and maintain a national priority list of renewable energy projects; and
 - (D) \$15.7 million over 4 years from 2024–2025 to streamline Australia’s foreign investment framework. A key part of this framework includes refunding 75 per cent of foreign investment application fees to unsuccessful applicants in the bidding process.⁴⁷

(g) Other Clean Energy Measures

The Federal Government has committed to other budget measures in relation to the clean energy transition, including:

- (i) \$7.1 billion over 4 years from 2024–2025 to support continued construction of Snowy Hydro 2.0 (noting \$4.5 billion will be provided on commercial loan terms and expected to be refinanced once the facility is operational);⁴⁸
- (ii) \$3.5 billion over 3 years from 2023–2024 to extend and expand the Energy Bill Relief Fund to provide a \$300 rebate to all Australian households and a \$325 rebate to small businesses (in 2024–2025) to provide cost of living relief;⁴⁹
- (iii) \$23 million investment in 2024–2025 to continue to deliver the Government’s circular economy policy following the development of a new national framework;⁵⁰
- (iv) \$47.7 million over 4 years from 2024–2025 to implement reforms to boost the supply of renewable energy resources, develop the Energy Made Easy website and make it easier for consumers to switch between energy retailers through ‘one click’;⁵¹
- (v) \$48 million over 4 years from 2024–2025 to implement further reforms to the Australian Carbon Credit Unit scheme (building on the \$18.1 million investment in the 2023-24 budget);⁵²
- (vi) \$32.6 million over 4 years from 2024–2025 to develop regulatory frameworks on carbon sequestration;⁵³
- (vii) \$399.1 million over 5 years from 2023–2024 to promote orderly and positive economic transformation and to ensure regions and workers realise the benefit of the net zero economy;⁵⁴ ; and
- (viii) \$154.5 million over 6 years from 2023–2024 to implement the recently introduced New Vehicle Efficiency Standard.⁵⁵

³⁷Ibid 72-73.

³⁸Ibid 160.

³⁹Ibid.

⁴⁰Australian Government, ‘Future Made in Australia National Interest Framework Supporting Paper’ (Report, 14 May 2024) 2 <<https://treasury.gov.au/sites/default/files/2024-05/p2024-526942-fmia-nif.pdf>>.

⁴¹Budget 2024-25 (n 4) 65.

⁴²Australian Government, ‘Future Made in Australia Front Door’ (Web Page, 2024) <<https://treasury.gov.au/consultation/c2024-571335>>.

⁴³Indigenous Business Australia, ‘About Us’ (Web Page, 2021) <<https://iba.gov.au/about-us/>>. Indigenous Business Australia was established to enhance economic opportunities for Aboriginal and Torres Strait Islander peoples across Australia. They facilitate investment partnerships to promote the financial success and independence of Indigenous Australians.

⁴⁴Budget 2024-25 (n 4) 65.

⁴⁵Ibid 70.

⁴⁶Ibid 71.

⁴⁷Ibid 71-72.

⁴⁸Ibid 101.

⁴⁹Ibid 179.

⁵⁰Ibid 54.

⁵¹Ibid.

⁵²Ibid 55.

⁵³Ibid 59-60.

⁵⁴Ibid 159-160.

⁵⁵Ibid 149.

1.4 What’s on the horizon following the Federal Budget?

Future Made in Australia Package

The FMA package presents a significant opportunity for renewable energy project proponents and industry stakeholders. It represents an enhanced commitment by the Federal Government in providing funding support to New Energy projects and in supporting related market sectors, such as critical minerals processing and education and training. As such, developers and industry stakeholders alike should actively explore the various funding opportunities available within the FMA package. Understanding the eligibility criteria will be crucial, so that applications can be lodged in on time and assessed efficiently. To enhance the prospect of applications obtaining approval, market participants should consider aligning their proposed projects with the objectives outlined in the FMA strategy, FMA Act and related guidance documentation, once available.

Guarantee of Origin Scheme

The funding allocated towards the GO Scheme evidences the Federal Government’s desire to clarify and streamline certification procedures for hydrogen and green metals products. We suggest that developers should prepare for participation in this scheme by familiarising themselves with the scheme certification requirements. The GO Scheme will enhance market confidence in New Energy products and facilitate trade, particularly in international markets such as the European Union, where demand for green minerals and hydrogen that meets rigorous certification standards is growing. The GO Scheme therefore represents an opportunity for domestic producers to capitalise on the ‘greenness’ of their products when promoting them to offshore consumers.

Cross-Discipline Collaboration to drive Innovation

The New Energy sector is rich with examples of technological innovation, ranging from advances in more efficient solar panels and wind turbines to the application of quantum computing for optimising the efficiency of Australia’s energy grid. For further insights, refer to [Part One](#) and [Part Two](#) of our articles on quantum technology. The funding allocated in the Federal Budget for developing technologies, supporting industry-research collaboration and promoting innovation indicates that the pace of technological advancement is likely to accelerate.

Cross-disciplinary collaboration is expected to become increasingly relevant and vital. One example of this could involve joint research initiatives between industry developers, academic institutions and research centres aimed at identifying critical advancements to support battery manufacturing. These efforts would align with the objectives of the ‘Clean Energy Manufacturing’ initiative introduced in the Federal Budget, highlighting the growing importance of integrated expertise in advancing the sector.

Project proponents may increase their likelihood of securing funding from ARENA by submitting joint applications that foster collaboration between academia and industry. Such applications are typically well-received by funding bodies, as they demonstrate the integration of shared resources, complementary expertise and a solid research foundation. These elements are critical in presenting a more compelling and strategically sound business case, thereby enhancing the prospects of obtaining financial support.

Regulatory Reforms

The proposed reforms under the FMA Act aim to support the Government’s broader FMA package, providing legislative clarity and strategic guidance to participants in the New Energy sector – particularly concerning critical investment considerations. These reforms are anticipated to align closely with the initiatives outlined in the Federal Budget, offering a cohesive policy approach. Developers and stakeholders are advised to closely track the progress and implementation of the FMA Act to ensure they are optimally positioned to capitalise on the opportunities presented by this regulatory framework. Moreover, a thorough understanding of the Act’s objectives and key provisions will enable project proponents to mitigate the risk of non-compliance and to effectively navigate the evolving regulatory landscape. For more information on other regulatory reforms underway, see pages [30](#), [34](#), [37](#) of this Special Edition.

2. Distributed Energy Resources (DERs)

2.1 Overview

As Australia’s renewable energy landscape matures, the demand for DERs is rapidly growing, making them increasingly important contributors to the energy mix.⁵⁶ These decentralised energy technologies, including solar photovoltaics, battery energy storage systems and electric vehicles are integral to enhancing energy resilience, reducing greenhouse gas (GHG) emissions and improving grid flexibility.⁵⁷ In this market outlook, we provide a comprehensive definition of DERs, examine their expanding role within the Australian renewable energy framework and identify key industry stakeholders driving their adoption. Furthermore, we offer a critical evaluation of the future prospects for DERs, considering their potential to shape the nation’s energy transition.

2.2 What are DERs?

In 2023 renewable energy contributed 39.4 per cent to Australia’s total electricity generation, with a record addition of 5.9 GW of renewable capacity to the grid.⁵⁸ The total generation capacity of distributed solar PV, including rooftop solar, stood at 21 GW at the end of 2023, with 3.1 GW added in 2023 alone.⁵⁹

DERs are small scale energy systems commonly located ‘behind the meter’ at houses or businesses.⁶⁰ In contrast to centralised power generation, DERs intend to satisfy the energy needs of their respective owners through on-site generation close to the point of use.⁶¹ Common examples of DERs include rooftop solar units, battery storage, electric vehicles and energy management technologies.⁶² Given the rise in popularity, Australia’s energy system is transforming towards a decentralised, two-way energy network, driven by the rapid uptake of DER.⁶³

To organise this, the energy systems can be aggregated and operated together through micro-grids and virtual power plants (VPP).⁶⁴ This ensures there is a reliable and secure energy supply.



⁵⁶ARENA, ‘Distributed Energy Resources’ (Web Page, 19 September 2024) <<https://arena.gov.au/renewable-energy/distributed-energy-resources/>> (‘ARENA DER’).
⁵⁷Arnaud de Giovanni and Ben Warren, ‘Can decentralized energy get good enough, fast enough?’, EY (Article, 15 November 2022) <https://www.ey.com/en_au/insights/energy-resources/can-decentralized-energy-get-good-enough-fast-enough>.
⁵⁸Clean Energy Council (CEC), ‘Clean Energy Australia 2024’ (Report, 13 March 2024) 9 <<https://cleanenergycouncil.org.au/cec/media/background/resources/clean-energy-australia-report-2024.pdf>>.
⁵⁹Ibid 2, 42.
⁶⁰ARENA DER (n 56).
⁶¹Australian Energy Market Commission (AEMC), ‘Distributed Energy Resources’ (Web Page) <<https://www.aemc.gov.au/energy-system/electricity/electricity-system/distributed-energy-resources>>.
⁶²ARENA DER (n 56).
⁶³AEMO, ‘About the DER Program’ (Web Page) <<https://aemo.com.au/initiatives/major-programs/nem-distributed-energy-resources-der-program/about-the-der-program>>.
⁶⁴GridBeyond, ‘VPP, microgrid, DERs and DERMS...what are they?’ (Article, September 2024) <<https://gridbeyond.com/vpp-microgrid-ders-and-dermswhat-are-they/>>.

2.3 Who are the DER Industry Stakeholders?

The DER sector is evolving with a variety of key players across the industry. In addition to established players like solar panel and battery manufacturers and installers, a diverse array of stakeholders is increasingly influential in this growing market, including energy market operators, utility companies and investment groups. These include:

(a) Market Operator

The Australian Energy Market Operator (**AEMO**) manages the electricity and gas systems and markets across Australia.⁶⁵ As part of its remit of authority, AEMO established the National Electricity Market (**NEM**) DER Program, to address the increasing amount of DER in the Australian energy system.⁶⁶ AEMO launched the DER register in 2020, which is a database of information about DER devices installed in the NEM at residential or business locations.⁶⁷ All DER devices connected to the NEM are required, from 1 March 2020, to be updated in the DER register.⁶⁸ AEMO also plays an important role in ensuring technical compliance and monitoring of DER (e.g. compliance of DER with AS/NZS4777.2 standard).⁶⁹ This makes AEMO’s oversight of DER critical for maintaining stability, reliability and security of the NEM.

(b) Utility Companies

Utility companies also play an important role in the adoption of DER in the NEM by participating in innovative partnerships with energy consumers.⁷⁰ For example, Origin Energy, a major utility company in Australia, and retail giant, Coles, formed an innovative partnership in 2023, co-investing in DER rooftop solar and battery assets at up to 100 of Coles supermarkets and liquor stores across Australia.⁷¹ The stores will be fitted with 20MW solar panels while batteries will be installed at one-third of the stores.⁷² This will reduce participating stores’ grid reliance by an average of 20 per cent and furthers Coles’ objective to achieve 100 per cent renewable energy generation by June 2025.⁷³ Additionally, as a major player in the VPP space, Origin has grown their VPP portfolio from 258 MW in 2022 to 815 MW by June 2023.⁷⁴ Origin reported more than 276,000 assets were connected to the Origin VPP.⁷⁵

(c) Investors

A new profile of investor has entered the DER market recently: superannuation funds.⁷⁶ In October 2023, Aware Super partnered with Birdwood Energy to form the Birdwood Distributed Energy Platform.⁷⁷ Aware Super made an initial commitment of \$300 million (as part of a \$2 billion partnership).⁷⁸ The platform will invest in smaller-scale, DER assets, often coupled with battery storage for firming capacity.⁷⁹ This transaction is the first significant investment by an Australian superannuation fund into the distributed energy sector and has redefined the way in which the Australian energy market views DER.⁸⁰

2.4 What’s on the horizon for DER?

The proliferation of Virtual Power Plants (VPPs)

The adoption of VPPs are expected to accelerate, driven by an observed trend in orchestration agreements. In these arrangements, VPP service providers aggregate a portfolio of DER and efficiently dispatch the generated energy in a coordinated and cost-effective manner.⁸¹ This provides a healthy investment return for the asset owner, as well as a percentage return for the service provider. As more DER are connected to the NEM, it is reasonable to expect that VPP will become more common as consumers look to reap the financial benefits of such arrangements.⁸² AEMO’s role in the technical compliance and monitoring of DER is poised to gain significance as more DER and VPP are integrated into the grid.⁸³ The increasing complexity of energy generation and distribution necessitates cohesive operation of these assets, with effective compliance and monitoring being critical to ensuring the stability, reliability and security of the NEM.⁸⁴

The maturing of the Frequency Control Ancillary Services Market

AEMO controls key technical characteristics of the power system, such as frequency and voltage, through ‘ancillary services’.⁸⁵ To maintain frequency within the NEM, Frequency Control Ancillary Services (**FCAS**) have been developed to alter generation and/or demand at peak hours of energy usage so that the generation/demand balance is always maintained.⁸⁶

We are seeing opportunities for organisations to profit from FCAS services by offering FCAS to balance the grid when required.⁸⁷ Household batteries (and VPPs) have demonstrated capability to deliver contingency FCAS.⁸⁸ The latest ‘Very Fast’ FCAS are anticipated to be very attractive revenue streams for those operating Battery Energy Storage System (**BESS**) assets.⁸⁹ Last year, in Australia, grid-scale BESS made up 40–50 per cent of the FCAS market.⁹⁰ We expect these figures to rise as energy companies take advantage of the maturing and profitable FCAS industry.



⁶⁵Australian Energy Market Operator (AEMO), ‘Australian Energy Market Operator’ (Web Page, 2024) <<https://aemo.com.au/en>>.

⁶⁶AEMO, ‘NEM Distributed Energy Resources Program’ (Web Page) <<https://aemo.com.au/initiatives/major-programs/nem-distributed-energy-resources-der-program>>.

⁶⁷AEMO, ‘About the DER Register’ (Web Page) <<https://aemo.com.au/energy-systems/electricity/der-register/about-the-der-register>>.

⁶⁸AEMO, ‘Distributed Energy Resource Register’ (Web Page) <<https://aemo.com.au/energy-systems/electricity/der-register>>.

⁶⁹AEMO, ‘Compliance of DER with Technical Settings’ (Web Page) <<https://aemo.com.au/initiatives/major-programs/nem-distributed-energy-resources-der-program/standards-and-connections/compliance-of-der-with-technical-settings>>.

⁷⁰Power Grid International, ‘Power-ful’ 2024 predictions: The future of energy and utilities’ (Article, 24 January 2024) <<https://www.power-grid.com/executive-insight/power-ful-2024-predictions-the-future-of-energy-and-utilities/#gref>>.

⁷¹Sophie Vorrath, “Landmark alliance:” Origin, Coles strike solar and battery deal to cut emissions, balance grid’, *Renew Economy* (Article, 3 August 2023) <<https://reneweconomy.com.au/landmark-alliance-origin-coles-strike-solar-and-battery-deal-to-cut-emissions-balance-grid/>>.

⁷²Ibid.

⁷³Ibid.

⁷⁴Origin Energy, ‘Creating Sustainable Value 2023 Sustainability Report’ (Report, 17 August 2023) 6 <https://www.originenergy.com.au/wp-content/uploads/80/Origin_2023_Sustainability_Report.pdf>.

⁷⁵Ibid.

⁷⁶Matt Baumgurtel et al., ‘(Super)funding Renewable Energy Projects’, *Hamilton Locke* (Article, 5 February 2024) <<https://hamiltonlocke.com.au/superfunding-renewable-energy-projects/>>.

⁷⁷Angela Macdonald-Smith, ‘Aware Super has \$2b green plan to dodge energy grid logjam’, *Australian Financial Review* (Article, 18 October 2023) <<https://www.afr.com/companies/energy/aware-super-has-2b-green-plan-to-dodge-energy-grid-logjam-20231017-p5ecuz>>.

⁷⁸Ibid.

⁷⁹Matt Baumgurtel et al., ‘Hamilton Locke Advises Birdwood Energy on AUD2 Billion Distributed Energy Partnership with Aware Super’, *Hamilton Locke* (Article, 19 October 2023) <<https://hamiltonlocke.com.au/hamilton-locke-advises-birdwood-energy-on-aud2-billion-distributed-energy-partnership-with-aware-super/>> (‘Matt Baumgurtel et al. 2023’).

⁸⁰Ibid.

⁸¹Sobhy Abdelkader, Jeremy Amissah and Omar Abdel-Rahim, ‘Virtual Power Plants: An in-depth analysis of their advancements and importance as crucial players in modern power systems’ (2024) 14(52) *Energy, Sustainability and Society*.

⁸²Mike B Roberts, Sophie M Adams and Declan Kuch, ‘Social license to automate batteries? Australian householder conditions for participation in Virtual Power Plants’ (2023) 104 *Energy Research & Social Science* 3.

⁸³AEMO, ‘Compliance of Distributed Energy Resources with Technical Settings: Update’ (Report, December 2023) 3 <<https://aemo.com.au/initiatives/major-programs/nem-distributed-energy-resources-der-program/standards-and-connections/compliance-of-der-with-technical-settings>>.

⁸⁴Violette Mouchaileh, ‘Consumer Energy Resources Technical Standards Review’, AEMO (Submission, 25 May 2023) <<https://www.aemc.gov.au/sites/default/files/2023-05/B%20AEMO%20-%20Submission%20to%20draft%20report%20-%20EMO0045%20-%20250523.pdf>>.

⁸⁵AEMO, ‘Ancillary Services’ (Web Page, 2024) <<https://aemo.com.au/energy-systems/electricity/national-electricity-market-nem/system-operations/ancillary-services>>.

⁸⁶AEMO, ‘Guide to Ancillary Services in the National Electricity Market’ (Report, 23 October 2023) 5 <https://aemo.com.au/-/media/files/electricity/nem/security_and_reliability/ancillary_services/guide-to-ancillary-services-in-the-national-electricity-market.pdf>.

⁸⁷Yurika, ‘FCAS giving battery owners a new revenue stream’ (Article, 14 August 2023) <<https://www.yurika.com.au/fcas-giving-battery-owners-a-new-revenue-stream/>>.

⁸⁸ARENA, ‘AEMO Virtual Power Plan Demonstrations’ (Web Page, 1 February 2022) <<https://arena.gov.au/projects/aemo-virtual-power-plant-demonstrations/>>.

⁸⁹Andy Colthorpe, ‘Highly attractive’ revenues forecast in Australia’s new Very Fast ancillary services opportunity’, *Energy Storage News* (Article, 10 January 2024) <<https://www.energy-storage.news/highly-attractive-revenues-forecast-in-australias-new-very-fast-ancillary-services-opportunity/>>.

⁹⁰Wood Mackenzie, ‘Ancillary Services Market Redesign to Drive Grid-Scale Battery Uptake’, *Forbes* (Article, 12 March 2024) <<https://www.forbes.com/sites/woodmackenzie/2024/03/12/ancillary-services-market-redesign-to-drive-grid-scale-battery-uptake/>>.

3. Law, Regulation and Policy Landscape

3.1 Overview

The Federal Government aims to make Australia a renewable energy superpower⁹¹ and has committed to growing renewable energy generation capacity to 82 per cent by 2030.⁹² To achieve these goals, the Federal Government has, in cooperation with State Governments, set various policies, schemes, frameworks and strategies to promote renewable energy development, emissions reductions and upgrades to existing infrastructure.

This market outlook explores the changing legal, regulatory and policy landscape in New Energy in light of these ambitions. Specifically, we consider the market outlook on the NEM, offshore wind and climate change concerns. Our insights on legislative updates are not intended to be exhaustive, but instead to provide a flavour of some of the key changes we are seeing in the market. We then consider what these changes mean for industry participants including exploring key opportunities and potential risks.

3.2 Federal and Nationwide Law, Regulation and Policy

(a) NEM

Under section 51 of the *Commonwealth of Australia Constitution Act*, the Federal Government does not have legislative power over electricity supply.⁹³ This means that electricity supply is, by default, a State power.⁹⁴ However, the States have recognised the importance of co-ordinating energy market regulation and ceded much of their regulatory competency to establish common energy markets. The NEM is the largest such market and comprises the states of NSW, Victoria, South Australia, Queensland, Tasmania and the Australian Capital Territory. Western Australia operates under the Wholesale Electricity Market (**WEM**), which covers the South-West Interconnected System,⁹⁵ while the Northern Territory is served by the Interim Northern Territory Electricity Market (**I-NTEM**), encompassing the Darwin-Katherine Interconnected System.⁹⁶ Despite this co-ordination, several aspects of the Australian energy markets continue to be regulated by State and Territory governments.

The NEM was established in South Australia by the National Electricity Law, which is contained within a Schedule to the *National Electricity (South Australia) Act 1996*,⁹⁷ and was subsequently uniformly adopted by each other State comprising the NEM.⁹⁸ The NEM is governed by the [National Electricity Rules](#)⁹⁹ and [National Electricity \(South Australia\) Regulations](#).¹⁰⁰ The retail market is regulated by the [National Energy Retail Law](#) (a Schedule to the National Energy Retail Law (South Australia) Act 2011).¹⁰¹

(b) Authorities and Institutions

- The NEM is administered by the following major authorities:
- (i) **Australian Energy Market Commission (AEMC):** The AEMC is the rule-maker for the Australian energy markets.¹⁰² The AEMC is responsible for making and amending the [National Electricity Rules](#), [National Gas Rules](#) and the [National Energy Retail Rules](#).¹⁰³
 - (ii) **Australian Energy Regulator (AER):** The AER regulates energy and gas providers by setting the maximum amount electricity networks and natural gas providers

- can earn in revenue from their consumers. The AER also assesses network business proposals on required revenue and monitors compliance with retail laws and rules for energy activities.¹⁰⁴
- (iii) **Australian Energy Market Operator (AEMO):** The AEMO operates the NEM and the WEM. AEMO’s purpose is “*to ensure safe, reliable & affordable energy and enable the energy transition for the benefit of all Australians*”.¹⁰⁵

Adjacent to these authorities is the Energy Advisory Panel (**EAP**). The EAP is made up of the heads of the AEMC, AER and AEMO and the Energy Commissioner of the Australian Competition and Consumer Commission (**ACCC**) sits as an observer.¹⁰⁶ The EAP coordinates advice of market bodies’ under the National Energy Transformation Partnership,¹⁰⁷ on security, reliability and affordability of the NEM.¹⁰⁸ The AEMC, AER, AEMO and the EAP collectively work to support the Energy and Climate Change Ministerial Council (**ECMC**)¹⁰⁹ to develop national energy policy.¹¹⁰

(c) Climate Change

The *Climate Change Act 2022* (Cth) legislates the Federal Government’s targets of reducing GHG emissions by 43 per cent by 2030 (relative to 2005 levels) and to reach net zero GHG emissions by 2050.¹¹¹ Achieving these targets hinges on the action taken by the Federal Government to grow the share of renewable energy in the Australian market. The Federal Government has committed to a target of 82 per cent of Australia’s electricity generation by 2030 being from renewable sources.¹¹² According to the AEMO’s 2024 Integrated System Plan, to meet this mix of energy generation, Australia needs to add at least 6 GW of renewable, utility-scale capacity in the NEM annually.¹¹³

(d) Offshore Wind

The *Offshore Electricity Infrastructure Act 2021* (Cth) and the *Offshore Electricity Infrastructure Regulations 2022* (Cth) established the foundation of the regulatory framework for offshore electricity infrastructure, including regulations for licensing, fees and levies.¹¹⁴ The proposed *Offshore Electricity Infrastructure Amendment Regulations 2024 (Proposed Offshore Regulations)* will further prescribe the obligations of licence holders in relation to offshore activities.¹¹⁵ The Proposed Offshore Regulations are being developed in stages, with regulations for licensing, fees and levies being set in 2022.

The Proposed Offshore Regulations are anticipated to be finalised by mid-late 2024 and are expected to address key operational requirements for offshore projects including work, health and safety considerations, management plans and the provision of financial security for decommissioning.¹¹⁶ Public consultation on the Proposed Offshore Regulations closed in May 2024.¹¹⁷

The offshore wind industry is also gaining momentum as the Government granted the first round of feasibility licences to twelve projects in the Gippsland area (Victoria) in June 2024.¹¹⁸ The feasibility licences are granted by the Federal Government under the *Offshore Electricity Infrastructure Act 2021* (Cth) regime (see our previous article here on the overall regulatory regime and our article here on the Proposed Offshore Regulations).

⁹¹The Hon Dr Jim Chalmers MP, Treasurer, ‘Budget boosts Australia’s transformation to a renewables superpower’ (Media Release, 9 May 2023) <<https://ministers.treasury.gov.au/ministers/jim-chalmers-2022/media-releases/budget-boosts-australias-transformation-renewables>> (‘The Hon Dr Jim Chalmers MP 2023’).

⁹²Australian Trade and Investment Commission, ‘Renewable Energy: Wind, Solar, Storage & Transmission’ (Web Page) <<https://international.austrade.gov.au/en/do-business-with-australia/sectors/energy-and-resources/renewable-energy>>.

⁹³Commonwealth of Australia Constitution Act 1977 (Cth) s 51.

⁹⁴Anna Kallies, ‘The Australian Energy Transition as a Federalism Challenge: (Un)cooperative Energy Federalism?’ 2021 10(2) *Transnational Environmental Law* 211-235.

⁹⁵AEMO, ‘Wholesale Electricity Market (WEM)’ (Web Page) <<https://aemo.com.au/energy-systems/electricity/wholesale-electricity-market-wem>>.

⁹⁶Northern Territory Government, ‘Northern Territory Electricity Market Consultation Draft Functional Specification’ (2019) 7 <https://utilicom.nt.gov.au/_data/assets/pdf_file/0010/742474/NTEM-Draft-Consultation-Functional-Specification.pdf>.

⁹⁷National Electricity (South Australia) Act 1996.

⁹⁸AEMO, ‘Legislation and Regulation’ (Web Page, 2024) <<https://aemo.com.au/en/learn/legislation-and-regulation>> (‘AEMO Legislation’).

⁹⁹Ibid.

¹⁰⁰Ibid.

¹⁰¹Ibid.

¹⁰²AEMC, ‘About Us’ (Web Page) <<https://www.aemc.gov.au/about-us>>.

¹⁰³Ibid.

¹⁰⁴Australian Energy Regulator (AER), ‘Our Role’ (Web Page) <<https://www.aer.gov.au/about/aer/our-role>> (‘AER Our Role Page’).

¹⁰⁵AEMO, ‘About AEMO’ (Web Page) <<https://aemo.com.au/about>>.

¹⁰⁶AER Our Role Page (n 112).

¹⁰⁷The National Energy Transformation Partnership is a collaborative framework between Commonwealth, State and Territory Governments aimed at implementing reforms to transform Australia’s energy system and achieve net zero emissions by 2050: see generally DCCEEW, ‘National Energy Transformation Partnership’ (Web Page, 11 September 2023) <<https://www.energy.gov.au/energy-and-climate-change-ministerial-council/national-energy-transformation-partnership>>.

¹⁰⁸AER Our Role Page (n 112).

¹⁰⁹The ECMC is a forum that brings together the Commonwealth, Australian States and Territories and New Zealand to collaborate on priority issues of national significance and key reforms in the energy and climate change sectors: see generally DCCEEW, ‘Energy and Climate Change Ministerial Council’ (Web Page) <<https://www.energy.gov.au/energy-and-climate-change-ministerial-council>>.

¹¹⁰Ibid.

¹¹¹*Climate Change Act 2022* (Cth) s 10.

¹¹²Australian Trade and Investment Commission (n 92).

¹¹³AEMO, ‘2024 Integrated System Plan’ (Report, 26 June 2024) 11 <<https://aemo.com.au/-/media/files/major-publications/isp/2024/2024-integrated-system-plan-isp.pdf?la=en>> (‘AEMO Integrated System Plan’).

¹¹⁴*Offshore Electricity Infrastructure Act 2021* (Cth); *Offshore Electricity Infrastructure Regulations 2022* (Cth).

¹¹⁵Exposure Draft of the *Offshore Electricity Infrastructure Amendment Regulations 2024*.

¹¹⁶DCCEEW, *Regulations under the Offshore Electricity Infrastructure Act 2021* (Consultation Paper, 2021) 5, 6.

¹¹⁷DCCEEW, ‘Public Consultation on Proposed Regulations Supporting the Offshore Electricity Infrastructure (OEI) Act 2021’ (Web Page) <<https://consult.dcceew.gov.au/offshore-electricity-infrastructure-regulations-2024>>.

¹¹⁸DCCEEW, ‘Gippsland, Victoria Declared Offshore Wind Area’, (Web Page) <<https://www.dcceew.gov.au/energy/renewable/offshore-wind/areas/gippsland>>.

(e) Renewable Energy Funding Initiatives

The table below provides some examples of current Federal Renewable Energy Funding Initiatives:

Funding Initiative	Value	Purpose
Rewiring the Nation	\$20 billion	Low-cost funding will be provided to upgrade transmission infrastructure across Australia. ¹¹⁹
National Reconstruction Fund	\$3 billion	A target \$3 billion in loans, equity investment and guarantees will be available for the development of renewable energy and low emission technologies to support the diversification of Australia’s industry and economy. ¹²⁰
Powering the Regions Fund	\$1.9 billion	This fund will support the decarbonisation of existing industries, develop new clean energy industries, develop the clean energy workforce and purchase carbon credits. ¹²¹
Emissions Reduction Fund (ERF)	\$4.5 billion	The ERF incentivises businesses and landholders to undertake projects that curb GHG emissions or capture carbon. ¹²² Participants earn Australian carbon credit units (ACCUs) for each tonne of CO2 equivalent prevented or stored. ¹²³ These ACCUs can then be sold on the secondary market. ¹²⁴ Between 2015–2022, half of the fund had been spent to abate 217 million tonnes of emissions. ¹²⁵
Solar Sunshot Program	\$1 billion	A fund to accelerate the development of Australia’s solar manufacturing industry through subsidies and grants across the solar photovoltaic supply chain. ¹²⁶

The table below provides some examples of Renewable Energy Policy Initiatives:

Policy Initiative	Purpose
Renewable Energy Target (RET)	The Federal RET seeks to deliver an extra 33,000 GWh of electricity from renewable sources every year from 2020 to 2030. ¹²⁷ It includes Renewable Energy Certificates for the Large-scale Renewable Energy Target ¹²⁸ and the Small-scale Renewable Energy Scheme. ¹²⁹
Renewable Energy Zone (REZ)	REZ are areas designated where several large-scale renewable energy projects can be developed and co-exist, supported by multi-user network infrastructure. ¹³⁰ REZs are being developed across the NEM, as identified in the AEMO’s Integrated System Plan, in States including New South Wales, Victoria and Queensland. ¹³¹
The Capacity Investment Scheme (CIS)	The Federal CIS aims to add 32 GW of renewable capacity by 2030 by underwriting revenue for successful tender projects. ¹³²
GO Scheme	The GO Scheme aims to certify emissions associated with hydrogen and other products made in Australia to support renewable energy and emissions claims and enable export. ¹³³

We now turn to the State-specific law, regulation and policy market outlook, outlining examples of the separate targets and commitments State Governments have made regarding GHG emissions reductions and to facilitate the transition to net zero. Subsequently, we offer our insights on what the Federal and State level updates may mean for market participants.

3.3 State Law, Regulation and Policy

(a) New South Wales

NSW has legislated in the *Climate Change (Net Zero Future) Act 2023* (NSW) targets to reduce GHG emissions by 50% by 2030 and to achieve net zero emissions by 2050. The Net Zero Plan Stage 1: 2020-2030 is the foundation for NSW’s action to reach emission reduction targets, together with NSW Electricity Strategy, NSW Electric Vehicle Strategy and NSW Hydrogen Strategy.¹³⁴ In particular, the Electricity Infrastructure Roadmap, enabled by the *Electricity Infrastructure Investment Act 2020* (NSW), is expected to attract up to \$32 billion of private investment in regional energy infrastructure by 2030 and support over 9,000 jobs, mostly in regional NSW.¹³⁵ NSW’s Hydrogen Strategy aims to deliver its 2030 targets of 110,000 tonnes of annual green hydrogen production and 700 MW of electrolyser capacity.¹³⁶

NSW’s Long-Term Energy Service Agreements provide investment certainty for new renewable energy projects.¹³⁷

(b) Victoria

Victoria’s renewable energy targets have been legislated in the *Renewable Energy (Jobs and Investment) Act 2017* (Vic). Victoria’s overall renewable energy targets are 25% by 2020 (achieved), 40% by 2025, 65 per cent by 2030 and 95% by 2035.¹³⁸ In addition, Victoria has legislated energy storage targets of at least 2.6 GW of energy storage capacity by 2030 and 6.3 GW by 2035.¹³⁹ The State has legislated offshore wind energy generation targets of at least 2 GW of capacity by 2032, 4 GW by 2035 and 9 GW by 2040.¹⁴⁰ Victorian Renewable Energy Target (VRET)¹⁴¹ auctions provide investment certainty for new renewable energy projects.

(c) Queensland

Queensland has a 50% renewable energy target by 2030. The Queensland Energy and Jobs Plan, released in September 2022, builds new commitments of 70 per cent renewable energy by 2032 and 80 per cent by 2035.¹⁴²



¹¹⁹DCCEEW, ‘Rewiring the Nation’ (Web Page) <<https://www.dcceew.gov.au/energy/renewable/rewiring-the-nation>>.

¹²⁰The Hon Dr Jim Chalmers MP 2023 (n 91).

¹²¹DCCEEW, ‘Powering the Regions Fund’ (Web Page, February 2023) <<https://consult.dcceew.gov.au/powering-the-regions-fund>>.

¹²²Regional Investment Corporation, ‘Emissions Reduction Fund’ (Web Page, 25 March 2024) <<https://www.ric.gov.au/plantation/ERF>>.

¹²³Clean Energy Regulator (CER), ‘Australian Carbon Credit Unit Scheme’ (Web Page, 5 September 2024) <<https://cer.gov.au/schemes/australian-carbon-credit-unit-scheme>>.

¹²⁴Ibid.

¹²⁵The Australia Institute, ‘Renewed Call for Review of \$4.5 Billion Carbon Credit Scheme’ (Media Release, 5 May 2022) <<https://australiainstitute.org.au/post/renewed-call-for-review-of-4-5-billion-carbon-credit-scheme/>>.

¹²⁶ARENA, ‘Solar Sunshot’ (Web Page) <<https://arena.gov.au/funding/solar-sunshot/>>.

¹²⁷CER, ‘Renewable Energy Target’ (Web Page, 9 September 2024) <<https://cer.gov.au/schemes/renewable-energy-target>>.

¹²⁸CER, ‘Large-scale Renewable Energy Target’ (Web Page, 8 April 2024) <<https://cer.gov.au/schemes/large-scale-renewable-energy-target>>.

¹²⁹CER, ‘Small-scale Renewable Energy Scheme’ (Web Page, 20 May 2024) <<https://cer.gov.au/schemes/renewable-energy-target/small-scale-renewable-energy-scheme>>.

¹³⁰AER, ‘Renewable Energy Zones’ (Web Page) <<https://www.aer.gov.au/about/strategic-initiatives/renewable-energy-zones>>.

¹³¹See generally, *AEMO Integrated System Plan* (n 109).

¹³²DCCEEW, ‘Capacity Investment Scheme’ (Web Page) <<https://www.dcceew.gov.au/energy/renewable/capacity-investment-scheme>>.

¹³³DCCEEW, ‘Guarantee of Origin Scheme’ (Web Page, 13 September 2024) <<https://www.dcceew.gov.au/energy/renewable/guarantee-of-origin-scheme>>.

¹³⁴NSW Climate and Energy Action, ‘Government Strategies and Frameworks’ (Web Page) <<https://www.energy.nsw.gov.au/nsw-plans-and-progress/government-strategies-and-frameworks>>.

¹³⁵NSW Climate and Energy Action, ‘NSW Electricity Strategy’ (Web Page) <<https://www.energy.nsw.gov.au/nsw-plans-and-progress/government-strategies-and-frameworks/nsw-electricity-strategy>>.

¹³⁶NSW Climate and Energy Action, ‘NSW Hydrogen Strategy’ (Web Page) <<https://www.energy.nsw.gov.au/nsw-plans-and-progress/government-strategies-and-frameworks/nsw-hydrogen-strategy>>.

¹³⁷EnergyCo, ‘Long-Term Energy Service Agreements’ (Web Page) <<https://www.energyco.nsw.gov.au/industry/long-term-energy-service-agreements>>.

¹³⁸Energy Environment and Climate Action, ‘Victorian Renewable Energy and Storage Targets’ (Web Page, 23 August 2024) <<https://www.energy.vic.gov.au/renewable-energy/victorian-renewable-energy-and-storage-targets>>.

¹³⁹Ibid.

¹⁴⁰Ibid.

¹⁴¹VRET is a state initiative aimed at increasing the share of renewable energy in Victoria’s electricity supply, with specific targets to support the transition to a clean, sustainable, and reliable energy system: see generally Victorian Government Energy, Environment and Climate Action, ‘Victorian Renewable Energy and Storage Targets’ (Web Page) <<https://www.energy.vic.gov.au/renewable-energy/victorian-renewable-energy-and-storage-targets>>.

¹⁴²Department of Energy and Climate, ‘Queensland’s Renewable Energy Targets’ (Web Page, 5 August 2024) <<https://www.energyandclimate.qld.gov.au/about/initiatives/renewable-energy-targets>>.

4. Project Strategies: New Developments

4.1 Overview

Renewable energy projects are becoming more complex, integrated opportunities for developers and communities. As the transition towards sustainable energy gains momentum, the importance of renewable energy project financing is becoming clear.¹⁵⁵ In this article, we delve into three pivotal areas shaping the way renewable energy projects are structured: multi-technology developments, hybrid contractors and enhanced decommissioning requirements. We explore how and why these trends look set to shape how Australia harnesses clean energy, optimises investments and ensures responsible project lifecycles.

4.2 Project Establishment: Multi-technology Developments

The first change to the way renewable energy projects are being structured is the growing pool of multi-technology developments.¹⁵⁶ Advancements and innovations in renewable energy technology, particularly long-term energy storage systems, have led to the emergence of hybrid, multi-technology projects.¹⁵⁷ This has been primarily driven by technological innovations in DERs and the transition away from legacy fossil fuel generators.¹⁵⁸ One notable opportunity to have emerged from multi-technology developments is the co-location of renewable energy generators with BESS.¹⁵⁹ Co-locating a BESS with a renewable energy generator offers several advantages compared to locating these technologies separately, including:

- (a) **Enhanced grid stability and dispatchability.** The BESS is able to store (or import) excess energy during periods of high generation and discharge during periods of low generation, allowing grid operators to adapt to the intermittency and variability inherent in renewable energy sources.¹⁶⁰
- (b) **Optimisation of asset utilisation.** Co-location of assets reduces overall capital and operational expenditure by sharing existing infrastructure, land and grid connections. This also helps to improve return on investment.¹⁶¹
- (c) **Self-regulation/grid services.** Co-located projects can self-regulate and/or provide ancillary grid services, such as frequency regulation which assists overall network stability and resilience.¹⁶²

On [page 18](#) of this Special Edition, we discuss in more detail what DERs are and how they are impacting the Australian energy market. It is likely that with regulatory and policy support for DERs and multi-technology developments (e.g. through the Integrated Resources Provider (IRP) change to the NEM) that project proponents will be more inclined to adopt co-located technologies.

4.3 Hybrid Contractors

Another way that delivery of renewable energy projects is changing is through project proponents electing to adopt hybrid contractors.¹⁶³ But what are hybrid contractors and how do they impact renewable energy projects?

(a) Hybrid Contractors: What are they?

Where a single entity acts in both the Engineering, Procurement and Construction (EPC) and operations and maintenance (O&M) capacity, knowledge and experience of the facility carries through from the procurement to construction, operation and maintenance stages. As a result, the 'hybrid' contractor builds a strong understanding of all aspects of the project and is better placed to resolve issues as they arise – a particularly valuable offering when it comes to the development of projects incorporating new technology such as batteries and other DERs which require specialised knowledge. Early involvement of the O&M contractor also allows the contractor to give input to the design or construction of the facility. This may pre-empt and mitigate any high risks and reduce time and costs spent on remedying preventable defects down the line.

Alternatively, the EPC contractor may provide the O&M services as part of as a package of services but subcontract the O&M portion to a separate provider. Examples of either structure can be seen in Wambo Wind Farm in Queensland,¹⁶⁴ and a joint project developed between Aquila Clean Energy APAC and Far North Solar Farm to expand New Zealand's solar pipeline.¹⁶⁵

(b) Hybrid Contractors: What is their Impact?

Hybrid EPC / O&M contractors are highly sought after in the industry given the issues that may arise from handover of project management between separate entities. These issues include technical knowledge gaps, recalling contractors to site to rectify any reported defects within a liability period coupled with the inherent interface issues in implementing defect rectification arrangements and building a relationship with the project owner. From handover, defects may be managed by an on-site contractor, removing any travel or time costs. The contractor's existing relationship with the project owner may also expedite discussions on remedial works with each party having prior knowledge of the other's commercial interests and priorities.

4.4 Project Decommissioning: Stricter Compliance Requirements

The third change to renewable energy project delivery is the enhancement of obligations that project proponents have during the decommissioning phase of a project. In Australia, decommissioning a renewable energy facility site to its original condition is generally the responsibility of the project owner.¹⁶⁶ The legislative requirements for decommissioning onshore projects vary by jurisdiction. The *Offshore Electricity Infrastructure Act 2021* (Cth) (OEI Act) regulates decommissioning obligations for offshore renewable energy facilities.¹⁶⁷ Any developer granted a licence under the OEI Act is required to have an approved management plan and provide financial security before installing offshore electricity infrastructure to ensure decommissioning costs are covered by the project owner.¹⁶⁸ Commercially, decommissioning obligations are increasingly captured under lease agreements, by negotiation between project owners and landowners during project pre-development.¹⁶⁹

In January 2023, the Australian Energy and Infrastructure Commissioner (AEIC) released a guideline for landowners which includes advice on what they should negotiate in relation to decommissioning.¹⁷⁰ Landowners are becoming increasingly sophisticated and requiring developers to provide decommissioning plans documenting: (1) the scope of decommissioning activities; (2) verified estimates of decommissioning costs; (3) the responsible party to bear the decommissioning costs; and (4) arrangements to set aside and secure funds through bank guarantees, bonds or trust funds.¹⁷¹ The market is still navigating various forms of decommissioning security and is yet to settle on a preferred form. Arrangements are typically around a 20 per cent per year contribution to the estimated decommissioning cost for the last five years of the lease term. This can be in the form of a bank guarantee or parent company guarantee but is more typically through an escrow account.

¹⁵⁵Altfin, 'Renewable Energy Finance: Powering the Future Sustainably' (Web Page, 23 August 2023) <<https://www.altfin.net/renewable-energy-finance/>>.

¹⁵⁶Matt Baumgurtel, 'Renewable Energy Law: Australia', *Lexology* (Web Page, 25 June 2024) <<https://www.lexology.com/indepth/renewable-energy-law/australia>> ('Lexology Renewable Energy Law 2024').

¹⁵⁷Ibid.

¹⁵⁸See generally, Ahmed G. Abo-Khalil et al, 'Advancements and challenges in hybrid energy storage systems: Components, control strategies, and future directions' (2023) 20(1) *International Journal of Thermofluids* 1

¹⁵⁹*Lexology Renewable Energy Law 2024* (n 156).

¹⁶⁰Mohamed Bahloul, Mohamed Daoud and Shafi K. Khadem, 'Optimal dispatch of battery energy storage for multi-service provision in a collocated PV power plant considering battery ageing' (2024) 293(1) *Energy* 1.

¹⁶¹Hui Song et al, 'Smart optimization in battery energy storage systems: An overview' (2024) 17(1) *Energy and AI* 1, para 2.4.

¹⁶²Chunyang Zhao et al, 'Grid-Connected Battery Energy Storage System: A Review on Application and Integration' (2023) 182(1) *Renewable and Sustainable Energy Reviews* 1.

¹⁶³CEC, 'The Future of Long Duration Energy Storage' (Report, June 2024) 69 <<https://assets.cleanenergycouncil.org.au/documents/The-future-of-long-duration-energy-storage.pdf>>.

¹⁶⁴Robin Whitlock, 'Construction starts on Wambo Wind Farm', *Renewable Energy Magazine* (Online Article, 22 February 2023) <<https://www.renewableenergymagazine.com/wind/wambo-wind-farm-to-start-construction-in-20230222>>.

¹⁶⁵Photon Energy Group, 'Photon Energy Expands Footprint in Australasia, Signing a 20.8 MWp EPC and O&M Contract in New Zealand' (Online Article, 20 May 2024) <<https://lerta.energy/article/photon-energy-expands-footprint-in-australasia-signing-a-20-8-mwp-epc-and-o-m-contract-in-new-zealand>>.

¹⁶⁶Australian Energy Infrastructure Commissioner, 'Host Landowner Matters' (Web Page) <<https://www.aeic.gov.au/observations-and-recommendations/chapter-1-host-landowner-negotiations>>.

¹⁶⁷*Offshore Electricity Infrastructure Act 2021* (Cth).

¹⁶⁸Explanatory Memorandum, *Offshore Electricity Infrastructure Bill 2021* (Cth) at [109].

¹⁶⁹Australian Energy Infrastructure Commissioner, 'Considerations for Landholders before Entering into Commercial Agreements' (Information Sheet, 23 January 2023) 6 <https://www.aeic.gov.au/sites/default/files/documents/2023-01/considerations-for-landholders-re-commercial-agreements-aeic--version-1-3-january-2023_0.pdf>.

¹⁷⁰Ibid.

¹⁷¹Ibid.

4.5 What’s on the Horizon for Renewable Energy Project Structuring?

Multi-technology Developments

Multi-technology developments are likely to become more common in Australia as the market recognises their benefits.¹⁷² Co-location of BESS technologies with renewable energy generation, such as solar farms, enhances grid stability and dispatchability, optimises asset usage and promotes grid regulation services.¹⁷³ Key to the uptake of these developments will be effective collaboration between project stakeholders, as multi-technology projects demand cross-disciplinary and specialised skills, and appropriate allocation of responsibilities and risk in contracting arrangements.

The need for specialised knowledge and capability to project manage BESS projects becomes particularly important, for example, in the commissioning stage of a project as lengthy project delays can occur if not done correctly. While the loss of potential revenue arising from such delays may be mitigated by recovering delay liquidated damages from the responsible contractor, this may not sufficiently offset the costs incurred and/or revenue lost as a consequence of delays in all scenarios. As such, where a multi-technology project requires specialised skills, it is important that developers engage parties with the requisite technical skillset and project management expertise early on to ensure proper integration of the technology into the renewable energy facility and connection to the grid.

Hybrid Contractors

With regard to the delivery of a renewable energy project, there is an increasing blurring of the traditional areas of expertise (development, construction, commissioning, operation and maintenance) with developers expanding services across the lifecycle of projects in the form of hybrid contractors. If managed correctly, the blending of traditional responsibilities has the potential to improve the quality of projects as the requisite knowledge to operate and maintain a technology (during the O&M phase) likely sits with the installer of that technology. Additionally, there may be an enhanced incentive for the EPC contractor to adopt the role of an O&M contractor where the EPC contractor is liable to remediate any defects during the defects liability period and is granted the benefit of being contracted to provide ongoing services. When determining whether a hybrid contractor arrangement is appropriate for a project, project owners can consider questions such as:

1. What equipment technology is right for my project?
2. Which contractor is best placed to carry out the relevant scope?
3. How would a hybrid contractor arrangement impact commercial matters of the project such as the term, price and how to best manage performance and availability guarantees?

Decommissioning Compliance Requirements

Increased sensitivity from landowners to the risk of decommissioning costs and desire to limit their exposure to such costs is driving evolution of the land component of renewable energy project deals. Developers are likely to continue to face more robust obligations during the decommissioning phase of renewable energy projects as landowners become more sophisticated and increasingly want their land returned to its original condition, and/or made suitable for future uses, after the operational life of the renewable energy infrastructure.¹⁷⁴ These enhanced obligations will continue to be driven by regulatory requirements and the stronger bargaining power that landowners may increasingly wield as suitable land areas for developments become scarcer. Developers may need to price these considerations and decommissioning security costs into the overall cost of their projects. For more information on decommissioning in the clean energy space, take a look at our recent article [here](#).

¹⁷²Lexology *Renewable Energy Law 2024* (n 156).

¹⁷³Ibid.

¹⁷⁴Eva Vivic, Kate Swain and Lynn Teo, 'Unravelling Decommissioning Liabilities and Security Obligations for Renewable Energy Infrastructure Assets', *McCullough Robertson* (Web Page, 7 May 2024) <<https://www.mccullough.com.au/2024/05/07/unravelling-decommissioning-liabilities-and-security-obligations-for-renewable-energy-infrastructure-assets/>>.

5. Mergers and Acquisitions

5.1 Overview

As the Australian renewable energy sector continues to experience rapid growth and transformation, mergers and acquisitions (**M&A**) have become a prominent feature of the industry landscape. In this market outlook, we consider the future of M&A within the Australian renewable energy sector. We examine common M&A structures, with particular emphasis on the increasing involvement of the Foreign Investment Review Board (**FIRB**) in reviewing foreign investments. Looking ahead, we analyse the evolving M&A landscape, identify emerging trends, regulatory shifts and key transformative forces that are set to shape the future of Australian renewable energy mergers and acquisitions.

5.2 Mergers and Acquisitions: Project Finance

The year 2023 was marked by economic uncertainty, geopolitical complexities and, as a result, a downturn in M&A activity across all sectors.¹⁷⁵ Australia experienced a notable economic slowdown, with economic growth declining from 3.7 per cent in 2022 to less than an anticipated 2.0 per cent in 2023.¹⁷⁶

Cautiousness among buyers has extended deal completion times and increased competition sale processes,¹⁷⁷ reflecting conservative asset valuations amid economic uncertainty. To mitigate risk, buyers often employ strategies such as partial buyouts or earn-outs, allowing shared market risk with sellers. Cash-generating businesses remain highly attractive, particularly in sectors like clean energy and affordable housing. However, proposed reforms to Australia's merger clearance rules add uncertainty, introducing stricter ACCC oversight and potentially favouring financial buyers over strategic ones.¹⁷⁸ The Treasury has released the [Exposure Draft](#) of the proposed merger reforms, inviting consultation to gather insights that will inform the finalisation of the draft legislation. For more information on the generational reforms to Australia's merger control laws, read our article [here](#).

Due diligence is approached conservatively, with emphasis on thorough environmental, social and governance evaluations. A trend towards partnering arrangements can be observed, largely driven by technological changes, to share risks and unlock value. Additionally, compliance burdens on ASX-listed companies are increasing – for example, the recent passing of mandatory climate-related financial risk reporting.¹⁷⁹ Moreover, following a period of consultation, a review of proposed amendments to continuous disclosure laws was submitted to the Federal Government and tabled in both houses of Parliament, with the aim of balancing regulatory disclosure demands against liability risks for companies.¹⁸⁰

More information on the Federal Budget FY24/25, which demonstrates a strong vote of political favour for Australian renewable energy, can be found on [page 12](#) of this Special Edition.



¹⁷⁵Jo Ruitenber et al., 'M&A Report: 2023 Year in Review and Future Outlook', *Hamilton Locke* (Report, 11 March 2024) 2 <<https://hamiltonlocke.com.au/wp-content/uploads/2024/03/MA-Report-2023-Year-in-Review-and-Future-Outlook-1.pdf>>.

¹⁷⁶Stephen Smith, '2023: A Year in Review', *Deloitte* (Web Page, 20 December 2023) <<https://www.deloitte.com/au/en/services/economics/blogs/2023-year-review.html>>.

¹⁷⁷ShareVault, 'The Effect of an Economic Downturn on M&A' (Web Page, 20 November 2023) <<https://www.sharevault.com/blog/virtual-data-room/the-effect-of-an-economic-downturn-on-ma>>.

¹⁷⁸See generally Department of the Treasury, 'Reforming Mergers and Acquisitions – Exposure Draft' (Web Page) <<https://treasury.gov.au/consultation/c2024-554547>>.

¹⁷⁹On 9 September 2024, the Treasury Laws Amendment Bill 2024 was passed, establishing mandatory climate-related reporting obligations for large and medium-sized companies: see generally Parliament of Australia, Treasury Laws Amendment (Financial Market Infrastructure and Other Measures) Bill 2024 (Bill Digest No 68, 14 May 2024) <https://www.aph.gov.au/Parliamentary_Business/Bills_Legislation/bd/bd2324a/24bd068>.

¹⁸⁰Department of the Treasury, 'Report of the Independent Review of the Changes to the Continuous Disclosure Laws' (Web Page, 14 May 2024) <<https://treasury.gov.au/publication/p2024-528447>>.

5.3 Transaction Documents: Sale and Purchase Transactions

Adaptive procedures of determining what transaction documents will be used occurs according to developing market conditions. For instance, the use of share subscription agreements, advanced sale agreements, development service agreements and joint development agreements, varies depending on the requisite finance structures that are deemed appropriate for the transaction. Transactions have recently been adversely affected by prolonged processing times due to evolving market conditions. These conditions have changed the parameters of some transactions and therefore, the documents required.

To that end, rather than adhering to a ‘one size fits all’ approach, transaction documents are tailored to suit the individual circumstances of the deal. By using market tailored term sheets or agreements, as well as sophisticated non-disclosure agreements, creating and maintaining value remains the key focus from the outset. Essential information is obtained and communicated in the initial stages of the transaction to prevent future protracted negotiations.

Considering the above, the following section of the market outlook explores what we are seeing as the typical ownership structures in project finance / M&A transactions and the growing relevance of FIRB in these transactions. Subsequently, we offer our insights on what the horizon outlook is for M&A deals in renewable energy in Australia.

5.4 Typical Ownership Structures

Typically, renewable energy project assets are held by a Special Purpose Vehicle (**SPV**) established for the sole purpose of acquiring and completing a renewable energy project.¹⁸¹ SPVs can include special purpose proprietary companies, trusts and incorporated joint ventures.¹⁸² SPVs are preferred over structures where various renewable energy project assets are subject to, and controlled by, a single entity because:

- (a) renewable energy projects tend to carry an asset from development through to operation. Each phase carries a different return profile, project specific risk and differential tax treatment; and
- (b) holding more than one asset with a high-risk profile within a single entity may compromise the effectiveness of limitation of liability clauses and limited recourse finance facilities. By quarantining each asset within a separate SPV, these risks are mitigated.¹⁸³

5.5 The Growing Relevance of the Foreign Investment Review Board (FIRB)

Recent changes to the FIRB landscape have shifted FIRB considerations from a compliance obligation to a key transaction and business issue.¹⁸⁴ It is now even more important for foreign owned renewable energy project developers and investors to:

- (a) consider the current FIRB requirements as early as possible in any proposed transaction; and
- (b) reset their development methods to comply with the revised FIRB landscape.

Conditions attached to FIRB approvals are becoming more prevalent and now extend beyond the standard tax requirements to encompass a wider range of perceived risks, including data protection, compliance, governance, privacy, and reporting obligations. This expansion is influencing the structure of FIRB conditions precedent in transaction documents. The typical provision requiring buyers to act reasonably in accepting FIRB conditions is often seen by vendors as creating undue regulatory completion risk. To address this, an emerging trend is for parties to pre-agree to additional FIRB conditions that buyers must accept, beyond the standard tax provisions. For example, in several instances, buyers have been required to accept conditions previously imposed on them by FIRB in other transactions.

5.6 What’s on the Horizon for Project Finance?

Rise of non-bank lenders and sustainable finance

In recent years, the debt markets have undergone a significant shift with the rise in popularity of non-bank lenders who are challenging traditional bank lenders. This has been heightened by the conservative approach being adopted by traditional lenders in many sectors in response to interest rate rises and volatile market conditions. As a result, there is increased competitiveness in the market.

Non-bank lenders (who are not as constrained by reputational issues and who generally have greater risk appetites) have also shown a willingness to step into funding gaps created in the brown energy space where traditional bank lenders have looked to withdraw or reduce exposures. As a result, the traditional lenders have increased capital to deploy in other sectors.

We have also seen an increased focus on green and sustainable finance across the debt markets generally. The market continues to evolve in this space with particular issues being the development of market accepted documentation, appropriate risk allocations, greenwashing risks and the time and cost burdens on sponsors and borrowers arising from the additional audit and reporting requirements associated with green and sustainable finance.

New Market Entrants: Australian Super Funds

Superannuation funds are increasingly assuming a pivotal role in financing renewable energy projects.¹⁸⁵ A prominent example is Aware Super’s \$300 million investment, as part of a broader \$2 billion package, in the Birdwood Distributed Energy Platform - representing the first substantial investment by an Australian superannuation fund in the distributed energy sector.¹⁸⁶ The growing influence of superannuation funds in this domain is particularly evident in projects that employ tax-transparent structures, utilise convertible notes, diversify risk across portfolios and operate under licences in compliance with financial services law.¹⁸⁷ Although the reduction of policy and regulatory uncertainty has significantly alleviated barriers to clean economy investment in Australia,¹⁸⁸ sustained policy reforms remain crucial to ensuring the continued attractiveness of renewable energy projects for institutional investors.¹⁸⁹

Superannuation funds have traditionally favoured large-scale projects due to their inherent stability. However, there is a growing shift towards the exploration of smaller projects, particularly those aggregated through platforms and pooled investment vehicles.¹⁹⁰ Despite this trend, superannuation funds have been cautious in financing smaller-scale projects within the distribution network, largely due to the network’s fragmented structure and stringent regulatory framework. Platforms and aggregated investment vehicles, such as the Birdwood Distributed Energy Platform, allow for the development and operation of smaller renewable energy and storage projects on a combined basis. These platforms offer superannuation funds and similar investors a scalable, diversified, ESG-focused investment opportunity, with the potential to deliver strong risk-adjusted returns when compared to large-scale renewable generations projects.

In the future, superannuation funds are likely to expand their in-house expertise to handle large-scale capital investments in renewable energy projects. With a strong industry consensus that environmental factors are essential to investment strategies, this will likely strengthen superannuation funds’ position in the sector as they work to protect their members’ retirement savings from potential risks. For more insights into how this market may evolve and advice for developers, see our recent article [here](#).

¹⁸¹Matt Baumgurtel et al., ‘Investment in Renewables’, *Hamilton Locke* (Report, February 2024) 13 <<https://hamiltonlocke.com.au/wp-content/uploads/2024/02/New-Energy-Special-Edition-Investment-In-Renewables.pdf>> (‘Matt Baumgurtel et al. 2024’).

¹⁸²*Lexology Renewable Energy Law* 2024 (n 156).

¹⁸³Matt Baumgurtel et al. 2024 (n 181) 13.

¹⁸⁴On 1 May 2024, the Australian Treasurer introduced reforms to strengthen, streamline, and increase transparency within the FIRB framework. The Government later released a revised Foreign Investment policy document detailing these reforms: see generally Department of the Treasury, ‘Australia’s Foreign Investment Policy’ (Policy Document, 1 May 2024) <<https://foreigninvestment.gov.au/sites/foreigninvestment.gov.au/files/2024-04/australias-foreign-investment-policy.pdf>>.

¹⁸⁵Hannah Wootton, ‘Super funds ramp up renewable energy investments’, *Australian Financial Review* (Online Article, 22 February 2023) <<https://www.afr.com/policy/tax-and-super/super-funds-ramp-up-renewable-energy-investments-20230221-p5cm8i>>.

¹⁸⁶Matt Baumgurtel et al. 2023 (n 79).

¹⁸⁷Matt Baumgurtel et al. 2024 (n 181).

¹⁸⁸Investor Group on Climate Change, ‘Climate Policy Improves Investment Confidence – Australia’s Institutional Capital Market’ (Policy Brief, March 2024) 1 <<https://igcc.org.au/wp-content/uploads/2024/03/FINAL-IGCC-Net-zero-survey-2024-policy-media-brief.pdf>>.

¹⁸⁹*Ibid* 4.

¹⁹⁰Matt Baumgurtel et al. 2023 (n 79).

Inclusive Ownership Models

There is a growing shift towards active Traditional Owner participation in renewable energy projects, facilitated through innovative structures such as joint ventures, equity agreements or full ownership. A notable example of a full-ownership model is the First Nation-owned solar farm in Marlinja, Northern Territory.¹⁹¹

Other community-focused developments, such as [Desert Springs Octopus](#), the [Yindjibarndi Project](#) and the [East Kimberley Clean Energy Project](#), further illustrate this trend towards greater involvement and benefit for Indigenous Communities. In these circumstances, Traditional Owners have been able to self-determine what benefits they want for their communities, whether that be through direct ownership of the renewable energy project, royalties, jobs or other benefits. These projects lead to cultural, spiritual, financial and environmental community benefits, including, but not limited to:¹⁹²

- 1. engagement and empowerment of First Nations communities through self-determination;
- 2. simplification of land use agreements and approvals;
- 3. reduction in uncertainty for investors by removing downstream risk;
- 4. safeguarding and preserving culturally, spiritually and environmentally significant areas;
- 5. integration of heritage, native title and environmental matters into development; and
- 6. establishment of enduring economic advantages for communities.

We see a growing appetite among industry participants, coupled with increased recognition in policy and fiscal frameworks, to facilitate Indigenous communities' participation as shareholders in clean energy projects. This shift has the potential to redefine the role of Indigenous groups, who have historically been regarded as stakeholders requiring consultation, into active equity participants with decision-making authority. The distinction in both terminology and approach carries significant implications for the feasibility and development of renewable energy projects, as well as their broader socio-economic impacts on Indigenous populations. By transitioning from a consultative role to one of leadership, Indigenous communities are increasingly positioned to direct and benefit from projects that align with their long-term interests and priorities.

We see this as an opportunity for industry to support the engagement and empowerment of Indigenous communities, as has been successfully demonstrated in other jurisdictions. Canada stands as a model for Indigenous ownership and equity agreements in the renewable energy sector. In 2022, nearly 20 per cent of the country's electricity-generating infrastructure was either owned, co-owned, or subject to financial benefit agreements, with Indigenous communities, with the vast majority of these projects being renewable energy initiatives.¹⁹³ As incorporation of Indigenous values and perspectives into renewable energy developments evolves inclusive ownership models are likely to become more prevalent. These models offer mutual benefits for all stakeholder, including developers and Indigenous communities, making them well worth fostering and supporting.



¹⁹¹Andy Hall, 'First Indigenous-Owned Solar Microgrid Launched in Australia', *AHLEC Solar* (Web Page, 17 July 2024) <<https://ahlecsolar.com.au/2024/07/17/first-indigenous-owned-solar-microgrid-launched-in-australia/>>.

¹⁹²Matt Baumgurtel & Ally Frizelle, 'Empowering Communities Through Ownership: The Rise of Inclusive Ownership Models', *Hamilton Locke* (Web Page, 7 September 2023) <<https://hamiltonlocke.com.au/empowering-communities-through-ownership-the-rise-of-inclusive-ownership-models/>>.

¹⁹³CEC, 'Leading Practice Principles: First Nations and Renewable Energy Projects' (Report, April 2024) 58 <<https://assets.cleanenergycouncil.org.au/documents/resources/reports/Leading-Practice-Principles-First-Nations-and-Renewable-Energy-Projects.pdf>>.

6. Environmental, Social and Governance

6.1 Overview

Environmental, social and governance (ESG) considerations continue to take centre stage in the renewable energy sector, as major disruptive global events shine light on ongoing societal issues. Extreme climate change-related weather, geopolitical conflicts and ethical scandals have contributed to a growing cognisance amongst consumers, employees and regulators about ESG issues. In this market outlook, we discuss the future for ESG in renewable energy.

Specifically, we introduce what ESG is, before examining how investors, regulators and stakeholders increasingly prioritise ESG in renewable energy projects in the context of addressing modern slavery risks. We touch on some of the relevant upcoming regulatory changes in this space, particularly the adoption of the International Sustainability Standards Board's (ISSB) sustainability standards, which will shape ESG reporting requirements for companies operating in Australia. Finally, we offer our insights on what developing ESG considerations may mean for renewable energy projects.

6.2 ESG: Market Outlook

The term 'ESG' was popularised when it appeared in a United Nations report titled 'Who Cares Wins' in 2004.¹⁹⁴ The United Nations report coincided with increased international attention on environment, social and governance matters, as global society became concerned with how to address these issues.¹⁹⁵ In response to these developments, governments – including in Australia – have enacted laws, regulations and policies aimed at addressing a wide range of harmful activities within the broader scope of ESG considerations. These measures target issues such as environmental degradation, human rights violations and gender inequities, supporting both remediation and mitigation efforts. In the renewable energy sector, both Commonwealth and State-level instruments impose mandatory requirements for entities to address ESG issues as part of their operations and compliance obligations.

6.3 Modern Slavery

Modern slavery serves as a prime example of an ESG issue that requires attention. Australia's modern slavery framework is governed by the *Modern Slavery Act 2018* (Cth) and the *Modern Slavery Act 2018* (NSW). These legislative instruments require government bodies, large companies and other entities meeting certain revenue thresholds to report on how they are preventing and addressing modern slavery risks in their operations and supply chains and the steps taken by them to ensure their procurement strategies comply with modern slavery requirements.¹⁹⁶ Other States and Territories – including Victoria, Queensland, Western Australia and the Northern Territory – fall solely under the Commonwealth framework.

At the industry level codes of practice and policy statements address sector-specific risks, particularly in the production and distribution of renewable energy, emphasising the importance of compliance with modern slavery obligations. For example, the NSW Anti-Slavery Commissioner, in partnership with the Clean Energy Council, is developing a code of practice to address modern slavery risks in renewable energy value chains.¹⁹⁷ A [Discussion Paper](#), published in August 2023, outlines the rationale for this initiative, with feedback from industry, government, civil society, unions and the public being sought through a consultation process on the draft code of practice ISSB Sustainable Accounting Standards (ISSB SAS).

Beyond modern slavery, the compliance burden on ASX listed companies is ever increasing in relation to ESG disclosure and compliance requirements. The introduction of mandatory reporting of climate related financial risks due to the ISSB SAS poses a particular challenge for listed companies and their directors. The ISSB SAS will enable investors and stakeholders to understand an entity's sustainability-related risks and opportunities and their potential financial impacts.¹⁹⁸ Issuers will need to balance the demand for better disclosure of climate and sustainability risks against the requirement that such disclosures must not be misleading or deceptive. Additionally, the ISSB SAS present a significant, resource-intensive challenge for organisations. Provided the ISSB SAS are uncharted territory for many organisations, there is likely to be significant time and cost involved in analysing and understanding the ISSB SAS and building the in-house capability to respond to the standards.

¹⁹⁴Tom Krantz, 'The History of ESG: A Journey Towards Sustainable Investing', *IBM* (Web Page, 8 February 2024) <<https://www.ibm.com/think/topics/environmental-social-and-governance-history>>.

¹⁹⁵Dan Byrne, 'What is the History of ESG?', *Corporate Governance Institute* (Web Page) <<https://www.thecorporategovernanceinstitute.com/insights/lexicon/what-is-the-history-of-esg/>>.

¹⁹⁶See generally Australian Government, 'Review of Australia's Modern Slavery Act 2018' (Issues Paper) <https://consultations.ag.gov.au/crime/modern-slavery-act-review/user_uploads/review-modern-slavery-act-issues-paper.pdf>.

¹⁹⁷NSW Communities and Justice, 'Codes of Practice' (Web Page) <<https://dcj.nsw.gov.au/legal-and-justice/our-commissioners/anti-slavery-commissioner/codes-of-practice.html>>.

¹⁹⁸Auzita Jarrah, 'Practical Guidance on Preparing for the ISSB's Sustainability Disclosure Standards', *Deloitte* (Web Page, 30 May 2023) <<https://www.deloitte.com/au/en/services/risk-advisory/perspectives/practical-guidance-preparing-issb-sustainability-disclosure-standards.html>>.

6.4 What’s on the Horizon for ESG?

ESG Due Diligence

To maximise shareholder and investor confidence in renewable energy projects, due diligence and reporting on potential developments will increasingly incorporate ESG obligations and objectives. There is likely to be a specific focus on de-risking transactions by accurately identifying and addressing key ESG issues. We are already observing a growing focus on ESG diligence during the due diligence phase of project acquisitions, particularly concerning the need to ensure that investments do not inadvertently support modern slavery practices within supply chains.

Modern slavery and other ESG issues pose significant risks in the renewable energy sector, where projects often depend on complex international supply chains to source, manufacture and deliver renewable energy technology components.

Looking ahead, renewable energy companies, along with sponsors and financiers, must conduct rigorous due diligence to identify and mitigate the risk of modern slavery as supply chains become increasingly intricate. Supply chains should be mapped out to identify the origin of raw materials and to assess suppliers’ labour practices prior to finalising contractual arrangements. Project proponents should be wary of adopting relationships with suppliers where supply chains are obscure and/or cannot be clarified. Although modern slavery warranties are increasingly prevalent in contractual documentation, it is essential to identify and address any practices related to modern slavery to mitigate potential financial penalties but also the risk of reputational damage to projects and their stakeholders.

ESG Reporting

On 9 September, Parliament passed the *Treasury Laws Amendment (Financial Market Infrastructure and Other Measures) Bill 2024*, which will take effect on 1 January 2025.¹⁹⁹ Schedule 4 mandates climate-related financial disclosures through amendments to the *Corporations Act 2001* (Cth) (**Corporations Act**) and the *Australian Securities and Investments Commission Act 2001* (Cth).²⁰⁰ In-scope entities must include these disclosures in their annual reports, leveraging existing financial reporting requirements under Chapter 2M of the *Corporations Act*.²⁰¹

The Australian Accounting Standards Board has released the [Exposure Draft ED SRI Australian Sustainability Reporting Standards](#), focusing on climate-related financial information. Following this, the Auditing and Assurance Standards Board is anticipated to develop related assurance standards in early 2025,²⁰² aligning with the final standard approved by the International Auditing and Assurance Standards Board on 20 September 2024.²⁰³ Notably, the climate-related reforms have included the provision of scenario analysis disclosures.²⁰⁴ These must demonstrate an entities’ resilience to climate-related changes under two conditions: when the global average temperature exceeds 2°C above pre-industrial levels (or 2.5°C or greater) and when it increases by 1.5°C above pre-industrial levels.²⁰⁵

This will involve a variety of resource intensive and costly activities, including assessing climate risks, quantifying their impacts, accurately reporting those risks and establishing robust governance structures to oversee the climate-related reporting and risk management.²⁰⁶

For businesses that have already navigated mandatory reporting obligations in areas like modern slavery and workplace gender equality, there’s an opportunity to create a comprehensive ESG reporting framework. This framework can address not only mandatory reporting requirements, but also critical ESG issues that could affect the company’s reputation, such as greenwashing.

While establishing such a framework will likely be an iterative process, proactively adapting to the evolving regulatory landscape can help businesses unlock numerous benefits. These include gaining a clearer understanding of their ESG impacts, fostering innovation, identifying risks, differentiating themselves in the market, and building long-term resilience.

Although mandatory reporting requirements pose challenges for many organisations, they can also enhance long-term strategic decision-making and improve market risk assessments. Ultimately, organisations, investors and other stakeholders will benefit from the clarity provided by standardised disclosure requirements, despite any initial hurdles in operationalising the necessary internal resources to meet these standards.

Consumer Protection

Consumer law compliance in essential services remains a key priority for the ACCC. In the New Energy sector, this focus is reflected in ongoing ACCC scrutiny of ‘greenwashing’ and misleading sustainability-related claims,²⁰⁷ alongside concerns over problematic representations of energy supply and pricing.²⁰⁸ There is also a renewed ACCC eagerness to pursue unfair contract terms, particularly considering the newly introduced penalty regime which has been effective since 9 November 2023.²⁰⁹

Looking ahead, the ACCC is advocating for legislative reforms that would impose penalties for failures to provide appropriate remedies under the consumer guarantee regime.²¹⁰ If these changes are enacted they could create a new regulatory landscape for the ACCC, prompting businesses to re-evaluate their consumer-facing processes and examine how the Australian Consumer Law interacts with sector-specific protections, such as the [National Energy Customer Framework](#).



¹⁹⁹Treasury Laws Amendment (Financial Market Infrastructure and Other Measures) Act 2024.

²⁰⁰Ibid sch 4.

²⁰¹*Corporations Act 2001* (Cth) ch 2M.

²⁰²Aletta Boshoff, 'Australian sustainability reporting standards expected soon', *BDO Australia* (Online Article, 17 September 2024) <<https://www.bdo.com.au/en-au/insights/esg-sustainability/australian-sustainability-reporting-standards-expected-soon>>.

²⁰³International Auditing and Assurance Standards Board, 'Latest on our Projects: Sustainability Assurance' (Media Release, September 2024) <<https://www.iaasb.org/iaasb-consultations/latest-our-projects>>; International Auditing and Assurance Standards Board, 'Sustainability Assurance' (Web Page) <<https://www.iaasb.org/consultations-projects/sustainability-assurance>>.

²⁰⁴Domini Stuart et al., 'How to Prepare for Mandatory Climate Reporting', *Australian Institute of Company Directors* (Web Page, 1 November 2023) <<https://www.aicd.com.au/risk-management/framework/climate/how-to-prepare-for-mandatory-climate-reporting.html>>.

²⁰⁵Ibid.

²⁰⁶Ibid.

²⁰⁷See, eg, Sumeyya Ilanbey, 'Watchdog cracks down on Glad garbage bags 'greenwashing'', *The Sydney Morning Herald* (News Article, 18 April 2024) <<https://www.smh.com.au/business/consumer-affairs/watchdog-cracks-down-on-glad-garbage-greenwashing-20240418-p5fkv0.html>>.

²⁰⁸See, eg, Australian Competition and Consumer Commission, 'Energy Australia in court over alleged misleading electricity price information' (Media Release, 22 September 2023) <<https://www.accc.gov.au/media-release/energyaustralia-in-court-over-alleged-misleading-electricity-price-information>>.

²⁰⁹Australian Securities and Investment Commission, 'Unfair Contract Terms Reforms Commence' (Media Release, 9 November 2023) <<https://asic.gov.au/about-asic/news-centre/news-items/unfair-contract-terms-reforms-commence/>>.

²¹⁰Australian Competition & Consumer Commission, 'Broken but out of warranty? Your consumer guarantee rights might still apply' (Media Release, 18 January 2024) <<https://www.accc.gov.au/media-release/broken-but-out-of-warranty-your-consumer-guarantee-rights-may-still-apply>>.

7. Environment and Biodiversity

7.1 Environment and Biodiversity: Overview

While renewable energy offers a pathway to reduce GHG emissions, the sector also presents challenges related to environmental impact and impact on Indigenous Australian interests. In this market outlook, we delve into the delicate balance between meeting energy demands and safeguarding our natural ecosystems. Specifically, we will explore changes to environment and planning matters, including the implications of the reforms to the *Environmental Protection and Biodiversity Conservation Act 1999* (Cth) (**EPBC Act**). Additionally, we will discuss the future outlook for environmental considerations as renewable energy projects continue to evolve.

7.2 Environment and Biodiversity: Market Outlook

The EPBC Act supports ecologically sustainable development while looking after protected matters. A project must be referred under the EPBC Act if it could impact matters protected under the EPBC Act.²¹¹ This includes certain nationally protected animals, plants, habitats and places.²¹² Referrals must be sent to the DCCEEW which will assess whether to approve projects, such approval may attach conditions to the project to mitigate environmental impacts.²¹³ The EPBC Act allows for bilateral agreements to empower each State or Territory to assess proposed projects on behalf of the Federal Government, removing the need for a separate Federal assessment.²¹⁴ The Commonwealth Environment Minister then utilises a State or Territory’s environmental assessment report to inform the final decision about whether or not to approve a project.²¹⁵

There is a growing anxiety in host communities and the environment movement about the impact of renewable energy projects on biodiversity. These concerns have arrived at a time where more large-scale renewables are needed than ever before.²¹⁶ The EPBC Act was heavily criticised in an independent review undertaken by Professor Graeme Samuel AC (**Samuel Review**) for its failures to effectively address these biodiversity concerns.²¹⁷ The Federal Government responded to the Samuel Review in its document titled ‘A pathway for reforming national environmental law’ in June 2021, promising a staged reform process.²¹⁸ It subsequently released the ‘Nature Positive Plan: better for the environment, better for business’ in December 2022, further outlining its priorities.²¹⁹ The Nature Positive Plan aims to address the deficiencies in the EPBC Act by implementing National Environmental Standards (**NES**), streamlining decision-making of project approvals and restoring public confidence in environmental protection measures in Australia.²²⁰ The draft NES are the subject of ongoing consultation.²²¹ The NES will improve environmental protections and guide decision making. They cover matters of national environmental significance, restoration actions and restoration contributions, regional planning, community engagement and consultation, First Nations engagement and participation in decision-making and data and information.²²² The Federal Government is currently progressing with the Nature Positive law reforms.²²³

In April 2024, the Government announced the progression of - stage 2 of the Nature Positive law reforms, which includes establishing Environment Protection Australia and the Head of Environment Information Australia and making a significant investment in streamlining the environmental approvals process.²²⁴ Stage 1 of the reforms, which completed in December 2023, brought the *Nature Repair Act 2023* (Cth) (**NRA**) into effect. The NRA establishes a system that encourages activities that protect existing nature rather than merely compensating for damage elsewhere. It introduces the Nature Repair Market, which is intended to encourage and support biodiversity projects.²²⁵ In the Nature Repair Market, biodiversity projects will have tradeable biodiversity certificates, which can be sold to buyers under commercial contracts.²²⁶ The Government has not stipulated a clear date for the commencement of stage 3, but outlined it will repeal and replace the *EPBC Act* with the new NES and streamlined approvals process; establish revised environmental offset arrangements termed ‘restoration actions and restoration contributions,’ and create a separate Act of Commonwealth reserves, with ongoing governance consultations between the Commonwealth and native title holders.²²⁷

²¹¹DCCEEW, ‘What’s Protected Under the EPBC Act’ (Web Page, 21 June 2024) <<https://www.dcceew.gov.au/environment/epbc/our-role/what-is-protected>>.

²¹²Ibid.

²¹³DCCEEW, ‘Referrals and Environmental Assessments Under the EPBC Act’ (Web Page, 18 September 2024) <<https://www.dcceew.gov.au/environment/epbc/approvals>>.

²¹⁴Ibid.

²¹⁵DCCEEW, ‘Queensland Bilateral Agreement for Environmental Assessments’ (Web Page) <<https://www.dcceew.gov.au/environment/epbc/approvals/state-assessments/qld>>.

²¹⁶DCCEEW, ‘Renewable Energy Developments and Environmental Protection’ (Web Page, July 2024) <<https://www.dcceew.gov.au/environment/epbc/advice/renewable-energy-projects>>.

²¹⁷DCCEEW, ‘EPBC Act Review Final Report’ (Report, October 2020) 1 <<https://www.dcceew.gov.au/sites/default/files/documents/epbc-act-review-final-report-october-2020.pdf>>.

²¹⁸Australian Government, ‘A Pathway for Reforming National Environmental Law’ (Report, June 2021) <<http://www.environment.gov.au/system/files/resources/02baf838-1d1c-492d-8014-ae9fc356f845/files/pathway-reforming-national-environmental-law.pdf>>.

²¹⁹DCCEEW, ‘Nature Positive Plan: Better for the Environment, Fetter for Business’ (Report, December 2022) <<https://www.dcceew.gov.au/sites/default/files/documents/nature-positive-plan.pdf>>.

²²⁰Ibid.

²²¹DCCEEW, ‘National Environmental Standards’ (Web Page, 8 August 2024) <<https://www.dcceew.gov.au/environment/epbc/epbc-act-reform/standards>>.

²²²Ibid.

²²³DCCEEW, ‘EPBC Act Reform’ (Web Page, 5 July 2024) <<https://www.dcceew.gov.au/environment/epbc/epbc-act-reform>>.

²²⁴DCCEEW, ‘Progressing Our Nature Positive Law Reforms’ (Web Page, 16 April 2024) <<https://www.dcceew.gov.au/about/news/progressing-nature-positive-law-reforms>>.

²²⁵DCCEEW, ‘Nature Repair Market’ (Web Page, 16 September 2024) <<https://www.dcceew.gov.au/environment/environmental-markets/nature-repair-market>>.

²²⁶Ibid.

²²⁷Parliament of Australia, ‘Nature Positive Reforms – April 2024 Update’ (Media Release, May 2024) <https://www.aph.gov.au/About_Parliament/Parliamentary_departments/Parliamentary_Library/Research/FlagPost/2024/May/NaturePositiveReforms>.

7.3 What’s on the Horizon for Environment and Biodiversity?

Overview

At a national level, there remains a pronounced inconsistency between government policies designed to facilitate renewable energy projects and planning legislation – much of which has been formulated with minimal consideration for these developments. This misalignment necessitates that project developers adopt a proactive approach to the approvals process, offering innovative and ad hoc solutions to State and local governments to effectively navigate and resolve the challenges that emerge.

It will be critical that project developers stay informed of the ongoing EPBC Act reforms to:

1. ensure they take advantage of any useful changes once effected; and
2. be prepared to comply with any new obligations and reporting requirements to ensure they do not fall foul of the updated provisions and the NES.

Incident Response and Management

The introduction of more stringent environmental protection laws, coupled with an emphasis on a nature-positive approach, will elevate expectations regarding incident response and management. Clean energy developers engaged in environmentally sensitive activities will be required to refine their incident response frameworks, expand the scope of incident reporting and strengthen compliance mechanisms to mitigate environmental harm effectively.

At a high level, incident response and management plans should align with the objectives of the EPBC Act reforms and the NES. More specifically, industry participants may seek professional consultant advice, such as obtaining an independent a gap risk analysis or policy review, to identify deficiencies in their plans and programs around incident response management.

Biodiversity

Although the Australian clean energy industry is maturing on its stance toward incorporating biodiversity interests in renewable energy projects, there are issues that will need to be resolved if biodiversity is to be restored and enhanced. At a time where more large-scale renewable projects are needed than ever before, there is increasing social anxiety regarding the impact of renewable energy projects on biodiversity.

Additionally, until such time as the EPBC Act reforms are implemented, communities continue to be concerned that their voice on biodiversity matters is being drowned out by stakeholder groups. It is incumbent on industry participants to consider how they can individually and collectively work to ensure biodiversity interests are appropriately accounted for in renewable energy developments. To that end, questions industry may wish to ask include:

1. How can nature positive obligations be applied to renewable energy developments in practice?
2. How can authorities practically incentivise nature positive activity in renewable energy projects?
3. How can project developers engage with communities, including Indigenous groups, who are often best placed with the requisite knowledge of, and proximity to, the biodiversity and nature that is being impacted by a development, in order to mitigate and remediate impacts?





8. Power Purchase Agreements

8.1 Power Purchase Agreements: Overview

As Australia accelerates its transition toward cleaner energy sources, understanding power purchase agreements (**PPAs**) becomes crucial. PPA arrangements are pivotal in shaping the uptake of DERs and could have important implications for the future of the NEM. In this market outlook, we outline what PPAs are and the benefits they provide when adopted, their role in corporate sustainability strategies and potential barriers to adoption, as well as our insights on the horizon outlook for the market future for PPAs.

8.2 What is a PPA?

A PPA is an agreement between an organisation to buy electricity from a DER generator, such as a solar or wind farm, at an agreed price over a fixed term (e.g. ten years).²²⁸ PPAs are common bilateral contracts used in practice where the parties can expressly agree on parameters tailored to their specific application. PPAs are favoured by some organisations because they provide long-term price certainty of electricity required for a project. Additionally, renewable PPAs boost the environmental credentials of the purchasing organisation, as they can point to the fact that their energy comes from a renewable source.

There are two main types of PPA:²²⁹

- (a) **Wholesale:** a direct agreement between an electricity generator and a business; and
- (b) **Retail:** an agreement between and an electricity generator and a consumer that is arranged by a retailer.

8.3 Corporate PPAs

There is an active corporate power purchase market in Australia. 2023 was a record year for corporate PPAs, with over 1700 MW contracted, up from 1500 MW in 2022. From 2017 to the end of 2023, there have been 165 corporate PPAs, totalling over 7.4 GW of renewable energy generation.²³⁰ Renewable PPAs are a growing segment of the contract market.

Corporate PPAs play a crucial role in boosting investment in large-scale renewable projects. By increasing the volume of capacity contracted, the PPAs help secure financing for construction and increase the volume of renewable energy purchased.²³¹ A recent key deal is the signing of the largest corporate PPA in Australia between Rio Tinto and European Energy Australia in respect of Upper Calliope Solar Farm.²³²

Barriers to Adoption of Corporate PPAs

The most significant barriers to adoption of corporate PPAs include shareholder sentiment, CEO buy-in and businesses being comfortable with the long-term nature of PPAs.²³³ These concerns tend to be grounded in perceptions of risk that PPAs do not make good investments due to their possible financial impacts, greenwashing claims and lack of familiarity with the arrangements.

²²⁸City of Sydney, 'PPA: A Beginner's Guide to Power Purchase Agreements' (Web Page, 30 April 2020) <<https://renewableenergy.cityofsydney.nsw.gov.au/article/165-basics-power-purchase-agreements>>.

²²⁹Ibid.

²³⁰Business Renewables Centre Australia, 'Corporate Renewable Power Purchase Agreements in Australia: State of the Market 2023' (Report, 2023) 4 <<https://businessrenewables.org.au/wp-content/uploads/2021/12/SOM-2023v8.pdf>>.

²³¹Ibid.

²³²David Carroll, 'Rio Tinto signs long-term PPA for 1.1 GW Australian solar plant', *pv magazine* (Web Page, 24 January 2024) <<https://www.pv-magazine.com/2024/01/24/rio-tinto-signs-long-term-ppa-for-1-1-gw-australian-solar-plant/>>.

²³³Matt Baumgurtel, et al., 'WATT's Up – The Australian Clean Energy Summit 2023 and Energy Next 2023', Hamilton Locke (Web Page, 24 July 2023) <<https://hamiltonlocke.com.au/watts-up-the-australian-clean-energy-summit-2023-and-the-energy-next-2023/>>.

8.4 What's on the Horizon for PPAs?

Greater Demand for PPAs

While PPAs have become popular arrangements in the NEM, there is potential for PPAs to play a larger role in the generation and distribution of energy. We foresee that, as the benefits of PPAs become more well known, there is likely to be an increased adoption of this form of agreement. However, important to promoting the uptake of PPAs will be addressing stakeholder concerns. To achieve this, proponents of PPAs will need to explain the benefits clearly and comprehensively, including the strategic value of a portfolio asset, as well as the secondary benefits of a PPA (such as the reputational benefits that come from utilising clean energy).

PPA proponents will need to understand the drivers of corporate offtakers, including how to address concerns around counterparty and delivery risks. Given PPAs are long-term partnerships, PPA proponents may wish to advocate for the alignment of values between parties and the proper assessment of capability and resources required to reduce counterparty risk.

We are seeing some uncertainty surrounding the upcoming transition from the RET to Renewable Electricity Guarantee of Origin (**REGO**) certification under the GO Scheme. As entities navigate this evolving landscape, maintaining a strategic focus on voluntary commitments and adapting to market mechanisms will be critical to ensuring long-term energy procurement success.

An example of this is ensuring that PPAs incorporate provisions for transitioning from Large-Scale Generation Certificates (**LGCs**) to REGOs or International Renewable Energy Certificates (**IRECs**). Voluntary commitments, such as Net-Zero Targets and Science-Based Targets, should also be considered.

In Australia, the PPA market remains characterised by a preference for shorter-term contracts. In contrast, Virtual Power Purchase Agreements (**VPAs**) generally require extended terms to secure project financing.

Finally, appropriately addressing issues ESG and social licence in PPAs will be important. ESG will need to be effectively embedded in a PPA and the sustainability components will need to be tailored to suit the nature of the development and/or the sustainability goals of the corporate offtaker. For example, ensuring that the PPA aligns with reducing risk around modern slavery (with particular regard to the *Modern Slavery Act 2018* (Cth)) will not only be effective risk management, but also reputational and brand value protection.



Wrap is Dead: Navigating Split Contract Models in Renewable Energy Projects

Authors: Matt Baumgurtel, Tricia Moloney, James Simpson, Veno Panicker, Adriaan van der Merwe, David O’Carroll and Sam Poulsen

The contractual landscape that governs renewable energy projects is changing, with split contracting models now at the forefront of this transition.

But what are these models and how are they being used?

In this article we examine the surge in split contracting models, particularly for hybrid solar photovoltaic (**PV**) and battery energy storage system (**BESS**) projects. We also look at some of the associated challenges and potential mitigation strategies.

What is Split Contracting?

The traditional contracting model for renewable energy projects is one in which an engineering, procurement and construction (**EPC**) contractor (**EPC Contractor**) takes full responsibility for the design, engineering, procurement, delivery, construction, installation and commissioning of a renewable energy project under a single contract (**Full Wrap Model**).¹ The project owner will then typically engage the same EPC Contractor under a separate operation and maintenance (**O&M**) contract to provide operation and maintenance services for a period that aligns with the duration that the EPC Contractor is liable to correct defects arising under the EPC contract.

The market has recently started to trend towards a split contracting model (**Split Model**), whereby the project owner, and not the EPC Contractor, engages the construction contractor and the key equipment suppliers under separate contracts. An example of this is where, in a solar PV and BESS hybrid project, the project owner engages the designer and supplier of the BESS (**BESS Supplier**) under one contract and the balance of plant contractor for the solar farm and non-BESS components (**BOP Contractor**) under another.

There are multiple options available to project owners for the O&M phase. The preferred option is typically determined by commercial considerations such as the term, price, how to best manage performance and availability guarantees and whether the project owner has an internal O&M provider who can provide the relevant services.

Why the Shift to Split Contracting Models?

Escalating project costs are encouraging a greater uptake of Split Model contracting. The escalation is in part due to increased “wrapping” costs, being the premium charged by the EPC Contractor for “wrapping” the risk of delivering the project on time and on budget.

The increase in EPC premium can be ascribed to increased risk profiles, a shortage of EPC Contractors and technical complexities when integrating PV and BESS technologies.²

Many project owners are now electing to remove the “wrapped” component from the contractual framework and are engaging directly with contractors and suppliers.

What are the Challenges of Split Contracting Models?

Limitations on Liability

Contractual caps on liability, delay and performance liquidated damages in renewable energy projects are generally expressed as a percentage of the overall contract price (typically 100%). In a Split Model context, the sum of the separate contract prices will be lower than would have been the case under a traditional EPC contract. This can significantly limit the project owner’s recourse against a defaulting supplier or contractor unless the loss or claim pertains to an issue expressly excluded from the liability cap (e.g. claims covered by project insurance).

While project owners in a Split Model arrangement will advocate for higher liability caps, push back should be expected from suppliers and contractors who will argue that any liability cap amount should be no greater than the total value of the relevant goods or work. In such instances it will be the project owner who needs to assume the gap risk.

Bankability

Financiers in this sector are familiar with providing project financing under a Full Wrap Model. Further, financiers have comfort that there is one party under Full Wrap Model agreements (the EPC Contractor) responsible for the delivery of a project under a single EPC



contract on a turnkey basis. Although there may be other key subcontractors, for the most part, the financiers’ due diligence will be focussed on the EPC contract and the EPC Contractor. Accordingly, the financiers will likely only require a direct contractual arrangement (via a tripartite deed) with the EPC Contractor.

Split Model contracts, on the other hand, present additional challenges from a due diligence and bankability perspective. The financiers’ due diligence will be spread across multiple contracts and contractors, and financiers will likely require a direct contractual arrangement (via a tripartite deed) with each of the counterparties to the Split Model contracts. The financiers will also focus on appropriate risk allocations and the interface between each of the contracts to ensure there are no gaps. As a result, transaction costs are likely to be higher, and the lending terms will likely be more stringent. Pricing may also be higher due to the perceived increased risk. Project owners can expect additional security and documentation requirements to address these additional risks (including tripartite deeds, conditional deeds of novation, performance bonds and parent company guarantees).

Workplace and Employment

Workplace health and safety (**WHS**) obligations are likely to become more complex under Split Model scenarios. Specifically, it will be important to establish which party holds ultimate responsibility for WHS matters, i.e. who will be the principal contractor on the project site. Generally, this should be the party who will be on-site for the duration of, and who is performing, the construction works. These responsibilities will also need to be managed in a practical sense, such as clear on-site lines of authority.

Where the project owner enters into direct contracts with multiple parties under Split Model arrangements, this also increases the potential for duplication of roles and responsibilities in relation to employment matters. Therefore, stipulating which party is responsible for employment matters, such as payment terms for subcontractors, will need to be settled upfront in Split Model agreements to avoid downstream disputes. Additionally, it will be beneficial for project owners to confirm the same matters for general policies and procedures, including discrimination, harassment and other compliance materials.

Clearly defining responsibilities and policy documents has important implications for industrial relations. Reputational risks are high priority agenda items for corporates and multinational project owners and unionised workforces are increasingly attentive to deviations from employment and WHS obligations. It is important that project owners have certainty that their Split Model agreements are accurately drafted to reflect the true intention and responsibilities of the parties. In doing so, project owners may be more confident that potentially disruptive union activity can be addressed promptly and appropriately through robust response plans.

Dispute Resolution Procedures

Litigation versus Arbitration

The inherent nature of Split Model contracts lends itself to complex dispute resolution risks, starting with how to deal with disputes in respect of overlapping contentious issues. For example, where a project owner considers delays to commissioning have been caused by both the BESS Supplier and BOP Contractor, it is preferable that both parties be subject to a single dispute resolution process (i.e. litigation or arbitration). Otherwise, the project owner risks being faced with different factual findings or assessments of critical path delays – resulting in a potential gap risk for the project owner to bear.

One benefit of litigation as the ultimate dispute resolution process in each contract under a Split Model arrangement is that it limits the abovementioned risk as most courts and tribunals across Australia have simple processes for the joinder of issues by way of cross-claims or concurrent proceedings. An additional benefit is that if a subcontractor of the BOP Contractor in the above example contributed to a delay, they could also be drawn into either the same or concurrent proceedings. All concerned would then be bound by the same findings of fact.

Arbitration can provide the same protections, but only if that subcontractor of the BOP Contractor in the above example also had a joinder and arbitration clause in their subcontract. Ensuring mandatory pass through of such dispute resolution provisions to key subcontractors is critical in Split Model arrangements. Arbitration also has the benefits of confidentiality and superior enforceability in more jurisdictions.

Security of Payment Adjudication

Under Split Model arrangements, over the course of a project (albeit on an interim basis), security of payment legislation in each state and territory has the effect that a project owner is at risk of different findings of fact under different adjudication processes, as adjudication under such legislation does not have the benefit of joinder arrangements that can be adopted in litigation and arbitration.

For example, it is possible that a project owner may have a finding in an adjudication brought by the BOP Contractor that the BESS Supplier caused a delay entitling the BOP Contractor to an extension of time and delay costs, while the opposite finding may be held in a separate adjudication brought by the BESS Supplier. While litigation and arbitration can hear such matters de novo on a final basis, this is a potential gap risk for the project owner arising from progress claims.

Key Considerations

Project owners should assess whether a Full Wrap Model or Split Model is most appropriate for their renewable energy project. Relevant questions to consider are:

- 1. Can internal resources with the requisite technical skillset and project management expertise be appointed to ensure alignment, integration and appropriate interface between separate agreements?
- 2. What equipment technology is right for my project?
- 3. Which contractor is best placed to carry out the relevant scope?
- 4. What are the various interface points between the contractors? This will be key to each contract, as this is where the potential for project delays and gap risk for the project owner will be most acute.
- 5. What contractual rights do I need if there is delay, disruption or damage?
- 6. How might the proposed structure impact my ability to secure finance and what steps can I take to manage that impact?

As Split Models require increased involvement from project owners, it is crucial to engage experienced advisors early on to ensure success.



For more information, please contact
Matt Baumgurtel, Veno Panicker, Tricia Moloney,
James Simpson, Adriaan van der Merwe, David
O'Carroll or Sam Poulsen.

	Matt Baumgurtel Partner, New Energy Lead +61 459 900 080	 
	Veno Panicker Partner +61 409 495 242	 
	Tricia Maloney Partner +61 434 154 180	 
	James Simpson Partner, Employment +61 407 061 641	 
	Adriaan van der Merwe Special Counsel +61 403 120 410	 
	David O'Carroll Senior Associate +61 421 497 311	 
	Sam Poulsen Graduate	 

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Quantum Meets Energy Part One: Revolutionising Australia’s Energy Landscape

Authors: Matt Baumgurtel, Adriaan van der Merwe, William Ryan, Sally Yang and Sam Poulsen

Quantum technologies (QTs) are specialised and advanced technologies that enable highly complex sensing, modelling, simulations and calculations. QTs are poised to revolutionise the Australian energy sector (and broader society) by enhancing energy infrastructure, optimising grid efficiencies and reducing development and operational costs. But will the application of QTs come to fruition?

In this article, the first in a two-part series, we:

1. summarise what QTs are;
2. delve into the constraints on QT adoption across the Australian New Energy landscape; and
3. discuss recent sector announcements that demonstrate strong political and industry appetite for Australia to develop and adopt QTs.

Quantum Technologies: What are they?

Advancements in quantum mechanics have made QTs possible. QTs are classified into three fields: quantum computers, quantum communication and quantum sensors.¹ QTs enable researchers and users to sense, isolate and manipulate subatomic particles known as “qubits”.² Quantum computers, for example, take advantage of the way qubits can be controlled to solve highly complex computational issues.³ In doing so, quantum computers have unlocked previously unattainable computing capabilities.⁴

Similarly, quantum sensors and quantum communication provide significantly more powerful sensing and communication capabilities than otherwise exist.⁵ Because of this, QTs have the potential to manage currently unmanageable challenges in healthcare, national security and energy (among other fields).⁶ As societal and global challenges increase in complexity, more sophisticated methods of analysis and problem solving will be required. QTs are poised to address these challenges by advancing technologies and enabling analysis and problem solving that is not currently available.

However, developing and adopting QTs will be challenging. We explore some of the challenges below, as well as recent industry updates.

Quantum Challenges

Access to Quantum Technologies

QTs are not easily accessible to the public and those which are available are costly and difficult to integrate with existing resources. Widespread uptake of QTs has therefore been limited. Quantum computers, for example, are largely owned and operated by large corporations, academic institutions and governments because they are highly sophisticated and expensive.⁷ Further, although quantum computing technology has advanced since the first quantum computer was created in the 1990s,⁸ it is still costly and difficult to manufacture. Additionally, contemporary technology cannot be easily ported with quantum computing infrastructure.⁹ These factors have limited the accessibility of the technology to specific organisations, typically those with large financial resources and highly skilled labour.

Ethical and Legal Hesitation

Ethical and legal issues and the broader societal implications of artificial intelligence technologies such as ChatGPT have recently gained attention. Noting this, Australia’s Chief Scientist has suggested that Australia “should not presume an enthusiastic embrace of quantum technologies; we must build a social licence [to operate quantum technologies]”.¹⁰ Responsible terms of development and use of QTs will need to be defined and implemented so that proponents of QTs have the social licence to operate these technologies.¹¹

Government support for Quantum Technology and New Energy

Given the challenges, a highly specialised workforce is needed to develop Australia’s QT industry in a responsible manner. Australia’s national science agency, CSIRO, estimates Australia’s QT industry will support 19,000 new jobs and generate \$6 billion in annual revenue by 2045.¹² In support of these trends, the Federal Government recently announced the Critical Technologies Challenge Program, a \$36 million program to capture the power and potential of QTs. The Critical Technologies Challenge Program will support four “nationally significant challenges”, including “optimise the performance, sustainability, and security of energy networks to help with the transition to net zero”.¹³

The Federal Government also recently awarded \$18.4 million to the University of Sydney to establish “Quantum Australia” to grow Australia’s quantum industry and ecosystem.¹⁴ Quantum Australia will:¹⁵

1. support the development and uptake of QTs and foster research to drive innovation;
2. develop industry, research and government connections nationally and internationally;
3. increase awareness and education of the implications and opportunities of QTs; and
4. support responsible and inclusive development of QTs in Australia.

These initiatives indicate the Australian government recognises QTs will play a pivotal role in shaping Australia’s future economy and society. In particular, there is a focus on using QTs to assist Australia in meeting its decarbonisation goals and improving energy networks.

Although the wide-spread use of QT may seem a distant reality, the applications of QTs will be profound. Industry participants have a unique opportunity to capitalise on technology with the potential to transform the New Energy sector.

Stay tuned for [part two](#) of this series, in which we explore the potential applications of QTs and the impacts QTs could have on Australian energy in more detail.

For more information, please contact Matt Baumgurtel, Adriaan van der Merwe and William Ryan.



Matt Baumgurtel
Partner, New Energy Lead
[+61 459 900 080](#)





Adriaan van der Merwe
Special Counsel
[+61 403 120 410](#)





William Ryan
Senior Associate
[+61 2 8072 8271](#)





Sally Yang
Lawyer
[+61 2 8072 8271](#)





Sam Poulsen
Graduate



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Quantum Meets Energy Part Two: A World of Possibilities

Authors: Matt Baumgurtel, Adriaan van der Merwe, William Ryan, Sally Yang and Sam Poulsen

In [Part One](#) of our series ‘Quantum Meets Energy: Revolutionising Australia’s Energy Landscape’, we introduced quantum technologies (**QTs**) and their benefits, challenges to adoption, and recent government support for QT in the New Energy transition.

In Part Two, we delve into potential applications of QTs across the renewable energy sector, the immense opportunity for Australian governments and organisations, and consider the future of New Energy trends in a QT world.

Applications for Quantum Technologies

Grid Optimisation

Integrating Distributed Energy Resources

QTs may be used to analyse the vast data generated by distributed energy resources (**DERs**).¹ In our recent [bulletin](#), we discussed how proposed rule changes by the Australian Energy Market Commission incentivise customers to integrate DER (including rooftop solar, battery storage and electric vehicles) into the National Electricity Market (**NEM**). The increasing abundance of DERs presents an opportunity to leverage vast quantities of data produced by DERs that, when analysed by quantum computers, could inform decisions on how to optimise the NEM. The information and insights gathered from the data analysis could enhance energy distribution and enable smarter decision making.² Importantly, quantum computers have the ability to run complex algorithms over DER data to quickly and accurately simulate efficient energy distribution.³ In combination with quantum sensors, energy consumption can be tracked precisely, enabling demand to be met more productively.⁴ As DERs become more widespread, analysing data via quantum computers will be prioritised over traditional computers, as it is unlikely existing technology will be capable of performing equivalent analyses.

Grid Infrastructure

Quantum computer simulations can also determine optimal locations of power generation facilities by analysing numerous variables relevant to decisions on where to place an energy resource.⁵ Further, traditional computers lack the

capability to efficiently consider those variables. Supply chain considerations, supply-demand models, and emissions reduction models may all feed into decisions on the location of an energy resource.⁶ The volume of data and complexity of interrelated considerations when determining resource placement requires incredibly sophisticated and advanced computing abilities.⁷ Quantum computers are expected to have these capabilities. Additionally, once an infrastructure asset is developed, quantum sensors may provide advanced real-time monitoring and fault diagnosis of that infrastructure, helping to maximise the infrastructure’s uptime.⁸

These developments have important implications for energy resource proponents and local, state and federal planning authorities. For example, QTs may be able to identify ideal locations for wind farms that cannot be readily identified using existing modelling techniques. Further, once they are developed, projects may have longer life spans because developers can remediate and mitigate faults on an ongoing basis through quantum sensor monitoring.

Materials and Yield Enhancements

Batteries

QTs may also be applied in researching and modelling future battery compositions. Energy density improvements in lithium-ion (**Li-ion**) batteries have slowed in the past ten years.⁹ Li-ion batteries are forecast to see density improvements of 17% between 2020 and 2025, down from 50% between 2011 and 2016.¹⁰ To address this, quantum computers may simulate improved chemical compositions and material enhancements to Li-ion batteries that cannot be identified with existing technologies.¹¹ Such improvements could lead to Li-ion batteries with 50% higher energy density,¹² improved thermal efficiencies and extended lifespans.¹³ These developments could enable variable renewable energy sources such as wind and solar to be integrated into the NEM at lower costs.¹⁴ They could also reduce the capital expenditure requirements for industries likely to rely on advanced Li-ion batteries such as transport and short-haul aviation.¹⁵

Solar Cells

It is broadly accepted that existing solar photovoltaic (**PV**) cell technology (crystalline silicon) is not as energy efficient as it could be. Quantum computers could address this issue by accurately simulating higher efficiency solar PV cells than contemporary crystalline silicon solar PV.¹⁶ Additionally, researchers may use quantum sensors to understand the magnetic behaviours of new materials to help identify which materials should be manufactured.¹⁷ One investigation has estimated that if simulated theoretical efficiencies of an alternative solar PV cell material known as perovskite crystal can be achieved in practice, the levelised costs of electricity from solar PV could decrease by 50%.¹⁸ The chemical developments achievable through quantum computing and quantum sensor modelling may lead to greater uptake of solar PV technology by consumers as purchasing costs are reduced. Similarly, they could reduce the environmental impact of grid-scale solar PV projects by reducing the total land required. This is because the efficiency gains of individual solar PV panels may lead to smaller areas of land being required to reach energy production targets.

Hydrogen

In a previous [article](#), we discussed how hydrogen can be produced by electrolysis, a chemical reaction. However, electrolysis is sometimes inefficient. Quantum computers could help simulate more complimentary electrolysis chemicals and materials so that hydrogen is produced more efficiently.¹⁹ It has been estimated that electrolysis enhancements demonstrated by quantum computing modelling could produce hydrogen more efficiently and at 35% less cost.²⁰ These improvements have important implications for the viability of hydrogen technology as a future fuel source, particularly in transportation and aviation industries where narrow profit margins influence sustainability strategies.

Biomass

QTs could also be applied in Australian biofuel production by identifying the optimal biomass conversion materials and techniques for generating increased yields of biofuel.²¹ In doing so, QTs could help unlock up to 2,600 petajoules of biomass capacity per annum in a manner that is more efficient and more cost-effective than is available with existing conversion techniques.²² Theoretical biomass represents more than 40% of Australia’s current primary energy supply, and so unlocking it using QT simulations may have profound influence on Australia’s energy future.²³

Future Outlook

As Australia matures on its renewable energy journey, QTs offer unique opportunities for industry participants. QTs hold the potential to optimise the grid, discover new materials, increase efficiencies and uncover improvements in energy yields. These quantum leaps will empower Australia to meet and exceed its sustainability goals, setting a global benchmark in harnessing the power of nature with the precision of quantum science. The journey ahead is as exciting as it is essential, promising a cleaner, more efficient, and resilient energy landscape.

For more information, please contact Matt Baumgurtel, Adriaan van der Merwe and William Ryan.



Matt Baumgurtel
Partner, New Energy Lead
[+61 459 900 080](#)





Adriaan van der Merwe
Special Counsel
[+61 403 120 410](#)





William Ryan
Senior Associate
[+61 2 8072 8271](#)





Sally Yang
Lawyer
[+61 2 8072 8271](#)





Sam Poulsen
Graduate



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¹⁹Ibid.

²⁰Ibid.

²¹Obafemi Olatunji (n 7) 560.

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Hydrogen on the Horizon: Unpacking Australia’s New Hydrogen Production Tax Incentive

Authors: Matt Baumgurtel, Seema Sandhu, Adriaan van der Merwe, Conor Bates, Anish Prakash and Suwathie Rajeswaran

The Australian Government announced the Hydrogen Production Tax Incentive (**HPTI**) under the 2024-25 Budget as part of the *Future Made in Australia* package. The *Future Made in Australia* package aims to build a stronger, diversified and resilient economy,¹ securing Australia's place in the evolving global landscape.² Underscoring this strategy is the Government's desire to speed up the transition to renewable energy and reach Australia's goal of net zero greenhouse gas emissions by 2050.³

The HPTI proposes to offer a short-term and uncapped tax offset system to accelerate the production of renewable hydrogen in Australia, with an estimated support of AU\$6.7 billion over 10 years.⁴

The consultation period for the HPTI has now closed and Treasury will incorporate feedback from submissions in their advice to the Government on the final design and arrangements of the measure.

The Incentive

- The HPTI will be delivered through Australia's tax system as a refundable tax offset to eligible producers of renewable hydrogen.
- The proposed offset is \$2 per kilogram of eligible hydrogen produced, provided in the form of either a cash refund or a reduced income tax liability.
- The offsets will be available for hydrogen produced from eligible facilities (existing or new) for up to 10 years between 1 July 2027 and 30 June 2040.
- The offsets are uncapped for the 10-year period.
- The HPTI will be co-administered by the Australian Taxation Office (**ATO**) and the Department of Climate Change, Energy, the Environment and Water (**DCCEEW**) through the Guarantee of Origin (**GO**) scheme. The GO Scheme is an internationally aligned assurance scheme designed to track and verify emissions associated with hydrogen and other products made in Australia.⁵
- The HPTI will include eligibility criteria that align with the Community Benefits Principles under the *Future Made in Australia Act*, focusing on investment in local communities (including First Nations communities), domestic industry and supply chains, skills, and the promotion of diverse workforces, secure jobs and tax transparency.

What you need to know

Tax Offsets 101: How do tax offsets actually work?

Tax offsets are provided for a variety of reasons, including to incentivise individuals and businesses to engage in activities that boost the economy, to provide financial assistance and to help support emerging industries.

Tax offsets reduce the amount of tax owed by a taxpayer (as compared to tax deductions, which seek to reduce the amount of income that is subject to tax). Tax offsets can either be refundable or non-refundable. In the case of the HPTI, the relevant tax offset is proposed to be a refundable tax offset, which means that a taxpayer can receive a cash refund if the tax offsets delivered through the HPTI exceed the taxpayer's tax liability. In contrast, for a non-refundable tax offset, if a taxpayer's offsets exceed their tax liability, the taxpayer's tax liability would simply be reduced to nil and no cash refund would be available (although it may be possible to carry forward the offset to a future income year).

As with all tax offsets, it will be important for hydrogen producers to understand the eligibility criteria of the HPTI (and any documentation or substantiation requirements) to ensure that the HPTI is being claimed appropriately, and that a producer does not inadvertently miss out on the availability of a tax offset.

Eligibility for the HPTI

To be eligible for the HPTI, the key proposed criteria that must be satisfied include:

1. the hydrogen producer must be a corporation that is subject to Australian income tax throughout the relevant income year (it must not be a corporation that is fully exempt from paying Australian income tax);
2. the facilities must be located in Australia;
3. the Final Investment Decision (**FID**) for each eligible facility must be complete on or before 30 June 2030 (or production must commence by 30 June 2030);
4. renewable hydrogen must be from an existing or new facility where the facility meets the eligibility requirements on or before 30 June 2030;
5. each facility must be located on a single site;
6. projects must be registered with the Clean Energy Regulator under the GO Scheme;

7. each kilogram of renewable hydrogen must be produced with an emissions intensity less than or equal to 0.6kg of carbon dioxide for the aggregate lifecycle production process, including gathering, extraction, processing and delivery ('well-to-gate');⁶
8. the facility must include a minimum capacity equivalent to a 10-megawatt electrolyser; and
9. the hydrogen producer must comply with any transparency and disclosure reporting requirements that are established as part of the HPTI.

In addition, the Government is contemplating whether to include requirements for projects to match hydrogen production with electricity from the same grid.⁷

Is it enough?

The HPTI aims to bring forward project development, make renewable hydrogen available sooner and build scale to reduce production costs over time⁸. Global competitors are also working towards this goal, with the US Department of Energy supporting research and development aiming to bring the cost of hydrogen production to US\$1/kg by 2030.⁹

Despite healthy competition, the Treasury holds that Australia is well placed to produce green hydrogen at internationally competitive prices, and with its proximity to key markets, there is potential for Australia to become an exporter of renewable hydrogen.¹⁰

Some commentators however have their doubts. The Institute of Energy Economics and Financial Analysis asserts that exporting hydrogen is prohibitively expensive, and Australia should instead focus on using any locally produced hydrogen domestically as a fuel for powering vehicles and a replacement for natural gas in gas networks.¹¹

Incentives such as HPTI and the Hydrogen Headstart are vital to help bridge the gap and get major projects over the line for the 2030s and 2040s.¹² While the \$2/kg tax offset offered by the HPTI is significant, it is likely that further support and other funding sources will be required in order to bridge the commercial gap for early movers, and the Government may need to bring forward demand-side policies to meet these needs. Additionally, there is a possibility that the 10-year support window may not be enough for producers. There is a risk that this relatively short period may instead lead to increased pressure on supply chains through competition for workers, equipment and services, in turn driving inflation of project delivery costs.

We look forward to perusing the responses from the industry and subsequent development of the HPTI as it emerges from the consultation process. Watch this space for further updates on the HPTI from the Hamilton Locke New Energy and Tax teams.

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 or Seema Sandhu.

	Matt Baumgurtel Partner, New Energy Lead +61 459 900 080	 
	Seema Sandhu Partner +61 2 8072 8271	 
	Adriaan van der Merwe Special Counsel +61 403 120 410	 
	Anish Prakash Lawyer +61 2 8072 8271	 
	Conor Bates (Consultant, admitted in Ireland, not admitted in Australia) +61 431 958 212	 
	Suwathie Rajeswaran Paralegal +61 2 8072 8271	 

¹The Hon Anthony Albanese MP & the Hon Dr Jim Chalmers MP, 'A Future Made in Australia Bill will build a stronger, cleaner economy,' *Prime Minister of Australia* (Media Release, 3 July 2024) <<https://www.pm.gov.au/media/future-made-australia-bill-will-build-stronger-cleaner-economy>>.

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⁹Office of Energy Efficiency & Renewable Energy, 'Hydrogen Production Pathways' (online) <https://www.energy.gov/eere/fuelcells/hydrogen-production-pathways>.

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¹²Dr. Fiona Simon, CEO, Australian Hydrogen Council, as reported in Energy Source & Distribution, 'Hydrogen heads meet in nation's capital to discuss priorities' (online, 2 July 2024) <<https://esdnews.com.au/hydrogen-heads-meet-in-nations-capital/>>.

Rocking Renewable Energy: The Critical Minerals Production Tax Incentive

Authors: Matt Baumgurtel, Seema Sandhu, David O’Carroll, Megan Chau and Sam Poulsen



The Australian Government announced the Critical Minerals Production Tax Incentive (**CMPTI**) under the 2024-25 Budget as part of the *Future Made in Australia* package. The *Future Made in Australia* package aims to build a stronger, more diversified and resilient economy.¹ Underscoring this strategy is the Government’s desire to speed up the renewable energy transition and to reach Australia’s goal of net zero greenhouse gas emissions by 2050.²

The CMPTI proposes a short-term and uncapped production tax offset to support investment in critical minerals processing valued at AU\$7 billion over 10 years.³ We recently wrote a similar article on the Hydrogen Production Tax Incentive (**HPTI**), which, together with the CMPTI, complements the Government’s work to accelerate investment in *Future Made in Australia* priority industries. The CMPTI is also consistent with the Government’s Critical Mineral Strategy which we have discussed in a previous article [here](#).

The consultation periods for both the HPTI and the CMPTI have now closed and Treasury will incorporate feedback from submissions in their advice to the Government on the final measures.

This article outlines the key details of the CMPTI as proposed in the consultation materials and what other information industry proponents need to know about the CMPTI.

The Incentive⁴

The CMPTI will:

1. be delivered through Australia’s tax system as a refundable offset for eligible expenditure incurred in processing and refining critical minerals;
2. be provided in the form of either a cash refund or a reduced income tax liability;

3. be available in respect of each facility for up to 10 years in respect of eligible expenses incurred from 1 July 2027 to 30 June 2040;
4. allow eligible entities to claim 10 per cent of eligible expenditure for processing and refining of any of the 31 Critical Minerals [listed](#) on the Department of Industry, Science and Resources’ (**DISR**) website;
5. be uncapped;
6. be co-administered by the DISR and the Australian Taxation Office, with technical mineral testing support from Geoscience Australia; and
7. include eligibility criteria that align with the Community Benefits Principles under the *Future Made in Australia Act*, focusing on investment in local communities (including First Nations communities), domestic industry and supply chains, skills, and the promotion of diverse workforces, secure jobs and tax transparency.

What You Need to Know

[Tax Offsets 101: How Do Tax Offsets Actually Work?](#)

Tax offsets are provided for a variety of reasons, including to incentivise individuals and businesses to engage in activities that boost the economy, to provide financial assistance and to help support emerging industries.

Tax offsets reduce the amount of tax owed by a taxpayer (as compared to tax deductions, which seek to reduce the amount of income that is subject to tax). Tax offsets can either be refundable or non-refundable. In the case of the CMPTI, the relevant tax offset is proposed to be a refundable tax offset, which means that a taxpayer can receive a cash refund if the tax offsets delivered through the CMPTI exceed the taxpayer’s tax liability. In contrast, for a non-refundable tax offset, if a taxpayer’s offsets exceed their tax liability, the taxpayer’s tax liability would simply be reduced to nil and no cash refund would be available (although it may be possible to carry forward the offset to a future income year).

As with all tax offsets, it will be important for entities involved in critical mineral processing to understand the eligibility criteria of the CMPTI (and any documentation or substantiation requirements) to ensure that the CMPTI is being claimed appropriately, and that processing entities do not inadvertently miss out on the availability of a tax offset.

[Eligibility for the CMPTI⁵](#)

To be eligible for the CMPTI, it is proposed the following key criteria must be satisfied:

1. the critical minerals entity must be a corporation that is subject to Australian income tax throughout the relevant income year (it must not be a corporation that is fully exempt from paying Australian income tax);
2. the facilities must be located in Australia;
3. the final investment decision for each eligible facility must be completed on or before 30 June 2030 (or production must commence by 30 June 2030);
4. critical mineral processing must be from an existing facility or a new deployment;
5. the processing must be of a critical mineral from Australia’s Critical Minerals [list](#);
6. processing activities must meet certain specifications based on the nature and composition of the outputs of processing;
7. expenditure must be the direct costs of processing and refining the specific eligible mineral to the specified output; and
8. expenditure must be at arm’s length and on commercial terms.

Is it Enough?

Proponents of the CMPTI are likely to emphasise the CMPTI’s role in developing the Australian critical minerals sector by unlocking additional investment in the industry. The Association of Mining and Exploration Companies has, for example, stated that the CMPTI will generate new projects, drive economic growth and deliver more jobs.⁶ By reducing production costs and accelerating project development, the CMPTI may helpfully bridge the commercialisation gap for project proponents where existing capital expenditure requirements are prohibitive.

However, we have noted in a previous [article](#) that the critical minerals industry is likely to be challenged by increasing pressure to make new mines and processing facilities sustainable, and to enhance the interests of affected parties such as local communities and Indigenous groups. In light of this, it is important that project proponents seeking the CMPTI are prepared to address the community benefit eligibility criteria discussed above. We see this as an opportunity for the industry to support the engagement and empowerment of communities by tailoring proposed benefits to the locality, interests and ambitions of affected groups.

Additionally, the CMPTI is likely to be most effective where it complements other policy instruments such as the Guarantee of Origin Scheme (**GO Scheme**) to enhance domestic and international

market confidence in the critical minerals industry. The GO Scheme aims to certify emissions associated with green metals in Australia, support renewable energy claims and enable exports.⁷ The GO Scheme and CMPTI present opportunities for domestic producers to capitalise on government policy initiatives that will facilitate critical minerals processing, and enhance the ‘greenness’ of critical minerals products such that those products are more attractive to consumers. Demand for products which meet rigorous certification standards is growing, particularly in developed markets such as the European Union. Processing projects that can capitalise on this demand by utilising the CMPTI and GO Scheme are likely to reap significant benefits.

However, critical mineral processing facilities are large infrastructure projects that can take many years to operationalise, and the 10 year eligibility window of the CMPTI may not be sufficient. The CMPTI eligibility criteria are therefore likely to favour established market operators that understand how to navigate the complex approval regime and secure financing, as opposed to new entrants. This has important implications for the security of critical minerals supply chains, as restrained competition risks concentrating supply chain operations in the hands of a few dominant organisations.

We look forward to following the responses from the industry and developments of the CMPTI as it emerges from the consultation process. Watch this space for further updates on the CMPTI, and the HPTI, from the Hamilton Locke New Energy and Tax teams.

For more information, please contact Matt Baumgurtel; Seema Sandhu; David O’Carroll; Megan Chau.

	Matt Baumgurtel Partner, New Energy Lead +61 459 900 080	 
	Seema Sandhu Partner +61 2 8072 8271	 
	David O’Carroll Senior Associate +61 421 497 311	 
	Megan Chau Lawyer +61 2 8072 8271	 
	Sam Poulsen Graduate	 

¹The Hon Anthony Albanese MP and The Hon Dr Jim Chalmers MP, ‘A Future Made in Australia Bill will build a stronger, cleaner economy,’ *Prime Minister of Australia* (Media Release, 3 July 2024) <<https://www.pm.gov.au/media/future-made-australia-bill-will-build-stronger-cleaner-economy>>.

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³Australian Government, The Treasury, Critical Minerals Production Tax Incentive (Consultation Paper, June 2024) 2.

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⁶Warren Pearce, ‘Green Light for *Critical Minerals Production Tax Incentive*’ (Media Release, Association of Mining and Exploration Companies, 14 May 2024) 1.

⁷Australian Government, Department of Climate Change, Energy, the Environment and Water, ‘Guarantee of Origin scheme’ (Web Page) <<https://www.dcccew.gov.au/energy/renewable/guarantee-of-origin-scheme>>.

Capital Gains Tax Regime Changes for Foreign Investors in Renewable Energy Assets

Authors: Seema Sandhu, Matt Baumgurtel and Anish Prakash

Treasury has released a consultation paper on the changes to the foreign resident capital gains tax (**CGT**) regime which were introduced by the Australian Government as part of the 2024-25 Federal Budget. The consultation paper states that the changes are aimed at ensuring foreign residents pay their fair share of tax in Australia, and to provide greater certainty for foreign investors by aligning Australia’s foreign resident CGT regime with international best practice.

The changes consist of three broad elements which will apply to CGT events that occur on or after 1 July 2025:

1) The clarification and broadening of the types of assets to which foreign residents are subject to CGT

This element aims to capture assets which derive their economic value from the use of Australian land and/or natural resources. Examples of assets that would now be captured include:

- Leases or licenses to use land in Australia including (but not limited to) pastoral leases and licenses;
- Australian water entitlements in relation to land in Australia;
- Infrastructure and machinery installed on land situated in Australia – this would potentially extend to renewable energy infrastructure such as wind turbines, solar panels, transformers and battery energy storage systems;
- Options or rights to acquire the abovementioned assets; and
- Non-portfolio membership interests in an entity (i.e. interests of 10% or more) where more than 50% of the underlying entity’s market value is derived from the abovementioned assets.

Currently, there is conflicting authority as to whether wind and solar farm assets constitute Australian real property (by virtue of being a fixture to the real property in question) or whether such assets are mere chattels. For CGT purposes, foreign investors have historically taken the position that CGT was not payable on the disposal of investments in these types of assets.

Depending on how the new legislation is framed, the proposed amendments may result in foreign investors being liable for CGT on a disposal of shares in a company, or units in a trust, where that company or trust owns Australian renewable energy generation or storage assets.

2) Amendment of the existing point-in-time principal asset test (PAT) to a 365-day testing period

- The PAT operates to test whether an entity’s underlying value is principally derived from Australian real property (which may now include wind and solar farm assets).
- Presently, the PAT operates at a point-in-time, being the time that the shares in the company, or units in the trust, are sold. In the Government’s view, the current approach presents an integrity risk as it allows foreign residents to avoid CGT by manipulating the timing of a sale of shares.
- This proposed change would ensure that the testing period for the PAT would be the previous 365 days before the time of the disposal of the shares/units, not merely at the time of disposal.

3) Requirement for foreign residents disposing of shares/units exceeding \$20 million to notify the ATO

- This element imposes a requirement on foreign vendors disposing of membership interests that exceed \$20 million in value to notify the ATO if they provide a vendor declaration to the purchaser.
- The ATO must be notified by the foreign resident vendor in the approved form in advance of a set review period (e.g. 28 days) before the CGT event or settlement.

- Transactions involving the disposal of companies or trusts which have a value of more than \$20m will need to ensure that appropriate flexibility is built into the transaction timeline to ensure that a foreign resident vendor can comply with the notification requirements without delaying the transaction.
- The ATO will auto-issue a receipt number which must be provided to the purchaser. However, the ATO may also seek to take action (e.g. freezing orders) within the set review period if it takes the position that foreign resident CGT withholding should apply in relation to the transaction.

The consultation paper can be accessed [here](#). The consultation period closes on 20 August 2024.

In addition to the consultation paper, Treasury has released draft legislation and explanatory materials for the 2023-24 Mid-Year Economic and Fiscal Outlook announcement (which will apply from 1 January 2025) and will:

- increase the foreign resident CGT withholding rate from 12.5% to 15%; and
- reduce the existing threshold that applies to CGT assets that are taxable Australian real property from \$750,000 to \$0.

For more information on tax changes for foreign residents investing in renewable energy, please contact Seema Sandhu or Matt Baumgurtel.



Seema Sandhu
Partner
[+61 2 8072 8271](tel:+61280728271)





Matt Baumgurtel
Partner, New Energy Lead
[+61 459 900 080](tel:+61459900080)





Anish Prakash
Lawyer
[+61 2 8072 8271](tel:+61280728271)



Don't be a Dodo – ACCC Targets Dodo Power & Gas for Electricity Retail Code Breaches: What Retailers Need to Know

Authors: Matt Baumgurtel, Alistair Newton, David Wan and Suwathie Rajeswaran

The Australian Competition and Consumer Commission (**ACCC**) has brought its first enforcement action for a failure to comply with a standing order price cap, issuing six infringement notices to M2 Energy Pty Ltd, trading as Dodo Power & Gas (**Dodo**). Dodo has paid a \$82,500 penalty for contraventions of the Electricity Retail Code of Conduct (the **Code**) in the *Competition and Consumer (Industry Code – Electricity Retail) Regulations 2019*.

What is the Code?

The Code is prescribed under the *Competition and Consumer Act 2010* (Cth) and applies to all retailers that supply electricity to households and small usage businesses in New South Wales, South Australia and South-East Queensland.

The Code was introduced in response to the 2018 Retail Electricity Pricing Inquiry, which found that consumers who were inactive or disengaged from the market were charged unreasonably high standing offer prices. The inquiry also found that the marketing of retail offers made it difficult for consumers to effectively compare options.

The purposes of the Code include limiting the standing offer prices that are charged to residential and small business consumers and setting standards on how prices and discounts must be advertised, published and offered. The ACCC enforces the Code through regular compliance checks and investigations of alleged breaches.

What's in the ACCC's enforcement action?

In the infringement notice, the ACCC alleged that:

- from 1 July 2022 until 31 May 2023 inclusive, Dodo priced two of its standing offers above the relevant price cap for that day;
- from 6 June 2023 to 22 June 2023 inclusive, Dodo sent price change communications to 52,014 small customers that did not contain the information required by s 12(3)(a), (b) and (c) of the Code, including the percentage difference between the reference price and the unconditional price; the percentage difference between the unconditional price and the conditional price for the discount; and the lowest possible price; and

- Dodo did not make a record of how it calculated or estimated required matters in the Code in relation to the offered prices.

In response to ACCC's action, Dodo admitted to all three allegations, paid the relevant infringement notice penalty, and provided an enforceable undertaking order under Section 87B of the *Competition and Consumer Act 2010* (Cth). The undertaking includes commitments to:

- ensure the prices on Dodo's standing offers are subject to requirements set out by the Code and comply with the price cap on that day;
- state all matters required by the Code when communicating offered prices to small customers;
- keep appropriate records of how it calculated or estimated the matters mentioned in s 12(3)(a), (b) and (c) of the Code; and
- establish and implement a Competition and Consumer Compliance Program.

Looking forward: What does this mean for electricity retailers?

The enforcement action against Dodo is the first by the ACCC for a failure to ensure standing offers comply with the price cap and is reflective of broader ACCC priorities highlighted in the ACCC's 2024-25 Compliance and Enforcement Policy and Priorities, including the net zero transition, ongoing digital transformation, and the impact of cost-of-living pressures. In respect of the latter, the ACCC acknowledges price increases for electricity for residential customers across all regions (by 14% from September 2022 to September 2023), and the need for greater scrutiny of essential services. The ACCC

continues to closely monitor the energy sector and take enforcement action where warranted. In that context, electricity retailers should remain focused on ensuring that they comply with the Code.

Further information: A guide to compliance

The ACCC has published a Guide to the Electricity Retail Code (**the Guide**) which provides a thorough breakdown of requirements under the Code. The Guide includes how to check if retailers are compliant with price caps, what retailers must communicate to consumers to ensure compliance and more. The Guide can be accessed [here](#).

For further details or assistance navigating the risks and ensuring compliance in relation to renewable energy, competition and consumer law, please contact Matt Baumgurtel and Alistair Newton.



Matt Baumgurtel
Partner, New Energy Lead
[+61 459 900 080](#)



David Wan
Graduate
[+61 2 8072 8271](#)



Alistair Newton
Partner
[+61 2 8072 8271](#)



Suwathie Rajeswaran
Paralegal
[+61 2 8072 8271](#)



Five Key Constraints on Australia’s Offshore Wind Industry Supply Chains

Authors: Matt Baumgurtel, William Ryan, David Wan and Sam Poulsen

Australia will not establish a viable offshore wind industry until key supply chain constraints are addressed. Presently, macroeconomic forces on supply chains are compromising the industry’s growth and profitability.¹ In this article, the first in a two-part series, we address five key constraints on offshore wind industry supply chains in Australia. From Euro- and China-centric supply chains through to inflated project costs, we analyse how each constraint undermines Australia’s offshore wind industry.

1 Euro- and China-Centric Supply Chains

The offshore wind industry is burgeoning in Australia, but is in its fourth decade in Europe.² Similarly to Europe, China’s offshore wind industry is well established. In fact, China contributed to half of the global wind power capacity additions in 2022 (30GW onshore and 7GW offshore).³ The major global suppliers of wind turbines and technologies, including Vestas, Siemens, Nordex, Goldwind, Envision and Suzlon, are also typically based in Europe or China.⁴

Because the Australian offshore wind industry is comparatively younger, we do not have the established infrastructure, manufacturing capability, technical knowledge or legislative and fiscal support which is available to international offshore wind industries.⁵ To develop local knowledge and technical skills, Australian governments and developers must collaborate with European and Chinese counterparts.⁶ For example, Iberdrola and Ørsted (two European international developers) were recently awarded feasibility licences for the Gippsland offshore wind zone.⁷

Given the reliance on international parties, the Australian offshore wind industry is susceptible to changes in foreign policy and diplomacy. Further, the Euro- and China-centric nature of offshore wind industry supply chains is problematic for Australia’s national and state economies and job opportunities. Skilled labour is likely to flow overseas to higher paying jobs without sufficient domestic policy measures to prevent this.

2 Equipment Suppliers

Equipment suppliers in the offshore wind industry face several challenges which constrain supply chains in Australia. Low profit margins, significant supply chain capital expenditure (**CAPEX**)

requirements and difficulties in forecasting demand have meant that international equipment suppliers are dissuaded from operating in Australia.⁸ Similarly, Australian investors and developers may not have the economic impetus to initiate offshore wind industry projects.

Equipment suppliers require volume certainty (a secure pipeline of orders) before they invest in establishing supply chains.⁹ A Beyond Zero Emissions (**BZE**) study into Australian wind industry supply chains suggested that if there was, for example, a 2GW pipeline of confirmed activity then multiple equipment suppliers could be persuaded to operate in Australia.¹⁰

The BZE study emphasises that opportunities exist for the Australian offshore wind industry if a certain level of market demand can be generated. Examples of such opportunities include the attendant knowledge, skills transfer and job prospects that could come from an influx of international suppliers domiciling their operations in Australia. However, without demand certainty, a deficit of Australian equipment suppliers is likely to hinder efforts to establish the Australian offshore wind industry as domestic developers do not currently possess the requisite manufacturing capability or skill.

3 Long Lead Times

Offshore wind industry projects require in-depth environment and planning studies, regulatory approvals, complicated financing arrangements and the coordination of various stakeholders. These factors mean projects can take up to 10 years from concept initiation to electricity generation.¹¹ Regulatory hurdles may also impede projects.¹²

The significant time between project initiation to commercial operation means relationships between developers and suppliers are subject to substantial change.¹³ Additionally, supply of offshore wind project infrastructure is usually secured toward the end of the approval process.¹⁴ These long lead times mean that developers and other supply chain stakeholders are susceptible to market forces such as inflation and major global disruptive events for extended periods.

Long lead times have important implications for the viability and profitability of projects. They can, for example, lead to increased costs due to storage and transportation requirements, financing terms and inflation pressures. Further, where a supply

chain bottleneck arises, consequences of delays are likely to be amplified because of the impacts on project schedules, interdependent resources and the contractual consequences of delay.

4 Local Content

Local content rules are rules which require “minimum levels of locally sourced services, manufacturing, or workforce and can be punitive or rewarding”.¹⁵ In Victoria, for example, developers must indicate how they will maximise local content in the construction and CAPEX stages of offshore wind industry projects in proposed competitive auctions.¹⁶

Industry participants have, however, lamented local content rules for distorting markets by pushing work to high-priced and less competitive providers.¹⁷ Further, without appropriate policy and fiscal guardrails to support competition, international participants may consider the Australian market unworkable, particularly where participants could earn more attractive profit margins in markets without local content requirements

5 Inflated Costs

Global inflation has pushed the cost of wind turbines up by 38 per cent since 2021.¹⁸ Additionally, commodity prices and interest rates have both risen.¹⁹ This has put pressure on offshore wind industry developers’ profitability²⁰ and on supply chains, by causing higher production, transportation and raw material costs.²¹

Material differences in profitability may result in less attractive markets being deprioritised by international developers seeking better investment opportunities.²² Without sufficient fiscal measures and monetary policy interventions by the Australian government, developers will continue to focus on European and Chinese capacity additions.²³

The Path Forward

The constraints on Australian offshore wind industry supply chains are complex and will be difficult to address. However, Australia has a diverse talent pool to draw on, and recent policy and legislative measures suggest a strong political appetite to establish the industry. Australia would benefit from a coordinated approach to policy and regulatory measures between federal and state authorities to overcome supply chain constraints.

Stay tuned for part two of this series, in which we explore how the constraints identified may be addressed to bolster the Australian offshore wind industry.

For more information, please contact Matt Baumgurtel and William Ryan.



Matt Baumgurtel
Partner, New Energy Lead
[+61 459 900 080](tel:+61459900080)





William Ryan
Senior Associate
[+61 2 8072 8271](tel:+61280728271)





David Wan
Graduate
[+61 2 8072 8271](tel:+61280728271)





Sam Poulsen
Graduate



¹Alexander Weiss et al, ‘Offshore wind: Strategies for uncertain times’, *McKinsey & Company* (Article, 12 July 2024) <<https://www.mckinsey.com/industries/electric-power-and-natural-gas/our-insights/offshore-wind-strategies-for-uncertain-times>>.

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Five Key Solutions to Constraints on Australia’s Offshore Wind Industry Supply Chains

Authors: Matt Baumgurtel, William Ryan, David Wan and Sam Poulsen

Australia must address key supply chain constraints to establish a viable offshore wind industry.

In [Part One](#) of our series, we discussed five key constraints on offshore wind industry supply chains in Australia. From Euro- and China-centric supply chains through to inflated project costs, we analysed how each constraint undermines Australia’s offshore wind industry.

In Part Two, we explore solutions to these issues, and offer insights on how addressing them will strengthen Australia’s offshore wind industry. From supply chain diversification strategies through to streamlining regulation, this article uncovers the path forward for the Australian offshore wind industry.

1 Recommendation One: Diversifying Supply Chains

To address the Euro- and China-centric nature of the current supply chains, Australia could prioritise developing local manufacturing capabilities and infrastructure. This would involve investing in local production facilities for wind turbine components and fostering partnerships with international companies to transfer knowledge and technology to build local capability. By creating a robust local supply chain, Australia could reduce its dependency on foreign suppliers and mitigate risks associated with geopolitical tensions.

Alternatively, Australia has established mining capabilities (and some materials manufacturing capabilities) but lacks advanced minerals processing and component manufacturing capabilities. It follows that Australia could optimise local supply chains by investing in technology to process and refine raw materials. Like batteries, Australia has many of the raw materials required for making wind turbines. For example, Australia has the rare earth elements required for the rare earth permanent magnets used in wind turbines.

2 Recommendation Two: Incentivising Equipment Suppliers

While reducing reliance on European and Chinese supply chains is important to achieve supply chain diversification, Australia can still benefit from international collaboration and encouraging international suppliers to domicile operations in Australia. This is a compelling alternative for those who argue that Australia does not have the demand to establish end-to-end local supply chains. Engaging with other countries to share best practices, standards and technologies should be encouraged while Australia establishes the relevant local proficiencies.

To attract international equipment suppliers to domicile operations in the Australian market, the Government could offer financial incentives such as tax breaks, grants, and subsidies. We recently wrote on the benefits of production tax incentives, in the form of tax “offsets” provided by the Australian Government for [hydrogen](#) and [critical minerals](#). Tax offsets are provided for a variety of reasons, including to incentivise individuals and businesses to engage in activities that boost the economy, to provide financial assistance and to help support emerging industries. A similar type of tax incentive could be employed by the Government to encourage offshore wind industry equipment suppliers to establish operations in Australia.

Additionally, establishing a clear and consistent pipeline of projects can provide the volume certainty that suppliers need to invest in local operations. This could involve setting ambitious but achievable targets for offshore wind capacity and ensuring a stable regulatory environment that supports long-term investment. Positively, the Victorian government has already taken steps in this respect, setting offshore wind generation capacity targets of 2GW by 2032, 4 GW by 2035, and 9 GW by 2040. Similarly, a national wind target could set a policy and regulatory focus that, in combination with financial incentives discussed above, would attract equipment suppliers to Australia.

3 Recommendation Three: Enhancing Workforce Skills

Addressing the shortage of skilled labour in the Australian offshore wind industry requires a concerted effort to develop local expertise. This could be achieved through targeted education and training programs, apprenticeships, and partnerships with universities and technical institutions. For example, the Australian Government launched the New Energy Apprenticeships program to encourage workers into the New Energy industry by offering financial incentives of up to AUD \$10,000 over the course of an apprenticeship.¹ Alternatively, for at least the short term, the government could prioritise skilled migration to attract foreign expertise until our local capabilities are developed.

By building a skilled offshore wind industry workforce with the appropriate financial incentives, Australia can ensure that it has the necessary human resources to support the growth of the sector and reduce the outflow of talent to other countries.

4 Recommendation Four: Streamlining Regulatory Processes

Simplifying and harmonising the regulatory framework for offshore wind projects could help reduce delays and uncertainties. This involves coordinating between federal and state governments to create a unified set of regulations and to streamline the approval process. It could also involve a cohesive approach to the offshore wind industry at the interstate level. Providing clear guidelines and support for developers can facilitate smoother project execution and attract more investment into the sector.

Coordination of policy and legislation is essential for the offshore wind industry in Australia, as the turbines themselves may be located in Commonwealth waters for power generation, with supporting infrastructure (e.g. cabling and substations) located in State areas. Similarly, the complexity of offshore wind infrastructure will likely demand coordination between various suppliers located in different states. A simplified and harmonised regulatory process is essential to ensure projects get off the ground and operate efficiently.

5 Recommendation Five: Securing Financial Investment

To overcome high capital expenditure (CAPEX) requirements, Australia could explore innovative financing mechanisms such as blue bonds, public-private partnerships, and investment from institutional investors. By securing adequate funding through creating a favourable investment climate, Australia could ensure the timely development and expansion of its offshore wind industry.

Blue bonds are financing instruments that raise and earmark funds for water-related sustainability initiatives, including offshore renewable energy.² For example, blue bonds have been used by Danish renewable energy giant Ørsted to achieve net-positive impacts on biodiversity and sustainable shipping.³ Similar financing mechanisms have the potential to attract investment into the Australian offshore wind sector.

A Multifaceted Approach

Addressing constraints in offshore wind industry supply chains requires a multifaceted approach. By diversifying supply chains, incentivising equipment suppliers, enhancing workforce skills, simplifying regulatory processes, and securing financial investment, the industry can build more resilient and efficient supply chains.

These strategies not only mitigate current challenges but also pave the way for sustainable growth and innovation in the offshore wind sector. With concerted efforts from all stakeholders, offshore wind generation in Australia can achieve its full potential, contributing significantly to global energy transition goals.

For more information, please contact Matt Baumgurtel or William Ryan.



Matt Baumgurtel
Partner, New Energy Lead
[+61 459 900 080](tel:+61459900080)





William Ryan
Senior Associate
[+61 2 8072 8271](tel:+61280728271)





David Wan
Graduate
[+61 2 8072 8271](tel:+61280728271)





Sam Poulsen
Graduate



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Distributed Energy Resources to Compete with Large-Scale Generators and Storage Under AEMC Draft Rule Determination

Authors: Matt Baumgurtel, Adriaan van der Merwe, William Ryan and Eamonn Carpenter

On [25 July 2024](#), the Australian Energy Market Commission (**AEMC**) issued a [draft determination](#) and [draft rule](#) (the **Draft Rule**) which integrates price-responsive resources into the National Electricity Market (**NEM**). It does so by allowing aggregated distributed energy resources (**DER**) (also known as community energy resources) to be scheduled and dispatchable.

DER is not currently integrated into the NEM in an effective manner.

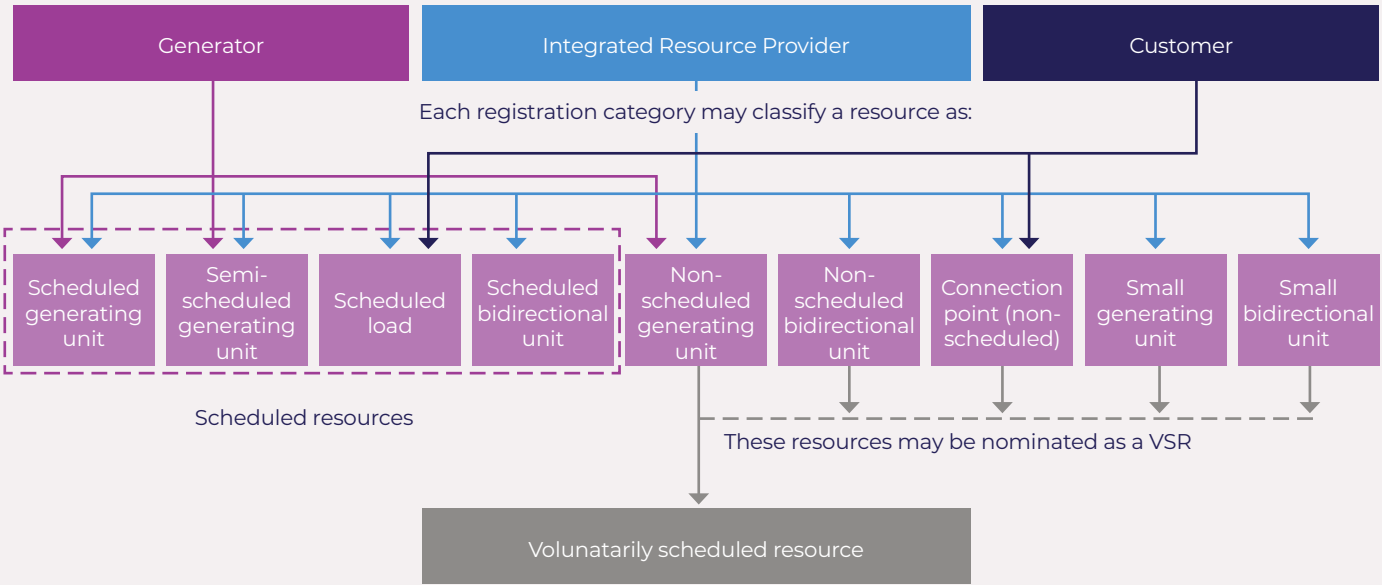
Dispatch mode

The Draft Rule integrates DER by introducing a framework called ‘dispatch mode’ which allows currently unscheduled price-responsive resources to be scheduled and dispatched in the NEM, either in aggregate or individually. This will allow [virtual power plants](#), community batteries, flexible large loads and other price-responsive small sources to compete with large-scale generators and storage in the NEM. Accordingly, DER regulated by the Draft Rule will be able to bid into the market, set spot prices, receive dispatch instructions and earn revenue

in markets which require scheduling (which are considerably more profitable, like regulation Frequency Control Ancillary Services (**FCAS**)). A market participant is eligible to nominate a qualifying resource (in aggregate or individually) as a ‘voluntarily scheduled resource’ (**VSR**) and participate in central dispatch if:

1. the market participant is registered as an IRP, Market Customer or Generator under the NER; and
2. the qualifying resource is:
 - a. market generating unit that is a non-scheduled generating unit;
 - b. market bidirectional unit that is a non-scheduled bidirectional unit;
 - c. market connection point that is non-scheduled load; or
 - d. one or more small generating units or small bidirectional units (or any combination) at a small resource connection point classified as a market connection point, as pictured **below** in the figure provided by the AEMC.

Figure A.1: Classification eligible to be nominated as a VSR



Source: AEMC
Note: Generator, Integrated Resource Provider and Customer refer to the chapter 2 registration categories: Not all chapter 2 registration categories have been shown here.

Incentive scheme

Notably the draft rule includes a time-limited incentive scheme (first five years) to drive participation, wherein the Australian Energy Market Operator (**AEMO**) will conduct tenders to pay participants to enter dispatch mode.

Monitoring and reporting

The rule also obliges AEMO to evaluate the impact of DER on AEMO’s short-term demand forecasts. With this data, the Australian Energy Regulator (**AER**) will assess the cost and efficiency impacts of DER on the NEM.

Key dates

The AEMC has proposed the following implementation schedule:

Stage	Timing
AEMO publishes a high-level impact assessment on the implementation plan for the draft rule.	1 August 2024
AEMO publishes VSR guidelines.	31 December 2025
AEMO and the AER publish final reporting guidelines.	31 December 2025
VSRPs start participating in dispatch.	5 November 2026
AEMO publishes tender guidelines (Incentive scheme).	5 November 2026
AEMO commences first tender (Incentive scheme).	January 2027

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

Matt Baumgurtel
Partner, New Energy Lead
[+61 459 900 080](#)

Adriaan van der Merwe
Special Counsel
[+61 403 120 410](#)

William Ryan
Senior Associate
[+61 2 8072 8271](#)

Eamonn Carpenter
Lawyer
[+61 2 8072 8271](#)



New Energy Expert Insights: Marine Ecology and Australian Offshore Wind Farms with Dr Rachel Przeslawski

In this edition of New Energy Expert Insights, we sat down with Dr Rachel Przeslawski, Practice Lead at RPS, to discuss Marine Ecology and Offshore Wind Farms in Australia.



Dr Rachel Przeslawski is a subject matter expert on environmental impacts on marine ecosystems, including those from the Australian offshore wind sector. She has worked across state and federal governments, investigating how seismic surveys may affect marine invertebrates and characterising biodiversity in Australian marine parks. She has also led over 225 collaborators to develop a suite of national standard methods for sampling in Australia's oceans.¹

RPS is a leading global provider of consulting and engineering services. RPS describes its role as defining, designing and managing projects that create shared value in a complex, urbanising and resource-scarce world.² RPS works on major offshore wind projects, drawing on a broad range of expertise to support its clients and help shape the industry's future.³

What is 'benthic marine ecology'?

'Marine ecology' is the study of how marine organisms interact with their environment, and 'benthic' refers to the bottom of a body of water (e.g. the seabed). Benthic marine ecologists therefore investigate the relationships between the seafloor and the organisms living on, near, or beneath it.

There is robust debate about whether offshore wind projects are 'good' or 'bad' for marine environments. As a marine ecologist, what do you see as the impact of offshore wind projects on the surrounding marine environment?

It is rare for anything we do in the marine environment to be simply good or bad. From

an environmental impact perspective, people often want simple answers, but ecology is inherently complex. It can be challenging for scientists to convey this complexity in an easily understandable way.

For example, two contrasting impacts of offshore wind projects on marine ecology include:

- **Artificial reefs.** Once an offshore wind project is established, the fixed foundations can act as an artificial reef that supports marine life. The infrastructure is conducive to colonisation by a host of organisms and it can support locally increased biodiversity. This is usually recognised as a positive outcome of offshore wind installations and will likely influence how decommissioning requirements of future projects are approached.
- **Seabed disturbance.** During the construction of fixed foundations, the seabed below the offshore wind turbines will be disturbed. Although the soft sediment seabeds are very widely spread and may seem barren, they are actually teeming with microscopic and macroscopic organisms – known as infauna (pictured below) – which play a crucial role in the marine food chain and nutrient cycling. Installation of offshore wind infrastructure may disrupt this habitat and marine infauna on a local scale.

Ultimately, there is likely to be a trade-off between localised impacts and broader global benefits of offshore wind projects.



Picture 1: marine infauna. Source: Rachel Przeslawski, RPS

How can the industry better understand the environmental impacts of offshore wind projects?

Proponents are required by law to understand the environment they are proposing to operate in, and they are responsible for mitigating and managing the impacts that they may cause. Environmental baseline studies (EBS) are a recognised approach to understand the ecology of a proposed offshore wind zone. EBS help stakeholders understand the risks of developments and therefore guide the design and location of turbines and subsea cables. The data-driven nature of EBS is essential to understand how an offshore project will affect the local ecology and what can be done to mitigate those impacts. EBS are also the precursor to a robust monitoring program to validate predicted impact levels and to ensure effectiveness of mitigation activities after operations begin.

EBS are, however, complex and time-consuming. They are not a single snapshot of an area, but instead a multi-year program that accounts for seasonal and interannual cycles of marine environments and species' behaviours. Completing the studies involves liaising with a variety of specialists and regulators.

How similar is the environmental impact of offshore wind compared to offshore oil and gas?

From an ecological perspective, most large offshore infrastructure projects could have similar impacts if not managed appropriately, including:

- during the construction phase, seabed disturbance and underwater noise can affect hearing or fauna behaviour; and
- during the operation phase, structures can act as obstacles and change migration paths, affect animal behaviour or displace animals from important foraging or breeding grounds. Conversely, the structure may become an artificial reef, attracting species and creating new ecosystems.

However, there are some differences between offshore oil and gas and offshore wind projects, including that offshore wind projects:

- ultimately aim to reduce our reliance on fossil fuel energy sources and CO2 emissions;
- do not carry the risk of large scale oil spills or related pollutants from infrastructure; but
- are likely to have a larger spatial footprint because of the physical scale of wind farms.

Overall, the differences and similarities between offshore oil, gas and windfarms, as well as the unique risks posed by offshore wind projects, are still being evaluated. Proponents rely on published literature and baseline study data, with reference to the overseas offshore wind industry, to inform project modelling and their risk and impact assessments. Although this information provides proponents with a high degree of confidence that good environmental outcomes will be achieved, ongoing monitoring and adaptive management plans will likely be needed to address residual scientific uncertainty about the exact ecological impacts of offshore wind projects in Australia.

There is much misinformation in the debate around the economic feasibility and environmental impact of offshore wind. How prevalent is misinformation in this sector and how can it be combatted?

Unsurprisingly, perceptions of offshore wind projects can be influenced by factors other than scientific evidence. Misinformation can be spread easily and rapidly and can be used by people to further their beliefs, even when scientific evidence does not support their position.

Misinformation is particularly common in relation to arguments that offshore wind projects are damaging to large marine vertebrates. For example, there have been recent claims that offshore wind projects have killed whales. However, there has never been a recorded collision, entanglement, beaching or death of a whale due to a wind farm. Whales may be affected by the noise caused during the installation of offshore wind infrastructure (for example, pile-driving fixed foundations). However, there is strong evidence that mitigation methods such as bubble curtains reduce this noise to levels unlikely to cause harm. On the other hand, whales may be negatively impacted by warming waters, which can be addressed, at least in part, by offshore wind power generation as a replacement to fossil fuels.

It sometimes seems impossible to combat misinformation. However, we aim to ease concerns by emphasising that the legal framework within which offshore wind developers operate requires careful planning, ongoing monitoring, and reporting to ensure compliance with legal requirements over the life of a project. For example, in the planning stages, environmental baseline data can support wind farm layout and turbine design to minimise impacts to sensitive fauna. If environmental

monitoring during project operations shows indications of significantly impacting marine life, then a developer will be required to identify and address those issues.

There may be a role for government to play in mandating the sharing of environmental data between developers, and eventually making sure it is publicly released. This would increase transparency and strengthen industry social license by letting the public actually see the marine environment around the wind farms and go some way to easing concerns about potential impacts.

By comparison, how do foreign governments protect marine environments during the construction and operation phases of offshore wind projects?

In some cases, developers receive significantly more support from governments when working in foreign jurisdictions. This support includes financial and advisory support, particularly when undertaking environmental assessments and monitoring. International developers have expected subsidies for this type of work, and some have been taken aback by the lack of support and high associated costs in Australia.

This creates, however, a novel opportunity for developers to collaborate, on sharing data and standardising methods of environmental monitoring and reporting. RPS is currently working on a program called the [Regional Marine Environmental Baseline Study \(RMEBS\)](#) which brings offshore wind farm developers together to collect data in a unified, cohesive and environmentally sustainable way.

How can governments and developers of offshore wind projects engage with First Nations people in a meaningful way?

Over the last five years, there has been a growing recognition of, and appreciation for, Indigenous knowledge, particularly among the marine science community. This includes partnering with, incorporating and facilitating Indigenous knowledge of Sea Country.

Early engagement and meaningful partnerships with Indigenous communities can reduce the likelihood of disturbing culturally significant sites. Seascapes that do not hold importance to developers may be highly sensitive and important for First Nations peoples. It is only through genuine, early engagement that participants can avoid harming these values. In particular, this means that international developers must engage with and learn from First Nations peoples and incorporate those learnings into projects.

It is important that developers move from seeing engagement with Indigenous groups as a 'box ticking exercise' and embrace the opportunity to empower Indigenous interests and share knowledge in a meaningful way. A good start would be for developers to adapt from Western-style types of engagement such as emails and information packs, to spending time in communities and building personal relationships to understand their histories, people and Country.

What do you see as the most significant environmental and ecological trends that will occur in offshore wind over the next five to ten years?

From an ecological perspective, the most exciting trends in the offshore wind industry over the next five to ten years may include:

- **Victoria will be an offshore wind industry hub.** Victoria has critical momentum and support from both the state and federal governments to take a commanding lead in developing offshore wind capacity and associated understanding of environmental impacts, effective monitoring and mitigation actions.
- **Funding and scientific leadership will be established.** The increasing attention paid to offshore wind projects has led to a surge in research programs, consortiums and science initiatives that will stabilise, but continue to grow while there is the political and industrial appetite for them.
- **The benchmark for national coordination will be set.** The offshore wind industry has the opportunity to set the benchmark for coordination and collaboration, particularly from a scientific and environmental perspective. Stakeholders have an opportunity to collaborate to efficiently and responsibly grow the industry by removing supplication of effort and focusing available funds on studies that will make a difference.
- **We will generate new understandings of species, habitats and impacts.** More detailed and nuanced understandings of Australia's marine environment will be uncovered through the scientific research being undertaken, including the distribution of key habitats and species, how our marine megafauna move and behave, and how the marine environment may respond to cumulative impacts beyond just those associated with offshore renewables.

Finally, what excites you about working in the offshore wind industry?

The Australian offshore wind industry promises opportunities for participants to make a difference in the world's fight against climate change and environmental decline. It is exciting that tangible improvements can be made on these issues. Additionally, because it is such a new industry, we have the chance to see entire work programs through from start to finish.

The offshore wind industry may also help address the typical doom and gloom that is common in marine science discussions. We constantly hear about coral bleaching and other climate-related impacts, which can be very disheartening. However, by focusing on the offshore wind industry as part of the solution to some of these issues, we build our optimism by making a positive impact. Ultimately, the learnings from research conducted in respect of offshore wind projects may allow us to leave the world in a better place.

For more information, please contact Matt Baumgurtel; Adriaan van der Merwe and William Ryan.



Matt Baumgurtel
Partner, New Energy Lead
[+61 459 900 080](tel:+61459900080)





Adriaan van der Merwe
Special Counsel
[+61 403 120 410](tel:+61403120410)





William Ryan
Senior Associate
[+61 2 8072 8271](tel:+61280728271)





Sam Poulsen
Graduate



¹NESP Marine and Coastal Hub, 'Field Manuals for Marine Sampling to Monitor Australian Waters', (Web Page) <<https://marine-sampling-field-manual.github.io>>

²RPS, 'Solving problems that matter to a complex, urbanising and resource-scare world', (Web Page) <<https://www.rpsgroup.com/>>.

³RPS, 'Floating offshore wind', (Web Page) <<https://www.rpsgroup.com/renewables/floating-offshore-wind/>>.

New Energy Expert Insights: Harvesting the Sun – Distributed Energy Resources and Agrivoltaics with Dr Madeline Taylor of Macquarie University



In this edition of New Energy Expert Insights, we sat down with [Dr Madeline Taylor](#) from Macquarie University to explore the intersection of distributed energy resources (DER) and agrivoltaics and its untapped potential within the Australian energy sector.



Dr. Madeline Taylor is Director of Research Training and Senior Lecturer at Macquarie Law School, Deputy Director of the Centre for Energy and Natural Resources Innovation and Transformation (**CENRIT**), and Co-Lead of the Energy, Communities, and Market Regulation Stream at the Transforming Energy Markets Research Centre. She is also a member of the board of REAlliance, an Honorary Associate at the Sydney Environment Institute, and a member of the Sydney Institute of Agriculture. Her research focuses on regulatory frameworks for energy development, including solar, wind, agrivoltaics, offshore wind, and hydrogen.

What are agrivoltaics, and how are they viewed in Australia in the DER context?

“Agrivoltaics” is used to describe the symbiotic land use of agriculture and solar photovoltaics (**PV**). In the US, the term “agrisolar” has been adopted. In Japan, it is referred to as “solar sharing”, due to the co-location of the first demonstrative projects on farmland classified as ‘devastated farmland’ to regenerate soils and revitalise agricultural activities.

In Australia, agrivoltaics is still an emerging sector. Agrivoltaics represent an immensely important technological, commercial, and socio-legal approach to our energy transition. However, a general awareness of the various opportunities agrivoltaics present in Australia is still lacking. There have been some successful agrivoltaics pilot projects however the agrivoltaics sector has not grown at scale in Australia like it has done in other countries like Germany.

There is enormous potential for agrivoltaics to play an important role in the domestic DER market. For example, the energy generated from solar PV on farms can be aggregated under a virtual power plant (**VPP**). By joining a VPP, agricultural landholders can not only access the financial benefits associated with VPP participation in the National Electricity Market (**NEM**), but also share their clean energy with the community.

Why have agrivoltaics not been implemented at scale in Australia? Is there a significant cost hurdle?

While agrivoltaics can be expensive to implement, the crux of the issue is that Australia does not currently have a federal agriculture and renewable energy integration policy. As such, there is no certainty on how emissions abatement and renewable energy implementation will take place in the agricultural sector.

Significant investment in research will be needed to enable broader awareness, research, development and uptake in agrivoltaics. To overcome the cost hurdle, additional investment and funding should be directed towards agrivoltaics, instead of agrivoltaics being overlooked as part of the broader federal budget. For example, in the recent Federal Budget, the Government has committed to setting aside AUD\$68 million for agricultural decarbonisation which to date has often focused on methane abatement, diesel substitution, and energy efficiency, but not co-location.

While farmers and some developers are currently driving creative solutions to reduce greenhouse gas emissions on farms, there is a broader opportunity for agrivoltaics to help farmers decarbonise and future proof their business which has not been explored.

What are some future trends and opportunities for agrivoltaics?

For solar farm developers, coupling solar PV with grazing is most evident in New South Wales. This method has been a key focus in Australia because it’s the simplest way of integrating agrivoltaics for the purpose of an environmental and agricultural impact assessment. However, the integration of solar PV and cropping represents a largely untapped opportunity to create synergetic benefits to agricultural activities.

Agrivoltaics can create several benefits to both the solar and agricultural sectors including, but not limited to, additional income streams for agricultural landholders, avoiding land conversion, decarbonisation of agricultural operations, reducing drought and flooding stress, and creating higher solar output by harnessing radiative cooling.

There is also a lot of anecdotal evidence amongst farmers to support the use of agrivoltaics in Australia. For example, the research conducted at the Tatura Smart Farm in Victoria has demonstrated the benefit of solar PV co-location with livestock. That research showed that agrivoltaics were able to reduce the average mortality rate decline of merino twin lambs from 20% in the open to 12% (11% if lamb fleece could be kept dry) via the provision of shade and protection by solar PV.

There is an opportunity for Australia to take the lead in the agrivoltaics sector. However, fundamental regulatory reform is needed and this is the subject of my Australian Research Council Industry ECR Fellowship with my partners NSW Department of Primary Industries and Regional Development and Spark Renewables. We will be creating specific agrivoltaics regulatory conditions, instruments, toolkits, and other guidance to create a thriving agrivoltaics sector in Australia.

Why is there a need for agrivoltaics in Australia given its massive land mass?

While Australia certainly does have a massive land mass, we have very little highly fertile primary agricultural land for intensive broadacre cropping activities. Agrivoltaics has many symbiotic benefits, beyond just providing an additional income stream. Agrivoltaics can benefit farming activities, provide carbon offsets, and assist in reestablishing nature.

In an overseas context, Japan has a large amount of ‘devastated farmland’ and has had issues keeping its current generation of farmers in agriculture. Japan has seen a large uptake in agrivoltaics after the Japanese Government pivoted to a plan to grow the agricultural sector toward global competition via an influx of young farm incentive programs and training, and through a paradigm shift to high value-added niche production, innovative technology integration, and market expansion.¹

What has been done at a federal or state level in this country to increase awareness in agrivoltaics? Do farmers know the technology exists?

Farmers may not be aware of agrivoltaics or the potential benefits. The opportunities for agrivoltaics should be integrated into rural energy community engagement at the outset, particularly in Renewable Energy Zone mapped regions. When we speak to agricultural landholders, it is evident that they need to see pilot plans and real data to be able to progress agrivoltaics projects, rather than anecdotal evidence.

Additionally, developers of renewable energy projects should focus more on direct engagement with farmers. Co-designing the PV project with farmers from the outset will help to ensure that the entire project lifecycle supports and enhances agricultural activities. This includes regularly monitoring agricultural yields and outputs, preserving farmers’ right to farm, and requiring developers to undergo an “agriculture induction” to understand and adhere to agriculture-specific standards alongside renewable energy generation.

What regulatory changes would you like to see?

I would like to see the creation of a renewable energy and agricultural innovation tender that is separate from the Capacity Investment Scheme to allow the sector to trial different approaches and provide subsidies. France is leading the way with this approach and has created an innovation tender program of 140MW under both ground-mounted installations and innovative installation capacity including for agrivoltaics. In Ohio, USA, Savion has recently operationalised a utility scale agrivoltaics project with a long-term Power Purchase Agreement with Amazon for offtake from the 180MW facility. Project symphony is an Australian example of how a DER VPP project could be potentially implemented.² A large scale DER agrivoltaics pilot project in a similar vein will be instrumental in creating the requisite market conditions for commercial implementation.

Crucially, we need to consider how best to create a viable agrivoltaics industry. There are many investors that want to be involved and understand what is going on, but the cost of legal and regulatory uncertainty is currently too high for them to invest.

In a perfect world, how would DER look? Would it be financially incentivised?

It would be beneficial if there were greater incentives for other DER industries that are not rooftop solar. However, we need to think about how we can use an innovation tender process to facilitate this, governed perhaps by a separate regulatory DER taskforce.

From an international perspective, the Australian renewable energy market is highly regarded, but it has a regulatory system which is no longer fit for purpose. We need to look at our policy on manufacturing and energy sovereignty. We need to add value with the Future Made in Australia Act and the National Reconstruction Fund Objectives. If we combine the two, we could do something really bold in the agrivoltaics space.

Do you think the recent draft rule change in integrating price-responsive resources into the NEM appropriately achieves AEMO’s objective of having greater visibility over Consumer Energy Resources (CER)?

We’ve generally seen a low uptake in consumers and operators of price-responsive resources. The core issue has been in AEMO’s ability to have visibility over energy demand where there is a two-way integration of DER. However, the draft rule change seems to have looked at the visibility issues stemming from DER and CER from an economic regulation perspective. Additionally, the reliability part of the draft rule change which allows CER to be used as a stop gap could confuse consumers, particularly around what it means in terms of energy security.

There may be scope for a phased implementation and different instruments to facilitate consumer education and to be more innovative in large-scale DER VPPs.

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](#).



Matt Baumgurtel
Partner, New Energy Lead
[+61 459 900 080](#)





Adriaan van der Merwe
Special Counsel
[+61 403 120 410](#)





William Ryan
Senior Associate
[+61 2 8072 8271](#)



¹ As a practical example, please see the [Trinasolar agrivoltaics project in Fukuchiyama](#).
² Project Symphony is an innovative project in Western Australia where DERs will be orchestrated as a Virtual Power Plant to support the future energy market.



New Energy Associates Network - NEAN: Fireside Chat on the Intersection of Distributed Energy Resources and Agrivoltaics.

NEAN is a network for New Energy industry professionals from graduate to senior associate level, aimed at building connections and sharing industry knowledge among members. NEAN seeks to foster and grow relationships between industry stakeholders at the earlier stages of their careers.



On 12 August 2024, [Dr. Madeline Taylor](#) sat down for a fireside chat on the intersection of Distributed Energy Resources (**DER**) and agrivoltaics with New Energy experts, Special Counsel [Adriaan van der Merwe](#) and Senior Associate [William Ryan](#).

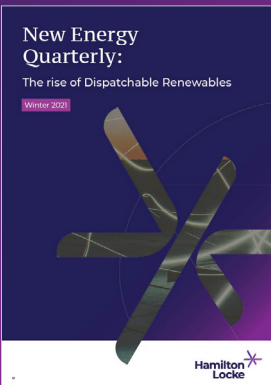
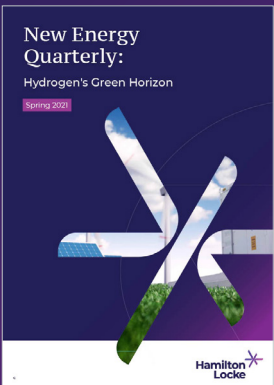
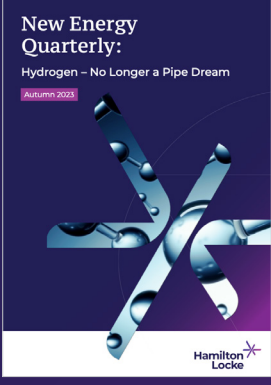
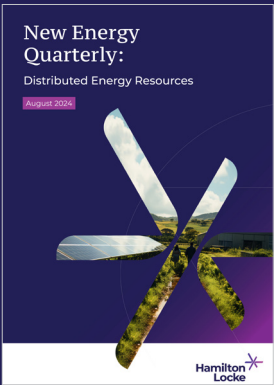
It was great to see so many minds eager to discuss the current state of play in the adoption of agrivoltaics in Australia, the symbiotic relationship between solar and farming, insights from global approaches and the importance of social contract (between landowners, developers and government) for the wide adoption and integration of DER.

While other countries like Japan, Germany, and the US are more progressed with agrivoltaics, Australia still lacks the necessary research and advisory support to drive its adoption. There is also a significant gap in understanding the ecological impact of agrivoltaics in arid environments. [Dr. Madeline Taylor's](#) ongoing research on the 'Australian Agrivoltaics Regulation Model' will play a crucial role in shaping our understanding of what broader adoption of agrivoltaics in Australia could look like.

We asked [Dr. Madeline Taylor](#) what she would like to see the government do to accelerate the adoption of DER. She emphasised the need for the Australian government to introduce an agricultural decarbonisation policy and urged the government to be bold, advocating for a regulatory sandbox to foster and support innovation.

To join NEAN and to stay up to date with upcoming events and industry insights, [join the NEAN LinkedIn group here](#).

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