

Risky business

Policy | Despite several years of incredible momentum in the Australian solar market, energy policy wars raging in Canberra are prompting investors to take pause. What does the election of Prime Minister Scott Morrison – who famously brandished a lump of coal in parliament to show his support – and a federal renewables policy void mean for the industry? Cecilia Keating reports

In early September, Australia's Clean Market Operator announced that the 33TWh large-scale renewable energy target (RET) had been met.

Federal energy and emissions reduction minister Angus Taylor marshalled the milestone to tout Australia's credentials as a world leader in clean energy investment, claiming that "with the RET set to be exceeded, investment is not slowing down".

The figures tell a different story. According to the Clean Energy Council (CEC), clean energy investment in the first half of 2019 dropped to levels not witnessed since the RET was threatened by federal politics in 2015. Average quarterly investment in new generation capacity dropped to 500MW per quarter in 2019, from more than 1,600MW per quarter in 2018.

Despite the peachy economics of solar down under, industry stakeholders say that uncertainty and volatility bred from a lack of federal policy, under-investment in the transmission network and the continued deployment of the marginal loss factor (MLF) pricing regime, is prompting investment to leave Australia.

What's next after the RET?

Despite being a prospective home to some of the world's most ambitious PV and hybrid projects – including a 10GW solar-plus-storage farm in Northern Territory that will shuttle energy to Singapore, a 4GW wind-solar-battery hybrid in New South Wales (NSW) and a 15GW wind and solar hub in West Australia – investment in large-scale renewables projects is waning.

The now-satiated federal renewable energy target (RET) has long been the only federal mechanism incentivising large-scale renewables. Since 2011, renewables generators have been issued with certificates (LGCs) that could be sold and traded to offset development costs. Utilities and other high energy users are required to acquire LGCs by law.



Credit: AGL Energy

Now that the country has collectively installed 33TWh of renewables, high energy users will no longer be bound to purchasing LGCs. Australia, like China and the US, has not committed to a clean energy target, beyond its commitment to the Paris Agreement.

"The challenge for investors though is having long-term confidence in the energy market and particularly the revenue they might receive for it," Kane Thornton, chief executive officer of the CEC explains. "And at the moment, rather than have a policy, particularly one that gives them certainty around the levels of emissions in the energy sector expected or indeed the phase out of coal over time, there's a lot of uncertainty."

The CEC forecasts that investment will continue to sputter without a replacement for the renewable energy target. This could take the shape of a carbon tax, resuscitating the abandoned national energy guarantee, an extended RET, or a clean energy target.

"Investment is not going to fold to zero. We will see projects still go ahead. Australia is a good place to invest, we've got great renewable resources. In the long term,

Policy uncertainty has cast a shadow over Australia's hitherto flourishing solar market, dampening investor interest

people can see that the economics of renewables are strong. But in the short and medium term, it's really hard to predict," he says.

The economics of solar in Australia are indeed robust. A report published in December 2018 by the nation's leading scientific research group, CSIRO and Australia's Energy Market Operator (AEMO) showed that the levelised cost of electricity (LCOE) of solar and wind when paired with

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two to six hours of storage is lower than any other energy resource.

But it's a case of needing certainty and stability, according to Thornton. Investors need to be able to plan around

the retirement timeline of the 14GW of coal-fired generation expected to come offline by 2040.

"We've had a decade of really silly politics on climate and energy policy, it's been problematic and challenging. We've wasted that decade arguing whether climate change is real or not instead of developing a really clear strategy and managing the transition," Thornton says.

Ongoing government investigations into the potential of nuclear power deployment and whether to extend the 2GW Liddell coal plant's life in NSW (potentially using taxpayer money) has sent a clear signal to industry that timelines could be unreliable.

Carlo Frigerio, managing director for developer FRV Australia, says solar investors need "clear and well-coordinated policy at the federal level", adding that a number of FRV's competitors were "becoming more and more concerned about the policy climate".

Madrid-headquartered FRV was "one of the first international solar developers to bet on Australia," he said, and has invested about US\$700 million in the country since 2010. It has two contracted projects under construction and four operational PV projects, including two 100MWac plants in Queensland.

"Our ability to predict the energy markets, and in particular electricity prices, are of course fundamental to our investment decisions," Frigerio says. "Trying to read how energy markets will react to the energy transition, to the replacement of coal with dispatchable generation, and to the development of storage systems, paired with the uncertainty of a non-existent federal policy is making it very difficult for any operator to make those assessments."

Adam Pegg, Australia country manager for Lightsource BP, says that the RET had "done a good job in promoting emerging technologies such as solar" given that the developer now competes on "an energy-only and unsubsidised basis".

"All we ask for now from the government is a level playing field. So, we don't want to see subsidies going towards fossil fuels," he says. "We want to see the government supporting investment into the network. And to make sure that we can make our carbon target that we've committed to under the Paris Agreement."

The British developer has a 1GW pipeline in Australia and recently reached financial close for a 200MW farm in NSW.

It won the project in a tender floated by state utility Snowy Hydro that reportedly attracted rates of between AU\$40/MWh and AU\$50/MWh (US\$27/MWh and US\$33/MWh), according to Renew Economy.

Corporate Australia leading policy makers

Matt Stocks, an energy integration and renewables researcher at the University of Australia (UoA), notes that that the over-subscription of the renewable energy target did not render LGCs valueless.

"The legislation continues; the certificates will still be generated. Developers still get a certificate for every MWh they produce. The challenge now is, what value do they now have?" he said. "It might be that they have value in Australia, either as corporates start to look at them and are willing to step into the climate change space and say, 'I'm doing the right thing,' or there may be other mechanisms working around that."

He notes that ideological wars in Canberra rage independently from a growing public appetite for renewables: "It's a political challenge, not a public acceptance challenge. There is an opportunity if the right combination of things come together for Australia to continue to accelerate ahead. I don't think it's all as doom and gloom."

An Australian Institute survey of nearly 2,000 Australians in mid-2019 showed that 69% of Australians supported government incentives for renewable energy and 76% ranked solar in their top three energy sources.

Corporations in Australia are

increasingly turning to procuring energy to bypass volatile energy markets and to appeal to public sentiment. Energy consultancy Energetics says nearly 4,200MW of clean energy has been supported by corporate PPAs since 2016 in Australia. More than half of total project capacity supported was solar.

In the latter half of 2019, a group of high energy users that included universities and businesses in Melbourne put out a tender for more than 113GWh annually. Mining giant Molycop signed a 100GWh-a-year deal, with Flow Power and Coles Supermarkets signed a 10-year deal with Metka EGN for power from three under-construction solar facilities in New South Wales.

"Corporates are leading the policy makers in terms of procuring clean energy," says Lightsource BP's Pegg. "So, despite the uncertainty in policy, the market is moving in that direction over the medium to longer term anyway. We're just getting on with business and we see overwhelming support from corporate Australia to move in that direction. And they are customers we will be looking to contract with," he said.

Energetics expects total corporate renewables PPAs to reach 1,000MW in 2019, a drop from 1,800MW for the full year of 2018. Associate Anita Stadler says that the slow-down "was not unexpected", with the cost of LGCs falling and the corporate PPA market being more established.

In July – when only 200MW of deals had been clinched – Stadler pinned the dip on the May federal election and changes to AEMO's transmission loss costing regime.

The position of Australia's federal government under prime minister Scott Morrison, right, on renewable energy appears at odds with public appetite



Credit: G20 Argentina, Flickr

State of play

Incentives for renewables now lie on the shoulders Australia's states and territories, and the majority have implemented ambitious climate targets.

The states of Victoria and Queensland are eyeing 50% renewables by 2030; South Australia (SA) and Tasmania's targets are even higher, at 75% and 80% respectively. The Australian Capital Territory (ACT) completed contracts for 100% renewable energy by 2020 in October – the first jurisdiction of more than 100,000 people outside of Europe to do so. Reverse auctions have been held in ACT and Victoria.

According to the Smart Energy Council's (SEC) chief executive John Grimes, the disconnect between state and federal policy comes down to remit.

"When you as a government are responsible for the energy, providing energy, and you take the political heat about the cost of that energy, then everyone gets pretty pragmatic and economics-driven. Which means, they basically support renewables," he says.

"The federal government's a bit more distant from it, and so they're not directly

responsible so they kind of have the luxury of being a bit more ideological rather than pragmatic"

Transmission trouble

Federal policy void is only one part of the reason why investment in Australia is risky. Grid connection and transmission issues, alongside a suite of unpopular reforms proposed by Australia's independent market bodies, are also prompting investors to look elsewhere.

AEMO has acknowledged an urgent need for more spending on transmission infrastructure to ease grid bottlenecks caused by an arsenal of new solar and wind generators.

Leonard Quong, head of Australian research at Bloomberg NEF, estimated in early November that there were currently "more than 50" rule change requests for market and transmission and integration regulation reform.

He says contention between independent government bodies and different industry players over the responsibility and process for reforms coalesces with federal and state policy rifts to breed more volatility and uncertainty for

renewables investors.

FRV's Frigerio notes that connection approval takes twice the amount of time today than it did in the past. "There has been an increasingly conservative approach from AEMO and from the TNSP (transmission network service provider). There's more scrutiny, more reviews and ultimately more costly development delays."

The SEC's Grimes says the government is resorting to an "ostrich-like approach, where you bury your head in the sand, rather than fight realities" to the country's transmission troubles.

"Decisions are not being made about investing in transmission and distribution infrastructure that's going to facilitate new renewables coming online. Instead they come into existing lines that are really crowded," he explains.

Grimes likened the situation to attempting to swap from driving an internal combustion vehicle to an electric vehicle – without stepping out of the car.

"We're going from a fossil fuel-generated, hierarchical, one-directional, inflexible energy system to an integrated, distributed, renewable,

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The image shows a laptop on a wooden desk. The laptop screen displays the Prospect App interface. The interface features a world map with color-coded solar potential heatmaps. To the right of the map, there are several data tables and charts. The top of the screen shows navigation tabs for 'SOLARGIS', 'Project', 'MAP', 'PROJECTS', 'COMPARE', and 'PROJECT DETAIL'. The bottom of the screen shows a keyboard and a mouse. To the left of the laptop is a white vase with dried flowers, and to the right is a white cup of coffee.

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variable energy system. And we're doing it without having a transition plan in place," he says.

"That's actually really, really dumb economically because it means that the transition is not as economically efficient as it ought to be. It's a game that we are playing, and the efficiency and the competitiveness of the Australian economy is what is ultimately at stake."

Ongoing transmission reform proposals, the "Coordination of generation and transmission investment" (COGATI), crafted by the Australian Energy Market Commission (AEMC), have been slammed by the SEC as a "tax on renewables paid to fossil fuels" and an attempt to ration transmission instead of expand it.

Jonathan Upson, director of origination

at Canadian Solar, delivered a scathing verdict of COGATI in a letter to the AEMC, saying that it will lead "to a massive drop in new generator investment. Our confidence is based on our witnessing this decline today caused by just the possibility that COGATI may be implemented (...). Surely, it is self-evident that if anything close to 90% of the stakeholders *who are to be the supposed beneficiaries of a reform* oppose it; it's time to Stop [sic]."

COGATI is a series of rule changes set to come into effect in July 2022 that will create a market for generation hedges and aim to encourage developers to build in locations that are most profitable. State energy ministers rejected the proposals at a meeting in November.

One of the most controversial segments

of COGATI is the marginal loss factor (MLFs) regime, the method used for calculating and charging energy generators for energy transmission and network losses.

Because MLFs are not a tradeable market, developers can't hedge against them, unlike in nodal markets. If a developer establishes a plant in a good location, every rival who follows suit undermines its MLF. MLFs are published each year in the spring and come into force in July.

In a decision in mid-November, AEMC decided to keep the MLF system more or less intact after a rule change request, albeit committing to making the calculation system more transparent.

"Rather than penalising generators located in strong parts of the network, or consumers, the underlying challenge is to better coordinate investment in generation and transmission across the national electricity market so that financial incentives ... are aligned with the physical needs of the system and everyone can benefit," AEMC chair John Pierce explained in a statement.

But investors counter that energy ventures have faced year-on-year MLF rating swings of more than 20%, impacting revenues in unpredictable ways.

That's according to the Clean Energy Investor Group, a coalition that counts Macquarie Group, Innogy, Blackrock and Neoen among its members and represents AU\$1 billion of investment. The group issued a stark warning in September claiming lack of reform will cause private investment to leave Australia, ultimately increasing prices for the consumer.

Frigerio likens the MLFs to a black box. "There is no way to know what a MLF is going to be for the next five years or 10 years and it's becoming more and more complicated for developers and debt providers to form a solid view."

Despite the volatility, Australia's long-term solar future is bright, according to Quong.

"There's a lot of uncertainty, but in terms of how we think that's going to impact the investment or the story in solar and batteries, the story looks reasonably rosy, at least on an economic and fundamental level," he says.

"Solar in Australia is incredibly cheap and it's only going to get cheaper. And even with potentially a reasonable cost placed on those generators to integrate and balance the grid, they'll still remain very economically competitive as a new source of generation."

Australia's goes big on storage

Constraints in the grid mean that storage systems are more attractive than ever for balancing – and Australia has been proven as fertile ground for colossal energy storage systems.

The 129TWh Hornsdale battery system in SA – borne from a AU\$50 million Twitter bet between Tesla's Elon Musk and Australian billionaire Mike Cannon-Brooks – is due to be expanded by Neoen, thanks to an AU\$15 million (US \$10.2 million) from the SA government, up to AU\$50 million from the nation's Clean Energy Finance Corporation and AU\$8 million from the Australian Renewable Energy Agency.

The latter outfit has played an important role in getting grid-scale energy storage projects off the ground, but is earmarked for retirement in 2021.

Batteries can't scale until market design is updated, according to the CEC's Thornton.

"We really don't have defined ancillary services," he explains. "And so even though from a system perspective, we need more energy storage, the sort of market design isn't necessarily there to provide a trust signal for new investors, particularly in energy storage."

"The big question on batteries right now, outside of how far in cost they are going to come down – because we know they will do, it's just at what point in time do they become competitive – it's a question of revenue certainty" says BNEF's Quong.

"People are used to signing long-term offtake agreements for large bulk supply of electricity. There is no option really right now for (battery) services. How does one structure a contract to peak capacity? How does one structure a contract for auxiliary services to balance the market? And even if there were contracts available, who pays for it and what's the price in the long term?" he explains.



Credit: David Clarke, Flickr

Australia is proving to be fertile ground to large storage systems such as the Hornsdale Power Reserve