



NEM Wholesale Market Settings Review

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February 2025

Dear Panel Members,

The Climate Change Authority is pleased to provide a submission for consideration as part of your *NEM Wholesale Market Settings Review Initial Consultation*.

The Authority is a statutory agency established under the *Climate Change Authority Act 2011* to provide independent, evidenced-based advice to the Australian Government on climate change policy.

The Authority helps guide action to transform the Australian economy and protect communities from dangerous climate change, by providing evidence-based advice about what is possible and necessary to:

- accelerate emissions reductions and position Australia as a leader in the global effort to limit temperature increases
- embrace new opportunities and new ways of doing things, to sustain Australia's prosperity as the world transitions to net zero emissions
- prepare for and adapt to the impacts of climate change, which have already begun and will continue to increase.

The Authority is of the view that continuation of a capacity scheme or mechanism is required to deliver these outcomes in the electricity sector. It is unlikely the dispatch price signal, alongside hedging contracts, will deliver the pace of change necessary. The spot market was designed for dispatch in a period of ample capacity, not to stimulate a high volume of interdependent investments in generation, storage and firming.

The form of the mechanism should take account of experience to date with such schemes, and should be reviewed and amended as experience is gained. The Authority encourages embedding it in legislation, to support investor certainty.

We trust you find this submission helpful. Our representatives would be happy to discuss the key insights from this submission further.

Regards,

A handwritten signature in black ink, appearing to read 'Brad Archer'.

Brad Archer
Chief Executive Officer

The NEM wholesale market review comes at a critical time in the decarbonisation of Australia's electricity systems

Rapid decarbonisation and expansion of the electricity and energy sector is the key to meeting Australia's economy-wide emissions reduction targets. Over recent years, the Australian Government has made important progress in its policy support for the roll-out of renewables in Australia.

The Authority considers that the government needs to pursue additional policy measures to ensure its 82% renewable electricity target is met. In the National Electricity Market (NEM) alone an additional 33 GW of utility-scale variable renewables needs to be installed by 2030 to achieve the target (CCA, 2024a). The Authority understands that investments to greatly boost security and reliability services that complement renewables will also be needed, ahead of the coal closures on which an 82% target is predicated.

The work of the expert panel comes at a critical time. Australia needs its markets, systems and policy settings to all be driving towards delivering renewable electricity that is reliable, secure and affordable. Rapid deployment of renewables, and accompanying firming and network infrastructure, will in turn support the achievement of Australia's 2030 emissions reduction target, as well as setting Australia up for achieving an ambitious 2035 target.

The Authority is preparing further advice on speeding up decarbonisation of the electricity system

In its 2024 Annual Progress Report (APR), the Authority made 4 recommendations relating to accelerating the decarbonisation of Australia's electricity systems (CCA, 2024a). In abbreviated form, the Authority recommended the government:

1. Strengthen, broaden, lengthen and embed the Capacity Investment Scheme (CIS)
2. Enable the rapid and large-scale deployment of combined synchronous condenser functionality with back-up generation capability
3. Speed up connection approval processes for large-scale generators in the NEM, while enhancing the transparency of those processes
4. Make full use of the potential contribution of electricity distribution networks, and commercial and industrial customers' premises, to host renewable electricity.

The Authority also recommended that the government endorse the provision of further advice on these 4 recommendations. The Authority is currently preparing this advice for delivery to government in April this year. This submission to the expert panel foreshadows the Authority's supplementary advice report on the APR recommendations.

The Authority's recommendations have strong links to the expert panel's focus areas of investment incentives; consumer interaction with the wholesale market; changing nature of spot electricity prices; essential system services; and enhancing competition.

In this submission the Authority takes the opportunity to reaffirm and provide further reasoning and evidence for its APR recommendation on strengthening, broadening, lengthening and embedding the CIS. The Authority understands that the time of writing an amendment to legislate the capacity delivered under the CIS has passed both houses of Parliament (Parliament of Australia, 2025). This recommendation has strong links with the expert panel's

topic of investment incentives. The other 3 APR recommendations will be discussed further in the Authority's April report.

Renewables investments face a level of risk that may slow progress and limit Australia's ability to meet renewables, emissions, security and reliability targets

The Terms of Reference of the NEM wholesale market review states that the expert panel will recommend future market settings to promote investment in firmed, renewable generation and storage capacity in the NEM following the conclusion of Capacity Investment Scheme (CIS) tenders in 2027.

The Authority is of the view that continuation of a capacity scheme or mechanism is required to deliver these outcomes in the electricity sector. The Authority's spot market, and the associated market for hedging contracts between generators and retailers, is unlikely to attract sufficient investment in generation, storage and firming with the scale, pace and coherence necessary to meet the reliability, security, price and emissions objectives of NEM governments.

The Authority acknowledges that retailers and gentailers have an incentive to contract new capacity, which arises from impending power station closures and demand growth. However, the Authority has noted numerous external risks to these investments in its *Sector Pathways Review* (2024b) and *2024 Annual Progress Report* (2024a), including:

- the necessity of a large expansion in transmission infrastructure in parallel to generation capacity
- slow or inconsistent approval processes
- supply chain constraints
- lack of social licence for new energy infrastructure
- workforce shortages
- uncertainties on closures of existing assets
- risks that the system is not ready for high shares of renewable generation through replacing systems services traditionally supplied by spinning generators.

It is also likely that the extensive and interdependent contracts needed for NEM participants to mobilise those developments will be complex, commercially risky and transactionally costly. The NEM itself was established during a period where capacity was dominated by existing coal-powered generation, to have a centrally coordinated 'spot market' match generation and consumption (AER, 2011). The intent of this 'dispatch' signal to meet demand in real time makes it unlikely to be best suited to stimulating investment in new capacity, especially at the rate required to meet current and future emissions reduction targets. This creates a risk that the overall investment program will be insufficient and inefficient.

The risk to achievement of emissions and renewables targets is also a product of the absence of an obligation on the market to meet those targets, which makes the targets aspirational and voluntary. Some market-driven investments in variable renewable energy (VRE), storage and firming are likely to occur, because the costs of wind and solar are low enough to make specific developments attractive to their investors—particularly where governments are the investors, so are acting under incentives that are not only commercial but are also influenced by governments' highly diversified revenue streams. However, the absence of a dedicated, long-term signal for both private and public investment remains a core shortcoming.

Investment incentives: a capacity scheme or mechanism must continue beyond 2027

As mentioned, some investments will likely proceed without subsidy or underwriting, and this should be encouraged. The government does not need to assume that all investments require support, and can encourage market-driven investment that is aligned with key targets. However, a mechanism to selectively allocate support will ensure that the investment program as a whole is timely and coherent, and can help ensure that security, reliability, efficiency and abatement targets are met.

There may be no perfect way to stimulate an efficient and sufficiently rapid investment program, making some form of central support a pragmatic option. This central allocation of support can be done through contracts which are most likely to endure across changes of policy and government, and appropriately share the risks that major developments face.

In this context, the Authority concludes that there is a need for a mechanism in addition to the market reforms, and that an evolving capacity mechanism based initially on the CIS is the best option to increase market confidence and accelerate investment in firmed renewables. The Authority reaffirms its first recommendation from the APR—the CIS should be enhanced by:

- substantially accelerating and broadening the scheme to:
 - close the gap to the 82% renewable electricity target
 - make an ambitious 2035 abatement target achievable, consistent with Australia's international obligations, and support the clean energy transition required across the economy for Australia to achieve net zero by 2050
- embedding the scheme in legislation as the Authority suggested in the Sector Pathways Review and, subject to the outcomes of the post-2030 future market design review commissioned by energy ministers, either extending and where necessary amending the scheme beyond 2030 to increase confidence that subsequent emission reduction targets will be met
- prioritising projects that do not require extensions of the shared transmission network, in particular combined solar and battery projects.

The CIS appears to have been well accepted by the market, noting the oversubscription of completed tender rounds (DCCEEW, 2024). However, experience is currently limited, noting only two rounds have announced outcomes at the time of writing (DCCEEW, 2025). Regardless of the selected mechanism, the Authority notes the benefits of certainty for investment confidence, which has led to the Authority's recommendation to embed a CIS-like mechanism in legislation. This recommendation does not mean the government should legislate the scheme immutably in its current form. The terms of support can evolve as lessons are learned and circumstances change, including the targets that the scheme is meant to deliver. The government can build the flexibility to make those changes into the legislation of the scheme.

One argument against this approach may be that the wholesale contract market will lose liquidity as governments become the counterparty to many generation and storage developments. Another is that for government to plan and drive the transition requires it to 'pick winners', resulting in a loss of efficiency. The concern about contract market liquidity has been addressed by features of the scheme which are designed to encourage market contracting. If needed, other measures could be considered such as including market conduct obligations in

underwriting contracts, to mitigate retailers' risks. The risk of 'picking losers' in the cause of picking winners is mitigated by a competitive and rules-based process for allocating support contracts.

The Authority prefers the CIS over other options for accelerating investment

The Authority has previously noted that states are taking decisions in the short-term to negotiate longer closure dates for coal stations due to their assessments that services provided by these assets remain needed for secure grid operations (CCA, 2024b). Stakeholders have reported that interventions to extend the life of coal assets risks creating policy uncertainty and distortion of the investment climate for renewables (CCA, 2024b). With the planned end of the CIS in 2027, this uncertainty may remain in the late 2020s and beyond, while emissions reductions from the exit of coal capacity remains necessary to deliver future economy wide emissions reduction targets. This uncertainty, alongside the abovementioned risk that the system is not prepared for higher shares of renewables, could interrupt an orderly and secure transition to a decarbonised electricity system.

Another mechanism which has been used to drive VRE investment are certificate schemes, including the Renewable Energy Target. The Authority has previously assessed the RET has been effective in reducing emissions at a reasonable cost in the sector (CCA, 2014), and notably the large-scale generation target of the scheme was met in 2021 (CER, 2024b). However, the rate of change this scheme delivered is relatively much lower than what would be required to deliver on the government's target of 82% renewable energy by 2030, and the further reductions in electricity sector emissions likely needed to support an ambitious 2035 target. Australia's achievement of the large-scale renewable energy target coincided with Australia generating 27% of electricity from renewable sources (DCCEE, 2022), around 55 percentage points lower than the 2030 target. The Authority notes a certificate scheme is suited in principle to delivering investment, but is untested at the rates required.

Another drawback of certificate schemes arises from the risks that developers face from other possible actions of governments, agencies and other market participants. Stakeholders have raised concerns that approval processes remain a barrier to the pace of infrastructure deployment, and are subject to variability between jurisdictions, inconsistent processes, lack of transparency on decision-making and timeframes, and poor coordination between agencies (CCA, 2024b). Individual VRE projects are typically growing in size (CCA analysis based on CER (2024a) and CER (2025)) and increasingly depend on major upgrades or extensions of the shared transmission network to become operable (AEMO, 2024). Changes in scheme targets can alter investment cases that reflect government policy so would be difficult to hedge in the market. A certificate scheme is unlikely to tackle these issues that require accountability and action from governments.

This unprecedented transformation of the power system must be well coordinated to minimise underutilisation of interdependent assets (network extensions, VRE and new electricity-intensive loads in particular) and to ensure that generator exits occur at optimal times. Frequency and voltage stability must be maintained as multiple investments proceed. Early, and coordinated, whole-of-Commonwealth, procurement strategies will also likely be needed to manage the risk of global competition for the supply of key components and materials needed in the energy transition. While schemes that emphasise benefits-sharing with local communities can help to ensure social licence is gained from communities that will host new

energy infrastructure (CCA, 2024b), Governments are best placed to coordinate their design and lead their funding, however the commercial risks these issues create are borne by the market under a certificate scheme. This may help explain a shift in preference to contracted support with risk sharing provisions.

The interdependence of investment and need for coordination and coherence of supporting infrastructure, supply-chains, approvals, and social licence, mean that a centrally planned and administered capacity contracting mechanism will likely be the most efficient option. A centralised power to integrate and direct investment in a coherent and coordinated system is comparable to the NEM market for dispatch, which is cleared by AEMO as the central operator. This is unlikely to be provided by a certificate scheme, an emissions trading scheme, or any approach that requires a coherent electricity system rebuild to emerge from the market activities of numerous competing participants.

This is not to imply that the private sector and competition have no role in the creation of a new system. The private sector is best equipped to shoulder the task of developing, financing, building and operating most of the many new assets required. Not only does the scale and pace of the task mean government may not have sufficient capacity, a benefit of engaging the market in planning as well as delivery is the opportunity for more innovation than would be possible with a top-down, traditional centrally-planned transition.

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