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Department of Climate Change, Energy, the Environment and Water

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CEC submission to DCCEEW review of the Safeguard Mechanism

Summary

The Clean Energy Council (CEC) is the peak body for the clean energy industry in Australia, representing nearly 1,000 leading businesses across renewable energy, energy storage, and renewable hydrogen. We are committed to accelerating Australia's transition to a clean energy future as rapidly as possible while maintaining a secure and reliable electricity supply for customers.

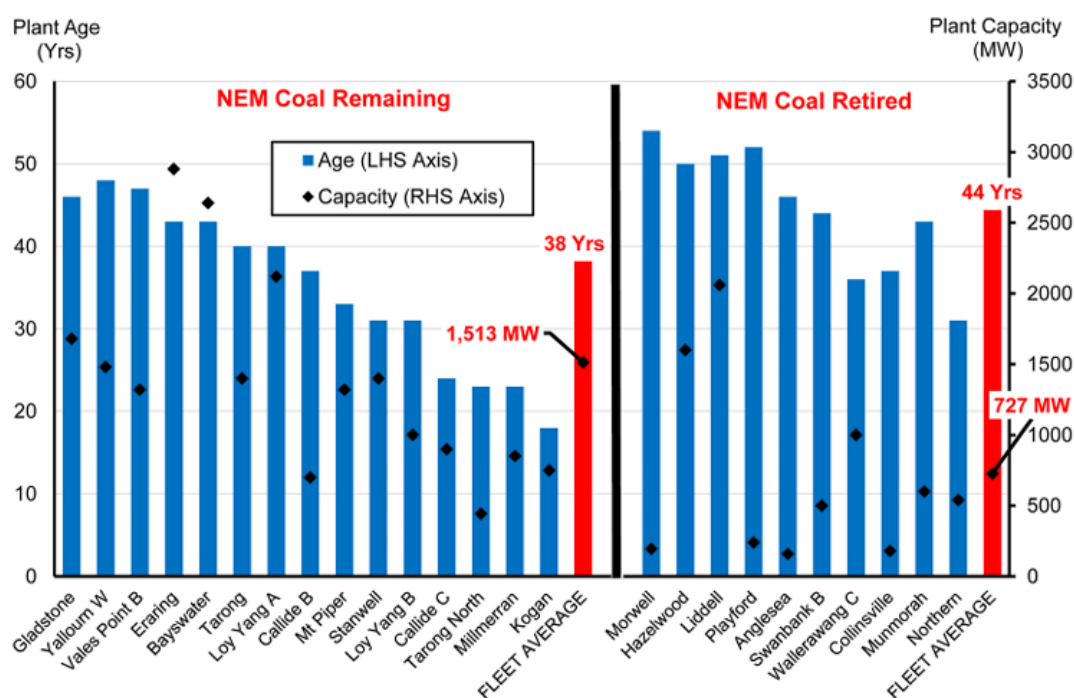
The CEC welcomes the opportunity to provide feedback to the DCCEEW as part of its review of the Safeguard Mechanism. As we outline below:

- Australia's remaining NEM coal fleet is old, inflexible and increasingly exposed to age-related outage and closure risk
- Firmed renewables are the least-cost replacement pathway, as demonstrated repeatedly in AEMO's Integrated System Plans (ISP) and CSIRO's GenCost reports, as a reliable and affordable alternative to existing baseload power arrangements
- Repeated extension of coal closure dates has weakened investment signals for replacement capacity, and risks creating a vicious cycle in which extensions dampen investment which then leads to further extensions
- The Safeguard Mechanism already applies predictable, declining facility baselines to large industrial facilities, but grid-connected electricity remains under a non-binding sectoral baseline. Extending a baseline-and-credit architecture to electricity could create both entry signals for firmed renewables and exit signals for ageing coal, supporting an orderly transition at least-cost for consumers
- Such a mechanism would complement the operation of the ESEM, which provides entry signals for bulk energy, shaping and firming but does not provide explicit exit signals for coal

1. Australia's coal fleet is ageing and needs to be replaced

The NEM's coal fleet is approaching or beyond the design life associated with the original plants. Simshauser and Gilmore report an average age of 38 years for the remaining fleet, against an average retirement age of 44 years for the coal plants already closed. Because individual stations are large, the impact of unexpected outages and closures on the market is material.¹

Figure 1. Approximate age of operating NEM coal power stations and retirement age of closed coal plants, 2026²



Reliability is declining as the fleet ages

Reliability Watch's independent tracker, built on AEMO five-minute availability data, recorded 142 coal outage events across the NEM in the six months to September 2025, including 119 unplanned breakdowns. Coal plants were unavailable an average of 22% of the time over that period — equivalent to about 4.7 GW of capacity absent from the market on any given

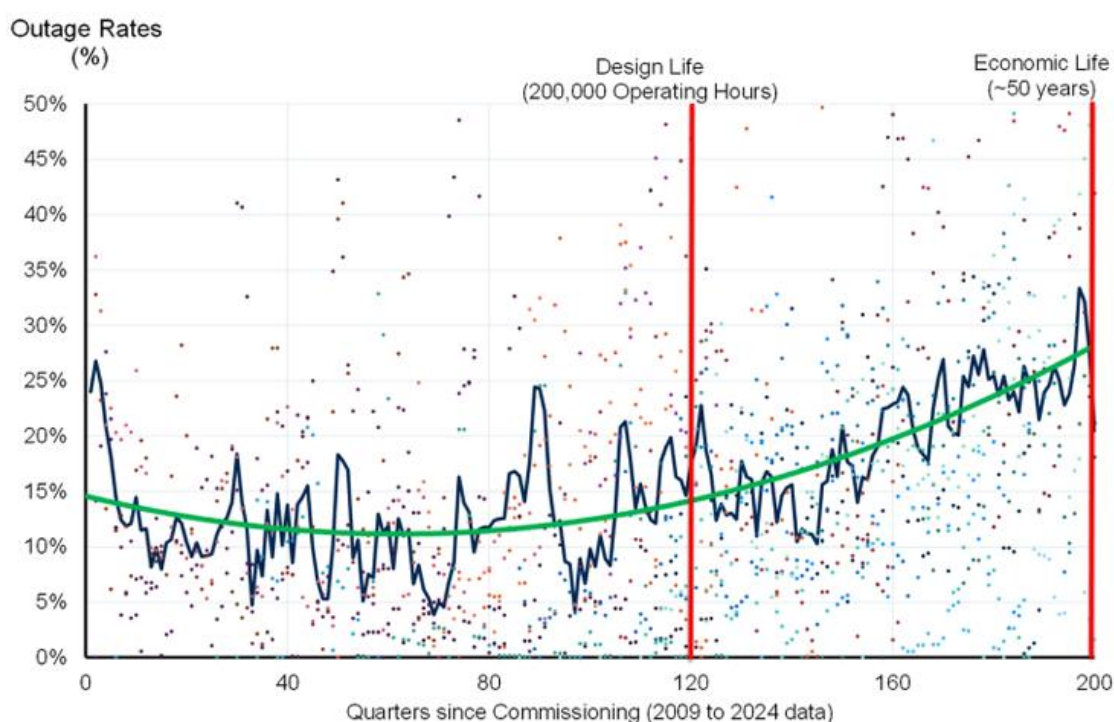
¹ Simshauser, P. and Gilmore, J. (2026), "The counterfactual policy scenario: are renewables cheaper?", Energy Policy 215, 115253, Figure 14 and accompanying text. <https://doi.org/10.1016/j.enpol.2026.115253>

² Simshauser, P. and Gilmore, J. (2026), "The counterfactual policy scenario: are renewables cheaper?"

day. Over half of all outages occurred at just three stations: Gladstone, Bayswater and Yallourn – all among the five oldest coal plants in the NEM.³

Simshauser and Gilmore’s analysis shows a clear long-run relationship between coal unit age and outage rate, rising sharply beyond the 30-year engineering design life and again beyond the 50-year economic life.⁴ A strategy assuming indefinite extension of these ageing plants is not supported by the facts and would lead to decreased reliability and higher costs.

Figure 2. NEM coal plant outage rate by unit age



The risk of sudden, unplanned permanent closure rises sharply with age – the example of Hazelwood

Engie announced Hazelwood’s permanent closure on 3 November 2016, giving just five months’ notice: the plant closed on 31 March 2017. Engie Australia’s CEO stated the 50-year-old station was “the least economical plant to run in the Latrobe Valley” and that continued operation could not be justified given prevailing and forecast market conditions.⁵

³ Reliability Watch (2025), “Six Months of Breakdowns”, 9 December 2025. <https://www.reliabilitywatch.org.au/blog-posts/six-months-of-breakdowns>; see also Vorrath, S. (2025), “Persistent, clustered breakdowns: coal clunkers fail the grid with 119 outages”, RenewEconomy, 9 December 2025. <https://reneweconomy.com.au/persistent-clustered-breakdowns-coal-clunkers-fail-the-grid-with-119-outages/>

⁴ Simshauser, P. and Gilmore, J. (2026), “The counterfactual policy scenario: are renewables cheaper?”

⁵ Engie (2016), “Hazelwood power station in Australia to close at the end of March 2017”, press release, 3 November 2016. <https://en.newsroom.engie.com/assets/hazelwood-power-station-in-australia-to-close-at-the-end-of-march-2017-6fc1->

Hazelwood demonstrates that closure risk is not confined to the electricity market. A parent company’s global decarbonisation strategy, a single reputational or safety incident, or the cost of a looming environmental remediation obligation can each independently trigger a fast, low-notice closure — before any coordinated replacement plan is in place.

The Australian Energy Regulator found that Victoria’s average wholesale spot price in 2017 (the year of Hazelwood’s closure) was 85% higher than in 2016, with price increases also recorded across the other mainland NEM regions. The AER attributed this to the replacement of Hazelwood’s low-cost brown-coal output with higher-cost black coal, gas and hydro generation, compounded by rising fuel prices; Victoria also became a net electricity importer from mid-2017.⁶

As coal output falls unexpectedly, fast-start gas turbines must fill the gap. Gas is valuable as an insurance resource because it can start and ramp quickly, but it carries a materially higher fuel cost and is expected to run at low capacity factors. When it is forced to run more often, the impact on electricity prices is significant, as the Hazelwood example shows.

Coal faces technical limitations that are ill-suited to a renewable-led system

Coal plants are designed for steady, near-continuous operation and are physically constrained in both minimum output (minimum stable level) and how quickly they can move output up or down (ramp rate).⁷

Table 1. Indicative NEM coal fleet technical operating parameters, by technology and age

Technology	Minimum stable level (% of nameplate)	Typical ramp rate (MW/minute)	Implications
Brown coal, sub-critical (VIC)	~45%	~5MW	Highest minimum load and slowest ramping in the fleet; most exposed to negative prices and deep minimum-demand periods; cycling accelerates

314df.html?dl=1; ABC News (2016), “Hazelwood power station: closure of plant to leave hundreds jobless”, 2 November 2016 and “Power station Hazelwood to close”, 7.30, 3 November 2016.

⁶ Australian Energy Regulator (2018), “Wholesale electricity prices higher since Hazelwood exit”, news release. <https://www.aer.gov.au/news/articles/news-releases/wholesale-electricity-prices-higher-hazelwood-exit>; see also Gonçalves, R. and Menezes, F. (2022), “The price impacts of the exit of the Hazelwood coal power plant”, Energy Economics 116, cited in Simshauser and Gilmore (2026).

⁷ AEMO (2025), 2025 Inputs, Assumptions and Scenarios Report and 2025 Inputs and Assumptions Workbook, 28 August 2025. <https://aemo.com.au/energy-systems/major-publications/integrated-system-plan-isp/2026-integrated-system-plan-isp/2025-26-inputs-assumptions-and-scenarios>

Technology	Minimum stable level (% of nameplate)	Typical ramp rate (MW/minute)	Implications
			wear and tear, particularly on older units such as Yallourn.
Black coal, sub-critical (older NSW/QLD units)	~35%	~5MW	Can provide residual energy but poorly matched to frequent two-way ramping; forced outage rates rise faster with age than supercritical units.
Black coal, super-critical (younger NSW/QLD units)	~35%	~5MW	Generally more efficient and more flexible than sub-critical units, but still not designed for the repeated deep cycling required in a high-renewables system.
Gas OCGT (for comparison)	~20%	~20MW	Included for reference: OCGT ramp rates are typically an order of magnitude faster than coal, making it well-suited to play a firming role in the grid.

Indicative values compiled from AEMO's 2025 Inputs, Assumptions and Scenarios Report and workbook.

The practical implication is that coal cannot readily provide the two-way flexibility an increasingly solar- and wind-dominated NEM requires. Brown coal is the most constrained technology, consistent with Victoria's fleet being both the oldest and the most exposed to negative pricing; even the youngest super-critical black coal units remain far less flexible than gas peaking plant, batteries or pumped hydro.

2. Firmed renewables are the cheapest way to replace retiring coal capacity

AEMO's 2026 ISP identifies renewable energy connected by transmission and distribution, firmed with storage and backed by gas, as the least-cost pathway to secure and reliable supply through 2050 as coal retires.

CSIRO's 2025-26 GenCost report reaches the same conclusion: solar PV and onshore wind remain the basis of the least-cost generation mix, with renewables and storage projected to supply 93% of electricity by 2050.⁸

These are not political or ideological positions; they are statements of commercial fact, grounded in technical reality.

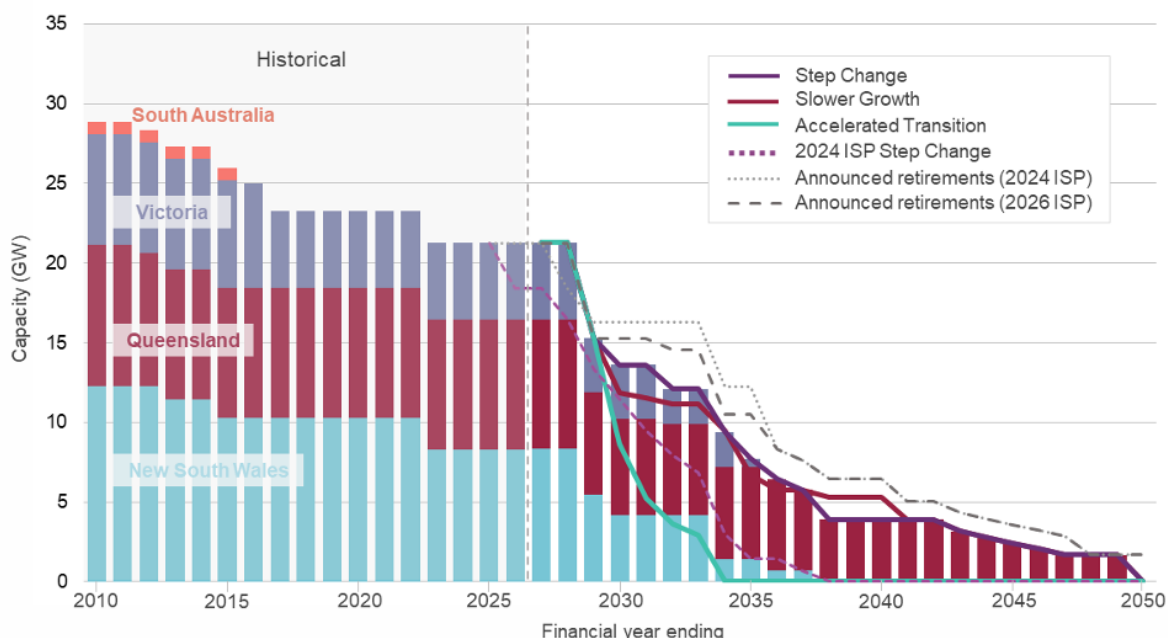
3. Extensions to coal closure dates are undermining investor confidence and delaying investment

Investment is rationally timed against expected scarcity. Replacement capacity built too early can create oversupply and depress energy and contract prices below levels that support investment. But repeated closure extensions create the opposite risk: investors will delay while waiting for a credible exit signal, increasing the chance that replacement is not ready when ageing coal fails or finally closes.

Investors' forecasters are increasingly assuming further coal-life extensions because extensions have occurred historically. As indicated in Figure 4 below, the coal closure trajectory forecast in the 2026 step change scenario of AEMO's Integrated System Plan (ISP) is materially later than the equivalent trajectory from the 2024 ISP. Both are exceeded by the trajectory implied by actual announced closure dates.

⁸ AEMO (2026), Draft 2026 Integrated System Plan, 10 December 2025; CSIRO (2026), GenCost 2025-26 Final Report, 15 July 2026. <https://www.csiro.au/en/news/All/News/2026/July/GenCost-2025-26>

Figure 4. Coal capacity, NEM (GW, 2010 to 2050 financial year ending)⁹



Such delays in coal closure expectations weaken the case to invest now, which can leave insufficient replacement capacity in place and create the policy rationale for further extensions.

A credible closure date improves forward-price discovery, development sequencing and contracting confidence, underpinning investment in the capacity needed to replace the coal.

The policy objective should not be premature closure. It should be to make announced closure dates investable, and to reduce the recurring pattern — visible across multiple ISP planning cycles — of the exit trajectory sliding later each time it is revisited.

4. Leveraging the Safeguard Mechanism to increase certainty on coal closure dates

The Safeguard Mechanism sets legislated, declining emissions baselines for large industrial facilities. Grid-connected electricity is treated differently: a single sectoral baseline of 198 MtCO₂-e (the sector's 2009 peak) is applied and because the sector is already sitting well

⁹ AEMO (2026), 2026 Integrated System Plan, [2026-integrated-system-plan-isp.pdf](#)

below this level, the electricity sector – and all the power plants within it – are effectively excluded from the Safeguard Mechanism.¹⁰

The Grattan Institute has argued that activating the mechanism for electricity is a practical, faster path to constrain electricity sector emissions than designing a new scheme from scratch, since the institutions, registry and compliance architecture already exist.¹¹

The CEC agrees with these points, but proposes a different logic in setting the emissions intensity trajectories electricity facilities would face. Rather than using the mechanism to bring forward coal closure dates, the CEC sees an opportunity to leverage it to reduce uncertainty around those dates, which would materially improve investment conditions, without undue impact to consumer power prices or the commercial strategies of coal asset owners.

Table 3. Proposed policy logic for extending the Safeguard Mechanism to electricity

Step	Details	Outcomes
1	Introduce facility-level obligations for major scheduled and semi-scheduled assets, with appropriate renewable eligibility.	High-emissions generation faces a clear cost of delayed closure; low- and zero-emissions resources are compensated for market impacts incurred due to delayed closure, neutralising coal closure risk in investment decisions.
2	Set facility level intensity trajectories aligned with announced closure dates.	A transparent, predictable pathway becomes visible in forward investment and closure decisions. Investment uncertainty is reduced. By anchoring against announced closure dates, commercial impacts on operators and market impacts for customers are minimised.
3	Allow below-baseline performance to create electricity Safeguard Mechanism Credits	Value is transferred from delayed, emissions-intensive

¹⁰ DCCEEW (2026), Safeguard Mechanism overview and 2026-27 Review consultation paper. <https://www.dcceew.gov.au/climate-change/emissions-reporting/national-greenhouse-energy-reporting-scheme/safeguard-mechanism>

¹¹ Grattan Institute (2025), Bills down, emissions down: a practical path to net-zero electricity. <https://grattan.edu.au/report/bills-down-emissions-down-a-practical-path-to-net-zero-electricity/>

Step	Details	Outcomes
	(SMCs) and require above-baseline facilities to surrender eligible units.	assets toward replacement capacity facing market exposure due to the delayed closure.
4	Coordinate the exit trajectory with announced coal closure dates and align with entry trajectories under the ESEM.	Entry and exit signals become mutually consistent.

Advantages

- Speed: the statute, institutions, registry and compliance architecture of the Safeguard Mechanism already exist.
- Predictability: investors can proceed with greater confidence than ever before that announced closure dates will either be honoured or they will be compensated if they are not.
- Fiscal efficiency: stronger private revenue signals would reduce the amount of government underwriting required under the CIS and ESEM, which will become increasingly material if the current cycle of delayed closures and depressed wholesale investment signals continues unchecked.
- National consistency: a Commonwealth framework can complement, rather than replace, jurisdictional entry trajectories.

Policy implications to manage

- Short-run wholesale price impacts and distributional effects on consumers at time of coal closures need to be kept in mind, noting the alignment with announced closure dates should minimise these impacts
- Interaction with existing ACCU and SMC markets, noting the intention to ring-fence electricity with a new category of SMC to prevent spill-over impacts on other Safeguard Mechanism sectors
- Market-power effects where a small number of thermal generators set prices or supply hedge products, noting the alignment of Safeguard constraints with announced closure dates is intended to provide definitive market signals for replacement generation to be delivered
- Treatment of gas used for firming versus sustained energy generation, noting these assets typically run at low capacity factors and could be treated differently in a framework of facility-specific Safeguard trajectories

5. Interaction with the ESEM and NEM Review implementation

The NEM Wholesale Market Settings Review (NEM Review) recommends establishing an Electricity Services Entry Mechanism (ESEM) to facilitate long-term investment in the NEM, by extending forward signals into the 3-to-30-year investment horizon through standardised, fungible contracts for bulk energy, shaping and firming, procured via periodic reverse auctions and recycled into shorter-tenor products for retailers and large loads.¹²

While the ESEM provides an entry (investment) signal for new capacity, it does not provide an exit signal for coal. An appropriately designed Safeguard Mechanism for electricity would address this by complementing entry trajectories for renewables and storage with an exit signal for coal — adding measurable, material cost to continued operation beyond an agreed trajectory, and thereby increasing investor confidence that announced closure dates will be met.

Without an explicit exit framework, coal may exit only after new entry creates enough oversupply to push wholesale prices below coal's marginal operating costs. While wholesale prices would be lower in this scenario, that simply transfers the task of paying for the oversupplied capacity from the wholesale market to the CIS, LTESA and ESEM, leaving consumers and taxpayers materially worse off.

A calibrated exit signal can reduce the scale and duration of this oversupply, ensuring ageing coal assets remain in the system only as long as the system needs them to do so.

6. Changes recommended to the Safeguard Mechanism

The following design principles are proposed as a starting point for further work, not a settled legal specification. Detailed statutory and regulatory analysis is required against the NGER Act and Safeguard Rules before any of these elements could be fully defined for drafting and implementation.

¹² NEM Wholesale Market Settings Review Panel (2025), Final Report, December 2025, Chapter 5 (Recommendation 10) and Figure 50-53.

Table 5. CEC recommendations regarding the Safeguard Mechanism

Design element	Recommendations	Objectives
Coverage	Replace the non-binding sectoral baseline (of 198m tCO ₂ -e) with facility-level obligations for major scheduled and semi-scheduled generators.	Provide a meaningful exit signal for thermal coal power plants while removing coal closure risk as a barrier to investment in new capacity.
Renewable eligibility	Create a targeted exception to the 100,000 tCO ₂ -e threshold so eligible renewable facilities can participate in the Safeguard Mechanism.	Ensure renewable generation assets are eligible to create and be paid for credits under the scheme.
Baseline form	Use declining emissions-intensity trajectories, aligned with announced coal closure dates and calibrated against the relevant jurisdictional ESEM trajectories.	Ensure the baselines provide a clear signal to avoid further delays in coal closure dates, while preserving reliability and avoiding impacts to reliability or consumer electricity bills.
Electricity SMC class	Create an electricity-specific SMC class.	Ensure exit signals for coal are aligned with investment signals for renewables and make sure electricity sector inclusion in the Safeguard Mechanism doesn't impact its function on other sectors.
Transparency	Develop and publish a joint entry-exit dashboard showing ESEM-contracted services, committed networks, storage, firming, coal availability and expected retirements by jurisdiction.	Provide confidence that entering capacity will arrive in time for coal to close, and confidence that when it does the coal will close.

The review of the Safeguard Mechanism presents one of the most substantial opportunities for a definitive and enduring market signal for new generators seeking to enter the market. This orderly entry of new generation capacity (and orderly exit of retiring thermal assets) is fundamental to maintaining a secure and reliable power system. As outlined above these modifications will interrelate with other policy instruments but can provide the necessary price signal to drive ongoing generation investment.



Given the interrelation with and the release of the Electricity Services Entry Mechanism legislation and regulation, the CEC will seek to provide additional advice to the Department throughout its review process as new information, data and perspectives comes to hand.

The CEC welcomes further engagement to brief and share this information with DCCEEW as it progresses its review of the Safeguard Mechanism. Further queries can be directed to Martin Kennedy at the following email address mkennedy@cleanenergycouncil.org.au.

Kind regards

William Churchill

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