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Productivity Commission

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National Electricity Market wholesale market settings review draft report

Productivity Commission submission

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Publication enquiries:
Phone 03 9653 2244 | Email publications@pc.gov.au

Introduction

The Productivity Commission welcomes the opportunity to comment on the draft report of the review of National Electricity Market (NEM) wholesale market settings.

Reliable, affordable electricity is essential to productivity. Most businesses depend on a reliable supply of electricity to operate. And because electricity is a major input in so many industries, affordable power is key to keeping production costs manageable.

Moreover, achieving Australia's climate goals, and doing so at the lowest possible cost, will require the electricity sector to decarbonise in an efficient way. Not only is electricity a large share of emissions, but a low-carbon grid is key to reducing emissions elsewhere. In transport and heavy industry, for example, many lower-cost abatement options involve electrification.

The NEM review represents an opportunity to make significant progress towards decarbonising electricity and achieving other energy policy objectives, and doing so through enduring and broad-based market settings.

We are supportive of the panel's directions for improving the functioning of the NEM's energy-only market and associated derivative markets. We also support, in principle, the proposal to take a more market-aligned approach to promoting investment.

In the final review report, it will be important that the panel provides further detail on its proposal to create an Electricity Services Entry Mechanism (ESEM), assesses the potential impacts of its proposals on consumers and the market, and elaborates governance arrangements.

The PC agrees with the panel that reforms it proposes need to take place within an integrated approach to climate and energy policy – many elements of which are outside the review's terms of reference. In keeping with this, in this submission we outline approaches that could assist in meeting energy and climate goals at least cost, consistent with our inquiry on *Investing in cheaper cleaner energy and the net zero transformation* (net zero inquiry). We will be undertaking further work on options that would complement the proposals in the review.

Improving the operation of the NEM

We agree that the NEM's core design as an energy-only market should remain – it is better to build on the market's existing structure than redesign it in a more fundamental way. We also agree with the panel's emphasis on the benefits of competition.

In the broad, we support the panel's ideas for improving the functioning of the spot and derivatives markets and minimising costs for consumers. These are important goals: achieving them will help ensure that the NEM efficiently prices energy in the short and medium term. Several of the recommendations in these areas – for example, that energy ministers establish an always-on market making obligation for certain key derivative contracts (recommendation 6A) – appear reasonable.

We note that the panel does not consider the benefits of locational marginal pricing to be large enough to justify implementing it. We agree for now, noting that governments and the Australian Energy Market Commission have recently considered this issue (AEMC 2024; ECMC 2023, p. 2) and implemented a range of measures to make the build-out of networks and generation more efficient, including the creation of Renewable Energy Zones. Given the importance of ensuring that costs are minimised over time, this issue should be monitored, including the potential for locational marginal pricing to contribute to more efficient outcomes.

Boosting investment in firming, shaping and bulk energy

The NEM wholesale market is not creating strong enough signals to invest in the assets needed to maintain reliability and decarbonise the grid.

As the panel emphasised in the draft report, generators and retailers face a range of uncertainties, including around how future government policies will affect revenues. As a result retailers are reluctant to enter into contracts covering projects' later years and generators are unwilling to invest in new capacity.

Moreover, generators, retailers and consumers are not incentivised to account for emissions in their decisions. Absent any policy favouring zero-emissions assets over fossil fuels, the NEM wholesale market is unlikely to induce enough investment in wind, solar and storage to achieve governments' climate goals. As we noted in our net zero inquiry, two major national policies currently incentivise emissions reduction in electricity: the Capacity Investment Scheme and the Renewable Energy Target. But neither will support new investment after 2030 (PC 2025a, p. 12).

The ESEM shows promise as a means of promoting the investment needed in the NEM. In our first submission to this review, we emphasised the importance of enduring, broad-based market settings in the electricity sector (PC 2025b), in contrast to some of the temporary and somewhat ad hoc measures that governments have taken in recent years. The panel's proposed design aligns with this.

- The ESEM would be market-based. Projects would be required to contract in the existing market in their early years. Later-year support would occur via standardised contracts and competitive reverse auctions; financial criteria would be prioritised. This would help minimise the cost of supporting the assets needed.
- The scheme would be enshrined in the National Electricity Law, and so would become a permanent part of the market. This would promote predictability, visibility and transparency for market participants.
- Any ESEM costs (or returns) would be recovered from (or rebated to) consumers, which would reduce the exposure of government balance sheets and provide a more stable source of support.

Given that the ESEM would buy contracts at prices that retailers are currently not willing to pay – and the need to bring on the investment required to decarbonise the NEM – it seems more likely than not that the scheme would lose money on net. This is not a flaw: losses are likely to be correlated with lower wholesale prices, and the impact on NEM consumers will result from the net impact of these; moreover, what matters is that the ESEM's overall benefits outweigh its costs. Energy ministers can and should take measures to ensure that the costs of achieving their reliability and emissions goals are as low as necessary.

ESEM firming auctions should be prioritised to promote reliability

The ESEM appears to be a good solution to the reliability risks facing the NEM. The firming part of the scheme – of most importance for reliability – has several favourable features. It broadly aligns with the design principles for a 'reliability signal' that we outlined in our first submission (PC 2025b, pp. 5–6).

Crucially, the approach to buying contracts would be technology neutral. Firming auctions would be open to any type of asset capable of being reliably dispatched during times of electricity scarcity, including pumped hydro, long-duration storage, gas peaking plants, aggregated small-scale storage and industrial demand response.

It is important that the ESEM be open to gas peakers. Renewables and storage will be able to meet *most* electricity demand after the existing fleet of coal plants retires. But gas will still need to play a role in the medium term as a back-up during periods of unusually low wind and solar output. Even in the Step Change scenario, in which tight carbon constraints are assumed, about 15 gigawatts of gas capacity remain in the NEM in 2049-50 (AEMO 2024). Of course, the NEM's net emissions will need to steadily decline if Australia is to achieve net zero; but this should be addressed through a separate instrument (as discussed below).

Several other features of the ESEM and its development suggest that it would create an effective and efficient reliability signal.

- The scheme would be targeted at firming proponents who cannot currently attain the revenue certainty they need in the NEM derivatives market.
- The establishment of the scheme through changes to the National Electricity Law mean it would likely become a credible part of the policy landscape.
- The panel has tested its proposed design with market participants and will continue to consult within the sector on the ESEM's various elements.

One issue that the panel will need to think about further is how the ESEM would be governed. As discussed below, because the ESEM would hold significant financial positions in the market, it will be important to ensure that strong governance arrangements are in place, and that these are enshrined in legislation.

We consider that the firming aspect of the ESEM should be prioritised for implementation. Existing NEM-wide policies will not be enough to deliver the firming assets needed to ensure reliability. And incumbent coal plants will continue to retire progressively, while a large amount of renewable capacity is due to come online soon and will need to be firmed. If energy ministers accept the panel's proposal, they should prioritise starting firming auctions as soon as possible.

Procurement based on sub-national and technology-specific targets should be phased out

The ESEM would reduce NEM emissions by inducing more investment in wind, solar and storage than would take place without any policy change. Under the scheme, enough zero-emissions generation would be procured to meet governments' renewable energy targets. Proponents would have greater certainty around the sufficiency of projects' later-year revenues, and so would be more likely to invest. If successful, this would drive more capacity into the market, push down wholesale prices and thereby encourage the exit of fossil fuel generators (mostly coal plants, which compete with zero-emissions assets). Reliability and system security objectives, also essential, would be efficiently achieved via other elements of the ESEM.

Nonetheless, there is room to improve the design of the bulk energy and shaping parts of the scheme. Specifically, over time the ESEM should transition to being more nationally consistent and technology-neutral.

Under the panel's proposal, the ESEM would procure in line with the National Electricity Objective, including any Australian, state or territory government targets set out in the Targets Statement.

- It would seek to support as much zero-emissions generation as needed to achieve state and territory renewable capacity and generation targets.
- It would also align with technology-specific targets, like the Victorian Government's objective of 2 gigawatts of offshore wind capacity by 2032 (AEMC 2025, p. 4). Where these technologies require more support than bulk energy and shaping generally, they would be procured through an amended approach, which could plausibly be in the form of separate auctions.

As we argued in the interim report of our net zero inquiry, such targets are likely to raise the cost of achieving a given renewables share in the NEM (PC 2025a, p. 13). And because any ESEM costs would be passed on to consumers, this would raise prices unnecessarily, making consumers worse off and creating a drag on productivity.

We consider that procurement based on sub-national renewables targets should be phased out over time as the ESEM matures. Different jurisdictions have different degrees of comparative advantage in renewable energy. Achieving a NEM-wide renewables target at least cost means locating generators wherever they are

most cost-effective – even if some jurisdictions lag others in their build-out. However, sub-national targets do not necessarily reflect the optimal allocation of zero-emissions generators around the country. If some governments were to aim for more renewable capacity in their jurisdiction than the optimal amount, the ESEM would need to pay higher prices for contracts than necessary.

The effect of running separate auctions for individual technologies would be similar. As an example, the levelised cost of offshore wind is estimated to be about 45–85% higher than that of onshore wind (Graham et al. 2025, p. 96).¹ Proponents in separate offshore wind auctions would likely bid in at higher prices than those in general bulk energy auctions. This too would result in the ESEM achieving energy and emissions outcomes at higher cost.

We understand that the panel's recommendations must align with the National Electricity Objective, including the contents of the Targets Statement. The design of the ESEM, at least initially, would need to reflect this. But if energy ministers' aim is to promote investment while avoiding unnecessary costs for consumers, there is a strong case to transition towards a more nationally consistent and technology-neutral version of the scheme over time.

There may be a case for supporting individual technologies on the basis of innovation spillovers. Subsidies for particular technologies can, in theory, make it possible to reduce emissions more cheaply in the future by contributing to cost reductions. However, as we argued in our net zero inquiry interim report, such support should be provided only if there is strong potential for learning-by-doing spillovers that create benefits exceeding the initial costs (PC 2025a, p. 14). Policy design should also include 'off-ramps': support should either transition into broad based and neutral ESEM procurement of bulk energy, or be discontinued. Given these uncertainties, we consider that ESEM support for the higher costs of individual technologies should be funded fiscally rather than from consumers, in line with how other innovation-related support tends to be funded.

The ESEM's costs and benefits must be rigorously assessed

Measures will also need to be in place to ensure that governments are accountable for delivering a reliable, low-carbon grid at the lowest possible cost.

The costs and benefits of the ESEM should be estimated, both before it is introduced and afterwards. These estimates should be made public, to promote transparency and accountability around the costs of achieving climate and energy policy goals.

The immediate priority is for the review panel to include estimates of the costs, benefits and impacts of their proposal in the final report. An analysis should be conducted or commissioned which compares a future scenario in which the ESEM is in place with a counterfactual scenario in which it is not. These scenarios should show:

- potential financial impacts and costs of the scheme, including the expected value of the ESEM's contractual positions (which would flow on to consumers) and the administrative costs
- wholesale and retail prices with and without the scheme in place
- reliability outcomes with and without the scheme in place
- NEM emissions with and without the scheme in place.

If feasible, the panel should present an estimate of the ESEM's cost effectiveness as an emissions-reduction policy. This should take the form of a dollars per tonne of avoided CO₂ figure. Doing so would enable the

¹ This calculation is based on a comparison of the 'High' and 'Low' estimates of the levelised cost of onshore and offshore wind in 2024 in the latest GenCost report.

scheme to be compared with other emissions-reduction policies and assessed against cost-effectiveness benchmarks such as Infrastructure Australia's target-consistent carbon values. As a general principle, governments should consistently publish cost-effectiveness estimates and compare them with benchmarks, as we recommended in our net zero inquiry interim report (PC 2025a).

Moreover, if and when the ESEM is established, its costs and benefits should be monitored, and estimates thereof should be published periodically. This could be done in the context of regular reviews. Such monitoring would give energy ministers feedback on how the scheme is performing, including on its cost-effectiveness as an emissions-reduction policy. Improvements to the ESEM could then be made – and review timing and phasing could be appropriately balanced against the need for policy certainty.

Strong governance measures are needed

Strong governance arrangements will need to be in place to ensure that the ESEM is an effective steward of the process of procuring and recycling contracts in the NEM. This is especially important given that the value of the potential positions taken by the ESEM could be significant. We note that the panel is 'considering appropriate legislative, regulatory and administrative arrangements to institute the mechanism' (Nelson et al. 2025, p. 170).

The ESEM should:

- have governance arrangements which are based in legislation
- be subject to clear rules around how it manages its balance sheet, engages with the broader market and passes costs and rebates on to consumers
- operate under clear oversight
- be staffed with people with relevant expertise in derivatives markets, market engagement, and balance sheet management.

Complementary policies

As the panel notes, complementary and coordinated policy measures are needed to align with the ESEM. More generally, we consider that additional policies are required to ensure that governments' energy and emissions goals are achieved cost-effectively. Most importantly, additional policies are required to ensure electricity emissions continue to be reduced at lowest cost.

The Australian Government should introduce a separate emissions reduction policy

As noted above, the ESEM will contribute to emissions-reductions given that the quantities procured are linked to national clean energy and emissions goals. Nonetheless, the ESEM on its own is unlikely to be a sufficient and cost-effective emissions-reduction policy.

In the long term, achieving both emissions and reliability goals at least cost will likely require that a small number of gas plants remain in the fuel mix, and that their net emissions decline over time – eventually reaching zero or becoming very low. Any remaining hard-to-avoid firming emissions would need to be offset via the purchase of Australian Carbon Credit Units (ACCUs) or other high-integrity credits.

The implication of this is that governments' suite of policies must together:

1. promote investment in the firming assets needed to maintain reliability
2. ensure that electricity emissions are cost effectively reduced over time.

It does not appear possible to optimise for both these goals through the ESEM. The scheme would be open to gas plants – and it should be, given the technology options currently available to maintain reliability. But once proponents agree ESEM contracts, they would face no incentive to progressively reduce their net emissions. There would also be an insufficient incentive to build zero- and lower-emissions firming assets as technological options develop. Thus, absent a separate emissions-reduction policy, relying on the ESEM alone would risk failing to constrain NEM emissions in the coming decades.

In their draft report, the panel noted that uncertainty about emissions-reduction incentives is affecting the case for investment in gas firming plants. This may reflect an expectation that governments will step in at some point to limit plants' net emissions – after all, as argued above, some such policy will be needed to achieve net zero. The panel recommended that governments 'clarify how their greenhouse gas emissions targets apply to projects procured to provide firming services' (recommendation 9A). Greater certainty would reduce the risk premiums faced by gas proponents and likely make them willing to enter ESEM contracts at lower prices.

A separate emissions-reduction policy should be implemented alongside the ESEM. At a minimum, it should give fossil fuel assets an incentive to reduce emissions and, in the case of residual hard-to-abate emissions, allow them to comply by purchasing ACCUs or similar high-integrity credits. As we argued in our net zero inquiry interim report, the ACCU Scheme, if combined with other emissions-reduction policies, aids the achievement of climate goals at least cost: it allows businesses to abate elsewhere in the economy where it is less costly than doing so on-site (PC 2025a, p. 15).

In our final report, we will consider how governments should incentivise such emissions reduction in electricity.

The panel highlighted some of the approaches that have been taken recently by state governments.

- In New South Wales, any firming infrastructure operators holding a Long-Term Energy Service Agreement must have an annual emissions intensity lower than the state average, and from 1 January 2036 they must achieve net zero emissions via offsets sourced within New South Wales (Nelson et al. 2025, p. 191).
- The WA Government is considering setting an emissions intensity threshold for credit eligibility in its capacity market (Nelson et al. 2025, p. 191).

We will consider these and other options in our inquiry. One issue that will need to be considered is how any new policy should treat incumbent and new fossil-fuelled generators, and how it might interact with other climate and energy policies. The latter include the range of asset-specific measures that currently apply to some incumbent fossil fuel generators.

There is also a case for considering this relatively ad-hoc approach alongside wider options for emissions-reduction policies in the electricity sector. For example, a market-based measure similar to the Safeguard Mechanism could be applied within the electricity sector (PC 2023, 2025a, p. 13). A carefully designed market-based lever in the sector has potential to reduce electricity emissions over time at lowest cost. The other elements of the ESEM would allow any such emissions reduction measures to be implemented in the context of achieving other reliability and energy security goals.

We recognise that instruments in the vein of those above are outside this review's purview. Nonetheless, a broader integration of climate and energy policies must be considered alongside the NEM review; there is a critical need to both reduce emissions at least cost and provide certainty in the sector. In the final report for our net zero inquiry, we will discuss how to reduce electricity emissions cost-effectively after 2030.

The panel's other proposals for developing a broader suite of reforms seem sound

The panel also recommended several other measures to complement the ESEM. We broadly support the panel's proposed directions in these cases.

Several of the recommendations appear reasonable, including tasking the Australian Renewable Energy Agency with accelerating research and development into zero-emissions firming technologies; and phasing out the Retailer Reliability Obligation if and when the ESEM and the Market Making Obligation come online.

We agree with the panel's call to ensure that load, storage and generators are treated consistently at the distribution and transmission levels, to help ensure that generators are optimally located (recommendation 9G). We consider that this should be part of a wider examination into how the efficiency of electricity networks can be improved. Reforms to economic regulation have the potential to reduce costs to consumers and improve the productivity of electricity utilities.

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