Justice and Equity Centre

NEM Wholesale Market Setting Review Initial Consultation

18 February 2025

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About the Justice and Equity Centre

The Justice and Equity Centre is a leading, independent law and policy centre. Established in 1982 as the Public Interest Advocacy Centre (PIAC), we work with people and communities who are marginalised and facing disadvantage.

The Centre tackles injustice and inequality through:

- legal advice and representation, specialising in test cases and strategic casework;
- research, analysis and policy development; and
- advocacy for systems change to deliver social justice.

Energy and Water Justice

Our Energy and Water Justice work improves regulation and policy so all people can access the sustainable, dependable and affordable energy and water they need. We ensure consumer protections improve equity and limit disadvantage and support communities to play a meaningful role in decision-making. We help to accelerate a transition away from fossil fuels that also improves outcomes for people. We work collaboratively with community and consumer groups across the country, and our work receives input from a community-based reference group whose members include:

- Affiliated Residential Park Residents Association NSW;
- Anglicare;
- Combined Pensioners and Superannuants Association of NSW;
- Energy and Water Ombudsman NSW;
- Ethnic Communities Council NSW;
- Financial Counsellors Association of NSW;
- NSW Council of Social Service;
- Physical Disability Council of NSW;
- St Vincent de Paul Society of NSW;
- Salvation Army;
- Tenants Union NSW; and
- The Sydney Alliance.

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The Justice and Equity Centre office is located on the land of the Gadigal of the Eora Nation.

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Recommendations

- ***The existing wholesale market should be replaced with a flexibility market.***

The flexibility market should be designed with the foundational principle that value should stem from the interests of consumers, not the nature or needs of market participants.

- ***A zero-emissions generation benefit should be added to the wholesale market.***

This would be dynamic, but set clearly and transparently ahead of operational timeframes.

- ***The market operator should be given new capacities to control and orchestrate a reserve of storage.***

This would be dispatched on a system-needs basis, not according to the commercial interests of storage providers, and the costs would be socialised.

- ***Ancillary markets should be developed to provide essential system services, such as system security, inertia, black start capacity, and storage services.***

Ancillary markets should be open to third party providers.

- ***The reliability regime should be adjusted to manage the risk that the effective reliability standard is determined not by consumers' preferences***

- ***Consumers should have access to spot markets.***

Third party providers should be allowed to compete for the provision of services. The reserved place of retailers, and the anti-competitive dynamics this produces, should be suspended.

- ***Serious consideration given to moving from a settlement of all market participants at the price bid by the marginal supplier to a receive what you bid system.***

- ***The continued practice of rebidding should be allowed only on the proviso that a clear line between legitimate and illegitimate rebidding is possible, and that these behaviours are in some way visible to the market or a regulator.***

If this is not possible, rebidding should be abandoned, and market participants should instead be allowed to place contingent or structured bids.

- ***The principle that incumbent stakeholders in the energy system should not be made any worse off should be abandoned for the purpose of the Review.***

- ***The Review should be forward-facing***

Transitionary costs should be substantially devalued in considerations.

1. Introduction

The Justice and Equity Centre (JEC) welcomes the opportunity to the Department of Climate Change, Energy, the Environment and Water's (DCCEEW) NEM Wholesale Market Settings Review (the Review).

The JEC supports reforming the National Energy Market (NEM) to ensure market structures efficiently fulfil the needs of the energy system and promotes the interests of consumers without relying on ongoing interventions from national and jurisdictional governments. We understand the central need to be incentivising adequate and efficient investment in renewable generation, firmed with storage and peaking generation, and providing market participants clear and efficient price signals.

In this submission, we argue that neither an energy-only nor a capacity market as commonly described are appropriate or viable for the NEM following the conclusion of the Capacity Investment Scheme (CIS). Neither will provide effective in-market signals to spur the investment in firmed renewable generation and storage to effect the transition, or meet the demands of the NEM in a new post-transition steady state.

We propose a 'flexibility market' as a third-way option.

Our concept of a flexibility market is defined by its recognition of a value for:

- dispatchability – the degree of certainty a market participant to be available when needed, and
- rampability – the speed at which a market participant can move from dispatching to not, and vice versa.

Crucially, it is a market design that seeks to place value on what the energy consumer values (and what promotes their interests), not to derive the market design from the needs or properties of energy suppliers.

A flexibility market would not provide incentives or signals for market participants to achieve everything that is needed of the market. It does not directly discriminate between zero-emission generation and emission-producing generation. Additional measures would be required to address this, either through the implementation of a consistent carbon price, extension of the renewable energy target (RET) or other measures to recognise the differential value of renewable and emissions intensive generation.

Second, the flexibility market does not necessarily differ from an energy market in how it ensures that there is adequate energy during prolonged periods of energy supply shortfall. We propose that the market operator, AEMO, is provided with operational control of a defined proportion of the storage in the energy system. They would have powers to orchestrate the use of this reserve capacity according to the needs of the system rather than the commercial interests of the owners of the storage. It should incorporate mechanisms to ensure the cost is efficient, as these costs would need to be socialised.

We outline these three market design elements – a flexibility market, a zero-emissions generation benefit, and storage orchestration capacities for the market operator – in the first three sections below. In the remaining sections we respond to the other concerns raised in the terms of reference of the Review.

2. Principles for effective system and market design

The terms of reference do not propose any guiding principles for the Review. Nonetheless, we briefly outline here the key principles that underpin our analysis of the options and the proposals detailed in this submission:

- Costs should be allocated to the beneficiaries of a given investment or action.
    - Where there are multiple beneficiaries, the costs should be recovered proportionally to their share of the benefits.
    - Where it is not practical and transparent to identify the beneficiaries and measure the benefits, a causer-pays approach should be used.
    - Cross-subsidies should only be permitted where they are transparent and accepted by informed consumer preferences from the providers of that subsidy, or are immaterially small.

- Risks should be placed with the party best able to manage them.

- Well-designed, efficient market-based solutions are preferable to ongoing market interventions. However, contestability without adequate regulation may not be in consumers' interests. The regulatory framework should aim to foster meaningful competition, rather than contestability for its own sake, and for that competition to centre on outcomes and metrics that consumers value.

- Changes to the wholesale market should be considered with reference to consumer interest, as defined in the National Energy Objectives (NEO). No preference or concession should be given to incumbent market participants unless it can be shown that doing so would be in the long-term interest of consumers.

- Market design should aim to endure into the long term. As a result, potential transitionary costs (and benefits) should be discounted relative to the enduring costs and benefits associated with the new market design.

- Market design must be consumer centric.
    - New markets should be designed around how and what people want to engage in rather than a market that forces certain behaviour from consumers, and
    - A given consumer's level of engagement with the energy market should not have a material impact on their energy outcomes. That is, there should be no penalty for disengagement.

We present these principles as enduring guides capable of being consistently applied to questions under consideration in this process, as well as others not currently under consideration.

3. Why a flexibility market is preferable

This section describes only the flexibility market component of the market design proposal. It must be read in conjunction with the other two elements of the proposal: a premium per MW for zero-emissions generation and a regime of operator control over storage in the system. These will be outlined and discussed in sections 3 and 4, respectively.

We first describe the alternatives and evaluate their shortcomings as the starting point for our assessment that a flexibility market is preferable.

3.1 Market design archetype options

Energy-only markets

In the context of the transition to a low emissions-based energy system an energy-only market is increasingly unfit for purpose.

In a market shaped by short run marginal cost (SRMC), as an increasing share of supply comes from variable generation with an SRMC close to zero, the financial proposition of firmed or peaking generation with a positive SRMC becomes increasingly worse. That is, each new additional unit of inflexible zero-SRMC generation increases the threat to resource adequacy. This threat can be framed in relation to peaking or daily variability; both are important, and the outcome is the same.

In the particular case of the NEM, which is an energy-only market with an open access regime, there is a further problem that there is no mechanism to ensure that market-settling investment levels provide resource adequacy. Generation projects face congestion and curtailment risks and storage projects face a dynamic where each new unit reduces market volatility and so profit-making opportunity for all. Neither of these concerns are unique or an expression of market failure – all investments face the risk of competition. However, it is notable that in the case of an energy-only market, two of the legs of the energy trilemma – comprised of low cost, adequate reliability, and emission reduction – are in structural opposition to one another. This is not the case for other market design archetypes.

These increasingly apparent shortcomings of the energy-only market necessitate more and more market interventions. In the case of the NEM, the sheer number of Commonwealth and jurisdictional market interventions is evidence the existing settings are not adequate.

The key question is: are the shortcomings of the NEM fundamental outcomes of an energy-only market design, or are they due to design elements that sit above this, such as the continued use of regional reference pricing, dispatch price setting by the marginal generator, and open access?

The JEC's position is that an energy-only market produces fundamental tensions between the different legs of the energy trilemma. There is no set of second-order market design choices that will resolve this, and a decision to retain an energy-only market amounts to a decision to retain a

constant and perpetual need for inefficient and disruptive interventions into the energy market. We contend consumers would be better served by a more effective market design that did not require ongoing ad-hoc intervention.

Capacity markets

A capacity market rewards market participants not only on the basis of the energy they dispatch to the market, but the (firm) capacity they add to the market. While resolving some of the issues of the energy-only market, a capacity market suffers from a number of flaws.

First, and crucially in relation to their promotion of the consumer interest, they provide weak short term price signals. This gives generators little incentive to drive down costs. It also increases the risk of collective over-or under-investment in different types of capacity due to a reliance on projections and expectations regarding prospective peak demand.

Historically driving down costs in the NEM has predominantly involved driving down SRMC. This has been due to the characteristics of the dominant legacy coal and gas generation having high SRMCs and low capital costs (because they are legacy assets, often either fully or materially depreciated). In a market where most generation has close to zero SRMC, the value of driving down SRMC is substantially reduced, and it has been argued[1] that there will be a movement to considering long run marginal costs (LRMC) over SRMC. This is an important consideration. However, the JEC considers that as gas peakers, are expected to remain as a critical feature of the NEM into the long term (to some degree), the aim of incentivising and driving down SRMC remains a pertinent ambition for market design from the perspective of consumers.

Secondly, capacity markets create a revenue stream for incumbent generators impacting the strength of the market incentive for new investment. New income flows for incumbent generators, including coal generators, increases the incentive for them to stay in the market longer than they otherwise would have reducing the investment proposition for new generation.

The third issue with capacity markets results from the fact renewable generation is often more concordant than other forms of generation. In broad terms there is often a substantive alignment in the generation capacity of solar farms or wind farms in the same regions, with a higher likelihood that (absent firming) they will experience limitations on capacity at the same time.. As the proportion of renewable generation in the NEM increases, there is a risk that consumers will pay for capacity only to find that this capacity is not dispatchable at times of market stress.

Finally, it is not clear that capacity markets provide adequate scope to manage the likely sources of peak events in the NEM in the coming years. While public commentary has focused on the possibility of long periods of low wind and solar generation (*dunkelflaute*), energy experts tend towards the view that inopportune outages from ageing coal generators stand as the most pertinent threats to energy supply adequacy. This issue recedes over time as the coal fleet retires, however the crossover period from the end of the CIS and the retirement of the coal fleet is not small.

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[1] Castalia, (2025) ‘Critical role of market design in enabling affordable and reliable energy transition’, p. 17.

Capacity without dispatchability or flexibility is a liability. Consumers are not well-placed to manage the risks associated with the potential for inadequate dispatch or flexibility.

In the JEC's consideration, it is not possible to design a capacity market that adequately protects consumers from the risks of overpaying for capacity and/or paying for capacity and suffering supply inadequacy nonetheless. The only way to do this would be to place responsibility for availability on generators, and this would degrade the investment proposition to the point that supply adequacy would be threatened. We consider that the capacity market is an overly convoluted design that focuses on a generator-centric metric at the expense of the metric that consumers value, which is dispatchability and flexibility. Given that dispatchability and flexibility are the key parameters, we consider it more effective for the market design to focus on efficient incentives to deliver them.

Flexibility markets

Flexibility is not the same as capacity. Capacity without fast, on demand ramping (up and/or down) is of little value in a market increasingly dominated by variable energy sources, and should be priced accordingly. Reliability, as distinct from being a service in itself, is an essential characteristic of any flexible energy service.

A flexibility market starts with the proposition that value is determined by consumers, and that the market design should be based on the metrics relevant to consumer interest: dispatchability and rampability. It can be positioned as a third way option to energy-only and capacity markets, in that it retains wholesale spot markets, but provides additional incentives for generators that provide dispatchability and fast up- and down-ramping.

Under the current arrangements, non-scheduled and scheduled generators are paid the same spot price, and dispatchable generators of less than 30MW are allowed to remain unscheduled. Signaling an energy-only price to a market where variable sources have no marginal cost, and dispatchability is in short supply, is inefficient. A flexibility market overcomes the shortcomings of an energy only market when most generation comes from zero SRMC generators that are variable and cannot always be dispatched on.

While eligibility of 'flexibility' payments should be extended to any generators providing services when needed, the design of a flexibility market should aim to incentivise new sources to enter the market where they would not have otherwise.

Services provided for flexibility might include:

- fast response, either automated or centrally dispatched,
- fast ramping, up and/or down,
- reserve storage capacity,
- new ancillary services, or
- network support capability.

Much new flexibility would be expected to come from batteries, other energy storage systems, and demand response.

Sources of flexibility within the existing generation fleet include:

- Hydro and gas generators
- Renewable generators with batteries.
- Coal fired power stations with batteries. Without batteries, coal fired generation is not able to ramp up and down fast enough to participate in a market for flexibility and may actually increase the need for flexibility in the market. However, with a large battery (at least of similar power output to one of its coal units), an existing coal fired power station could conceivably participate in a flexibility market.

A two-tiered flexibility market

The simplest formulation of a flexibility market is the two-tiered variant. In this approach, the current scheduling and settlement arrangements are modified such that generators are classified and incentivised based on their ability to be dispatched and ramped up and down.

The new 'flexible' participant category may

- include dispatchable (on and off) sources such as batteries, hydro, some gas generators, and demand response
- include non-flexible generators adequately firmed with batteries
- apply to single or aggregated units totaling 5MW and above and be dispatched by AEMO on a 5-minute basis, and
- have the current Market Price Cap arrangements applied.

The new 'non-flexible' participant category may:

- include generators that can't be centrally dispatched on and off as needed, such as coal, solar and wind (without batteries) and smaller generators,
- not be dispatched by AEMO, although some obligations and 'semi-scheduling' arrangements may apply in the interest of good behaviour and grid stability, and
- be subject to a lower price cap, that would apply uniformly to all generators in the category.

In essence, the flexibility market is composed of two energy wholesale markets setting prices reflecting the different value market participants offer consumers.

3.2 A zero-emission generation benefit

The flexibility market is agnostic to the aim of incentivising zero or low emission generation. In order to add this component, an additional incentive must be added to reward zero emission generation or otherwise recognise the differential value to consumers of emissions intensive and renewable generation.

This would be most efficiently and effectively achieved through the implementation of a transparent and consistent carbon price. However, it could also be done by extending the existing Renewable Energy Target (RET).

Both of these solutions are external to the market settings themselves. Alternatively, the desired incentive for renewable generation could be internalized through the spot market by ensuring a

differential in price between zero emissions generation and other generation, paid on a per MW basis.

3.3 Management of network storage

While a flexibility market offers an efficient pricing of 'normal' market dynamics, it may not be sufficient to efficiently price longer storage needs.

In an energy market dominated by variable generation and energy storage state of charge influenced by diurnal and seasonal factors, high price events will be increasingly harder to predict on the basis of high demand and low generation alone. With this uncertainty, the type of peaking plant required to meet very occasional peaks is an increasingly risky investment in an energy-only or even flexibility market.

To ameliorate this, we propose the market operator be given responsibility to require a reserve state of charge (SoC) of storage in the network. Contributing a portion of SoC to be available would be a condition of license for registered storage providers, and storage providers would be compensated for the opportunity cost of using this capacity.

Alternatively, ancillary markets for reserve SoC to be controlled by the operator could be produced, formed according to the different value propositions that batteries offer. Questions of what providers are allowed to participate in these markets – for example whether gas peakers can partake in storage ancillary markets – should be guided by the principles of the National Energy Objectives.

4. Wider participation in the wholesale market

The most efficient operation and outcomes in the wholesale energy market will require measures to ensure participation from a wider range of potential actors. This is particularly important in relation to the efficient utilisation of load and demand, and better integration of aggregated demand response.

The current market structures provide a significant benefit to legacy market participants, particularly established retailers and gen-tailers. Over-reliance on these participants is hampering the optimum integration of demand response in the wholesale market and has undermined scope for household consumers to participate and benefit.

'Access' to the wholesale market (and the benefits to consumers this enables) should not be dependent on retailers, particularly in cases where the efficient provision of these services may be counter to the financial interests of retailers themselves, as is the case with demand response opportunities.

Consumers should not pay a cost for not interacting directly with wholesale markets beyond the premiums paid for value-adding services, such as the management of risk and volatility.

5. Changing nature of the spot market

5.1 Rebidding

Rebidding can be an element of a well-functioning spot market. However, in the existing NEM wholesale market we argue it is difficult, if not functionally impossible, to distinguish 'legitimate' rebidding behavior from market manipulation. An inability to distinguish legitimate from illegitimate behaviour is a characteristic of a non-functioning market and failed market design. There must be confidence that any rebidding allowed in the post-CIS spot-market enables a clear line between legitimate and illegitimate rebidding to be drawn, and that these behaviours are in some way visible to the market or a regulator (and able to be enforced).

If it is not possible to do this, we propose disallowing rebidding altogether, and instead offering market participants the ability to place contingent bids.

5.2 Bidding and prices

We recommend this process seriously assess market reforms transitioning away from a market where participants receive a price determined by the bid of the marginal generator in a given dispatch.

We encourage a detailed assessment of the benefits of a market which assigns participants the price they actually bid for each unit of energy dispatched.

6. Essential System Services

It may be appropriate for an ancillary service market for system security services, such as inertia, black start capability, security provision, and 'deep' storage to be developed. The synchronous generators that provided inertia 'for free' will exit the market. Other generators will enter not automatically being able to provide it, and often increasing demand for it.

New markets to address these issues should be designed on a foundational principle that the beneficiaries of these services pay for their cost.

They should be designed to promote competition to the greatest extent possible, meaning that they should be open to third party providers and not favour incumbent or monopoly providers.

They should be designed to be adaptable, both in the sense that the need for these services may not increase indefinitely (and could conceivably fall in the future) and in the sense that the distribution of benefits of the services may change over time.

The below example demonstrates how adaptable settings could be put into practice.

2030 Scenario

The beneficiaries of inertia services in 2030 may include:

- Groups of asynchronous generators such as wind turbines (particularly older model wind turbines).

- Individual synchronous thermal generators with units of sufficient size to impact system frequency when they cut out unexpectedly (these are also the generators that have traditionally provided inertia under normal operating conditions).

- Some electronic generators that are particularly sensitive to the rate or magnitude of changes in frequency (these generators may also provide limited inertia or artificial inertia).

- Individual large energy users that have:

    - Loads, particularly motors, of sufficient size to affect system frequency when they are turned on, turned off or cut out
    - Equipment that is particularly sensitive to the rate or magnitude of changes in frequency

- Mass-market energy users.

In this case costs could be recovered most effectively via energy market pool fees levied on all market participants.

2040 Scenario

A plausible later scenario is that in 2040 the grid will be characterised by smarter electronics on both the supply and mass-market demand side, including a high level of DER, and two or three remaining large thermal generators.

Under this later scenario, the main beneficiaries of inertia services – as in, those whose presence imposes a need for inertia to be provided in the market – may be:

- The remaining synchronous thermal generators that are of sufficient size to impact system frequency when they cut out unexpectedly. These may also be providing inertia under normal operating conditions.

- Individual large energy users that have:

    - Loads, particularly motors, of sufficient size to effect system frequency when they are turned on, turned off or cut out
    - Equipment that is particularly sensitive to the rate or magnitude of changes in frequency

Under this 2040 scenario, recovering costs from benefitting generators and large users with ‘causer pays’ payments would be more efficient and fairer than socialising the cost of an inertia market across all consumers.

7. Other matters

7.1 Reliability

The terms of reference specifically identify the RRO as a point of interest. The JEC has argued against the continuation of the RRO in its current form on the grounds that it is ineffective and in conjunction with other reliability instruments contributes to consumers paying more for reliability than they would prefer.

We take the position here that the reliability regime currently operates on a ratchet basis, meaning that reliability-enhancing mechanisms are only ever added to the regulatory framework and never removed. In a new market design, this dynamic should be addressed. The reliability regime should be designed and adjusted in toto, and care should be taken that marginal adjustments do not weaken the overall impact, efficiency and accuracy of reliability settings.

7.2 Mode of reform

Considering the National Electricity Objective, when developing or changing the energy market the impact on business should be examined through the lens of how impacts flow through to consumers, particularly with respect to the costs of supply and the risks associated with the investment and recovery of those costs.

Often a ‘no-loser’ principle is applied in the transition to the new market, either expressly or implicitly, so that existing participants are protected from, or compensated for, future costs or loss of revenue. This also plays out through some ‘grandfathering’ arrangements.

At worst, this results in windfall gains to business such that the ‘size of the pie’, or overall cost of the new market, grows larger than that which it replaced, defeating the purpose of reform.

There will be ‘losers’ in any major energy reform. If incumbent businesses are protected from losses, the losers will be consumers (and potentially taxpayers). If, all else being equal, reform was implemented that did not lead to efficiency gains that lower the ultimate cost of energy supply, it would be a failure in the promotion of the long-term interest of consumers.

Second, while there will be transitionary costs to major wholesale market reform, as the intention is to design a new market that will be stable in its essential architecture into the long term, the transitionary costs should be substantially devalued in considerations.

8. Continued engagement

We welcome the opportunity to meet with other stakeholders to discuss these issues in more depth. Please contact Michael Lynch at mlynch@jec.org.au regarding any further follow up.