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Independent Expert Panel, NEM Wholesale Market Settings Review

Submitted via email: NEMreview@dcceew.gov.au

17 February 2024

NEM Wholesale Market Settings Review Initial Consultation

AGL Energy (AGL) welcomes the opportunity to make a submission in response to the independent expert panel's initial consultation on the review of market settings in the National Electricity Market to follow the Capacity Investment Scheme.

Proudly Australian since 1837, AGL delivers around 4.5 million gas, electricity, and telecommunications services to our residential, small, and large business, and wholesale customers across Australia. AGL operates the largest electricity generation portfolio in Australia of any ASX-listed company, with a total operated generation capacity of almost 8000 MW across Australia. AGL is Australia's largest privately-owned hydro power station operator and operates the largest portfolio of renewables and storage assets of any ASX listed company. Since 2006, AGL has invested billions of dollars in the construction and delivery of over 2 GW of renewable and firming capacity in the National Electricity Market (NEM).

Supporting the transition to a modern and productive energy system

AGL supports the purpose and focus of the review to recommend wholesale market settings to promote investment in firmed renewable generation and storage following the conclusion of the Capacity Investment Scheme (CIS) tenders in 2027.

The transformation and reinvigoration of the energy sector is one of the key challenges and opportunities facing Australia in this century. By setting optimal policy to facilitate efficient investment in new energy infrastructure, a modernised energy sector can support a more productive and secure Australian economy, with lower emissions. Central to this vision is ensuring the wholesale market settings provide the right incentives for innovation and investment into the Australian energy sector, to deliver the best outcomes for customers.

AGL's strategy and purpose are strongly aligned with these objectives. We support Australia's ambition of net zero by 2050 and believe this will underpin the competitiveness of the Australian economy. As the global community responds to the risks of climate change, AGL recognises the part that we must play in the transition to a low carbon economy. Our 2022 Climate Transition Action Plan (CTAP) outlines AGL's ambition for decarbonisation and our commitments. We are:

- Transforming our energy portfolio and have publicly committed targets to invest in ~12 GW of new renewable and firming capacity, and close our coal generation, by the end of FY35.
- Connecting our customers to the sustainable future, driving adoption of consumer energy resources (CER) and electrification. We have 1.25GW of distributed assets under orchestration, now with targets to achieve 3 GW by 2030.

Building on the strengths of today's market

We recognise that there are many challenges for today's energy markets, and that the solutions to improve Australia's energy system remain highly contested. The pace at which Australia must address the imperative to

reduce emissions remains disputed, there is an increasing focus on energy affordability within an environment of broader cost of living concerns, and there are concerns with the future operational security of the grid. However, with clear policy action, we believe these challenges can be overcome.

The investments required to secure the future of Australia's energy system are capital intensive and have long lead times. Stable and predictable policy is essential to support timely investment, reduce costs, and drive innovation and productivity in Australia's markets. We see significant scope for this review to leverage the learnings from previous reviews to recommend pragmatic, implementable reforms to improve the market and investment environment, and deliver greater policy stability going forward.

The NEM is a national market. Reforms that are embraced by all participating jurisdictions and embedded within the national energy laws and governance arrangements are preferable to build on existing success, maximise market efficiency, and enable policy stability.

In this submission, we elaborate some key principles for reform that will address challenges and deliver the outcomes that are required to drive Australia towards a more affordable, cleaner, and more productive future energy system.

Practical examples of reforms that align with these principles are included in the appendix to this submission.

KEY PRINCIPLES FOR REFORM

1. **Evolution rather than revolution is needed to build on the success of the NEM, address challenges, and create a reliable, low-cost renewable system.**
2. **Continue to leverage spot market price volatility to deliver operational security, drive investment in a long-term optimal generation mix (including the accelerated uptake of CER), and foster innovation in wholesale contracting and retail product offerings.**
3. **Competition, efficient markets and customer choice are critical to deliver the transition and provide affordable, reliable, clean energy that meets customers' needs.**
4. **New thinking is required for electricity market design in a high renewable system. The transition is exposing critical 'missing markets' to value long duration storage and firm generation and essential system services.**
5. **Fundamental market design principles remain critical to the purpose of driving long-term investment and delivering operational efficiency.**

1. Evolution rather than revolution is needed to build on the success of the NEM, address challenges and create a reliable, low-cost renewable system

The NEM wholesale and retail markets are strong and competitive and provide a strong foundation to build upon. Consistently, reviews into the NEM highlight these strengths,[1] and other global energy markets have considered the qualities of the NEM in contrast to their own electricity market structures.

Since its inception in 1998, the operation of the NEM has proved remarkably resilient to a range of political, economic, and structural challenges, ensuring that customers have received more than 99.998% of their electricity supply requirements over a period of several decades.[2] The NEM has enabled world leading uptake and integration of solar (both grid scale and rooftop), onshore wind and storage. It has facilitated a robust and competitive retail market, with innovation in products and services.

Across a period of significant political division on energy, particularly in relation to the role of renewables in the grid, the NEM has adjusted to a range of diverse political interventions, evolved with the addition of new markets for services, and a continually improved framework for planning, connection, and ongoing market operations (See Figure 1). This provides strong evidence for the underlying structure of the NEM—an energy only gross pool market with security constrained economic dispatch—to continue to facilitate Australia's energy transition. This is not to downplay the challenges that the current market design will face following the delivery of the CIS and a very high penetration of variable renewable energy resources. However, we consider that to meet these challenges, an evolution in market design building on the existing strengths and success of the NEM is the best path.

The integrated nature of the NEM, which operates across multiple jurisdictions, should also be preserved. Nationally consistent approaches, embedded in the national energy laws and governance arrangements, would be most efficient and stable. However, we recognise that each State has unique needs and elected governments have different policy mandates to fulfill. National market structures should therefore be designed to deliver a range of generation technologies consistent with respective government priorities and be able to address the specific challenges and opportunities in each jurisdiction.

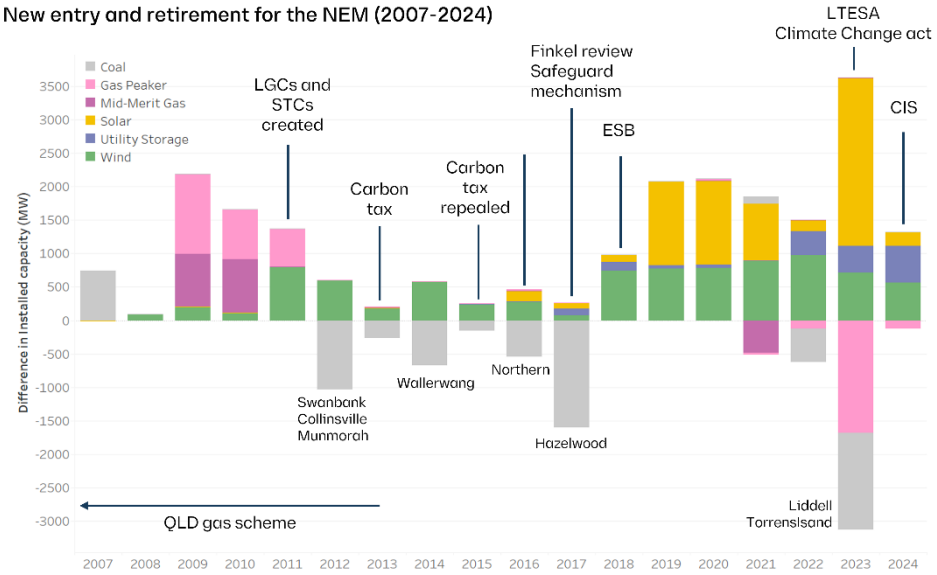

Figure 1: The energy market over the last ten years as seen frequent changes to market settings from both federal and state levels.

The exit of coal plant between 2012-17 has not been matched by sufficient new entrant firming capacity partly due to this uncertainty in the market.

An exception is the significant new entrant gas in Qld through the Qld gas scheme ahead of coal exit.

There has been investment in renewables post-2018 through the LGC mechanism (Source: Endgame Economics for AGL)

[1] See, for example: ACCC, Inquiry into the National Electricity Market report - December 2024; and AER, State of the Energy Market 2024, 7 November 2024

[2] Almost all supply interruptions experienced by customers are a result of network outages, rather than a lack of available generation to meet demand.

2. Continue to leverage spot market price volatility to deliver operational security, drive investment in a long-term optimal generation mix (including the accelerated uptake of CER), and foster innovation in wholesale contracting and retail product offerings.

The existing wholesale market (including the price volatility provided for in its design), has provided a robust market driven basis for balancing supply and demand over short and longer term time horizons. In particular, the potential for short term spot market volatility has provided commercial incentives for a range of generation technologies to operate in the market, assisting reliability and cost objectives. It has also underpinned a strong financial contracting market that has allowed retailers and generators to enter mutually beneficial contracts that efficiently reduce risk for all parties, including generators constructing long lived assets.

Energy markets are inherently volatile, regardless of their structure, because there are real constraints and contingencies that are difficult to forecast, for example: unusual and increasingly extreme weather conditions, changing demand patterns, changes in generator fuel costs as a result of geopolitical issues, lack of water from drought conditions, disasters such as floods and bushfires, and unexpected asset failures. The imperative for energy markets to immediately respond to changing conditions while balancing supply and demand means that these contingencies result in price volatility, including periods of very high prices, and periods of very low or even negative prices (See Figure 2).

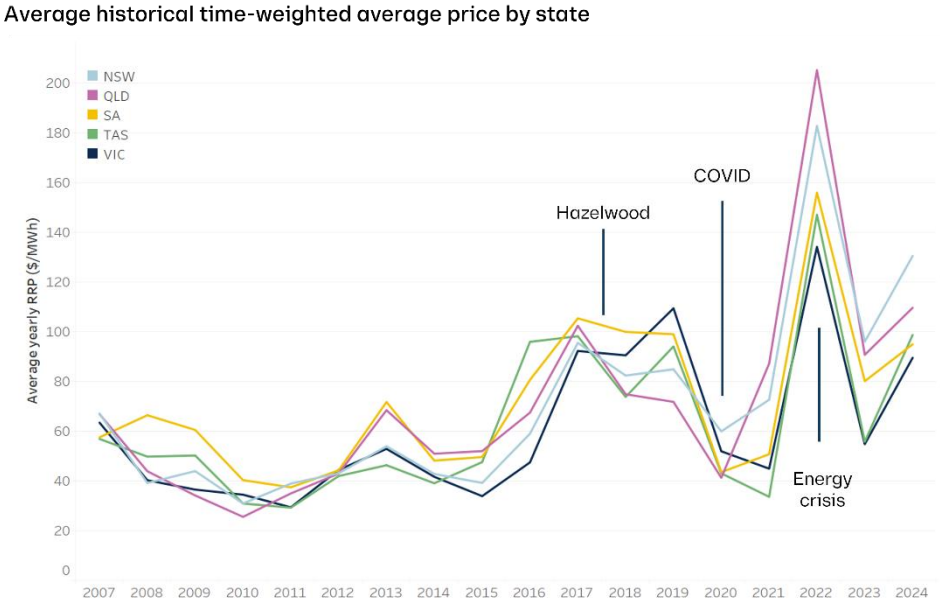

Figure 2: Wholesale prices in general were relatively stable prior to 2021. There have been three major events that have led to swings in prices over the last period:

- The short notice period closure of Hazelwood in 2017
- COVID-19 suppressing energy prices in 2020
- The energy crisis in 2022 resulting in the highest average prices historically seen.

FY24 prices have also increased markedly driven by demand conditions, coal outages, and renewable droughts. (Source: Endgame Economics for AGL)

Price volatility plays an important role both as a clear price signal for driving long-term future investment, and an immediate price signal to facilitate operational grid security and reliability by providing an incentive for generation to be available when needed and facilitating demand response.

The volatility reflects real underlying risks that would be extremely expensive to 'build' out. It is important that the market settings allow these to occur to ensure efficient investment and operational decisions are incentivised—the right investments at the right locations at the right time.

However, customers and market participants need effective tools and products to manage this risk. It is important to ensure that participants have access to effective cover and hedging products through contract markets. Well-functioning contract markets support investors, retailers, and direct customers.

3. Competition, efficient markets and customer choice are critical to deliver the transition and provide affordable, reliable, clean energy that meets customers' needs

Efficient and open markets with well-regulated competition put customer outcomes at the centre of the energy transition. The transition to firmed renewable generation and an increasingly distributed energy system will continue to enhance competition as the number and diversity of participants increases. The structure of the energy-only markets encourages competition, efficiency and equal participation in markets from a range of participants. Efficient price formation in the wholesale energy market provides the underlying foundation for contract pricing and investment in generation and storage.

Retailers and other service providers are also able to leverage wholesale market price signals to develop innovative products and services across all customer segments including to 'prosumers' who are highly engaged with the market and respond to immediate price signals, or provide flat rate offers (such as AGL bill smoothing), where customers pay the same monthly payment across the course of a year. Equally, retailers can also facilitate options for commercial and industrial customers who are more sophisticated and would like to access value from their load-shifting capability by making their assets or loads available for immediate response to wholesale market price signals.

Retailers are well-placed in managing risk on behalf of customers, who are less able to forecast market conditions and guard against wholesale market price exposure. Retailers can offer prices that bundle the long-term wholesale costs of energy along with networks costs and other government charges—retailers can also pass through and facilitate savings from government programs and concessions directly to customers. However, caution in determining future regulated tariffs will be important as the system goes through transition, as fixed methodologies may not be fit for purpose in a changing system and may act as a detriment to competition.

In relation to affordability, competition and close regulation in the provision of products and services creates impetus to minimise costs and maximise productivity. It also expands the range of solutions available to customers, as retailers are customer-facing, have the customer data and insights, and are investing in systems that support the integration of data and CER and are helping customers electrify and decarbonise. Customers can always switch to another retailer at any time who is offering a better service at lower cost.

It is nevertheless important for retailers to be able to recover a fair rate of return for providing energy risk management as well as other beneficial services to customers—this supports a healthy competitive ecosystem with a range of providers innovating, investing, and vying for customers through improved products and services. Well-functioning competitive markets are the best way to achieve optimal outcomes for customers, including across the multiple objectives that have been identified for this review.

4. New thinking is required for electricity market design in a high renewable system. The transition is exposing critical 'missing markets' to value long duration storage and firm generation and essential system services.

In transitioning away from the CIS tenders, a key structural issue is replacing the energy and system service capabilities of existing large thermal generation, in particular coal generation located in Victoria, Queensland, and

NSW. Reform should focus on defining and valuing the services needed to ensure reliable and efficient supply at all times at the right locations. This requires consideration of the reliability standard that drives long-term investment and planning outcomes in the NEM[3], the continuing relevance of the interim reliability measure[4], and system operation, which strives to meet 100% of operational demand.

In the future, most bulk energy will come from variable renewable energy that does not provide capacity on demand. Although in aggregate this generation is forecastable, and its contribution to the NEM is therefore reliable to a degree, it will not meet all demand requirements—firm generation is still required. However, in the future most new firm capacity will come from storage, which is energy constrained.

This combination of variable generation and storage will provide for the cheapest and most efficient delivery of energy for most dispatch intervals across any given timeframe. However, unless VRE and storage are 'overbuilt' (which would have significant cost and potentially timing consequences), some long duration storage and firm generation will need to always be available, even though it may only be run occasionally or in exceptional circumstances. Changing demand patterns will also mean that these periods may be harder to forecast—instead of during peak summer demand, supply shortfalls may occur at periods of historical energy surplus, such as during winter or shoulder seasons, or as a result of system events that are difficult to predict such as extreme weather events.

A focus should therefore be maintained on operation of the real time market throughout the entire year—including resource adequacy, efficient dispatch, reliability, security, and price formation. A well designed and sustainable physical market is critical to inform and deliver efficient investment and contracting to meet consumer demand.

A new firm investment will be critical to build in time to replace aging coal-fired generation, which will progressively close—requiring new sources of firm energy and essential system services. Additional mechanisms for generation investment will be required to complement electricity market signals to support efficient investment, contracting, and dispatch. In particular, substantial investment will be required to ensure that the NEM is able to support the closure of several large coal-fired generators that are scheduled to close after 2028. Accordingly, market settings will need to consider the need for the following:

Long-duration storage and firm generation

A key issue for the panel to consider is improving revenue certainty for long-duration storage and firm generation, when dispatch periods for these generation types may be infrequent and hard to forecast (see Figures 3 and 4). Additional revenues streams are likely required, or changes to the market settings such as the cumulative price threshold (CPT).

Essential system services

Most generation resources in the future will be inverter-based, not spinning machines that naturally provide inertia and other system services as a by-product of generation. Accordingly, it will be critical for the right amount of system services to be forecast, procured, and provided at all times—this includes frequency, inertia, system restart capability, system strength, and voltage control.

Low-emissions generation

To meet government climate policies and to more deeply decarbonise the electricity sector and the broader economy, additional incentives may be required for low-emissions generation. A certificate-based scheme

[3] The NEM Reliability Standard has always been 0.002% unserved energy (USE), meaning that over the long-term the system aims to have sufficient generation available to deliver 99.998% of customer demand. In the short term, however, AEMO strives to balance supply and demand at all times using the full range of resources at their disposal, including load shedding as an absolute last resort.
[4] The Interim Reliability Measure (IRM), currently in place until 30 June 2028, is primarily linked to the Retailer Reliability Obligation (RRO) and otherwise provides no useful role to drive investment.

for low-emissions generation, similar in nature to the current Renewable Energy Target (RET), could be developed that works within the NEM framework but provides an additional revenue stream for renewable generation that also helps reduce overall energy system emissions. This could be based on the government's new Renewable Electricity Guarantee of Origin (REGO) framework. Appropriate frameworks should also be developed to incentivise the uptake and orchestration of CER that can contribute significantly to reducing overall energy sector emissions.

Consumer Energy Resources (CER)

A significant amount of customer demand will be met by CER; small-scale resources that generate or store electricity including flexible loads. A mix of market incentives (such as products that leverage wholesale market prices) and direct supports (such as targeted subsidies for vulnerable customer cohorts) will be required to ensure efficient coordination and integration of these resources in the electricity market, and that customer-facing enterprises have the right signals to invest. As established previously, market mechanisms will be key to fostering innovative solutions and delivering the services required at lowest cost to the consumer, but tariff reform and product innovation (enabling value-stacking) will be equally important to maximising value from CER for customers.

While market design should remain agnostic to various forms of generation, we expect that new firm generation will comprise primarily of long duration storage from batteries or hydro, and firm gas-fired or hydro generation. Other technologies may also play a role, such as other storage technologies (e.g., thermal energy, concentrated solar thermal, flow batteries, etc.).

In our view, gas powered generation (GPG) will be of particular importance to maintain system reliability in a market with high penetration of VRE and should be accommodated in discussions regarding market reform. Although other firm generation technologies may emerge in the future, in most energy market models, GPG is an important technology to support the energy transition by providing additional security and reliability at the overall lowest system cost, in particular to manage renewable droughts that are forecast to occur over winter (see Figure 4).

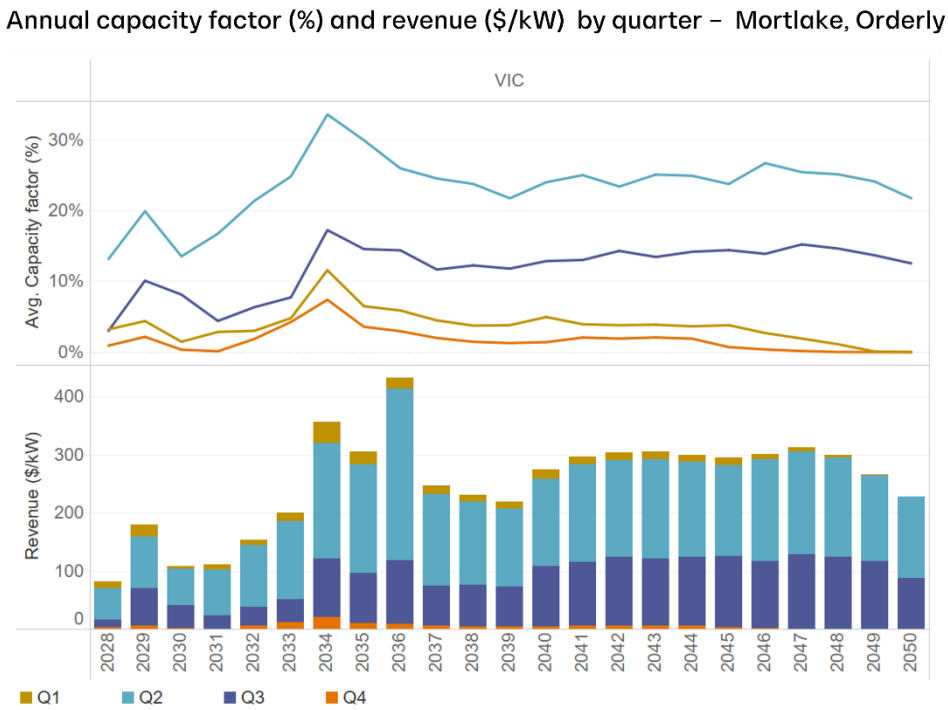

Figure 3: Revenue shifts to winter periods where greatest risk of gas supply gaps materialise.

Over the medium term, OCGTs will transition from a peaking role to operating primarily over winter to manage renewable droughts.

Due to the profile of gas demand, this is exactly the time when gas supply issues may manifest in southern states.

This also has important implications for cost recovery due to the CPT and longer-duration renewable droughts. (Source: Endgame Economics for AGL)

Revenue vs Cost ($/kW) for new entrant OCGT using the Endgames 'Headwinds' scenario

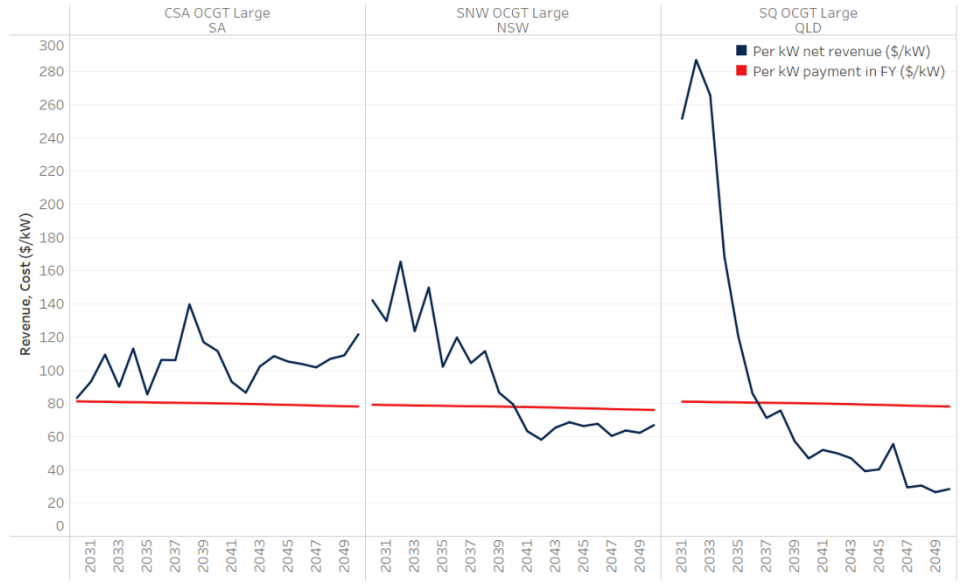

Figure 4: In the long term there are challenges for revenue adequacy in certain scenarios.

The chart across shows net revenue versus amortised costs, including CAPEX recovery.

OCGT in NSW and Qld fail to recover their costs in the late 2030s onwards.

This is largely driven by the cumulative price threshold (CPT) binding over periods where OCGT is expecting to recover its costs (especially during renewable droughts) (Source: Endgame Economics for AGL)

5. Fundamental market design principles remain critical to the purpose of driving long-term investment and delivering operational efficiency

Broadly, we consider that markets remain the best vehicle to deliver the energy transition. While markets need to be structured to deliver the right outcomes, they are best able to leverage supply and demand to deliver efficient prices and minimise the need for costly interventions. Strong wholesale and retail markets, underpinned by stable policy, deliver competition and stimulate private investment, which remains the best way to achieve affordability, reliability, and emissions reduction in the long-term interests of consumers and prosperity of Australia's economy.

Accordingly, the panel should focus on ensuring that all services required in the high renewable, highly distributed system are recognised and valued in the market. Efficient price formation and dispatch for energy, ancillary services and reserves are critical for reliable, efficient supply, and to inform contracting and investment.

Expanding on the terms of reference, it is important the panel's recommendations consider and integrate efficient operation of the NEM in addition to promoting investment. This includes supporting a broad range of technologies and innovative solutions through clear price signals to meet grid requirements.

We look forward to working closely with the panel and providing further information and analysis on relevant topics as required.

Yours sincerely,

Ralph Griffiths

General Manager, Policy and Market Regulation

AGL Energy

Appendix A – Responses to Questions

INVESTMENT INCENTIVES

? How might the NEM wholesale market and derivate markets most efficiently evolve to provide signals for investment in firmed, renewable generation and storage capacity?

? Is there a role for certificated schemes to promote investment in firmed, renewable generation and storage and what might these look like?

? Could the Retailer Reliability Obligation (RRO) play a role to incentivise new investment if it was expanded in the future?

? Could other capacity mechanisms efficiently attract investment in firmed, renewable generation and storage capacity?

? How can markets ensure we have sufficient capacity in place when and where we need it before existing resources retire? How do the market settings preferred by stakeholders provide sufficient confidence to consumers and governments that capacity will be delivered?

? How can the NEM wholesale market and any other markets work in tandem to ensure we have appropriate signals for the right type of resources in place when and where we need it?

? How can these market settings facilitate emissions reduction in line with the National Electricity Objective and Australia's international commitments?

Backing the current market price setting structure

The Reliability Panel should continue to regularly review the reliability standard and the reliability settings to ensure that the market settings remain suitable to drive investment in firm generation.

Discussion and analysis resulting in the market price settings put forward by the Panel in its most recent 2022 Reliability Standard and Settings Review continues to be relevant, in particular the rationale for the increases in the market price cap (MPC), and the progressive expansion of the cumulative price threshold (CPT). We recommend that the Reliability Panel continues to consider the impact of the MPC and CPT on market operation in their next review in 2026 for the 2028-2032 period.

There may be merit in expanding the CPT to allow for greater revenue capture for long duration storage and firm generation, given that one of the key events that the market needs to provide investment signals for is firm generation that will be available for extended durations (e.g. during renewable droughts), during which times the CPT may bind under current market settings.

Supporting investment in critical long duration storage and firm generation

NEM market settings are developed with reference to supporting new entrant investment, which includes OCGT and CCGT, storage, renewables, and demand response. However, market uncertainty and intervention risk are dampening signals for long duration storage and firm generation. Typically, the business case for new generation will incorporate the probability of likely, but infrequent, periods of high prices. These periods provide a significant proportion of the total investment returns of the asset, which results in efficient market outcomes.

Accordingly, market intervention risk is more pronounced for long duration storage and firm generation. Although ideally the market would be able to operate as designed, in order to incentivise the build of generation to cover these scarcity periods, we acknowledge that there is significant uncertainty over the future generation mix, which is impacting on the ability for participants to invest in new projects.

This is creating a 'missing markets' and 'missing money' problem for the energy and services required from long duration storage and firm generation. Missing markets include essential system services such as inertia and reserve capacity. As the NEM's generation fleet transitions, it is increasingly clear that essential system services are not being valued in a way that will allow for their long-term investment. A specific market incentive for long duration dispatchable capacity may provide a more direct signal to address this need relative to adjusting the CPT. For example, NSW and SA have specific mechanisms for dispatchable capacity with a duration exceeding 8 hours.

An efficient market for reserve capacity

One option that could be considered is the development of a dynamic operating reserve market, under which the market operator procures, on a rolling basis in every five-minute dispatch interval, a certain volume of operating reserves with the capability to be dispatched as energy in the dispatch interval 30-minutes ahead.

Certificate schemes or capacity markets could also work if well designed and carefully integrated, but we consider target volumes are very difficult to forecast, and could likely lead to over- or under-procurement. In particular, international capacity markets have had a tendency to over-procure capacity, leading to increased costs for customers.

Capacity markets may also adversely impact price formation, which is critical to support the transition. If a capacity mechanism was implemented, it would be important to consider the impact of any capacity incentive on the operation of the NEM and the appropriate level of the market price settings—a balance that may be difficult to strike.

Contracting and derivatives

We support the consideration of new financial products and steps to facilitate contracting in the energy market, which facilitates investment and reduces risk for market participants. There may be some practical measures that the panel could recommend to facilitate the effectiveness of these markets.

However, while contract and secondary markets should be deep, liquid, and transparent, they should remain voluntary. In our view, reform that imposes mandatory contracting obligations on a participant does not facilitate productive outcomes. It is most critical that the spot market properly reflects the reliability outcomes desired—the derivative market will then follow.

Retailer Reliability Obligation (RRO)

The RRO is an example of mandatory contracting scheme that has not worked to facilitate the new investment necessary for the transition. The RRO has several challenges, including that it is complex and has high administrative and compliance cost. In our view, the RRO has not shown to have promoted investment, given that it is a financial obligation and cannot significantly increase contract prices beyond their underlying value.

We also note the RRO may be structurally short in the future, given the current CIS design for firming generation that reduces participants' ability and incentives to sell eligible contracts. The RRO also contains elements such as the MLO which may no longer be fit for purpose given the shift to new types of firmed renewable generation and expectation of greater number of smaller firm generation units in the future.

On this basis we consider that following consultation the RRO should be removed from the current design of the NEM.

Variable Renewable Generation

To meet government climate policies and to continue efforts to more deeply decarbonise the electricity sector, additional incentives may be required for low-emissions generation following the completion of the CIS.

A certificate-based scheme for low-emissions generation, similar in nature to the Renewable Energy Target (RET), is one we consider could work well within the NEM framework, providing an additional revenue stream for renewable generation that also helps reduce overall energy system emissions. This could be based on the government's new Renewable Electricity Guarantee of Origin (REGO) framework.

CONSUMER INTERACTION WITH THE WHOLESALE MARKET

? What can be done to facilitate better interaction between the demand-side, the spot market and any existing or future financial markets?

? How might the NEM wholesale market best allow for customers to engage in the market to benefit from their investment in CER, while allowing for different consumers to choose how they engage and continuing to recognise electricity is an essential service with associated accessibility issues for many consumers?

Integrating price responsive energy resources and driving the uptake of CER

The NEM mandatory gross pool energy only market design is inherently able to integrate CER with wholesale markets and is critical for the energy transition. NEM price signals can facilitate the uptake of both passive and orchestrated CER and provide a basis for innovation in products and services that can help customers lower energy costs and reduce emissions. Incremental reform and new products will support the creation of new ways to integrate with market (e.g., Voluntary Scheduled Resources and initiatives outlined in the government's CER Roadmap). However, in order to be successful at driving uptake, the design of these incentives must outweigh the costs of participation (i.e., assets and enabling technology) and any technology limitations.

The incentives available to end use consumers may also be relatively small in comparison to total customer costs. Reform in this area must also acknowledge and support the critical role of value stacking to ensure that consumers benefit from the full value of all 'behind the meter' value pools (e.g., solar self-consumption, both network and wholesale benefits). Supportive policy and incentives may also be required to overcome the upfront of costs of CER, particularly for small-scale batteries and EVs.

Retailers currently offer a broad and an innovative suite of product services for customers and are well placed to orchestrate and integrate CER through Virtual Power Plants (VPP) and tariff design. The key enabler to driving uptake and integration of CER is competition. All providers of CER services should compete on an equal footing, and policy should seek to avoid enabling regulatory arbitrage that may undermine consumer protections. In particular this suggests that regulated monopolies should only participate in CER markets on a competitive basis and if adequate ringfencing protections are in place.

Integration with wholesale markets

Customer choice should determine the mode of CER integration with the wholesale market. Mandatory obligations should be limited to the minimum extent absolutely necessary to maintain system security (for example the 'backstop' ability to limit solar to manage minimum demand).

As noted above, retailers are well placed to develop innovative products that allow consumers with CER to benefit from the value that those resources can provide to the market. Accordingly, ensuring that retailers are free to provide those innovative products will assist in harnessing the benefits of CER.

CER can engage directly with spot markets, via spot exposed products, through VPPs and indirectly through choice of simple tariff plans that reflect market dynamics (for example AGL EV night saver and AGL OVO Australia 'three for free' plans).

We support the AEMC's recent decision to ensure small customers retain a single FRMP. Enablement of CER should not undermine the fundamental requirements of an essential service. We also broadly support the recent introduction of the new integrated metering types and the standalone voluntary framework for large customers as it will solidify operations already occurring today.

However, the integration of secondary settlement points for residential customers into AEMO settlement systems is an example of regulatory frameworks creating additional complexity and costs to the market with limited benefit to customers. Regulatory reform should remove barriers to innovation and unlock customer value. Where market-led solutions already exist, regulatory change should not seek to find an alternative solution in parallel given the additional reform costs will result in negligible improvements to what already existed.

CER and network tariff reform

Network tariffs and incentives play a critical role for CER integration. AGL's view is that retail and network tariffs should be simple, actionable, and fair.

- Simple so that customers can understand and engage with the tariff
- Actionable so that a customer (or their agent) can respond effectively to capture the benefits
- Fair so that the tariff is not punitive for a customer who can't respond.

For example, a simple time of use tariff with relatively short peak periods is a tariff structure that can be understood and actioned. It is particularly important that regulated network default tariffs are simple, actionable, and fair, as customers have little or no ability to choose their network tariff. Retailers are responsible for designing customers overall retail tariffs that integrate wholesale, network, and other price signals. However, as the network tariff is generally the largest single component of a customer bill, the impacts of poorly designed network tariffs will result in sub-optimal outcomes for customers.

There is also a need to address information asymmetry when seeking to connect to the network. Currently there is a lack of network data including network conditions and hosting capacity, which need to be addressed to provide a level playing field in CER integration.

Maintaining ring-fencing protections is therefore appropriate to mitigate the risks of reduced competition in the delivery of CER products and services, and to allow for innovation and diversity in the delivery of customer focused solutions.

CHANGING NATURE OF SPOT ELECTRICITY PRICES

? How will prices at different times of the day and year change and evolve with the move towards firmed, renewable energy generation and storage?

? How might the NEM wholesale market and derivative markets allow market participants to most effectively respond to fluctuating prices and manage price risk?

Leveraging price signals to drive investment and innovation

During the transition, spot prices have become more volatile, including periods of negative prices, as a more diverse mix of generation sets the wholesale price at different times.

Volatility is a feature in energy only gross pools that provides strong market signals to ensure efficient dispatch, reliable operation, and inform contracting and investment.

In our view, contract markets will continue to evolve to enable market participants to manage spot risk efficiently. We observe that contract markets in the NEM have supported the development of new products (e.g. the 'Super Peak' swap contract launched in 2020) and different contracting strategies, such as the greater use of option products.

Average prices in bands by region on a calendar year basis, 2000 to 2024

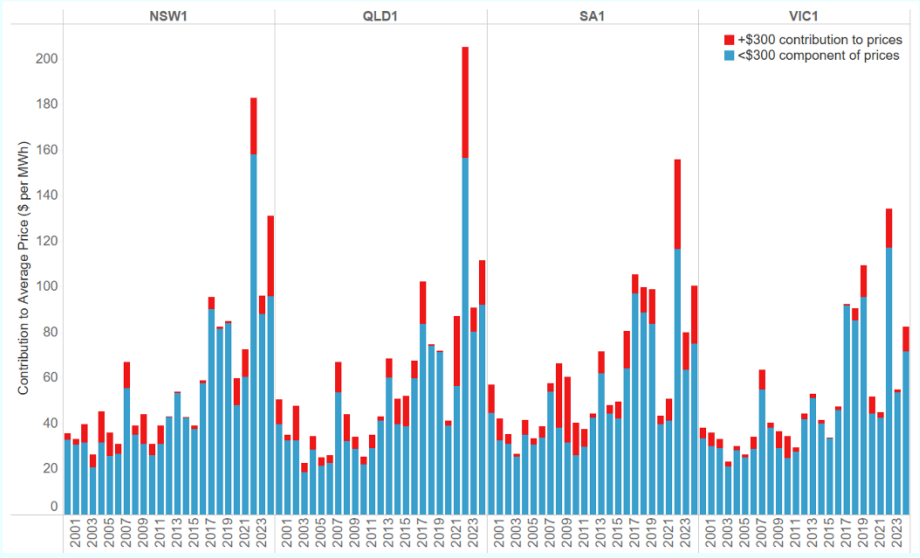

Figure 5: NSW and Qld have recently seen their highest energy prices in history, save for the 2022 energy crisis.

Outcomes in SA have also reached near-record highs, and Vic prices are at their highest level since the period following the closure of Hazelwood.

The 2024 +$300/MWh component of prices is at record levels in NSW and has been at its highest level in around 15 years (save for the 2022 energy crisis) in SA, moderate in Qld, and a little above average in Vic. (Source: Endgame Economics for AGL)

Count of number of intervals where NSW price exceeds $2000 per MWh by quarter, Q1 2005 to Q4 2024

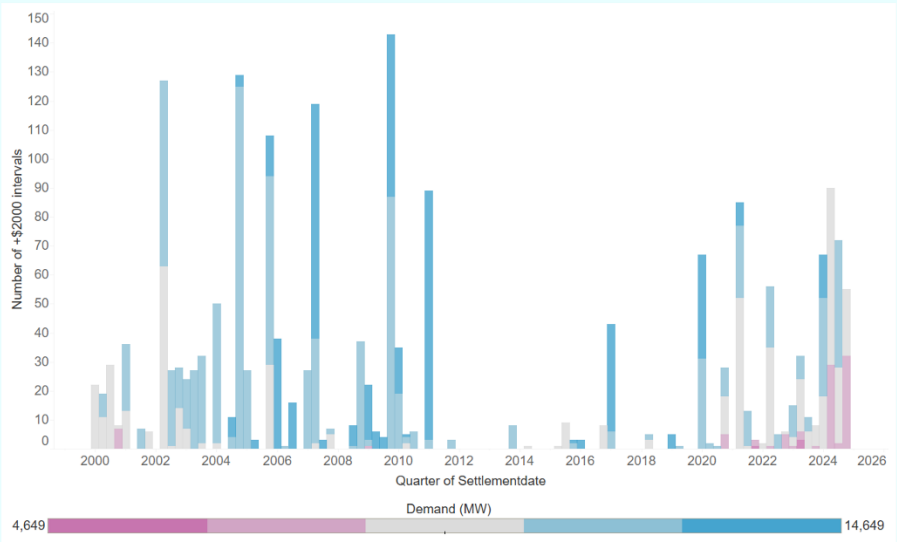

Figure 6: The number of intervals with $2000/MWh wholesale prices has increased since the 2010s.

In recent years, high prices and volatility have increasingly occurred during medium to low-demand conditions due to concurrent outages and sustained low renewable output periods. (Source: Endgame Economics for AGL)

Future wholesale prices will depend heavily on weather and demand traces

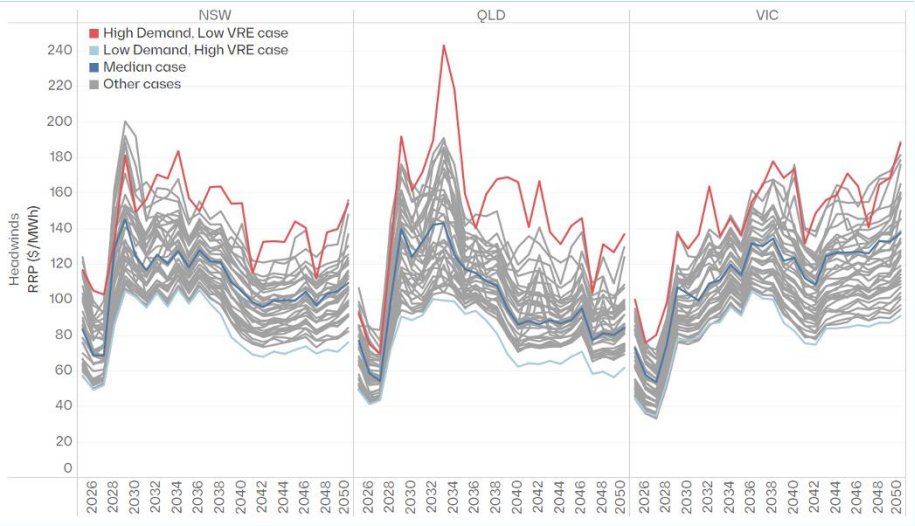

Figure 7: The use of different demand traces will result very different price outcomes for different years. Using 5 different plausible demand traces and 13 different weather reference years results in 65 different demand traces plotted in the chart across.

Prices in the future will be highly volatile in weather and demand conditions, making investment decision making and contracting more complex. (Source: Endgame Economics for AGL)

ESSENTIAL SYSTEM SERVICES

? What new markets and other measures might ensure they are provided?

? Which entities are best placed to determine what is needed, where and when?

? To maintain system security and strength, how can we ensure these services are procured before existing plant retires?

? How can we promote innovation in how these services can be provided at lowest cost?

Markets for system services

A mix of different price formation and payment structures should be tailored to specific services, as they are today.

Some services, like energy, can be priced in real time and paid on dispatch, while others, like contingency services, can be priced in real time and paid for enablement independent of use. Services providing insurance against future events, like system restart capability (SRAS), must be valued and paid in advance to ensure it is present if called upon. New markets for inertia and system strength should be developed, noting these are under current assessment or implementation by the AEMC.

AGL has previously expressed support for dynamic procurement of these services, rather than longer term contracting, to send price signals for both operational and investment timelines. AGL's preferred approach is via stand-alone spot markets built around clearly defined services. A spot market structure would adequately value, procure, and incentivise investments that provide the required services.

AGL considers AEMO to be the appropriate body to define and quantify system needs as a precursor to developing the most efficient markets to procure these system services.

Under the current arrangements for inertia, AEMO determines minimum inertia requirements covering a 10-year period. TNSPs are obligated to meet these requirements. However, while TNSPs can recover costs and achieve economic returns on system service procurement, financial gaps remain for generators and other providers of inertia as there is no compensation framework in place. Existing reliance on last resort interventions by the AEMO to maintain system security has been identified a key area of market reform, and providing the appropriate market signals and revenue streams is a critical step to managing this issue.

By limiting the eligibility of who can participate in a spot market, the market may fail to adequately value the service. If, for example, existing units that currently providing the service are not eligible, these units may leave the market, which would increase the requirement for these services in specific load areas, potentially increasing costs relative to keeping units online. Spot market eligibility should be available to new market entrants and investments so that system service revenue supports generation build ahead of coal closures.

ENHANCING COMPETITION

? How might we harness the larger number of small resources and growing participation to ensure all markets (i.e. spot, forwards, retail etc) are increasingly competitive?

Efficient markets will support competition

The transition to firmed renewable generation and an increasingly distributed energy system will continue to enhance competition as the number and diversity of participants increases.

The recent AER wholesale market and ACCC retail market[5] reports show strong and increasing levels of competition in the NEM retail and wholesale markets, and increasing numbers of participants should continue to ease concerns about competition in wholesale markets.

Efficient and open markets with well-regulated competition put customer outcomes at the centre of the energy transition, as competitive businesses in well-regulated markets have clear incentives to reduce costs and improve productivity, as well as to innovate to provide new products and services for customers. This includes innovation in financing and contracting at a wholesale level, as well as retail innovation for energy users ranging from bespoke solutions for large customers to scaled solutions for smaller customers.

Retail markets and CER

It is important for retailers to be able to recover a fair rate of return for providing energy risk management as well as other beneficial services to customers such as facilitating the uptake of CER—this supports a healthy competitive ecosystem with a range of providers innovating, investing, and vying for customers through improved products and services.

Retailers are well-placed in managing risk on behalf of customers, who are less able to forecast market conditions and guard against wholesale market price exposure. Retailers can offer prices that bundle the long-term wholesale costs of energy along with networks costs and other government charges—retailers can also pass through and facilitate savings from government programs and concessions directly to customers. However, caution in determining future regulated tariffs may be important as the system goes through transition, as fixed methodologies may not be fit for purpose in a changing system and may act as a detriment to competition.

In relation to CER but also other energy-related offers, retailers and other service providers are able to develop innovative products and services across all customer segments including to 'prosumers' who are highly engaged with the market and respond to immediate price signals, or provide flat rate offers (such as AGL bill smoothing), where customers pay the same monthly payment across the course of a year.

Equally, retailers can also facilitate options for commercial and industrial customers who are more sophisticated and would like to access value from their load-shifting capability by making their assets or loads available for immediate response to wholesale market price signals. Retailers can also facilitate the participation of multiple small assets through a portfolio of CER, to act either as a flexible load or as a VPP participating in energy and service markets.

As noted above, maintaining ring-fencing protections is therefore appropriate to mitigate the risks of reduced competition in the delivery of CER products and services, and to allow for innovation and diversity in the delivery of customer focused solutions.

[5] See, for example: ACCC, Inquiry into the National Electricity Market report - December 2024; and AER, State of the Energy Market 2024, 7 November 2024