



28 August 2022

Our Ref: CWF-20220828

Ms Jenness Gardner
Chief Executive Officer
Economic Regulation Authority
Level 4, 469 Wellington Street
PERTH WA 6000

Dear Ms Gardner

RE: TRIENNIAL REVIEW OF THE EFFECTIVENESS OF THE WEM DISCUSSION PAPER

Thank you for the opportunity to comment on the Triennial Review of the Effectiveness of the Wholesale Electricity Market (WEM) Discussion Paper (the Paper). Collgar Wind Farm (Collgar) applauds the Economic Regulation Authority (ERA) for the sensible and pragmatic approach to prepare a forward-looking paper. This analysis is very helpful to guide policy development and government decision-making and is aligned with Collgar's observations of the WEM.

Collgar considers that, while substantial improvements to the WEM have and will continue to be achieved, it is likely that the WEM objectives will not fully met. In particular, Collgar has concerns that there will not be the right settings for economically efficient and reliable supply of electricity, in part due to insufficient incentives to encourage new entry. Consequentially, there is a high risk there will not be sufficient renewable energy generation in the South West Interconnected System (SWIS) in the near and medium term to meet decarbonisation targets, nor will there be sufficient storage and flexible technologies to support the energy transition.

The Australian Energy Market Operator's (AEMO) Electricity Statement of Opportunities 2022 report shows that excess generation is currently very low. Given this, planned scheduled facility retirements coupled with rapid increase in demand will very likely see a shortfall in generation capacity in the WEM. It is critical that right settings are put in place in the near term to enable project development and ensure that the right technologies are available to support system security.

Collgar provides the following specific comments on the lack of incentives for investment.

Investment in storage

Collgar agrees with the ERA's view that there are not appropriate price signals for investment in storage in the WEM. Key contributors to this are outlined below.

Reserve Capacity Mechanism design

The ERA's states that 'participating in the RCM provides investors in thermal generation with reasonable certainty about the recovery of fixed investment and operational costs'. This certainty is

not afforded to storage due to the approach to allocate and price Capacity Credits and rules on when it must be available limiting how a battery can be used and opportunities for innovative commercial arrangements.

The current RCM does not incentivise investment in storage given its design is centred on MW capacity, not capability, and its pricing is based on traditional technologies. The Benchmark Reserve Capacity Price (BRCP) is calculated using a gas turbine as the reference technology, which as shown in Figure 7 in the Paper does not provide sufficient revenue to incentivise storage investment.

Collgar agrees with the ERA's view that EPWA's review of the RCM will in part address the revenue adequacy challenges for storage. In particular, the proposed second limb should provide a price signal for investment in flexible resources and there is consideration of changing the reference technology for the BRCP calculation. Capacity revenue adequacy must be at the forefront of design decisions made through the RCM review.

There is also risk that the time of day or duration the battery must be available changes after investment decisions are made. This could mean that an alternative technology, for example longer storage duration, would have been a preferable investment and there may not be adequate revenue for the existing investment. This creates substantial investment risk in a market where battery revenue streams are already limited due to price caps and a shallow Essential System Services (ESS) market that will likely be dominated by Synergy.

Energy Market

The nature of the real-time energy market, being that it only covers operational costs, has price caps and is heavily contracted, means that it does not provide material opportunity for price arbitrage. This is in contrast to more merchant, energy-only markets, such as the National Electricity Market (NEM), where greater arbitrage opportunities are available. Collgar is not suggesting an energy-only market would be preferable, however is making the observation that a business model based primarily on arbitrage is very unlikely to provide sufficient revenue for a battery in the WEM. Further, the method to allocate Market Fees and some ESS costs mean that a battery is more exposed to these costs if it is charging from the network.

While energy smoothing¹ is touted as a use case for storage, again this is likely to be unattractive in the WEM, at least in the new term. The cost of constructing a storage facility, coupled with requirements on how it must be used, mean that it is unlikely that there would be sufficient return on investment compared to a standalone generation facility.

Essential System Services Markets

The operation of ESS markets and clearing prices are yet to be demonstrated. This creates substantial uncertainty, both in the depth of the market and the value of each service. In addition, administered mechanisms are already being used and given their short lead times these contracts can only be served by incumbent providers.

Collgar agrees with the ERA's view that procuring flexible resources through an administered process such as the Supplementary Essential System Services Mechanism (SESSM) is not

¹ For example, adding storage to an intermittent facility to provide a flat generation profile to support an offtake arrangement. This differs from arbitrage which is opportunistic merchant trading.

optimal and can mute price signals and lead to inefficiencies. Collgar’s preference is that the market is designed such that price signals incentivise investment without the need for administered mechanisms (although there is likely value in maintaining them as a backstop).

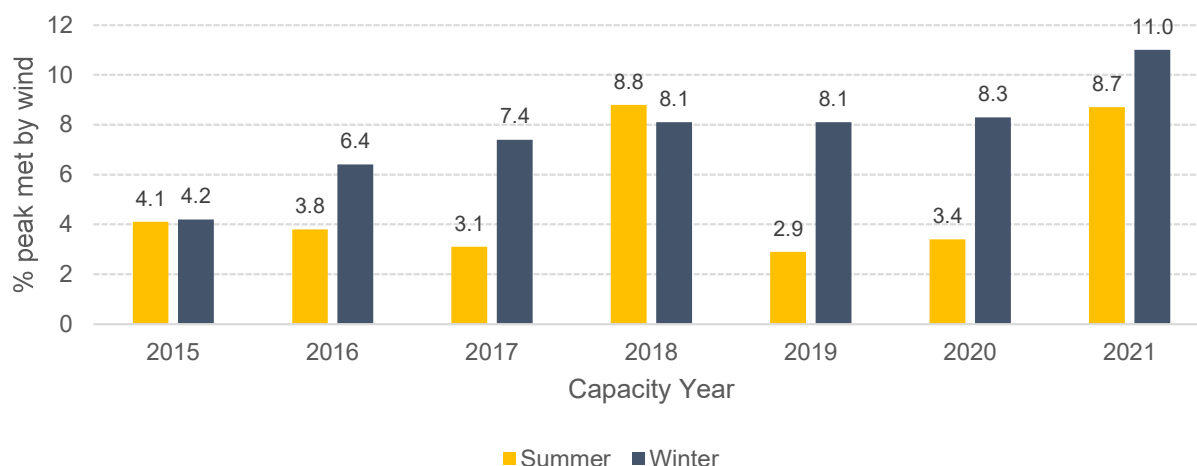
Investment in renewable generation

Investment in renewable energy generation is likely more prospective than storage, in part due to very high demand for renewable energy. However regulatory and infrastructure barriers mean that it is unlikely that sufficient renewable energy generation capacity will be developed in the timelines required to meet decarbonisation targets. Key barriers are outlined below.

Reserve Capacity Mechanism

Collgar challenges the view that intermittent generators do not make a substantial contribution to meeting peak demand. The percentage of peak demand² met by wind facilities has more than doubled in summer and increased 2.6 fold in winter from 2015 to 2021, accounting for 8.7 per cent and 11.0 per cent of peak generation. This trend is set to as scheduled generators retire and more intermittent generation facilities are developed.

Peak demand met by wind facilities



Source: Collgar analysis using AEMO data

The low number of capacity credits allocated to intermittent facilities reflects the widely-acknowledged deficiencies of the Relevant Level Method (RLM). There is widespread agreement the existing method to allocate Certified Reserve Capacity (CRC) to intermittent generators is substantially flawed. Implementing an alternative method that appropriately values the contribution of intermittent resources is necessary to support investment decisions for renewable energy projects. Any delay in the RCM review and implementation of a new RLM will defer investment decisions.

It is also imperative that Network Access Quantities (NAQ) are allocated using a revised CRC allocation method. Allocating NAQ based on the flawed RLM would add to revenue adequacy (and equity) challenges.

² Peaks are taken from the top four days of operational load in each season/year and the top four trading intervals on those days.

Real-time market revenue adequacy

An important principle is that a Market Participant must be able to recover its efficient costs of operating in a real-time market from revenues from that real-time market. This is particularly important for renewable facilities since they are less likely to participate in ESS Markets. Needing to supplement energy revenue with ESS revenue to make a facility 'whole' could leave it without adequate revenue.

The Paper outlines that locational marginal pricing supports efficient investment and electricity purchasing decisions. Collgar agrees with this in theory, however in practice other design elements of the WEM, including regulated retail tariffs, would distort price signals. Reform to retail tariffs so they are cost reflective would be needed to achieve the greatest benefit from locational marginal pricing (both through the energy market and investment price signals).

However, there is opportunity to improve locational price signals and support revenue adequacy through review of approach to calculate loss factors. Loss factors are currently calculated with reference to a single node, to be the load centre of Southern Terminal in Perth's south in the new WEM. This approach may lead to adverse outcomes for individual generators and the market, including not sufficiently rewarding generators for locating close to emerging large load centres on the fringe of the network. It is challenging for generators to make investment decisions given the lack of transparency on how loss factors are calculated and that they can change rapidly and have a material effect on revenue.

Other barriers to project development

In addition to the lack of incentives for investment, there are barriers that impede project development. This adds to the risk that there will not be sufficient generation and storage facilities to meet demand. Collgar recommends the ERA considers these barriers in making its recommendations to the Minister.

Timely network planning and investment

It is critical that the right network is in the right place at the right time to facilitate the transition. This is particularly important as large mining and industrial loads seek to connect in non-metropolitan areas, such as Kalgoorlie. These loads cannot move to areas of the network with more capacity, and it is very foreseeable that the existing network will not have capacity to serve these loads. Material network constraints create substantial investment uncertainty and will delay projects, both generation and those to decarbonise businesses.

Collgar welcomes the State Government's recently announced SWIS demand assessment. This is critical to support timely network planning and investment.

Network connection

There is opportunity to expedite network connection processes given the adoption of a constrained network access framework largely mitigates the need for Western Power to consider its thermal capacity as part of the connection process. Rapid connection will be essential to facilitating project development in the timelines required to meet demand.

Loss factors

Loss factors for many generators are declining. This is expected to continue and could be accentuated by changing energy flows as more load is located on the fringe of the network away from the reference node. It is also unclear what the loss factor for new projects will likely be, adding to investment uncertainty. Greater transparency on how loss factors are calculated and a review to modernise their calculation method so they are fit-for-purpose for the energy transition is required.

Policy environment

There is substantial uncertainty in the broader policy environment, including that government decisions could materially change the dynamics of the WEM. For example, any incentives for household batteries and/or electric vehicle charging could materially change energy demand profiles and commercial arrangements. Further, the proposed renewable hydrogen target, which would effectively lead to existing generators subsidising entry of a competitor, adds to investment risk.

The *Draft Statement of Policy Principles: Penalties for high emissions technologies in the WEM* further adds to investment risk as it proposes to retrospectively change the RCM which undermines the investment certainty the RCM is designed to provide. Collgar strongly supports incentives for investment, however questions whether penalising existing high carbon emitting generators is the best policy response to achieve this (Collgar's submission on the Principles is in Attachment 1). Collgar suggests that a market design that provides adequate revenue and addressing the barriers outlined above will be more beneficial to support project development.

Implications for stakeholders

The lack of incentives for, and barriers to, investment in storage and renewables present challenges not only for project developers, but also for businesses, government and AEMO.

- Businesses will not be able to procure the renewable energy needed to meet their decarbonisation targets. This includes interim targets between commencing in 2025.
- AEMO will not have the technologies (e.g. storage, fast ramping) available to it to effectively manage the system, including managing low load and system stability and responding to rapid fluctuations in supply and demand that will become more frequent and increase in scale as more renewables (both DER and transmission-connected) are connected to the SWIS. This will be accentuated if storage technologies are developed behind-the-meter to mitigate regulatory challenges.
- Government may not be able to meet its Sectorial Emissions Reduction Targets and broader decarbonisation objectives and risks more frequent and substantial blackouts.

Collgar acknowledges that the substantial reforms to the WEM are ongoing. Addressing the above as a priority is critical to provide the right regulatory settings and revenue adequacy to enable investment decisions and timely execution of projects.

Yours sincerely



REBECCA WHITE
REGULATORY AND TRADING MANAGER



12 August 2022

Our Ref: CWF-20220812

Mr Jai Thomas
Acting Coordinator of Energy
Energy Policy WA
Level 1, 66 St Georges Terrace
PERTH WA 6000

Dear Mr Thomas

RE: DRAFT STATEMENT OF POLICY PRINCIPLES: PENALTIES FOR HIGH EMISSIONS TECHNOLOGIES IN THE WHOLESALE ELECTRICITY MARKET

Thank you for the opportunity to comment on the Draft Statement of Policy Principles: Penalties for high emissions technologies in the Wholesale Electricity Market (WEM) (the Principles).

Collgar strongly supports incentives for investment in renewable energy generation and storage technologies. There is a high risk there will not be sufficient renewable energy generation in the South West Interconnected System (SWIS) in the near and medium term to meet decarbonisation targets, nor will there be sufficient storage and flexible technologies to support the energy transition.

Collgar welcomes the State Government taking a proactive approach to incentivise investment. However, Collgar questions whether penalising existing high carbon emissions generators is the best policy response to achieve this. This is because:

- The existence of existing generators is not necessarily a barrier to other participants entering the market. This is demonstrated by the Electricity Statement of Opportunities 2022 report showing that excess generation is very low, even prior to the Synergy retirements leading up to 2030.
- Synchronous generators, especially gas, are needed to provide Ancillary/Essential System Services (ESS) until new technologies that can provide these services are developed. It is foreseeable demand for these services will increase as renewable energy accounts for a greater share of the energy mix.
- There are other barriers that are more likely to impede project development and addressing these will likely provide greater incentives for renewable energy generation and storage technologies. These include:
 - **Timely network planning and investment:** It is critical that the right network is in the right place at the right time to facilitate the transition. This is particularly important as large mining and industrial loads seek to connect in non-metropolitan areas, such as Kalgoorlie. These loads cannot move to areas of the network with more capacity, and it is very foreseeable that the existing network will not have capacity to serve these loads. Material network constraints create substantial investment uncertainty and will delay projects, both generation and those to

decarbonise businesses. Collgar recommends that modelling of the future capacity mix and likely development locations (informed by factors such as wind and solar resources) is undertaken as a priority to inform timely network planning and development.

- **Network connection:** There is opportunity to expedite network connection processes given the adoption of a constrained network access framework largely mitigates the need for Western Power to consider its thermal capacity as part of the connection process. Rapid connection will be essential to facilitating project development in the timelines required to meet demand.
- **Loss factors:** Loss factors for many generators are declining. This is expected to continue, can could be accentuated by changing energy flow as more load is located on the fringe of the network away from the reference node. Greater transparency on how loss factors are calculated, and a near-term review of whether this method is fit-for-purpose, is necessary.
- **Relevant Level Method:** There is widespread agreement the existing method to allocate Certified Reserve Capacity to intermittent generators is substantially flawed. Implementing an alternative method that appropriately values the contribution of intermittent resources is necessary to support investment decisions for renewable energy projects. Any delay in the RCM review and implementation of a new RLM, including to implement the proposed policy principles, will defer investment decisions and hence be counterproductive.
- **Storage regulation:** While adding a framework for storage to enter the WEM has been a positive step, there remain barriers to investment. This includes that the approach to allocating Capacity Credits, including being at a generating system level and rules on when it must be available, limits how a battery can be used and opportunities for innovative commercial arrangements. There is also risk that the time of day or duration the battery must be available changes after investment decisions are made. This could mean that an alternative technology, for example longer storage duration, would have been a preferable investment and there may not be adequate revenue for the existing investment. This creates substantial investment risk in a market where battery revenue streams are already limited due to price caps and a shallow ESS market that will likely be dominated by Synergy.
- **Benchmark Reserve Capacity Price:** The Benchmark Reserve Capacity Price (BRCP) is based on a gas turbine, which is insufficient to incentivise storage investment. Amendments to the BRCP are likely needed to incentive storage investment, at least over the coming five years prior to battery costs declining such that they are lower cost than gas turbines.
- **Policy environment:** There is substantial uncertainty in the broader policy environment, including that government decisions could materially change the dynamics of the WEM. For example, any incentives for household batteries and/or electric vehicle charging could materially change energy demand profiles and commercial arrangements. Further, the proposed renewable hydrogen target, which would effectively lead to existing generators subsidising entry of a competitor, add to investment risk.

Addressing these barriers would likely be more effective to incentive investment in renewable energy and storage compared to introducing penalties for high carbon emitting generators. It would also be better aligned with the WEM objectives compared to discriminating against certain technologies.

However, should the State Government prefer to proceed with an approach to penalise high carbon emissions, Collgar considers that the RCM may not be the optimal implementation mechanism, particularly in the case the penalties are to apply to incumbent generators. This is because:

- The RCM is a forward-looking mechanism designed to provide incentives for investment to ensure sufficient capacity is available. Retrospectively eroding that revenue stream would be inconsistent with its design and would devalue the RCM in the future due to sovereign risk. This would be a disincentive for investment and counterproductive to the policy objective.
- Capacity in itself does not generate carbon emissions. The RCM would likely be inequitable in how it penalises generators because in general the higher emissions technologies (e.g. diesel) generate far less frequently than other high emissions technologies such as coal and gas. However, a capacity-based approach may lead to technologies such as diesel being more heavily penalised despite contributing less emissions per MW of capacity.
- Adding another component to an already complex mechanism would be costly to implement. It would also add to challenges investors experience to understand the mechanism to the level of confidence required to support investment.
- Penalties for carbon would be better imposed through a broader, economy-wide mechanism, which would be more effective to provide signals for entry and exit of certain technologies based on their carbon emissions.

Collgar recommends that the State Government consider alternative approaches to incentivising investment in renewable energy and storage. Preferably this would be achieved by addressing the barriers outlined above, however if the approach is to include disincentivising high emissions technologies through the RCM, the State Government ought to consider:

- the cost of implementation and whether that exceeds the benefits;
- whether it is primarily a transfer of revenue, less implementation costs, between the coal and gas business units to the renewable energy business units within companies, making them net worse off;
- how it can be implemented without delaying the RCM review, or at a minimum implementation of a new method for allocating Certified Reserve Capacity to intermittent generators; and
- how storage would be considered, noting that it can be charged using grey energy although storage in itself doesn't generate emissions.

It is also important there is clarity on whether any penalties are a temporary incentive or will prevail in the long term.

Collgar appreciates the opportunity to comment on this important policy work and is available to discuss its submission in more detail if required.

Yours sincerely



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REGULATORY AND TRADING MANAGER