

ASL

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Dear ASL team

ESEM Contract Co-Design Consultation – Akaysha Energy response

Akaysha Energy (Akaysha) welcomes the opportunity to provide ASL with a response to the “ESEM Contract Co-Design” consultation. The Electricity Services Entry Mechanism (ESEM) is a critical policy for incentivising new build shaping, bulk energy and firming capacity critical for the energy transition of the National Electricity Market (NEM), and the contract design plays a large role in determining the success of this work.

Akaysha is supportive of the contracts proposed and believe they provide the right balance between recognising the unique characteristics of the different asset classes – particularly bulk energy – and creating fungible, standardised products that can be simply recycled into the market.

Our comments to the specific ASL questions below address any key points relevant to affecting the appetite for developers to sell these products and/or the appetite of the market to buy these products. An overarching point that we believe needs to be further considered for each of the products is the treatment of force majeure (FM) and unavailability risk. This is considered in detail below – along with our responses to the specific ASL questions.

FM and unavailability risk

An outstanding point not considered in detail in either the consultation paper, or the draft product sheets, is the treatment of FM and unavailability risk. These are key considerations in the design of bilateral offtake contracts and currently sit as gaps in the “Risk allocation and incentives summary” in Appendix A, which is otherwise detailed.

From a first principles perspective, Akaysha believes that risk should sit with the party best able to manage it. The proposed structure of the ESEM results in FM and unavailability risk exposure for developers – particularly in respect of shaping products. Under bilateral OTC contract arrangements, these risks are typically negotiated and held by the counterparties who can best manage these risks. The goal of the ESEM is to create standardised, fungible contracts that are both decoupled from individual projects, and individual project risks.

Existing derivative contracts which do not include carve outs are not being used for single asset non-recourse project financing – but the ultimate goal of the ESEM is for individual projects to bid in, in order to

drive new capacity. This results in a design tension that needs to be carefully managed to ensure the ultimate success of the ESEM.

This risk exposure is highest for shaping products given that the proposed dynamic TOD block spread places a volume risk on the seller. Unavailability constraints impacting on the ability to discharge during high price events will result in significant basis risk exposure for developers if they are not in a position to manage the basis risk. While this risk exposure also applies to firming products, inverter-based resources are more likely to face unavailability risks within the changing energy mix and regulatory environment.¹

The current “Risk allocation” table in Appendix A notes that treatment of FM risk needs to be carefully considered. It also notes the need to consider “Regulatory Rule Change risk”. While the risk allocation table considers that MLF and constraint risks would be held by the seller – there is no explicit consideration given to unscheduled maintenance risks.

The following table (Table 1) sets out developer risks that will need to be managed – and Akaysha’s views on both who is best placed to hold the risk, and the most appropriate risk management approach:

TABLE 1: ESEM RISK ALLOCATION

Proposed carve-out	Best place to holds the risk	What should be captured	Risk management approach
Network outages / unexpected constraints/ scheduled and unscheduled NSP maintenance	FME	Transmission/network outages, a contingency event, grid-side interruptions or materially restrict charging/discharging, where not caused by the seller	Suspend affected swap settlement for the period/capacity affected under the primary ESEM contract (contractually this would be structured as \$0 buy out of the seller’s affected position)
Uncompensated AEMO / NSP directions²	FME	AEMO / NSP instructions or directions that prevent/restrict import, export or provision of services and are not compensated by AEMO / NSP, except where caused by the seller	Suspend affected swap settlement for the period/capacity affected under the primary ESEM contract (contractually this would be structured as \$0

¹ This includes but is not limited to potentially significant future number of directions for minimum system load (MSL) reasons; and the introduction of possible AEMO inverter dispatch limits for system security reasons. Inverter-based resources are also disproportionately impacted as an asset when it comes to network outages for REZ build out purposes.

² As per footnote above, this would cover any future increase in inverter limits restrictions for system security purposes which would be issued at short notice.

			buy out of the seller's affected position)
BESS Scheduled/ Unscheduled maintenance	Developer	Agreed unscheduled maintenance of the BESS	Seller to buy position out from primary ESEM contract at the fixed price from primary contract. This sale needs to be immediately available
BESS Force majeure	FME	Conventional FM events outside seller's reasonable control that prevent physical operation	Suspend affected swap settlement for the period/capacity affected under the primary ESEM contract (contractually this would be structured as \$0 buy out of the seller's affected position)

From an effective policy design perspective, appropriate risk management will be dependent on the FME having access to appropriate market liquidity to enable affected projects to buy back their position. The FME will need to have a clear process in place for determining the appropriate liquidity amounts for each contract type – and will need to have a set process that allows projects to access this liquidity to cover short-term risk positions – hours or days.

The process should also consider how FME can enable projects to buy back their position and cover their risk position on a potentially very short-notice basis – where the coverage is used for unplanned outages. In the context of the broader DCCEE reform package, this will require the proposed Risk Management Framework to set out relevant market liquidity requirements for the FME – and will also link to market making obligation (MMO) triggers.

Reference PPA

1. Is the proposed contract structure suitable for a range of bulk energy technologies?

Akaysha is supportive of the proposed contract structure.

2. Does a cap on spot price exposure aligned to the strike price of the firming product (e.g. \$600\$/MWh) appropriately balance risks for sellers and buyers?

Akaysha is in principle supportive of including a cap – though we note that once existing coal assets closes, wind heavy portfolios could have a substantial gap between \$600/MWh and the market price cap. This is the design trade-off currently, but the appropriate level for the cap should be considered in future contract co-design periods.

3. Is a negative price provision required for the proposed contract, noting it is settled against the Reference Fleet's performance and LGCs / REGOs are not included in swap? If so, is a volume knock-out (no settlement during negative price periods) or a \$0 price floor more preferable?

Akaysha is supportive of LGCs/ REGOs not being included in the swap design.

In respect of the options being considered for asset treatment during negative pricing periods, ASL will need to consider how each option works alongside a functioning REGO market – noting that the effective functioning of REGO legislation may become more critical if the proposal to mandate REGO purchase for data centre progresses.

Excluding REGOs from the Swap design and not putting a price floor seems most aligned with the effective function of REGO legislation. Renewable projects would bid negatively in order to generate REGOs, so putting a price floor of zero removes the incentive to generate beyond this price point. For that reason, putting a price floor to the swap may result in non-ESEM projects receiving a larger share of REGOs and ESEM projects not benefiting from the out of market value of their emissions free generation.

4. Does the proposed design of the Reference Production Index appropriately balance risks for sellers (primarily basis risk) and buyers (long-term value of the product)?

N/A

Dynamic time of day block swap

5. Does the proposed approach to determining charge/discharge periods on a day ahead basis, using residual demand calculation, appropriately balance operational risks/simplicity with long-term value?

Akaysha is comfortable with the proposed approach to determining charge and discharge periods on a day ahead basis, using residual demand calculation. This aligns with the design principle of the shaping product to consume or generate from a bidirectional resource, moving supply from periods of surplus to periods of scarcity. Also, in our view this approach provides the most appropriate balance between operational risks and long-term value. The alternative option would be to use pre-dispatch prices – with both options resulting in similar value profiles.

Alternative models have a higher risk versus value trade-off. Perfect spread and ex-post products both result in increased coverage, but much higher risk profiles (as shown in Figure 1 below).

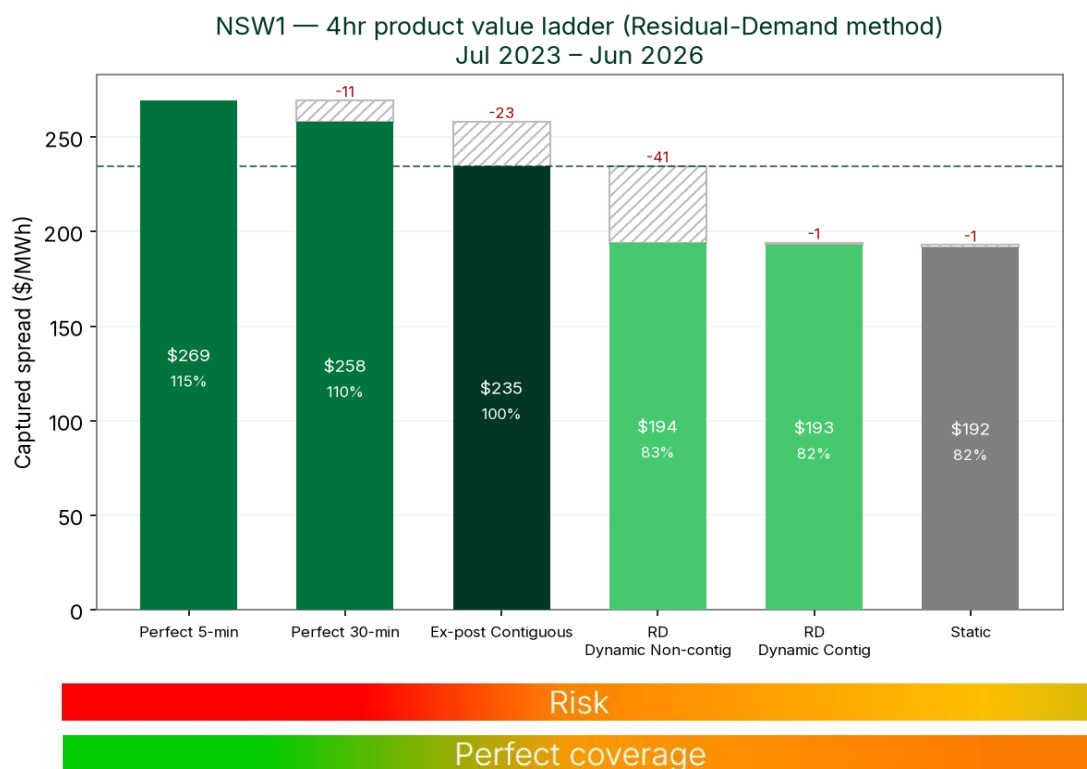


FIGURE 1 - NSW VALUE LADDER

The reduction in coverage between the ex-post option and the proposed product is concentrated in a small number of highly volatile days. As shown in Figure 2, the value captured by the dynamic swap product closely matches the ex-post option on the large majority of days, with material deviations on only around 5% of days, all of which are highly volatile. In our view, these highly volatile days should be hedged through the firming product. Perfect foresight alternatives to the shaping product would effectively combine shaping and firming in a single product, but at the cost of materially higher risk and lower bankability.

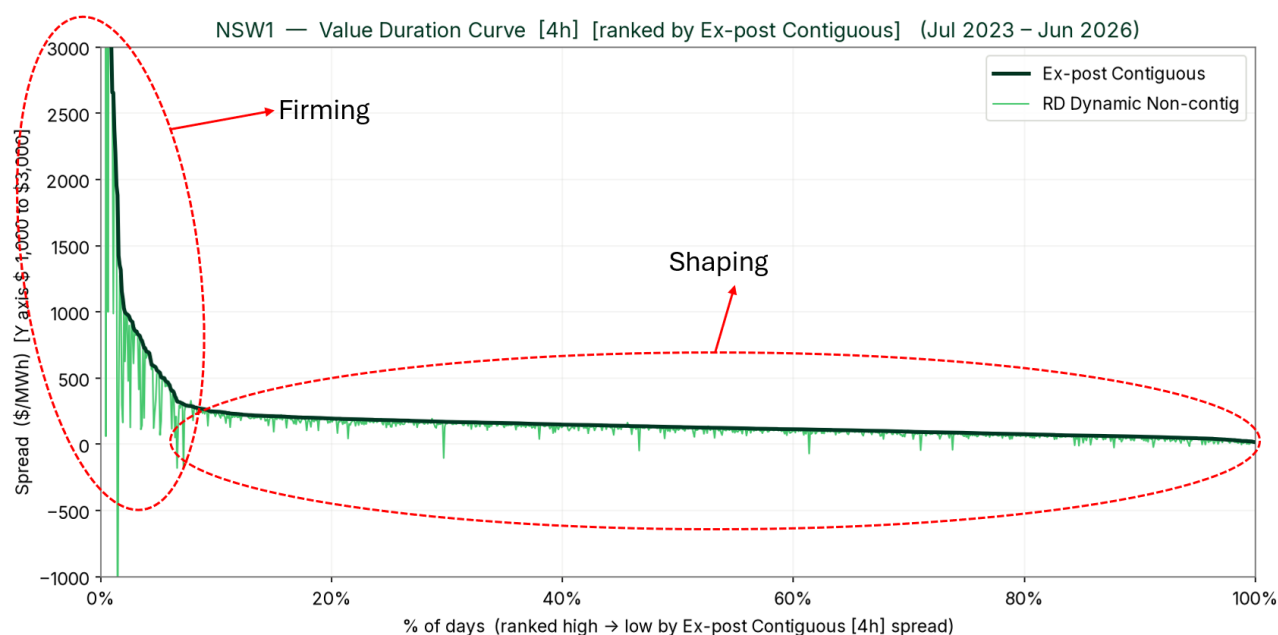


FIGURE 2 – NSW VALUE DURATION CURVE

Inclusion of back-to-back charging risk management

Neither the Draft Term Sheets nor the consultation paper explicitly considers how back-to-back discharge risk will be managed. We recommend this is addressed within the "determining charge and discharge periods" requirements of the core commercial terms. Without this, a discharge block could be allocated at the end of one trading day and closely followed by another discharge block at the start of the next. This would create a position that cannot be defended, as there is no time to charge between the two blocks. The terms should require that a full discharge period is followed by a full charge period within any 24-hour window.

Recommendation: update “Determining charge and discharge periods” to limit any risk of back-to-back charge or discharge periods.

Risk of simultaneous BESS discharge and market price distortion

One potential risk that has been raised throughout the design process is the risk that all BESS will be incentivised to simultaneously discharge during the defined daily discharge periods creating a market distorting effect. Akaysha does not believe that this will be the case for two main reasons:

- the shaping product is a financial contract that requires a battery to be able to defend the block, not to discharge throughout it;
- if a product becomes crowded, its value falls and the tender process will clear other products or durations instead.

Contracted BESS will defend the block, not fill it

The shaping product settles financially. During a discharge block, a contracted battery is effectively short the strike price, so its main exposure is an unexpected price spike it cannot cover. The rational response is to hold enough state of charge to cover that risk and to discharge under a maximizing profit strategy. If there is an unexpected price spike within the block, the BESS price bands would respond and cover the risk as long as there is enough state of charge in the asset.

Crowded products price themselves out

If a duration such as 4-hour storage becomes oversupplied, its forward value falls and future ESEM bids built around it stop competing with 6-hour, 8-hour or firming products. If all products soften at once, the total volume that has been tendered is too high. The key solution is that the ESEM trajectory properly reflects current and future market conditions, so that the volumes cleared in each tender match market needs.

This is not a new risk

Storage already operates against common price signals under tolling arrangements; most tolls dispatch in the same evening period and as an example, it is highly likely that all virtual tolls in the NEM have nominations that overlap during the peak evening. Although the fixed block is more correlated than a toll's nominations, the trading strategy roughly remains the same, being able to cover the nominations by having enough state of charge while maximizing profit based on each player's trading risk appetite.

6. Does the use of AEMO's forecast data to determine shaping periods result in any material risks to the usability of this contract over the long-term?

Residual demand is a robust data point because it is driven by physical demand and wind and solar output, rather than by participant bidding, so it cannot be distorted by rebidding activity. It is also suitable over the long term, as it evolves with the NEM and will continue to reflect system needs as the market moves away from thermal generation.

The data source is dependent on AEMO's ability to reasonably accurately forecast wind and solar output and will be subject to data input risks related to weather and will be very dependent on the quality of data regarding small scale generation (rooftop solar and household BESS).

As a data source it is the most suitable option, but it will be key that AEMO continues to prioritise data forecasting accuracy as it has been doing in the last years.

7. Does the proposed approach of determining nominations at 4pm on a day ahead basis pose any material operational risks?

Determining nominations at 4pm on a day ahead basis is appropriate. It provides signals close to the evening peak which ensures it is as informative as possible. Both parties know their position for the day. The seller can physically position against a known block so the premium falls and the product becomes bankable. The timing should also allow for buyers to establish other product requirements for their coverage to support the ToD swap product.

Note that the current drafting doesn't work:

The ESEM Administrator will publish nominated Charge and Discharge Periods at 16:00 each day for the following Daily Shaping Period.

This means that block allocation will start from 9:05 the next day onwards, meaning that if blocks fall into the evening, the block is allocated more than 26 hours in advance. While determining nominations at 4pm on a day ahead basis could be workable, we prefer an alternative option for the daily trading intervals which is set out in response to question 8 below.

8. Does the proposed Daily Shaping Period that commences at the Trading Interval ending at 09:05 and finishes at the Trading Interval ending at 09:00 the following day pose any material operational risks?

Akaysha disagrees with the current trading interval windows. In our view, the 24-hour window should align as close as possible with the start of the nomination block/settlement period. Accordingly, a more appropriate 24-hour Daily Shaping Period would be from 4pm – 3.59pm. This can then use residual demand forecasts from 1pm.

With regards to pre-dispatch MMS data, an additional trading day is added each day at 13:00. A 13:00 snapshot would therefore cover through to 04:00 two days later, whereas a 12:30 snapshot would only cover through to 04:00 the following day. To maintain the accuracy of the block allocation while also giving sellers a (short) period of foresight between allocation and the start of the relevant Daily Shaping Period, we believe the optimal approach would be to take the residual demand snapshot at 13:00 each day and using that snapshot to allocate blocks from 16:00 that same day for the following 24 hours.

This would provide at least three hours of foresight while keeping the block allocation and settlement time slices aligned. On top of that, Sellers could monitor pre-dispatch and the resulting block allocation throughout the day, so there is a natural foresight in the MMS data.

Common contract features

9. Are there any concerns with the proposed weekly settlement approach, aligned to the AEMO settlement calendar?

Weekly settlement matches the timing of AEMO spot cash flows and reduces prudential and credit support requirements for both parties.

However, operationally this creates challenges in terms of accounting administration – particularly for smaller market participants. A preferred model would be for participants to settle monthly with the FME, with the potential for FME to run weekly settlements.

10. Are alternate approaches to manage FM risk exposure (outside of the contracts) required to support the entry of new assets?

Appropriate coverage of FM risk – as well as availability risk – is a key policy design consideration that still needs to be resolved. This is covered in detail earlier in this submission.

Overarching feedback

11. Do the proposed contract structures achieve the WG's Terms of Reference and perform well against the identified evaluation criteria?

Akaysha's views on the working group evaluation criteria are:

- **Fungible:** achieved
- **Bankable:** will be dependent on an appropriate policy resolution for risk allocation – see point below and detailed commentary above.
- **Operationally achievable:** achieved.
- **Simple to value:** achieved
- **Assigns risk to buyers and sellers based on who can best manage:** Not achieved – Akaysha's recommendations on these points is outlined in detail above – but this remains a critical policy point to resolve to remove bankability risks
- **Attractive to both buyers and sellers:** attractive to sellers and buyers, however the attractiveness to buyers will be as much dependent on market need, market prices and appetite as contract design. And this will be determined by other design aspects of the ESEM explored in detail in the DCCEEW consultation package.
- **Adaptable to future market:** achieved. Both the shaping and bulk energy products hinge on existing market conditions which make them flexible and adaptable to future market conditions.
- **Complementary within a set:** achieved.

12. Are there any concerns with the ability of the contract structures proposed to be subject to a Market Making Obligation (MMO) in the future?

The daily block determination means the instrument's exposure changes daily in a way that is forecast-dependent. Quoting a two-way price on a quarterly or annual strip requires a view on the distribution of future block configurations, which is complex, particularly in the early stages when indices are being developed and limited or no index history is available.

13. Will the proposed contract structures, in conjunction with other risk management contracts, such as flat swaps, evening peak swaps or caps, be effective for buyers (e.g. retailers, large loads, etc.) to manage financial risks?

In principle the current group of contracts is sufficient for large buyers to manage financial risks – but it is also important to note that the ESEM still assumes an in-market period. The goal of the ESEM is to manage tenor gap risks and sit alongside bilateral contract markets. The suite of new contracts alongside existing contracts does not, and should not, need to replace bilateral negotiated contracts.