ESEM Contract Co-Design Update

1 September 2026

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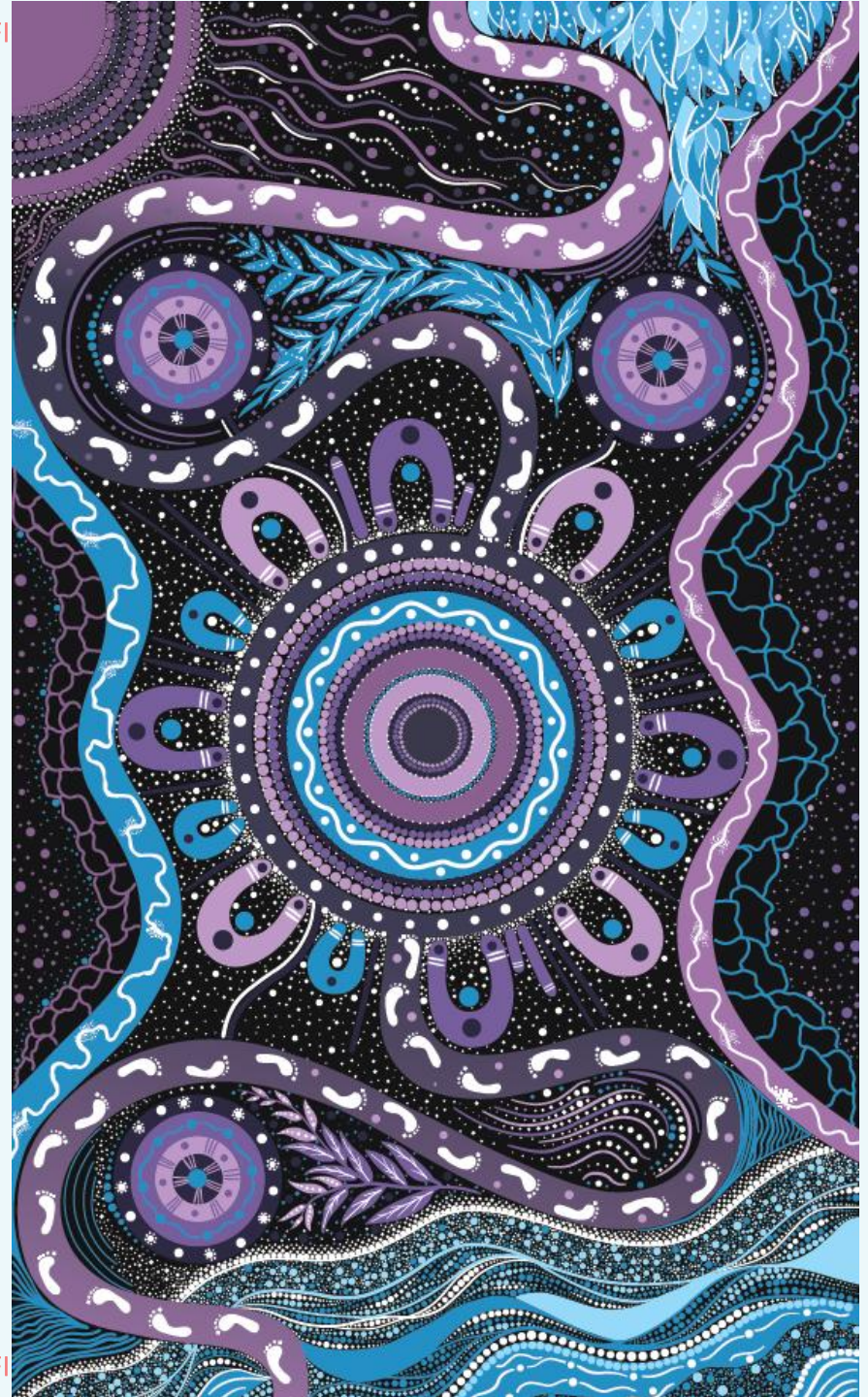
We acknowledge the Traditional Custodians of the land, seas and waters across Australia. We honour the wisdom of Aboriginal and Torres Strait Islander Elders past and present and embrace future generations.

We acknowledge that, wherever we work, we do so on Aboriginal and Torres Strait Islander lands. We pay respect to the world's oldest continuing culture and First Nations peoples' deep and continuing connection to Country; and hope that our work can benefit both people and Country.

AEMO Group is proud to have delivered its first Reconciliation Action Plan in May 2024. '*Journey of unity: AEMO's Reconciliation Path*' was created by Wiradjuri artist Lani Balzan to visually narrate our ongoing journey towards reconciliation – a collaborative endeavour that honours First Nations cultures, fosters mutual understanding, and paves the way for a brighter, more inclusive future.



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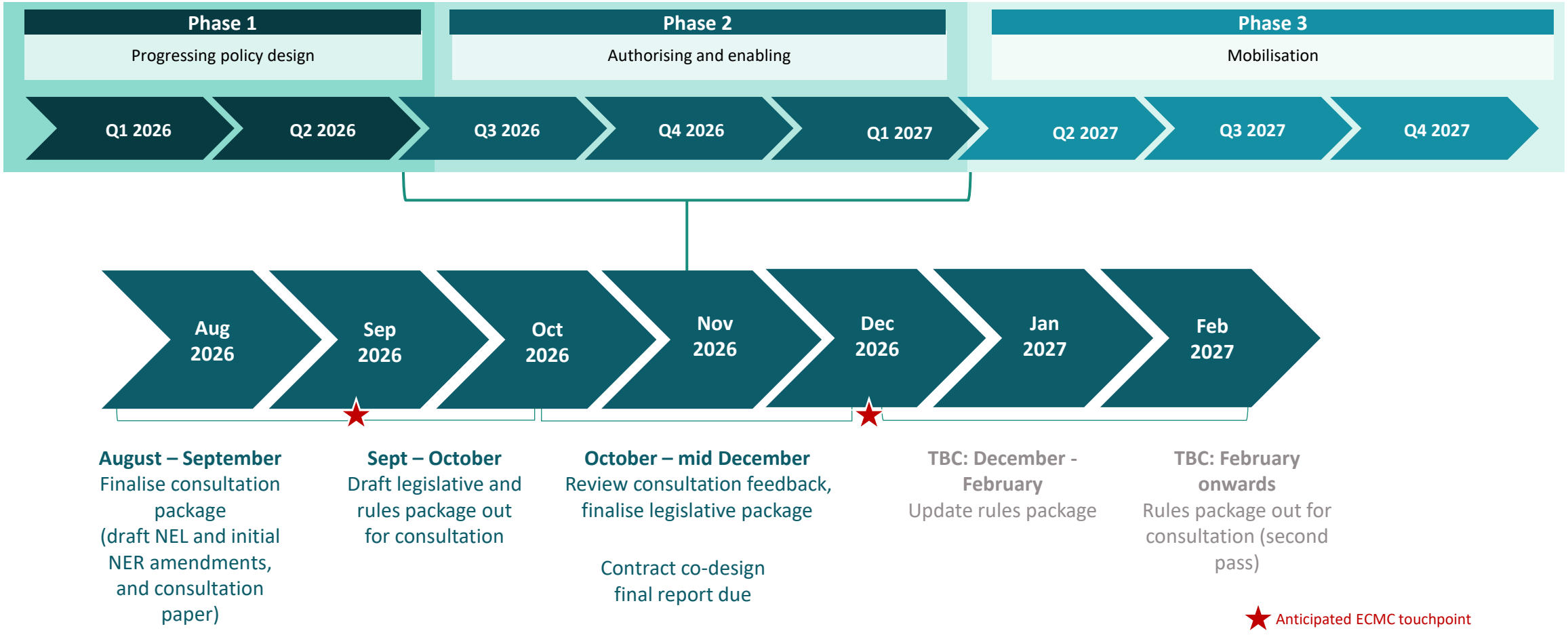
01

NEM REVIEW Implementation Update

Taskforce update

Indicative ESEM Plan



These slides represent a point in time status of the implementation of the NEM Review recommendations and will shift as the program progresses.

Consultation: What to expect in October

Subject to ECMC agreement, the consultation package will contain:

1. **Consultation paper**
2. **Draft Bill** and **Rules**

Engagement during the 4-week consultation window will include:

- **Industry webinar(s)** to:
  - Outline the proposed approach
  - Explain key issues and questions
  - Provide opportunities for Q&A
- **Targeted stakeholder discussions** where further detail or clarification is required

Indicative consultation timeline *(subject to change)*		**Key activity**
2026	Mid-Sept	• **Energy and Climate Ministerial Council (ECMC) –** authority to release the consultation package
	Late-Sept	• As soon as possible post-ECMC, release consultation package for 4 weeks
	October	• **NEL + first pass NER consultation (4 weeks)**
	November	• Consider feedback and update NEL amendment.
	December	• **ECMC** – seeking agreement to implement the ESEM and progress NEL changes through SA Parliament in early 2027.
2027	Q1	• Continued work to inform second pass NER consultation. • **NER Second-pass consultation** – aiming for a longer consultation period (6-8 weeks)

01

Recap

Overview

Mandate

To develop **fungible**, **standardised** electricity contract structures across three Electricity Services Entry Mechanism (ESEM) services: bulk energy, shaping, and firming.

These structures are intended to support the financing of new market entrants through the ESEM and may be subject to future application under the Market Making Obligation (MMO) framework.

WG Evaluation criteria

- Bankable
- Operationally achievable
- Efficient at allocating risks
- Attractive for sellers & buyers
- Adaptable to the future market
- Complementary within a set
- Simple to value

Why does fungibility matter?[1]

For **Project Developers**	• Developers are provided with a contract that allows them to recover all their efficient costs, not just the minimum revenue to attract financing. • The key 'systemic' risks facing new projects are alleviated but the 'project specific' risks are retained by the project. • Developers can buy back the contracts to 'pivot' their revenue strategy and use different engagement modes.
For **Consumers**	• Better risk management leads to lower and more stable costs. • More transparent prices across the system means consumers can identify a 'fair deal'.
For **the ESEMA**	• Allows the ESEMA to find a cost-efficient service provider. • Minimises the need for the ESEMA to 'forecast' the future. • Enhances transparency of decision making which drives accountability and competition.
For **All Market Participants**	• Using contracts for 'services' creates long-term price transparency demonstrating the value of bulk energy, shaping and firming to all market participants. • Contracts are available to participants in the future to manage risk in the spot market.

[1] *Content adapted from NEM Review Final Report, Page 197*

02

Product overviews

Regional Reference PPA Overview

The Regional Reference PPA agreement provides:

- the **buyer** exposure to the index performance of a reference fleet of renewable resources;
- the **seller** with long-term, contracted revenue at a Fixed Price for volumes calculated using the Reference Production Index.

The agreement is based on a swap structure, where the volume of the swap is derived based on the performance of all projects within the reference fleet within the region. This reduces the volume risk that buyers are exposed to from individual projects, while retaining incentives for the sellers to outperform the reference fleet.

Table: Key Settlement Terms

Key Term	Description
Fixed Price ($/MWh)	The Fixed Price ($/MWh) is the agreed amount that the Seller will receive for the Notional Quantity.
Floating Price	The Spot Price (in $/MWh) set by AEMO for a Trading Interval at the Regional Reference Node.
Contract Capacity (MW)	**XX** MW of [**wind/solar**] capacity within the NEM Region.
Reference Production Index	$Reference\ Production\ Index_{TI} = \frac{Reference\ Power\ Output_{TI}}{Reference\ Power\ Capacity_{TI}}$ • Reference Power Output is the total generation output (MW) of the Reference Fleet in a Trading Interval. • Reference Power Capacity is the total capacity (MW) of generators within the Reference Fleet • The Reference Production Index will be a number between 0 and 1.
Notional Quantity (MWh)	$Notional\ Quantity_{TI} = Contract\ Capacity \times \frac{1}{12} \times Reference\ Production\ Index_{TI}$
Settlement Amount ($)	$Settlement\ Amount = \sum_{TI=1}^{n} Notional\ Quantity_{TI} \times (Floating\ Price_{TI} - Fixed\ Price_{TI})$

RRPPA - Rationale for change

Key features of the RRPPA:

1. Fungible structure

2. **Variable volume settlement**, based on a regional reference index.

3. **Efficient risk allocation**

Seller holds volume risk ← → **Buyer** holds volume risk

DWA Swap	**Regional Reference PPA**	Revenue Swap
Swap is settled on a fixed volume.	**Swap is settled on regional reference volume.**	Swap is settled on regional reference revenue (volume and price elements)

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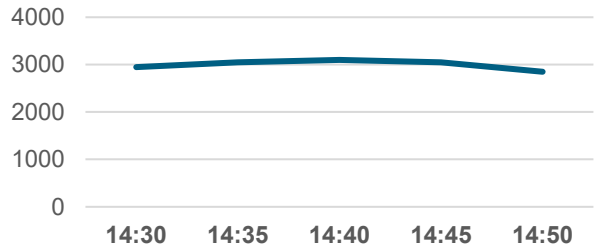
RRPPA – Illustrative Settlement Example (1)

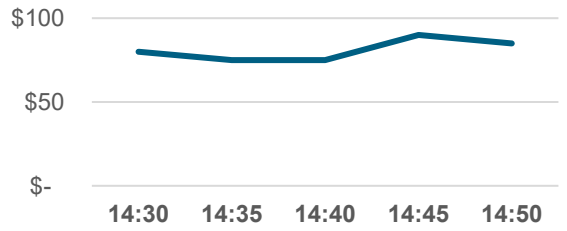
Contract Capacity: 100MW	**Plant Capacity:** 100MW	**Fixed Price:** $100/MWh	**Reference Fleet Power Capacity:** 8000MW	**Calculation Period:** 5 Trading Intervals

1. Reference Fleet Performance

Avg. Reference Power Output (MW)



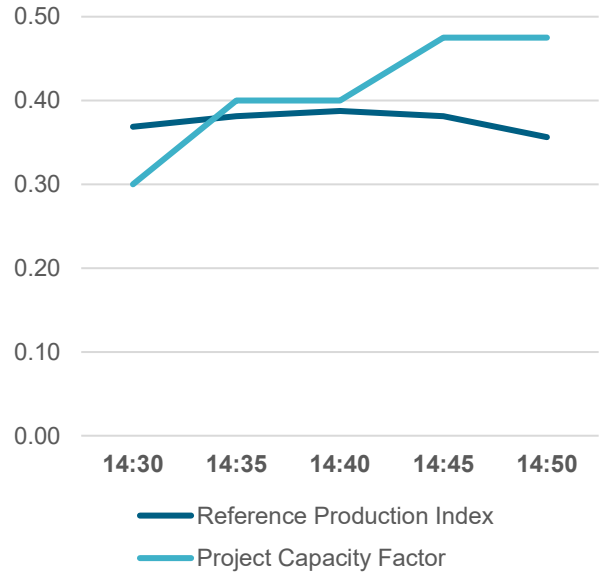
Floating Price ($/MWh)



Reference Fleet Production Index (avg.) **.38**
Reference Fleet DWAP **$81/MWh**

2. Project Performance

Project output versus Reference



Project Capacity Factor (avg.) **.41**
Project DWAP **$82/MWh**

3. Contract Settlement over Calculation Period

1	**Notional Quantity (total)** 100MW x 5 x 1/12 x 0.38	**16 MWh**
2	**Settlement amount** 16 MWh × ($81-$100)	**-$304**

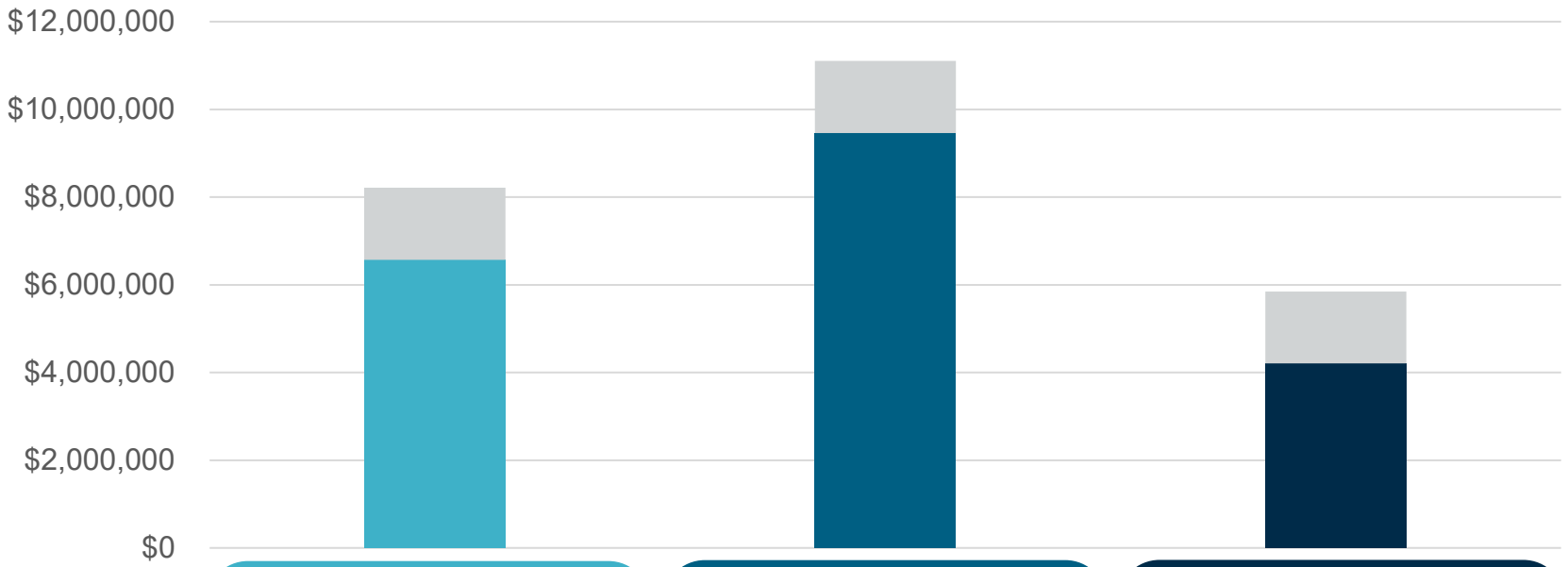
4. Seller Net Position over Calculation Period

1	**Merchant Revenue** (100MW x 5 x 1/12 x .41) x $82	**$1,401**
2	**Seller Net Position** $1401 - (-$304)	**$1,705**

Note: for illustrative purposes, rounded numbers have been carried through as shown on the slide.

RRPPA – Illustrative Settlement Example (2)

Contract Capacity:	Plant Capacity:	Fixed Price:	Average DWAP:	Reference Production Index:	Calculation Period:
100MW	100MW	$100/MWh	$80/MWh	.375	Quarter (2190 hrs)



Scenario 1:
Project matches Reference Fleet
Volume and shape match

Scenario 2:
Project outperforms Reference Fleet
20% higher volume and DWAP

Scenario 3:
Project underperforms Reference Fleet
20% lower volume and DWAP

Settlement = *Notional Quantity x (Floating Price – Fixed Price)*
= (100 x 2190 x .375) x (80-100)
= 82125 MWh x - 20 $/MWh

= $1.6m paid from buyer to seller in all three scenarios

Key

Merchant revenues

Contracted Revenues

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Shaping: Dynamic ToD Block Spread Swap

The ToD Block Spread swap product provides:

- A **buyer** with reduced exposure to daily wholesale price volatility in exchange for a fixed premium.
- A **seller** with long-term, stable cash-flows from certainty of daily price spreads.

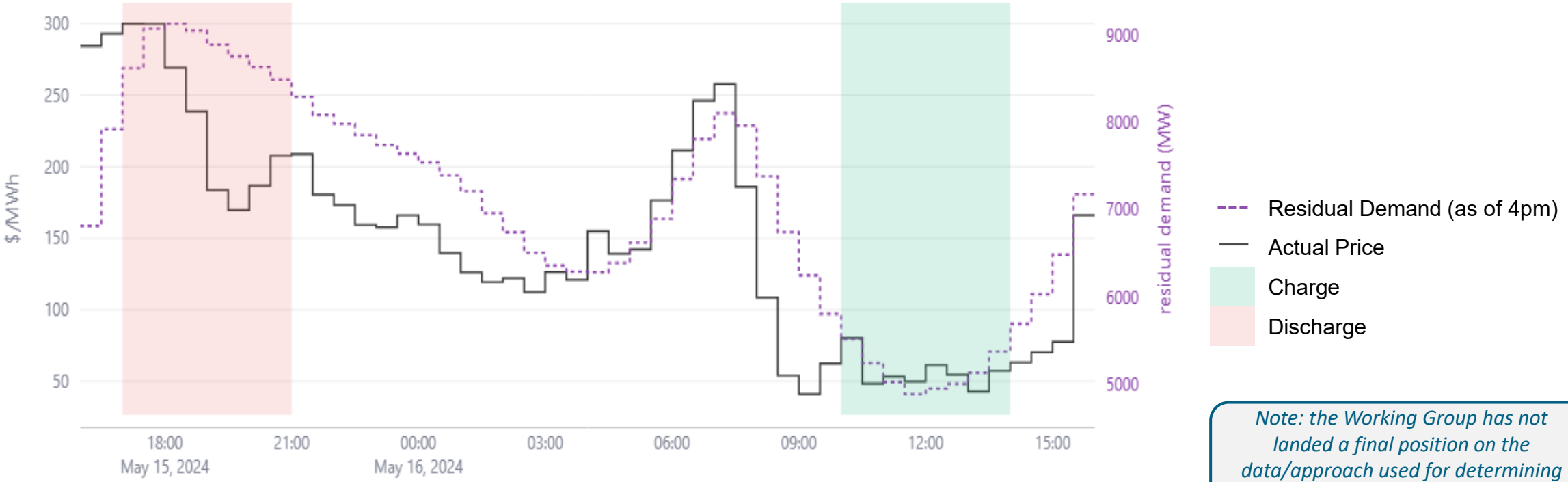
The **seller is not required to physically defend the daily spread**, although it's likely that debt financing requirements would incentivise Projects to do so.

Table: Key Settlement Terms

Key Term	Description
Floating Price (FP)	The Spot Price (in $/MWh) set by AEMO for a Trading Interval at the Regional Reference Node.
Contract Capacity (MW)	The contracted unit in MW.
Fixed Spread ($/MWh)	The agreed difference ($/MWh) between the average Floating Price in the nominated Charge Period(s) and Discharge Period(s).
Shaping Duration	The duration of the charge/discharge periods. e.g. 4 hrs means both Charge and Discharge Periods are 4 hrs.
Charge/Discharge Periods	The defined Charge/Discharge period(s) for a Daily Shaping Period.
Notional Quantity (MWh)	$Notional\ Quantity_{day} = Contract\ Capacity \times Shaping\ Duration$
Realised Spread ($/MWh)	$Realised\ Spread = Discharge\ Price - Charge\ Price$, where: • Discharge Price ($/MWh) is the average realised Floating Price during the defined Discharge Period(s) for a Daily Shaping Period; • Charge Price ($/MWh) is the average realised Floating Price during the defined Charge Period(s) for a Daily Shaping Period.
Settlement Amount ($)	$Settlement\ Amount = Notional\ Quantity_{day} \times \sum_{day=1}^{n}(Realised\ Spread_{day} - Fixed\ Spread_{day})$, where: n is the number of Daily Shaping Periods in the Calculation Period.

Shaping – Example Charge/Discharge

- In this example, the calculated day-ahead residual demand[1] is used to determine the charge and discharge periods for a day.
- The swap would be settled based on the difference between the Fixed Spread and the Realised Spread calculated as the ex-post difference between the average of the charge and discharge periods.



Note: the Working Group has not landed a final position on the data/approach used for determining the charge/discharge periods

[1] Where *Residual Demand = Operational Demand – Forecast VRE (Wind + Solar)*

Firming - $600 cap

A cap contracts provides:

- **A buyer** with reduced exposure to volatility in exchange for a fixed contract price.
- **A seller** with stable cash-flows from the contract price, in return for capping wholesale costs for the buyer at the strike price (e.g. $600/MWh).
- The **seller is not required to physically defend the cap**, although it's likely this would be mandated by lenders.
- The **seller should consider MLF losses and curtailment** in setting their contract price (seller retains MLF risk).

Table: Key Settlement Terms

Key Term	Description
Floating Price (FP)	The Spot Price (in $/MWh) set by AEMO for a Trading Interval at the Regional Reference Node.
Strike Price ($/MWh)	$600/MWh
Contract Price ($/MW)	The agreed price ($/MW) for the cap contract paid by the buyer.
Contract Capacity (MW)	The contracted unit per Contract Hours in the Settlement Period (flat shape).
Notional Quantity (MWh)	$Notional\ Quantity = Contract\ Capacity \times Calculation\ Period$
Contract Premium ($)	The buyer shall pay the seller the Contract Premium [at the end of the Settlement Period]. $Contract\ Premium = Notional\ Quantity \times Contract\ Price$
Cap Repayment Price ($)	$Cap\ Repayment\ Price\ (\$) = Notional\ Quantity \times \frac{(A-(Strike\ Price \times B))}{C}$, where: • A = the sum of all Floating Prices for the Region in the Settlement Period greater than the Strike Price ($/MWh). • B = the total number of trading intervals in the Settlement Period where the Floating Price for the Region was greater than the Strike Price. • C = the total number of trading intervals for the Region in the Settlement Period

Key Areas of Focus

1. Bulk Energy	• Definition of the Reference Index(es). • Treatment of negative price intervals. • FM/ naked exposure risk.
2. Shaping	• Design of ex-ante charge/discharge periods. • FM/ naked exposure risk.
3. Firming	• Further consideration of the interface between the $600 cap and other products.

Next steps

The Working Group will provide final recommendations for contract structures by the end of 2026.

Indicative Timeline (subject to change)

	Sep					Oct				Nov				Dec			
W/C	**31/8**	**7/9**	**14/9**	**21/9**	**28/9**	**5/10**	**12/10**	**19/10**	**26/10**	**2/11**	**9/11**	**16/11**	**23/11**	**30/11**	**7/12**	**14/12**	**21/12**
Workshop 3b																	
*Workshop 4 (**TBC**)*																	
*Industry Consultation Period (**TBC**)*																	
*Workshop 5 (**TBC**)*																	
Detailed design and analysis																	
Stage 1 Final Report																	
Government decision making and planning																	

CY27: Further design and long form drafting

We are intending to seek formal industry feedback on the proposed contract structures in September / October.